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Distribution of Social Determinants in People with Disability; A Community based Study from Rural South Kerala

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ABSTRACT

Background: People with disabilities are marginalized population and health standards are low compared to the general population of Kerala. Distributions of social determinants of health are important factors which control health status of a population

Result: Education, income and occupation of people with disability were low compared to the people without disability. 22% of the people with disability were illiterate where as 2.5% of the people without disability were illiterate. Most of the people with disability were lacking higher education. 75.5% of the people with disability belonged to lower SES group.

Among the various disability type people with hearing impairment were having poorly distributed social determinants of health.

Conclusion: This study has shown that social determinants of health were poorly distributed in people with disability compared to the general population. Steps should be taken to improve the distribution of health determinants among people with disability which ultimately improve health of people with disability.

Keywords – disability, social determinants, locomotor disability, socio economic status.

INTRODUCTION

People with disabilities are neglected all over the world. According to WHO 15% of the world population is suffering from various disabilities[1]. World bank reported that 8-10% of the Indian population were having disability[2]. Disability is increasing due to population aging and chronic diseases. Reports have shown that people with disabilities have low access to health care, education and employment[3].

The social determinants of health (SDH) are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life.[4] It has been evident from

literature search that social determinants of health are the key parameters of health outcome and they play a significant role in health disparities[5,6]. Evidence also shows that there is significant health disparities among women with disabilities[7, 8] One of the studies from south India showed that people with disabilities have low access to health care and employment compared to general population.

METHODOLOGY

The study population was selected from a disability survey conducted in two Panchayath of thiruvananthapuram namely Ottasekharamangalam and Amboori. The study period was from 2015january to September 2015.Ethical clearance was obtained from the institutional ethical Committee. A total of 1023 people with physical disability were eligible for the study and included. The physical disabilities included in the study were people with visual disability, profound hearing loss and locomotor disability. People aged 30yrs

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and above were included in the study. People with congenital disability or disability developed during early childhood were only included. Age and sex matched 1078 people without disability were also selected for the study to compare the distribution of social determinants of health. The control population was selected from the same family or from neighbours where the people with disability were selected. The social determinants included in the present study were income, education occupation marital status, health care utilisation, supporting family, social participation. A structured questionnaire was prepared which include the social determinants, the disability details and the morbidity status. All participants were informed about the purpose of the study and informed consent were obtained. Data collected were analysed using spss version20. Disability pattern and distribution of social determinants was calculated using percentages. Chi square was used to test association between variables. Pvalue<0.05 were considered as significant.

RESULTS

Total participants for the present study were 2102 which included 1023 people with disability and 1079 people without disability. Age and sex wise classification of the study population is shown in the table1. It is clear from the table that there is no significant difference between the people with disability and without disability in terms of age and sex.

Table 1: Age and sex wise classification of people with disability

	People with disability		People without disability		P value
Age group	Male (%)	Female (%)	Male (%)	Female (%)	
30-39	13(2.5)	13(2.6)	15(2.8)	17 (3.2)	p>0.05
40-49	44(8.6)	26(5.1)	51(9.4)	32 (6)	p>0.05
50-59	60(11.7)	55(10.8)	65(12)	61 (11.4)	p>0.05
60& above	272(52.9)	240(47.1)	283(52)	246 (45.8)	p>0.05
60& abov	125(24.3)	175(34.4)	128(23.4)	181 (33.7)	p>0.05
Total	**514**	**509**	**542**	**537**	

Sex wise classification of various types of disability was shown in table2. Among the various disabilities maximum cases were in locomotor disability.

Table 2: Sex wise classification of people with disability

	Male	female	Total
visual	165(32.1)	171(33.6)	336(32.8)
Hearing	137(26.7))	145(28.5)	282(27.6)
Locomotor	212(41.2)	193(37.9)	405(39.6)
Total	**514(50.2)**	**509(49.8)**	**1023**

Distribution of social determinants among various disabilities were shown in table3. This table has showed that there is significant difference in distribution of social determinants in people with disability and without disability. Majority of the social determinants were poorly distributed among people with disability and without disability.

Table 3: Comparison of social determinants among people with disability and without disability

Social determinants	People with disability Number (%)	People without disability Number(%)	Pvalue
Education			
Illiterate	**22%**	**2.5%**	**P<0.05**
primary	**39.9%**	**3.3%**	**P<0.05**
High school	**36.8**	**7.1**	**P<0.05**
10-12 th class	**18.3**	**46%**	**P<0.05**
Graduates &above	**1.2%**	**32%**	**P<0.05**
Occupation	**8.2%**	**79.6%**	**P<0.05**
Income			
<1000/month	89.4%	5%	P<0.05
>10000/month	1.3%	24.7%	P<0.05
Married	68.1%	98.4%	P<0.05
Social participation	37%	92.9%	P<0.05
SES Low Medium High	75.5% 18.4%	13.8%. 56.4%	P<0.05 P<0.05

DISCUSSION

This study compared the distribution of social determinants among people with disability and without disability. The study results have shown that social determinants like income education occupation, social participation, socioeconomic status and marital status were poorly distributed among people with disability. Even though studies regarding social determinants of health among people with disability were a few, available studies like South Indian Disabilty study[3] results also agreed the fact that people with disability have low education and low employment rate. World bank [9]estimated that disability reduces employment opportunities around 30%. Our study results revealed that 79.6% of the rural population has some type of employment but only 8.2% of the people with disability have some type of employment. This difference is actually higher than what World Bank has shown all over the India. This may be due to the high literacy rate of kerala population.In this study 75.5% of the people with disability belonged to the lower socio economic group where as only 13.3% of the people without disability belonged to low socioeconomic status. Some of the studies that look the socioeconomic part also have the finding that disability is more associated with lower wealth quintile population. The study results have pointed out the need of implementing new public health policies to improve the social determinants which badly influencing disability.

Conflict of Interest : Nil

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A Descriptive Study to Assess the Adjustment Problems Faced by 1ˢᵗ Year B.Sc. (N) Students

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ABSTRACT

Adjustment disorder is an unexpected strong emotional or behavioural reaction that occurs in response to an identifiable stressful life change that occurred within the previous three month. Adjustment disorder can be classified as acute and chronic. Acute lasts less than six months and chronic lasts more than six months. A quantitative research approach was used. Research design adopted for this study was descriptive design. The target population for the study was 1ˢᵗ year B.Sc. (N) students. Number of sample was 100 nursing students. The sampling technique used convenience sampling. Adjustment rating scale was prepared for assessing the adjustment problems faced by 1ˢᵗ year nursing students. After the assessment it was revealed that Mild adjustment problems was found in 1% of the students, where as 84% had Moderate adjustment problems, 15% had severe adjustment problems. There was significant association between Adjustment Problems with their selected demographic variables such as Sex, Educational status of Father, Educational status of Mother.

Keywords: *Adjustment problems, first year, students.*

INTRODUCTION

Life presents a continuous chain of struggle for existence and survival" says Darwin. Every one of us struggling to achieve something in our life. If the results are not according to our expectations, we change our goal. After the initial failure living organisms likes shifting to more defensive position in order to face the challenges of circumstances. This feature of the living organism is called as adjustment.[1]

On the basis of relationship of living organisms with the environment and their relationship with self, they can be considered as maladjusted or adjusted . Maladjusted persons cannot be able to adjust with his environment easily. If the living organisms face problems in adjustment with the environment or with the self then it will leads to stress.[2]

Adjustment disorder is an unexpected strong emotional or behavioural reaction that occurs in response to an identifiable stressful life change that

occurred within the previous three month. Adjustment disorder can be classified as acute and chronic. Acute lasts less than six months and chronic lasts more than six months.[3]

Every individual has his/her internal feelings, but in college students these demands are stronger than other individuals. This is because in college timing the students have undergone many changes. Thus college students need to meet successfully the inner and outer demands for their learning. If they fail to do this then the college students will face adjustment problems. And these adjustment problems affects their academic performance. This automatically decrease their academic performance.[4]

The student nurses have a great exposure in the academics and in clinical and they also have crowded curriculum. Due to this reason they have to face significant level of distress.[5]

The role of the nurse is to provide holistic care to individuals and families. In the course of training to be a nurse, the student nurse is exposed to different kinds of stressful events. The student nurses have to take care of patient in different situations.[6]

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The students have to face many challenges in universities and they can't able to normalize their state of mind.[7]

A study was conducted on (1998) among 1257 1st year University student's in South Africa having adjustment problems. The data was collected through the administration of a questionnaire. The results of the study revealed that 33-85% of the students experienced various adjustment problems. [8]

METHOD AND MATERIAL

A quantitative research approach was used. Research design adopted for this study was descriptive design. The target population for the study was 1st year B.Sc. (N) students. Number of sample was 100 nursing students. The sampling technique used was convenience sampling. Adjustment rating scale was prepared for assessing the adjustment problems faced by 1st year nursing students. The coefficient of internal consistency was used to check the Adjustment Rating Scale by using Karl Pearson and Spearman Brown formula (r=0.70). The data obtained was analyzed by both descriptive and inferential statistics on the basis of the study. To compute the data, a master data sheet would be prepared by the investigator. The demographic variables were analyzed using descriptive measures (frequency and percentage). The severity of Adjustment Problems was assessed by using descriptive measures (mean, standard deviation). While, the association between Adjustment Problems with their selected demographic variables were assessed using Chi- Square test.

FINDINGS

Table1: Association of Adjustment Problems among 1st year B.Sc.(N) students with their selected demographic variables.

S. No.	Demographic Variable	Chi Square	Df	Table Value	Inference
1	Sex	10.783	2	5.99	S*
2	Peer support	5.5344	2	5.99	NS
3	Number of siblings	3.5195	6	12.59	NS
4	Educational status of father	80.639	10	18.31	S*
5	Educational status of mother	25.807	10	18.31	S*
6	Religion	9.22065	6	12.59	NS
7	Family monthly income	6.58422	6	12.59	NS

Keys: *- Significant at 0.05 level, NS- Non – Significant, S- Significant.

The Table shows that there was association between Adjustment Problems with their selected demographic variables such as Sex, Educational status of father, Educational status of mother. However there was no significant association with their selected demographic variables such as Peer Support, Number of siblings, Religion, Family monthly income.

The Hypothesis was tested at 0.05 level of significance. The major findings of the study obtained were: A majority of the students 69% were females. The majority of the students 54% had more than 2 siblings. Most of the student's (36%) father had educational status to graduate. Most of the student's (28%) mother had educational status to high school. The majority of students 29% were Hindu. The majority of the students

(29%) had Family income below 10000.

DISCUSSION

The results revealed that Mild adjustment problems was found in 1% of the students, where as 84% had Moderate adjustment problems, 15% had severe adjustment problems.

2013 in Jordan a study reveal that university students have a generally moderate adjustment level despite the indication that students have some difficulties in their social and academic factors.

There was significant association between Adjustment Problems with their selected demographic variables such as Sex, Educational status of Father,

Educational status of Mother. However there was no significant association with their selected demographic variables such as Peer support, Number of siblings, Religion, Family monthly income.

A study was conducted on university first semester 390 students in Beijing, China and how social support, coping strategies, and adjustment were interrelated. Results of the study reveals that support from different sources (parents, peers, teachers, siblings) leads to good adjustment.

CONCLUSION

After the assessment it was revealed that Mild adjustment problems was found in 1% of the students, where as 84% had Moderate adjustment problems, 15% had severe adjustment problems. There was significant association between Adjustment Problems with their selected demographic variables such as Sex, Educational status of Father, Educational status of Mother. However there was no significant association with their selected demographic variables such as Peer support, Number of siblings, Religion, Family monthly income.

Conflict of Interest: The author have no conflict of interests related to the conduct and reporting of this research.

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Gaming Addiction Situation among Elementary School Students in Bangkok, Thailand

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ABSTRACT

Background: Currently, game addiction (GA) among Thai youth is increasing. It has been link to a variety of negative consequences that effect education, social interaction and health. Hence, this study aimed to explore game addiction situation and pattern of game playing among elementary school students.

Method: A cross-sectional study was conducted in February and March, 2015 among 295 grade 4-5 students from elementary schools in Bangkok, Thailand. The participants were recruited through a simple random sampling technique. A self-administrated questionnaires under explanation of researchers were used. The questions included following 1) Students characteristics and parents characteristics 2) game consisted of patterns of game playing and game addiction screening test (GAST). Data were analyzed by using descriptive statistics.

Results: Almost students were played game (98%). The prevalence of game addiction based on the GAST score was 7.5%, both boys and girls were similar (7.7%, 7.2%), follow by almost twenty percent were obsesses group (16.6%) while the mass group were normal group (75.9%).The majority usually played online game (62.7%). Most of participants had devices at home (93.6%) and also played game at home(93.6%). More than half (63.4%) used devices in the living room. Among students who play game found that games they usually play were line game (37.7). Students had the average of days spent on gaming 4.73 ± 2.0 (mean $\pm$ SD.) days per week and usually spent time to play game in weekend more than weekday (mean $\pm$ SD.) 3.59 ± 2.8 and 1.9 ± 1.3 respectively.

Conclusion: The findings emphasized that rising good knowledge and attitude about game and its' effect and developing self-regulation should be provided among students. Co-ordination between family, school and community would be useful in improving game addiction among youth.

Keywords: *Bangkok, Elementary School Students, Game Addiction, Situation, Thailand.*

INTRODUCTION

Youth have greater access to game than other media because games are readily available and provide entertainment. Parents rely on games to help children learn in the modern world with new technologies. Moreover, parents also have mores private time by let their child play games because some parents do not need to stay with children at all times and do not realize the dangers of various types of games [1].

Game addiction is defined as the user's psychology state of maladaptive dependency on game use that is manifested through the obsessive-compulsive pattern of game-use behaviors that take place at the expense of other important activities [2]. Game addiction was become

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worrisome behavior [3-5] .

In recent years, several studies have demonstrated that some gamers have trouble controlling their computer game playing [6-8] . Excessive use of online games, video games and addiction to them have become common, and may result in many negative psychological and physical damages, including social isolation, suicide, lack of sleep, obesity, stress and death [9] .

At this time, data from The National Statistics Office indicate that the highest use of the internet is among 15–24 year olds (51.9%), followed by 6-14 year olds (38.3%). Adoption of digital technologies is higher among young adolescents than adults and usage trends are still rising. Age of the first Internet use is reported to be 10-15 years of age (54.5%). The primary reason for using the Internet in that age group is to play games (65.4%) with 64.7% reporting playing games at internet cafés, 62.6 %. Nearly half (46.6%) reporting playing games at home [10] .

A survey from the Department of Mental Health, Ministry of Public Health, Thailand,   found that youth addiction to video games has increased steadily. During the years 2006-2013, the number of children addicted to videogames increased by a factor of 3 [10] .

As game playing is becoming more popular among children and adolescents. The subsequent impact of game playing to is a problem for many Thai families which make it a significant current national issue in Thailand.

According to the abovementioned studies, it can be concluded that there were limitation of age group of participants. Despite of the fact that the number of students addicted to the games is still increasing and schools in elementary school can be the victim of game addiction easily. Hence, it is importance to assess game addiction situation among elementary school students in Bangkok in order to understand the situation for establishing healthier gamer.

MATERIAL AND METHOD

Design:

A cross-sectional study was conducted among 295 students grade 4-5 in two elementary schools under the jurisdiction of Basic Education Commission, Bangkok Primary Education Service Area from February and March, 2015. The participants were recruited through a simple random sampling technique. Eligibility criteria included: currently in grade 4-5 in Bangkok for more than 6 months, willing to participate in this study, and signed informed consent from parents. The exclusion criteria were: condition that impaired communication such as a speech or mental impairment or severe physical illness.

MATERIALS

A self-administrated questionnaires under explanation of researcher was used for students between 8-12 years old. The questions included following 1) Students characteristics and parents characteristics 2) game consisted of patterns of game playing and game addiction screening test (GAST) which developed by Pornnoppadol, C.[11] from the Division of Child and Adolescent Psychiatry, Department of Psychiatry, Siriraj Hospital and Child and Adolescent Mental Health, Rajanagarindra Institute (CAMRI): child and adolescent version for measuring the behaviors of the students which were about:

1. Pre-occupation with game (items No.1,8,9,11,13,16)

2. Loss of control (items No.2,4,5,6,12)

3. Function Impairment (items No.3,7,10,14,15)

Cronbach's alpha of GAST child and adolescent version was 0.92 and the intra-class correlation coefficient was 0.90. For male, the specificity was 89.3 and the sensitivity was 68.5. The high scores mean students were more addicted in games [11].

PARTICIPANTS

The two primary schools were randomly selected from schools under the jurisdiction of The Office of Basic Education Commission, Bangkok Primary Education Services Area in Thailand. The participants were recruited all students in each classroom through a simple random sampling technique. The sample size calculated by (G Power 3.1.5) 80% power, alpha .05 with effect size f=0.1 [12] . Determined a sample size comprised 270 students, which include 10% over sampling of youth for attention.

Students and their parents received well explanation regarding the study objectives and procedures, their rights as a participant and the confidentiality of the data

given. When participants agreed to take part in the study, a written informed consent was sought by their parents.

Data collection:

Meetings were held with teachers, their parents and research assistants, to plan the data collection process. Data were collected by two trained research assistant. The questionnaire addressed students characteristics including age, gender, education level, grade point average (GPA.), type of game usually play, have devices at home, area where devices are placed and a game addiction screening (GAST) test developed by the Child and Adolescent Psychiatry Department of Psychiatry Siriraj Hospital and Child and Adolescent Mental Health Rajanagarindra Institute (CAMRI)[11]. Characteristics of parents were obtained by the child including parent's marital status, education, occupation, living arrangement of child, family relationship and parenting style.

Data Analyses:

Game addiction screening test scores were used as a main outcome variable for the current analyses. Analyses were performed with data from 295 students. The Statistical Package for the Social Sciences Version 16 (SPSS software licensed of Chulalongkorn University) was used for data analysis. GAST scores were classified into three groups following the manual guidelines. The cut-off point for males GAST less than 23 points were concluded normal, 24-32 points were concluded persons who were beginning to have game playing problems and 33 points and more were concluded addicted. Female GAST scores less than 16 points were concluded normal, 16-22 points were concluded a beginning problem group and 23 points and more were concluded addicted[12-13]. Data were analyzed by using descriptive statistics to describe the demographic data and pattern of game playing. Data were analyzed by using descriptive statistics to describe the demographic data and pattern of game playing. Data were analyzed by using descriptive statistics.

FINDING

Participant characteristics:

The sample group of this study composed of 295 students who were approached and screened for eligibility. There were similarly of male and female (52.9%, 47.1%). Over half were 10 years of age (56.3%).

Nearly equal in the number of students studying in Grade 4 and 5 (59.1%, 48.9%). Around three quarter had grade point average (GPA) 3.51 to 4.00(71.5%) (Table 1).

Parent's characteristics:

Most of parents' marital status were married (88.8%). Approximately ninety percent of child living with their parent (86.7%). Nearly a half father and mother education were bachelor and postgraduate (42.4%, 45.4%). More than one third of father and mother occupation were government careers (38.0%, 37.3%). The majority had good relationship in their family (95.3%). Around three quarter were authoritarian parenting style (67.1%)(Table 2).

Pattern of game playing:

Almost students were played game (98%). The majority usually played online game (62.7%). Most of participants had devices at home (93.6%) and also played game at home(93.6%). More than half (63.4%) used devices in the living room. GAST scale showed nearly eight percent reported high scores or game addiction group (7.5%) in males 7.7% and 7.2% in female, follow by almost twenty percent were obsesses group (16.6%) while the mass group were normal group (75.9%). Among students who play game we found that game that they usually play were Line game, shooting game and adventures games (37.7,11.8 and 11.4 respectively). Students had the average of days spent on gaming 4.73 ± 2.0 (mean ± SD.) days per week and usually spent time to play game in weekend more than weekday (mean ± SD.) 3.59 ± 2.8 and 1.9 ± 1.3 respectively (Table 3).

DISCUSSION

The result found prevalence rate of game addicted based on game addiction screening test score (GAST) were 7.6%. However, the prevalence rate of game addiction among grade 4-5 that we found seem to be high when compare with the study of Kolkijkovin, V.15 \l " prevalence of computer game addiction in students grade 4 – 12 in Dusit District, Bangkok is 15.0%. And prevalence of game addiction in Thailand is very high when compare with another country such as a nationwide survey from the Norwegian National Registry in 2009 found prevalence of game addiction was 0.6%[15]. And in Netherlands prevalence of addiction among children aged 13–16 years was only 3% in the year 2009[16]. The finding consistent with Ko, C.-H., et

al[17] study reported that the proportion of subjects who played online games was significantly higher among male adolescents than among females[17]. Kolkijkovin, V.[15] \l "also reveal that risk factors of game addiction included frequency of gaming 2-3 day per week to every day per week and in this study found students were played game 4.73 ± 2.0(mean ± SD.) higher than previous study in Thailand.

Table 1: Students characteristics (n=295)

Characteristics (N=295)	N	%
Age (years) (Mean ± SD) 9.87 ± 0.7		
8 and 9	82	27.8
10	166	56.3
11 and 12	47	15.9
Gender		
Male	156	52.9
Female	139	47.1
Level of education		
Grade 4th	153	59.1
Grade 5th	142	48.9
Grade Point Average (GPA)		
3.00 and lower	47	17.0
3.01 – 3.50	60	20.3
3.51 – 4.00	185	62.7

Table 2: Parent's characteristics (n=295)

Characteristics (N=295)	N	%
Parent's Marital Status		
Married	262	88.8
Widowed/separated/divorced	33	11.2
Living arrangement of child		
Parent(Both father and mother)	256	86.7
Father or mother	21	7.2
Relatives or another	18	6.1
Father education		
Primary school (Grade 1-6)	16	5.4
Secondary school(Grade 7-9)	11	3.7
High school (Grade10-12) and Diploma	41	13.9
Bachelor and Postgraduate	125	42.4
Other	102	34.6
Mother education		
Primary school (Grade 1-6)	15	5.1
Secondary school(Grade 7-9)	9	3.1
High school (Grade10-12) and Diploma	53	18.0
Bachelor and Postgraduate	134	45.4
Other	84	28.4
Father occupation		
Government careers	112	38.0
Farmers and Traders	34	11.5
Professional contractors	28	9.5
Employees of private companies	60	20.3
Privates owner	34	11.5
Other	27	9.2
Mother occupation		
Government careers	110	37.3
Farmers and Traders	54	18.3
Professional contractors	19	6.4
Employees of private companies	53	18.0
Privates owner	23	7.8
Other	36	12.2
Family relationship		
Good relationship	281	95.3
Conflict	14	4.7
Parenting Style		
Authoritarian style	198	67.1
Authoritative style	5	1.7
Un-involve parenting style	8	2.7
Permissive style	84	28.5

Table 3 : Pattern of game playing (n=295)

Variables	N	%
Play game		
No	289	98.0
Yes	6	2.0
Type of game usually played		
Game online	185	62.7
Game offline	110	37.3
Type of game always play (Rank 1st - 3rd)		
1. Line games	109	37.7
2. Shooting games	34	11.8
3. Adventures games	33	11.4
Have devices at home		
Yes	276	93.6
No	19	6.4
Place always play game		
At home	289	98.0
Not at home (everywhere such as net café, the department stores and school)	6	2.0
Area where devices place		
Living room	175	63.4
Work room	41	14.9
Bedroom	37	13.4
Everywhere	23	8.3

Frequency of day used to play game per week		
Mean ± SD.	4.73 ± 2.0	
Amount of time per day on weekday (Mon-Fri) (Hour/day)		
Mean ± SD.	1.91 ± 1.3	
Amount of time per day on weekend (Sat-Sun) (Hour/day)		
Mean ± SD.	3.59 ± 2.8	
Game Addiction Screening Test Scores		
Low	224	75.9
Moderate	49	16.6
High	22	7.5

CONCLUSION

Therefore, solving the problem of game addition in children is an obligation to which everyone should give great importance because it is not the duty of a single agency and all parties, including families, schools, communities and related public and private sectors need to cooperate and be aware of the problem while giving importance to seriously solving the problem in order to solve game addiction behaviors in children and adolescents with the highest efficiency [1, 12].

Limitation:

There were limitation to this study that may reduce the generalizability of any conclusion reached: firstly, the research examined the nature of participants in a particular area, conducted only one province of Thailand. It might be difficult to generalize the study's findings because each society and culture has it own demographic profile and social norms. Secondly, the study relied on self-administered questionnaire in a survey format limited the researcher's ability to be certain about what may have been meant by any individual respondent. Their answers might, loss in some question and over or under estimated from the fact can be occurred. Therefore, during data collection, researchers tried to minimize the limitation by providing well explanation before students do the self-administered questionnaire. However, these findings might be generalization to similar contexts.

Strengthen:

The strengthen in this study includes a focus on school age child who trends to addicted in games easily. Because of the vulnerable group is difficult to conducted data and protected their rights'.

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A Prospective, Randomized Trial on Comparative Study of Intrarticular Hyaluronic Acid with Corticosteroid Injections for the Treatment of Osteoarthritis of the Knee Joint

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ABSTRACT

Background: Osteoarthritis (OA) is the most common chronic progressive joint disease that takes place when the cartilage or a low friction surface between joints breaks down leading to pain, stiffness and swelling. The aim of this study was to determine the comparative efficacy and safety of intra-articular corticosteroid (Depomedrol 80mg) and intra articular hyaluronic acid (HA) in knee osteoarthritis. A randomized single blind comparative trial was carried out in a physical medicine and rehabilitation outpatient department.

Method: 150 patients with knee osteoarthritis, who were followed for 6 months, were randomized to receive intra articular injection of either Hyaluronic acid or corticosteroid. With the Western Ontario and McMaster University Osteoarthritis Index (WOMAC), and the visual analog pain scale, an independent, blinded evaluator assessed the patients two times. Assessment included recording of: visual analog scores (VAS) for pain; WOMAC scoring, duration of stiffness; range of movement; joint effusion; local heat; synovial thickening; joint-line and periarticular tenderness.

Results: The mean age of the patients in the Hyaluronic acid group was 71.4 ± 1.4 years and corticosteroid group was 69.5 ± 1.7 years. Both the groups treated with Hyaluronic acid and corticosteroid demonstrated improvements from baseline WOMAC scores (a median decrease from 52 to 38 points and from 55 to 40 points, respectively; $p < 0.01$ for both). The scores on the visual analog scale improved for patients receiving Hyaluronic acid (median, 66 to 50 mm; $p < 0.01$) but not for the patients who received the corticosteroid (median, 72 to 60 mm; $p = 0.28$). However, no significant differences between the two treatment groups were found with respect to the WOMAC or visual analog scale results. Women demonstrated a significant improvement in only one of the six possible outcome-treatment combinations (the WOMAC scale), whereas men demonstrated significant improvements in five of the six outcomes.

Conclusions: No differences were detected between patients treated with intra-articular injections of Hyaluronic acid and those treated with the corticosteroid with respect to pain relief or function at six months of follow-up. Women demonstrated significantly less response to treatment than men did for both treatments on all outcome scales. Such significant gender-related differences warrant further investigation.

***Keywords:** Osteoarthritis, Intra-articular injection, Hyaluronic acid, Corticosteroids*

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INTRODUCTION

Knee osteoarthritis (OA) is a common and progressive joint disease with an estimated incidence rate of 240 per 100,000 person-years.[1] In the absence of effective disease modifying medical interventions

for knee OA, treatments are primarily symptomatic in nature, often including intraarticular injections of a corticosteroid or hyaluronic acid. Corticosteroids have been employed for years in the treatment of OA, and as a result doctors have substantial clinical experience of their utility and effectiveness. Intra articular corticosteroids are administered to reduce local inflammation. The principal effect of glucocorticoids is the increased production of certain proteins, mainly lipocortin. Its anti-inflammatory action is based on the inhibition of phospholipase A2, which converts membrane phospholipids into arachidonic acid with a subsequent intracellular production of prostaglandins, leukotrienes and oxygen radicals[2]. Stimulation of lipocortin production inhibits the pro-inflammatory cytokine production, including interleukin-1, interleukin-2, interferon-a, tumor necrosis factor, etc.[3]. Glucocorticoids inhibit the synthesis of pro-inflammatory enzymes, like collagenase, elastase and plasminogen activator[4]. Consensus statements widely recommend corticosteroids as useful adjunctive treatment in the management of knee OA[5, 6, 7]. Hyaluronic acid, a large viscoelastic glycosaminoglycan that is naturally present in healthy joint fluid, is a relatively new intervention that is now widely used. It confers to joint fluid a number of protective properties, including shock absorption, traumatic energy dissipation, protective coating of the articular cartilage surface, and lubrication[8]. There are studies comparing corticosteroids and Hyaluronic acid with placebo in osteoarthritis patients. Some studies even compare the same with NSAIDS. Many studies have showed mixed results[9,10,11]. However some showed positive results in pain and function for Hyaluronic acid based products including Hylan GF 20 whereas other showed favorable results with corticosteroids[12,13,14,15,16,] in spite of the fact that corticosteroids have been abundantly used by many, their objective evidence of benefit is limited and controversial[17,18,19]. Many have argued that Hyaluronic acid is useful symptomatically in osteoarthritis patients along with having a long duration of action[20]. The small number of studies which have compared Hyaluronic acid with corticosteroid injections in osteoarthritis patients have their own limitations which comprise of small sample size, incomplete follow up. The fact that most of these studies have been funded by manufacturers of Hyaluronic acid and related products is worthy to be noted. Our study is a prospective single blinded randomized controlled study comparing efficacy of intra-articular Hyaluronic acid and intra-articular corticosteroids in 150 patients with osteoarthritis knee.

METHODOLOGY

Single centre randomized single blinded prospective clinical trial was approved by the institution's review board. 150 patients who satisfied the inclusion criteria and were willing to participate in the study were included. Study period was from December 2015 to June 2016. Randomization was performed with the use of a computerized random number algorithm. Demographic data including height weight BMI side of the involvement and age, use of NSAIDs during the study period was recorded. Osteoarthritis was graded by Kellgren and Lawrence grading. The Western Ontario and McMaster Universities Arthritis Index (WOMAC) and 100 mm Visual Analogue Scale were used to assess the response to the treatment. The WOMAC was used as a self administered questionnaire in accordance with the developer's instructions[21]. In WOMAC lower score presented a better outcome, values ranging from 0 to 96, based on the three sub domains of pain, stiffness and difficulty in performing ADL. VAS value ranges from 0 to 100. Higher number is associated with more pain. These instruments were administered in the study prior to the intervention then again at three and six months. Patients received either a single injection of Hyaluronic acid or 80 mg of methyl- prednisolone depending on randomization.

SPSS version 16 was used for data management and statistical analysis. Nonparametric statistical methods were used to analyze the data. The Friedman test was done separately for each study group to test for changes over time with respect to non-nominal variables. The Mann-Whitney test was used to compare the study groups at each time-point with respect to non-nominal variables. Comparison of the study groups with respect to gender was done with the chisquare test of association. The level of significance was set at 0.05 for all statistical tests. No one-sided statistical tests were done. Because the data were not normally distributed, median values (which were not affected by outliers) are presented rather than means.

RESULTS

150 patients were included in the study who were equally and randomly allotted into two treatment groups. One group was given intra articular Hyaluronic acid

injection and the other group received intra articular corticosteroid injection (80 mg of methyl prednisolone). These patients were similar with respect to age, gender, BMI and previous usage of NSAIDs (Table 1).During

follow-up five patients in the Hyaluronic acid group left the treatment and ten patients from the corticosteroid group after a period of three months. None of the patient reported any acute local reaction after the treatment.

Table 1: Patient characteristics

	HYALURONICACID TREATMENT GROUP	CORTICOSTEROID TREATMENT GROUP
NUMBER OF SUBJECTS	75	75
GENDER	30 MALE; 45 FEMALE	38 MALE; 37 FEMALE
AGE MEAN ± SD	71.4 ± 1.4 YEARS	69.5±1.7 YEARS
SYMPTOMS		
1. SWELLING	67%	60%
2. LOCKING	53%	50%
3. GIVE AWAY	72%	75%
WEIGHT MEAN ± SD	88 ± 1.6Kg	81±1.4Kg
BMI	29.3±1.2	27.3±1.4
% USING NSAIDS	88%	92%

WOMAC score improved in both the treatment groups, a median decrease from 52 to 38 points and from 55 to 40 points, respectively; $p < 0.01$ for both. The scores on the visual analog scale improved for patients receiving hyaluronic acid (median, 66 to 50 mm; $p < 0.01$) but not for the patients who received the corticosteroid (median, 72 to 60 mm; $p = 0.28$) (Table 2). No significant difference between the group treated with corticosteroids and that treated with hyaluronic acid you found in respect to the Womack and VAS at six months evaluation (p value 0.98 and 0.94 respectively). Women demonstrated a significant improvement in only one of the six possible outcome-treatment combinations (the WOMAC scale), whereas men demonstrated significant improvements in five of the six outcomes. However the gender related difference could not be associated with any difference in age all the disease severity.

Table 2: Changes in outcome scores with time

	WOMAC	VAS
HYALURONIC ACID GROUP		
PRETREATMENT	52	66
3 MONTHS	40	52
6 MONTHS	38	50
CORTICOSTEROID GROUP		
PRETREATMENT	55	72
3 MONTHS	43	61
6 MONTHS	40	60

DISCUSSION

Osteoarthritis is a chronic disabling disease with morbidity and pain. Knee is a weight bearing joint frequently affected by degenerative processes which cause much disabilities. Recent meta-analysis studies have argued that pharmacological interventions, to treat knee OA with oral NSAIDS is inferior to intra-articular injections[22]. Intra-articular injection of viscosupplementation with Hyaluronic acid (HA) and corticosteroids are commonly used for pain modification.

The aim of the present study was to determine which treatment method was more effective to pain alleviation and durability. This study demonstrated benefit from baseline for both the treatment groups however no significant difference in outcomes amongst the two treatment groups. In a similar study by Jones at all had demonstrated better results with Hyaluronic acid injections after six months of followup[23]. Leardine at al also concluded superiority of Hyaluronic acid over corticosteroids[24]. The present study however found no significant difference between the Hyaluronic acid and corticosteroids after six months of follow-up. We found that men have significantly better response to the treatment, whether this is due to biological difference or gender is unproven. It was a single blind study only the evaluator was blind. Both the groups were similar

at baseline with respect to age, gender and BMI. Both Hyaluronic acid and corticosteroid provided patients with improvement in function but no significant difference between these treatments were observed at the end of third and six months. We were unable to compare the benefits with a placebo. The similarity in efficacy of Hyaluronic acid and corticosteroids is encouraging since Hyaluronic acid is devoid of any theoretical risk which corticosteroid is associated with. However high cost of Hyaluronic acid restricts its usage especially in developing country like ours. Further studies are mandatory to establish the optimal dose, concentration and molecular weight of the product. More attention should also be paid to the economic advantages, because the favorable long-term effects reduce the need for anti-inflammatory drugs.

CONCLUSION

Both Hyaluronic acid and the corticosteroid provided patients with modest improvements in function, but no significant differences between these treatments were observed at three or six months. The similarity of efficacy of Hyaluronic acid and corticosteroid is encouraging since Hyaluronic acid is, as far as is known, not subject to any of the theoretical risks that are associated with intra articular corticosteroids. However given the additional pain and and approximately 100-fold difference in pharmacy cost, we do not consider Hyaluronic acid injections a first-line treatment for patients with osteoarthritis who are considering intra-articular knee injections for palliation of symptoms.

Conflict of Interest: None

Source of Funding: Nil

Ethical Clearance: Taken

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The Relationship between Perceived Individual-Couple Sacrificial Behavior and Quality of Marital Relationship in Married Employees

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ABSTRACT

The relationship between perceived individual-couple sacrificial behavior and the quality of marital relationship in married employees working in NIOC Ahvaz. Hence, the present research employed a correlational method and the statistical population in this research comprised all of the married employees working in NIOC Ahvaz, out of which, a sample of 400 subjects was selected via stratified random sampling. The research tools included Perception of Sacrificing Behaviors Measure (PSBM) and Quality of Marriage Index (QMI). Pearson correlation coefficient (P <.0001) was used to analyze the data and the results revealed that there exists significant relationship between perceived individual-couple sacrificial behavior and the quality of marital relationship.

Keywords: *Individual-Couple Sacrificial Behavior, quality of marriage, employees.*

INTRODUCTION

Family is a living and changing essence that employs its members in a constant, interactive and patterned flow of communication that spreads over time and space[1]. Terms such as marital satisfaction, marital adjustment and marital quality have been used more than other constructs in the majority of the research done in the realm of marriage and family therapy[2]. Marital quality doesn't involve a continuous image of constant categories but reflects a range of outstanding marital features and functions[3]. Moreover, marital quality refers extensively to the main elements of a marital relationship, including satisfaction, happiness, and stability. This research aims to investigate the marital quality in particular; however, the terms of quality and satisfaction have been used interchangeably[4].

Individual-couple sacrificial behavior is an important affecting variable in stabilizing the marriage and marital quality. According to Vanlonge & et al, sacrifice means the tendency to overlook the activity or

behavior of a specific person or acting upon something undesirable and against the will or both [5]. Individuals' motivations are different and these motivations exert different influences on the level of relationship satisfaction [6]. Individual sacrifices that are made to avoid negative outcomes (avoidance motives for sacrificing) bring about less happiness and relief. Moreover, such behaviors lead to the decrease of life satisfaction and relationship satisfaction and increase of negative and maladaptive effects[6].

In fact, the quality of marital relationship is positively correlated to individuals' positive viewpoint toward sacrificing for their partners[7]. Often, individuals consider the costs and benefits of their marital life and attend to the equality and justice[8]. Figuerres (2008) thinks of sacrificial behavior as to be crucial for marital relationship. However, in marital life and when the couples face conflicts in meeting their needs, one of the couples may overlook his/her personal benefits or desirable activities to place a high priority on his/her partners' needs and wishes. This if occurred can increase marital success (Stanley & et al, 2006) and exert positive effect on relationship quality [7]. On the other hand, an important subject which has recently

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been in the limelight of researchers is the subject of couples' perception of sacrificial behaviors. Individual's perception of self and couple's sacrificial behaviors can exert different impacts on his/her satisfaction with the relationship and rise different feelings toward sacrificial behaviors [9].

An extensive body of research have found the positive relationship between individual and couple sacrificing behaviors and marital quality [10, 7, 11, 12]. Some other researchers have found significant negative relationship between these two [13, 14], or no relationship at all [6]. This necessitates the importance of carrying out more research on the construct of sacrificial behaviors and its impact on the marital quality. According to Figuerres (2008), the relationship between sacrifice and relationship quality is a curved relationship. To put it differently, sacrifice is relatively beneficial for marriage; however, it may decrease the quality of marital relationship if made more than needed [7]. Rupple & Curran (2012) in their research entitled "sacrifice in marital relationship, satisfaction and the mediating role of attachment" assert that low sacrifice is negatively correlate to marital satisfaction [15]. According to the above-mentioned literature and previous studies done by Kogan& et al (2010)[16] and Rupple & Curran (2012)[15], couple and individual sacrificial behaviors are correlated to the quality of marital life. The relationship between perceived individual-couple sacrificial behavior and the quality of marital relationship in married employees working in NIOC Ahvaz.

METHOD

The present research employed a correlational method and the statistical population in this research comprised all of the married employees working in NIOC Ahvaz, out of which, a sample of 400 subjects was selected via stratified random sampling. Krejcie & Morgan (1970) [17] table was used for sampling. First, different deputy departments were determined and then the number of employees working in each department was counted. Finally, the subjects were selected in accordance to the number of male and female employees working in each department.

Perception of Sacrificing Behaviors Measure (PSBM) was designed by Harper & Figuerres (2008) [7]. This 50-item questionnaire deals with the individual's sacrificing behaviors and his/her perception of the partner's sacrificing behaviors. The test is scored on 5-point Likert scale. Figuerres (2008) has reported the Cronbach alpha to be equal to .84 for men and .81 for women[7]. Kavand (2011) has reported the Cronbach alpha in the first 25 questions to be equal to .90 for men and .88 for women. In the second 25 questions, the Cronbach alpha equaled .92 for both men and women [18]. The construct validity of this scale with Norton's marital quality (1989) was equal to .55 and .65 in men and .51 and .68 in women that were all significant at .001 [19]. The Cronbach alpha in the present research was equal to .94 which proves to be acceptable. Moreover, the Cronbach alpha for the individual and personal sacrificial behaviors were .92 and .89, respectively.

Quality of Marriage inventory was designed by Norton in 1983. This 6-item questionnaire evaluates the quality of marriage. Ficnham, Paleari& Regalia (2002) evaluated the reliability of this questionnaire using internal consistency (Cronbach alpha) which was equal to .96. Moreover, the Cronbach alpha in the research by Schnurman- Crook (2001, cited in Fincham et al, 2002) was equal to .97 [9]. Khojasteh Mehr et al (2010) used ENRICH scale to investigate QMI's construct validity and the result was equal to .77 which was significant at P<.001 [20]. The Cronbach alpha in the present research was equal to .95 which proves to be acceptable.

After determining the sample, acquiring the necessary certificates, securing the authorities' consent and according to a pre-determined plan, the researcher established a relationship with the selected sample, decreased the participants' sensitivity toward the questionnaires, explained the reasons of selecting the sample and offered the necessary explanations so that the sample could fill out the questionnaires.

FINDINGS

Table 1- Mean and standard deviation of sacrificial behaviors and the quality of marital relationship scores in married employees

Indices Variables	Mean	SD	N
Individual sacrificial behaviors	93.35	13.68	400
Couple sacrificial behaviors	92.08	17.07	400
Marital relationship quality	30.71	5.56	400

Research hypotheses

First hypothesis: there will be significant relationship between individual sacrificial behaviors and the quality of marital relationship among married employees.

Second hypothesis: there will be significant relationship between couple sacrificial behaviors and the quality of marital relationship among married employees.

Table 2- Simple correlation coefficients between perceived individual-couple sacrificial behaviors and the quality of marital relationship among married employees

Criterion variable	Indices /Predictor variables	r	sig.	N
Quality of marital relationship	Individual sacrificial behaviors	.311	.0001	400
	Couple sacrificial behaviors	.571	.0001	400

As observed in table 2, there is significant and positive relationship between perceived personal sacrificial behaviors (r=.31, p=.0001), perceived couple sacrificial behaviors (r=.57 and p=.0001) and the quality of marital relationship. Therefore, the first and second hypotheses are confirmed.

Third hypothesis: there is multiple significant relationship between individual and couple sacrificial relationship and the quality of marital life among married employees.

Table 3- Multiple correlation coefficients of the predictor variables (individual and couple sacrificial behaviors) and the quality of marital life among married employees

Method	Predictor variables	R	R^2	F	p	β	t	p
Simultaneous	Individual Sacrificial Behaviors					.091	2.02	.044
	Couple Sacrificial Behaviors	.57	.33	99.27	.0001	.534	11.86	.0001
Step by step	Individual Sacrificial Behaviors	.31	.097	42.69	.0001	.31	6.53	.0001
	Couple Sacrificial Behaviors	.57	.33	99.27	.0001	.091	2.02	.044
						.53	11.86	.0001

As observed in table 3, predictive regression of married employees' marital quality is significant based on individual and couple sacrificial behaviors (F=99.27, p<.0001). Results of step-wise regression analysis indicated that personal and couple sacrificial behaviors are predictive of marital quality among the married employees.

DISCUSSION AND CONCLUSION

Results of the present research indicated that there is significant and positive relationship between perceived personal sacrificial behaviors (r=.31, p=.0001), perceived couple sacrificial behaviors (r=.57 and p=.0001) and the quality of marital relationship. Therefore, the first and second hypotheses are confirmed. Moreover, predictive regression of married

employees' marital quality is significant based on individual and couple sacrificial behaviors. This fining is in line with the results of the research by Rupple & Curran (2012)[15], Kevin (2008)[21], Mattingly (2008)[11] and Figuerres (2008)[7]. These findings indicate that couple and individual sacrificial behaviors are among the most important factors affecting marital satisfaction, marital quality and commitment. Researchers such as Kogan et al (2010)[16] and Impett & Gordon (2008)[6] have concludedin their studies that couples who make individual sacrificial behaviors have higher probability of staying with their spouses and have higher levels of satisfaction. According to the attachment theory, if the couple's sacrificial behaviors for spouse increase, marital relationship quality increases as well. In fact, the individual's sacrificial behavior can heighten the quality construct of the relationship [22]. Kevin (2008) in a study entitled "sacrifice in marriage: motivation, behavior and consequences" indicated that husbands' sacrificial behaviors are predictive of the strength of women's marital relationship quality[21]. Moreover, husbands' real sacrificial behaviors and wives' perception of sacrificial behaviors exert significant impact on the marital satisfaction and quality. Based on this, it can be concluded that sacrificial behaviors either individual or related to the spouse can increase the individual's quality of life particularly in marital relationships.

Ethical Clearance: is adhered all ethical interests: (The ethics of recording data, the right of respondents to end involvement in the research, the disclosure by respondents of sensitive material, the ethics of ethnographic fieldwork, the ethics of the research interview, and ethics in the use of questionnaires).

Conflict of Interest: The authors declare that they have no competing interests.

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A Study of Burden of Care on Key Relatives of Children and Adolescents with Mental Retardation

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ABSTRACT

Background: Family is the main source of support for those disable children. Family specially parents perceive burden in caring of mentally retarded children.

Aim: The aim of the study was to study of burden of care on key relatives of children and adolescents with mental retardation.

Methodology: The study sample included patients of mental retardation in age group 5 to 16 years & key relatives attending child and adolescent psychiatry OPD. The patients were assessed on K-SADS-PL[1] for psychiatric co morbidity. Burden of care on the key relative was assessed on THARA burden assessment schedule (1998)[2]. For analysis appropriate statistical tools were used.

Result: Key relatives of mental retardation patients experience an overall moderate degree of burden (Total burden score = 67.3). As the severity of mental retardation increases, burden of care on key relative increases. Amongst all the domains of Burden of Care Scale, *Physical & mental health* domain has highest burden of care on the key relative. Burden of care on key relatives of mental retardation patients with co morbidities was found to be extremely significant ($p<0.0001$).

Conclusion: In this study it was found that family especially mother of mentally retarded children experience burden of care and it increases as the level of disability increases. Burden of care is maximum with severe to profound mental retardation. Associated comorbidities increase the burden of care.

Keywords: Key Relatives, Burden Assessment Schedule, K-SADS-PL.

INTRODUCTION

Mental retardation is a developmental disability characterised by the low intellectual ability and impairment in adaptive behaviour of an individual. The individual must full fill the following to be diagnosed as mentally retarded. First, the individual must have below average intellectual ability. According to the American Association on Mental Deficiency (AAMD), the individual's IQ must be below 70 on the standard tests.

Secondly, there must be a significant impairment in the adaptive behaviour of the individual. The individual must demonstrate an inability to meet the standard of personal and social responsibilities appropriate to his/her age group. Thirdly, these deficiencies in intellectual functioning and adaptive behaviour must occur during the developmental period of the individual. In other words, they must show for the first time before the age of eighteen years.

Burden is defined as any physical or emotional demands that one feels unable to handle. These demands encompass all the problems experienced every day from trying to get children up for school to getting them to bed at night. Even though these daily hassles are often considered trivial, over time these hassles add

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up, building in pressure until parents are ready to burst out with anger and frustration. One of the chief tasks of parents is to enable their children to lead productive and wholesome life. For the parents of mentally challenged children this may be more difficult than parents of normal children. Burden has been frequently associated with parenting a child with intellectual disability (Dhillon and Babu, 2008)[3]. Beckman (1991) found significant differences between parents of disabled and non-disabled children on measures of parenting burden[4]. Her hypothesis that parents of children with disabilities would report greater burden as compared to parents of normally developing children was confirmed across all domains.

Baxter et al, (2000), worked on parenting burden attributed to family member with or without disability from the sample six Victorian special schools for children with intellectual disability. They found that burden attributed to their family members with disability was about double that attributed to the youngest sibling without a disability[5].

Mental retardation is often associated with psychiatric and physical co morbidities. Khess et al, (1998) reported that Psychiatric disorder was present in 56.17% of MR, other common co morbidities are mood disorder (8%), hyperkinetic disorder (14%), psychosis (11%) and unspecified emotional and behavioral problems (26%)[6]. The commonest psychiatric disorder observed was behavioural and emotional disorders, while the commonest medical illness found was epilepsy.

So, there is a need for more studies on the burden of care faced by parents of mentally retarded children.

MATERIALS AND METHOD

STUDY SETTING: The study was conducted in the Psychiatry outpatient department of King George's Medical University Lucknow, U.P. The work was cross sectional study of burden of care on key relatives (The term "Key-relatives" for the present study has been operationally defined as "someone living with the patient in the same household for at least 1 years spending time with him/her and shouldering responsibilities of caring for him/her for majority of time.") of children and adolescents with mental retardation. Subjects were included after taking written informed consent.

SAMPLE SELECTION: Patients of 5 yrs to 16 yrs age, diagnosed as MR according to DSM-IV-TR[7] and willing to sign an informed consent by the care giver for the study were included in the study. Patients having serious medical illnesses requiring priority medical treatment were excluded. Caregivers of age above of 18 yrs and were caring for the patient for minimum duration of last one year and the caregivers who having any psychiatric illness currently were excluded. A sample of l19 patients was selected for the study. Caregivers of these children were interviewed for complete objective data. The IQ measurements done by the clinical psychologist.

TOOLS: 1. Diagnostic and statistical manual of mental disorder. Fourth edition, text revision, (DSM IV-TR) (APA, 2000)[7]: The diagnostic and statistical manual of mental disorders (DSM) is a handbook for a mental health professional that lists different categories of mental disorders and the criteria for diagnosing them, according to the publishing organization the American psychiatric association.

2. Burden assessment schedule: This is an instrument developed by THARA et al, (1998)[2] at schizophrenia research foundation, Chennai to assess the burden of care on the key relative or caregiver of chronic mentally ill patients using the process of stepwise ethnographic exploration.

3. Kiddie-schedule for affective disorders and schizophrenia-present and life time version (K-SADS-PL) (Kaufman et al, 1997)[1]: The K-SADS-PL is a semi-structured diagnostic interview designed to assess current and past episodes of psychopathology in children and adolescents aged 6-18 years, according to DSM-III-R and DSM-IV criteria. Probes and objectives criteria are provided to rate individual symptoms.

PROCEDURE: The Informed consent was taken. Subjects were screened and assessed on K-SADS-PL for psychiatric co morbidities. Diagnosis was made as per DSM-IV-TR criteria. Burden assessment schedule was applied on key relative. The physical co morbidities were assessed clinically.

STATISTICAL: The following statistical tools were employed to analyse the result arithmetic mean, standard deviation, t' test for independent samples (student unpaired t test), Analysis of variance (ANOVA), Tukey's test.

RESULT

Table1: TOTAL BURDEN OF CARE ON KEY RELATIVES WITH AND WITHOUT COMORBIDITY

BURDEN OF CARE	WITH CO-MORBIDITY (N=30)	WITHOUT CO-MORBIDITY (N=89)	t VALUE	p-VALUE	TOTAL
	Mean±SD	Mean±SD			Mean±SD
Physical and mental health	14.30±2.46	12.59±2.43	3.30	**0.001**	13.02±2.54
External support	10.93±2.21	8.49±2.65	4.53	**0.0001**	9.10±2.75
Caregivers routine	10.06±1.72	8.39±2.16	3.84	**0.0001**	8.81±2.17
Support of patient	9.43±1.92	7.86±2.28	3.37	**0.001**	8.26±2.29
Taking responsibility	10.76±2.16	8.39±2.21	5.10	0.001	8.99±2.42
Other relations	10.06±1.96	7.87±2.09	5.03	0.001	8.42±2.26
Patient's behavior	10.50±1.96	8.10±2.24	5.22	0.001	8.70±2.40
Caregiver's strategy	10.23±1.47	8.03±1.93	6.10	0.001	8.58±2.06
Total adjusted burden score	79.90±9.91	64.58±11.42	5.70	0.001	68.44±12.88

Thara 's burden of care has 9 domains, as we were studying burden of care on key relatives of mentally retarded children so we did not consider **spouse related** domain. Burden of care was significantly more in the key relatives of the mentally retarded patients with comorbidities in all domains.

Table2: TOTAL BURDEN OF CARE ACCORDING TO SEVERITY OF MENTAL RETARDATION

BURDEN OF CARE	SEVERITY				F VALUE	p-VALUE
	MILD MENTAL RETARDATION (N=57) Mean±SD	MODERATE MENTAL RETARDATION (N=36) Mean±SD	SEVERE MENTAL RETARDATION (N=20) Mean±SD	PROFOUND MENTAL RETARDATION (N=6) Mean±SD		
Physical and mental health	11.40±1.94	13.56±2.04	15.70±1.21	16.33±1.36	**34.40**	**0.0001**
External support	7.46±2.48	9.61±1.77	12.20±1.43	11.50±1.22	**23.45**	**0.0001**
Caregivers routine	7.74±2.31	9.44±1.52	10.20±1.39	10.67±0.81	**27.45**	**0.0001**
Support of patient	8.05±1.84	8.75±3.01	8.00±2.22	8.17±0.98	0.23	0.50
Taking responsibility	7.40±1.99	10.08±1.64	10.70±1.78	11.83±2.13	**26.78**	**0.0001**
Other relations	8.09±1.71	8.56±2.98	9.20±2.37	8.33±0.81	0.56	0.29
Patient's behavior	7.39±2.47	9.47±1.40	10.30±1.65	11.33±1.03	**36.45**	**0.0001**
Caregiver's strategy	7.25±1.85	9.67±0.95	9.80±1.82	10.83±1.32	27.67	0.0001
Total adjusted burden score	64.77±11.55	79.14±10.35	86.10±8.40	89.00±6.51	**26.45**	**0.0001**

Statistically significant difference was observed among the group of mental retardation in the domains of physical & mental health (df=34.40, p<0.0001), external support (df=23.45,p<0.0001), caregiver's routine (df=27.45, p<0.0001), taking responsibility (df=26.78, p<0.0001), patient's behaviour (df=36.45, p<0.0001), caregiver's strategy (df=27.67, p<0.0001), total adjusted burden score(df=26.45, p<0.0001) of burden.

DISCUSSION

The present study was a cross sectional study of burden of care on key relative of mentally retarded children and adolescents. All caregivers had given informed consent prior to evaluation. The study was carried out from May 2012 to July 2013.

Total burden of care in our study was 68.44 (Table1) which falls in the category of moderate burden. We used the burden assessment schedule Thara et al, (1998)[2]. Out of forty items, which are rated on 3 point scale, in our study 4 items (spouses related) were not included because the patients were children and adolescent. Thus when total burden was calculated, it was out of maximum score of 108. To overcome discrepancy we calculated an adjusted burden score for each patient using the formula: Score obtained/ Maximum Score X 100 which was taken as total burden score. With this arrangement as score of 33 means there is no burden. Score from 33-55 is mild burden, 56-77 is moderate burden and 78-100 is severe burden. Maximum burden was found in the domains of physical and mental health (mean 13.02±2.54) followed by external support (mean 9.10±2.75).

It was found that stastically significant higher burden of care on key relatives noted as the severity of mental retardation of patients increases either with or without co morbidities. (Table 1) (p<0.0001), (Table 2) (p< 0.0001), the reason for this could be that the patients require more care as the severity of mental retardation increases. Our finding is consisting with the findings of other studies. Gosch (2001) and Tisbosch (2008) reported that parents of children with lower levels of cognitive functioning perceived more burden[8,9]. Upadhyay and Havalappanavar (2008) found that the parents of moderately retarded children noted more of psychological problems than those of mildly retarded but did not differ in stress significantly from parents of mild retarded children[10]. Sethi (2007) also reported parents of children with severe to profound mental retardation have higher burden than mild to moderate mental retardation[11].

Significantly more burden of care (Table1) (t value=5.70, p=0.001) was reported by the key relatives of children with mental retardation with co morbidities as compared to children without co morbidities. This could be the fact that presence of co morbidities lead to further deterioration in functioning of the patient as well as additional care is required to manage behavioural and physical problems. Similiar findings had been reported by prior studies Vijesh and Sukuraman (2007) also revealed that mothers of children with multiple disabilities experienced significantly more burden[12]. Plants and Sanders (2007) also found higher burden of care in parents of children with more disabilities[13]. Upadhyay and Singh (2009) also found that the parents of mentally retarded children with other associated disabilities were more likely to perceive care giving responsibilities burden in a negative way and perceive the task associated with caring for their children as beyond their personal adequacy. This directly might have heightened the burden[14].

Therefore while assessing the patient of mental retardation, clinician should also enquire about the stress faced by the caregivers and efforts should be made to reduce their stress by providing proper guidance as well as knowledge from where they can get support and facilities provided for mentally retarded children.

Limitations of this study: One of the major limitations this study was the small sample size due to time constrain. Comparison of the children with disability with normal children would have thrown more light on factors responsible for the burden.

CONCLUSION

The caregivers of persons with mental retardation should also be consulted and considered while planning and providing various intervention services for mentally retarded. Skills training to the caregivers can help them to deal effectively with the children with mental retardation. Therefore while assessing the patient of mental retardation, clinician should also enquire about the stress faced by the caregivers and efforts should be made to reduce their stress by providing proper guidance as well as knowledge from where they can get support and facilities provided for mentally retarded children.

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Epidemiological Profile of H1N1 Cases in District Amritsar in Year 2015

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ABSTRACT

Background: WHO on 11 June 2009 raised pandemic alert of H1N1. Its first confirmed case in India reported on 16 th May, 2009, was a passenger who travelled from USA to Hyderabad. In 2015 it increased to over 10000 cases and 660 deaths in India. **Material & Method:** As per the national guidelines, pharyngeal or nasopharyngeal swabs were collected from the suspected case-patients and their close contacts for detection of the virus using RT-PCR assay. **Findings:** There were159 suspected cases of H1N1 out of which 73 (45.9%) were confirmed with 29 deaths, AR was found 2.735/lac population. Maximum number of cases 29 (39.7%) has been found in the age above 50 years. Higher percentage of cases was found in females, urban areas and all the cases were found in months of January to March. **Conclusion:** The AR of H1N1 in this study is found 2.735/lac population with CFR 39.7%. A study conducted in 2014 in district Amritsar showed that during the years 2009 to 2014 it ranged between 0 to 0.763/lac population. It was also much higher than 1.9/lac population found in other studies. Some increase in CFR has been observed in present study. Higher percentage of cases in the age groups above 30 years; and higher percentage of urban contrary to previous study of year 2014 has been observed. Bimodal peaks of H1N1 had been found in year 2014 while in present study unimodal peak has been observed. Trend of the shift of the disease towards the winter months has been observed.

Keywords: H1N1, pandemic, IDSP, attack rate, CFR and surveillance.

BACKGROUND

National Influenza Centers (NICs) and other national influenza laboratories from 84 countries, areas or territories reported data to Flu Net for the time period from 16 May 2016 to 29 May 2016. The WHO GISRS laboratories tested more than 61285 specimens during that time period. 4320 were positive for influenza viruses, of which 1276 (29.5%) were typed as influenza A. Of the sub-typed influenza A viruses, 540 (71%) were influenza A (H1N1)pdm09 and 221 (29%) were influenza A (H3N2).[1] On 28 April 2009, WHO raised the H1 N1 pandemic alert from phase 4 to phase 5 [2] and on 11 June 2009, from phase 5 to phase 6 and characterized the outbreak as moderate. Pandemic H1N1/2009 influenza, reported for the first time in Mexico in April 2009, shows that the implicated virus is a genetic re-assortment of four different influenza virus strains.[3] Genetic re-assortments in the influenza virus cause fast and unpredictable antigenic changes in important immune targets leading to recurrent epidemics every 1 to 3 years consistently. [4] The case fatality rate (CFR) in the USA and United Kingdom (UK) was in the range of 0.1-0.2%. [5,13] Compared with previous pandemics of this century, Influenza A (H1N1) has high transmission

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ability but low virulence.[6] However, it can cause severe complications such as pneumonia resulting in respiratory failure, acute respiratory distress syndrome, multi-organ failure and death.[7] The first confirmed case of A (H1N1) in India was reported on 16 th May, 2009. The patient was a passenger who travelled from USA to Hyderabad.[8] Thereafter; transmission was reported from many parts of country.[9] In 2015 the instances of Swine Flu substantially increased to five year highs with over 10000 cases reported and 660 deaths in India.[10] The states reporting the highest number of cases and deaths are Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, Delhi, and Telangana.[11] Besides, through the National Centre for Diseases Control (NCDC), Directorate General of Health Services (DGHS), Government of India (GoI) had placed a tender to procure 8 kits of Assay sets, 37 kits of one step RT-PCR kit, and 36 kits of viral RNA extraction kits.[12] The laboratory confirmed cases and deaths of H1N1found in Punjab were 252 cases and 40 deaths in first phase from April 2009 to April 2010, 46 cases and 23 deaths from August 2010 to December 2011, 15 cases and 4 deaths from January to December 2012, 183 cases and 42 deaths from January to December 2013, 27 with 3 deaths from January to December 2014.[13] A study conducted in district Amritsar on H1N1 cases showed that the mean AR during the years 2009 to 2014 remained 0.238/lac population. This study has shown that the disease H1N1 has cyclic trends of about 3 to 4 years, higher AR in males and CFR 36.1%. The maximum number of cases 15 (41.67%) was reported in 21 to 30 years age and the minimum 3 (8.33%) in age above 50 years. In this study the higher number of cases has been reported from the rural areas. There was the highest peak of H1NI cases reported in the months of December to March.[14] In a study in Andhra it peaked during August to October in 2009 and 2010. Transmission of infection in various parts of India started around mid-June as in Andhra Pradesh. Amritsar is a border district of Punjab having portals for entry into India from abroad. It has the risk of acquiring H1N1 infection from the persons entering into India from abroad and indigenous cases.[15]

Author studied descriptive epidemiology of influenza A (H1N1) cases reported in Amritsar district in year 2015.

MATERIAL & METHOD

As per the national guidelines, pharyngeal or nasopharyngeal swabs were collected from the suspected case-patients and their close contacts for detection of the virus using real-time-polymerase chain reaction (RT-PCR) assay. A suspected case of influenza like illness (ILI) and laboratory confirmed influenza A were defined.[16] Death due to A (H1N1) was considered when the infection was confirmed by laboratory testing, either before or after death. Only laboratory confirmed cases were given antiviral treatment.[17]

Data source, collection and analysis

Surveillance was set up through IDSP across the district. The District Epidemiologist assisted by his team visited the suspected case-patients, collected their samples and sent those to Post Graduate Institute of Medical Sciences and Research (PGIMER) laboratory, Chandigarh, Government Medical College, Amritsar the Religare laboratory (SRL) for confirmation. Line list of all cases and death reports were analyzed and the valid conclusions were drawn.

FINDINGS

District Amritsar had a population of 26, 70, 022 in the year 2015. There were 159 suspected cases of Swine flu reported from various hospitals of district Amritsar. Out of 159 reported cases, 73 (45.9%) were found confirmed. The attack rate (AR) found was 2.735/lac population. There were 29 deaths giving case fatality rate (CFR) of 39.7%. The findings of these 73 confirmed cases are summarized below.

Age: The mean age of 73 confirmed cases of H1N1 found was 43.98 ± 1.63 years. Among these cases, the minimum age was 2 months and the maximum 72 years.

Table 1. Age wise distribution

Age in years	No.	Percent
< 1 yr	1	1.4
2-5 yrs	1	1.4
6-10 yrs	1	1.4
11-20	2	2.7
21-30 yrs	12	16.4
31-40 yrs	13	17.8
41-50 yrs	14	19.2
> 50 yrs	29	39.7
Total	**73**	**100.0**

$X^2 = 75.713$ $df = 7$ $p < 0.001$

Table 1 shows that 3 (4.2%) cases were found below the age of 10 years. Among these there was 1(1.4%) case each in infant, preschool child and elementary education school age group. The maximum number of cases 29 (30.7%) were in the age above 50 years. This is followed by 14 (19.2%), 13 (17.8%), and 12 (16.4%) in the age groups of 41-50, 31-40 and 21-30 years respectively. However in the age group of 11-20 years, only 2 (2.7%) cases were found. This shows that there is a gradual increase in percentage of swine flu cases with the rising age. The difference in the number of cases in the different age groups was highly significant statistically.

Table 2. Sex wise distribution

Sex	No.	Percent
Female	39	53.4
Male	34	46.6
Total	73	100.0

$X^2 = 0.342$ $\quad$ df = 1 $\quad$ p > 0.5

Table 2 shows that there was higher percentage of H1N! cases in females than in males. There were 39 (53.4%) female cases and 34 (46.6%) male cases. The difference in the number of cases in males and females was found to be insignificant statistically.

Table 3. Area wise distribution

Area	No.	Percent
Rural	30	41.1
Urban	43	58.9
Total	73	100.0

$X^2 = 2.316$ $\quad$ df = 1 $\quad$ p > 0.1

Table 3 shows that there was a higher percentage of H1N1 cases in urban areas than in rural areas. There were 43 (58.9%) cases in urban areas and 30 (41.1%) in rural areas. The difference between rural and urban areas was found to be insignificant statistically.

Table 4. Month wise distribution

Month	No.	Percent
January	2	2.7
February	59	80.8
March	12	16.4
Total	**73**	**100.0**

$X^2 = 76.239$ $\quad$ df = 2 $\quad$ p < 0.001

Table 4 is showing that all the cases found were in the months of January to March. The highest number of swine flu cases, 59 (80.8%) was reported in the month of February. Difference in frequency of H1N1cases in different months was observed highly significant statistically.

Table 5. Hospital wise distribution

Hospital	No.	Percent
CMC Ludhiana	1	1.4
Dr. Ved Gupta Hospital	2	2.7
Fortis Hospital	17	23.3
Guru Nanak Dev Hospital	38	52.1
Hargun Hospital	1	1.4
K D Hospital	2	2.7
Madan Hospital	1	1.4
Medicare Hospital	3	4.1
Nayar Hospital	2	2.7
SGRD Medical College	4	5.5
Shoor Hospital	2	2.7
Total	**73**	**100.0**

$X^2 = 194.953$ $\quad$ df = 10 $\quad$ p < 0.001

Table 5 shows that the maximum number of cases were reported from Guru Nanak Dev Hospital, 38 (52.1%) followed by Fortis Hospital, 17(23.3%) and SGRD Medical College, 4(5.5%). Minimum cases were reported from Hargun Hospital and Madan Hospital i.e. 1(1.4%) from each hospital. However 1 (1.4%) case belonging to Amritsar district was treated in CMC Ludhiana. The remaining cases were reported from the other hospitals as shown in the table. The difference in hospital wise distribution of H1N1cases was found highly significant statistically.

Table 6. District wise distribution

District	No.	Percent
Amritsar	43	58.9
Ferozepur	1	1.4
Gurdaspur	14	19.2
Jammu	1	1.4
Ludhiana	1	1.4
Pathankot	3	4.1
Tarn Taran	10	13.7
Total	**73**	**100.0**

$X^2 = 33.894$ $\quad$ df = 6 $\quad$ p <0.001

Table 6 shows that maximum number of cases were reported from Amritsar, 43 (58.9%) followed by the adjoining districts Gurdaspur, 14 (19.2%) and Taran Taran 10 (13.7%) and the remaining from the other districts. The district wise difference in number of swine flu cases was found to be highly significant statistically.

Table 7. Laboratory wise distribution

Laboratory	Frequency	Percent
PGI Chandigarh	3	4.1
GMC Amritsar	46	63.0
SRL	24	32.9
Total	**73**	**100.0**

$X^2 = 38.052$ df = 2   p < 0.001

Table 7 shows that maximum number of cases, 46 (63.0%) were tested in Government Medical College Amritsar, followed by Religare, 24 (32.9%) and Post Graduate Institute of Medical and Research Chandigarh Laboratories, 3 (4.1%) respectively. The laboratory wise difference in number of H1N1 cases was highly significant statistically.

CONCLUSION

The AR of H1N1 in this study is found 2.735/Lac population with CFR 39.7%. AR per lac population in district Amritsar in year 2015 is the highest since the start of its pandemic in year 2009. A study conducted in 2014 in district Amritsar showed that during the years 2009 to 2014 it ranged between 0 to 0.763/lac population. It was also much higher than 1.9/lac population found in other studies conducted in Hyderabad and other parts of India in year 2009. Some increase in CFR has been observed in present study as it was 36.1% in year 2014. [14] More higher percentage of cases in the age groups above 30 years, higher percentage of urban contrary to previous study of year 2014has been observed. Bimodal peaks of H1N1had been found in year 2014 i. e. higher peak of 27 (75%) cases in December to March and lower peak of 9 (25%) cases in August to October [14] while in the present study unimodal peak of all the cases has been observed in the months of January to March. This shows a trend of the shift of the disease towards the winter months.

Hence keeping these situations in view the necessary actions may be taken for the control of H1N1 in district Amritsar. Health-care workers, patients and visitors should follow the infection control precautions to minimize the possibility of transmission of H1N1 and take all preventive, control and treatment measures and launch awareness campaigns.

LIMITATIONS

The study included H1N1 cases confirmed in three laboratories. Thus there is under-reporting of cases due to non-availability of laboratory facilities and underestimate of the true population rate as the cases reported were from the patients attending public sector hospitals.

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Coverage Evaluation of Consumption of Anti-filarial Drugs in Mass Drug Administration Programme in a District in Tamilnadu

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ABSTRACT

Introduction: Lymphatic filariasis caused by Wuchereria bancrofti and Brugia malayi is an important public health problem in India. Annual rounds of Mass Drug Administration (MDA) of diethylcarbamazine and albendazole are used to control filariasis. This study was conducted to assess the MDA programme in terms of actual coverage and compliance rates in the Pudukkottai district as well as to identify reasons for non compliance. **Materials and Method:** A cross-sectional population based house-to-house survey was conducted during 2012 after two weeks of the MDA round in Pudukkottai district, Tamil Nadu. Four clusters -three villages and one urban ward were selected. The streets from the selected clusters were enumerated. Of this one street was randomly selected using lottery method. From each of the houses, data was collected from an adult, or, from a child older than 15 years, if an adult was absent. The data was collected using a standard format which includes socio demographic details, details of drug distribution, details of drug consumption, source of information about the MDA programme etc. **Results:** 583 members from 122 families were included from three rural and one urban area. The coverage rate was 85.2%, of whom 230 (46.4%) were males and 266 (53.6%) were females. The compliance rate with drug consumption was 86.7% and the coverage compliance gap was found to be 13.3%. The coverage of drug distribution in the urban area was 139 (92.1%). It was significantly high compared to rural areas (82.8%) (p value = 0.006). Fear of side effects was found to be the most common reason for not consuming the tablets. **Conclusion:** In our study both coverage and compliance rate was found to be higher than the target of 85%. Coverage of drug distribution was found to be higher among urban population. Measures need to be taken to improve the coverage rate in the rural area.

Keywords: *Tamil Nadu, DEC, Elimination, Filariasis, Coverage Gap*

INTRODUCTION

Lymphatic filarasis is a disease with high morbidity. The pathogen is transmitted to man by the bite of infected mosquitoes- Culex, Anopheles, Mansonia and Aedes. Man is the definite host and mosquito is the intermediate host of Bancroftian and Brugian filariasis. Both parasites produce essentially similar clinical presentations in man, related mainly to the pathology of the lymphatic system[1]. The adult filarial worm lives in the lymphatics and the microfilariae live in the peripheral blood and are able to infect the mosquitoes when they take a blood meal. This infection causes lymphangitis, lymphadenitis, elephantiasis of legs, genitals, and arms and causes tropical eosinophilia due to hypersentivity. This disease may cause severe deformity and disability.

Two approaches are required to eliminate this disease- namely, control of vector and mass administration of Diethyl carbamazine citrate to reduce the microfilarial load in the population so that they are no longer effective reservoirs for microfilaria. Though DEC alone was adopted as the primary strategy, India

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commenced pilot testing of the 2-drug strategy (DEC+ Albendazole) in 2001[2].

Lymphatic filariasis (LF) is endemic in 81 countries in the world, and a number of these countries have targeted LF for elimination and MDA has been implemented in 51 of the 71 eligible countries[3]. Nine of the 11 countries in the South East Asia Region are known to be endemic for filariasis[4]. In India, the National Filaria Control Programme (NFCP) was launched in 1955 for the control of Bancroftian filariasis and now India is committed to eliminate lymphatic Filariasis by the year 2015[5,6]. To achieve this goal annual mass drug administration of diethylcarbamazine (DEC) was launched in 2004 by the Government of India[7]. World Health Organization recommended Mass Drug Administration to all eligible people (except children <2 years, pregnant women and seriously ill patients)[2,3,8] for 5 to 7 years, which is the average reproductive life span of the adult worm, to eliminate lymphatic filariasis. It has been implemented in India since 1997[9]. Mass drug administration is expected to bring down microfilaria rate by 80%. More than 5 rounds of MDA covering more than 65% of the population will bring down the prevalence of microfilaraemia in humans to less than 1% and this will stop the transmission of the disease. Elimination of lymphatic filariasis is said to be achieved when lymphatic filariasis ceases to be a public health problem, when the number of microfilaria carriers is less than 1%.

In India, 250 districts in 20 states and Union Territories are endemic for filariasis. According to recent estimates, 600 million people are exposed to the risk of infection.

Hence mass DEC administration was started in India since 2004. From 2007 DEC plus Albendazole are delivered to the people in highly endemic areas. This study was conducted to assess the coverage, compliance and the gap between coverage and compliance of MDA in Pudukkaottai district during 2012.

MATERIALS AND METHOD

A cross sectional study was conducted to evaluate the MDA programme during 2012 in Pudukkottai district in Tamil Nadu two weeks after the drug distribution was completed. Three villages and one urban ward were selected as per the following method: A list of all the villages in the district with the coverage percentage of drug distribution was prepared. Of these, one village with the highest percentage, one village with the lowest percentage and one village with medium percentage of drug distribution were selected. Among the urban wards one ward was randomly selected. Hence four clusters were selected. Each of the four clusters was visited. The streets of the selected clusters were enumerated. Of them one street was randomly selected using lottery method. In each street one house was selected randomly. The subsequent houses were selected by systematic random sampling by selecting every 5th house. A total of 122 families were covered from the four clusters.

In each house, data was collected from an adult, or, if an adult was absent, from a child older than 15 years. The data was collected using a standard format issued for this purpose by the Government of India. The prestructured proforma includes sociodemographic details, details of drug distribution, details of drug consumption, source of information about the MDA programme etc. The data was analyzed using statistical package for social sciences version 16.0 software package. Proportion, mean and standard deviation was used appropriately. Chi-square test was used to compare the difference between two proportions and p value of $\leq$ 0.05 was taken as the level of significance.

RESULTS

The present study covered a total of 583 persons eligible to receive anti-filarial drugs from 122 families. Mean age of the subjects was found to be 29.95(17.7). 279 (47.9%) were males and 304 (52.1%) were females. Majority (70.7%) of the subjects belonged to the age group of 15-60 years. 431 (74.1%) study population were from rural areas and 151 (25.9%) were from urban area (Table 1).

Among the eligible population, drugs was distributed to 496 individuals with a coverage rate of 85.1%, of whom 230 (46.4%) were males and 266 (53.6%) were females. The coverage of drug distribution in the urban area 139 (92.1%) was significantly higher compared to rural areas 357 (82.8%) (p value = 0.006). A total of 430 persons consumed the tablets, showing a compliance rate of 86.7% and the coverage compliance gap was 13.3%. But However, the completion of full course was seen among 385 (89.5%) subjects. Though not statistically significant, the consumption rate was found to be higher among females (53.5%) as compared to males (46.5%).

Among the subjects who received the tablets, there was no difference in consumption rate between rural (86.0%) and urban (88.5%) areas.

Majority of the study population (96.7%) were explained about the mass drug administration programme by the drug distributors.

The most common reasons given for not consuming the tablets were: fear of side effects due to drug consumption (38.5%), lack of awareness about the programme (15.5%) and suffering from chronic disease (15.5%). Most (96.5%) of those interviewed said that they obtained information about MDA from the drug distributor.

DISCUSSION

The effectiveness or success of lymphatic filariasis elimination depends on the consumption of the drug by the affected population and intermediary evaluation of the program[10]. A high coverage (>85%) in endemic areas, sustained for 5 years, is required to achieve the interruption of transmission and elimination of disease in India.

In the present study, coverage was found to be above the target of 85% (coverage rate- 85.1%, compliance rate- 86.7%) compared to other studies[9,11-13]. From a systematic review the overall MDA coverage rates varied between 48.8% and 98.8%[14]. Coverage evaluation studies from West Bengal (55.91%)[15], Madhya Pradesh in 2007 (67.9%)[16], Orissa in 67%[5] and in Sri Lanka[17] (79.6%) showed coverage lower than that seen in our study.

There are studies which show very low compliance rate in Kerala (39.6%)[12]. However, the compliance rate in the present study is slightly lower than a study in Puducherry (88.7%) in 2008[18]. Compliance rate for consumption of anti-filarial drugs from other studies show West Bengal in 2010 (70.07%)[4], Madhya Pradesh in 2007 (77.4%)[16], Orissa (42%)[5] and in Sri Lanka it was ranging from 83.3% - 94.6%[17]. We found the compliance rate to be similar in rural and urban areas. However, a study in Bidar district, Karnataka reported that the compliance rate was significantly poor in urban area (46%) compared with rural area (74%)[19]. There is no sex wise difference in compliance rate between males (79.9%) and females (77.3%) (p=0.43)[20]

In the present study, the drug distributors including health workers and anganwadi workers were found to be the main source (96.5%) of information on mass drug administration. The role of mass media such as television, radio, news papers, local cable network and local folk media has not been used effectively. But in another study by Aswathy, S et. al.[12] in Kerala, television was found to be the major source of information. Overall the compliance rate for mass drug administration ranges from 20.8% to 93.7%[14]. As found in another study by Babu, B et al[5]., the present study reported that the fear of side effects was found to be the major reason for not consuming the tablets.

Table 1: Characteristics of study population

Characteristics	Frequency (%)
Age	
2-5 years	36 (6.2)
6-14 years	105 (18.0)
15-60 years	412 (70.7)
> 60 years	30 (5.1)
Sex	
Male	279 (47.9)
Female	304 (52.1)
Area	
Rural	431 (74.1)
Urban	151 (25.9)
DEC given	
Yes	496 (85.1)
No	87 (14.9)
DEC consumed	
Yes	430 (86.7)
No	66 (13.3)

Table 2: Reason for non consumption of DEC

Reason for Non Consumption	Frequency	%
Fear of side effects	20	30.3
Drug distributor not visited	17	25.8
Out of station	9	13.7
Not aware	8	12.1
Suffering from chronic disease	8	12.1
Lack of faith in tablets	2	3.0
Usually not taking any drug	2	3.0

CONCLUSION

A high coverage (>85%) was reported in our study population. If the same is sustained for another five

years, we will be able to achieve the interruption of transmission and elimination of disease in the district. As suggested by Ramaiah K. et. Al.[21] altering the behaviour during the rounds of MDA would improve the compliance rate for the drugs. As suggested by Rath K. et. al.[22],(2004), Kumar A et. al.[10] (2004) and Molyneux D et. al.[6], it is important to make the people and the health workers[5] knowledgeable about the MDA programme before each round of drug distribution for the success of the elimination programme. Since the reason for non consumption was found to be fear of side effects, educating the public about the safety of the drug and removing their fear before beginning the mass DEC distribution is very important for acceptance and compliance.

Conflicts of Interest: None

Source of Funding: Nil

Ethical Issues: The study was cross sectional and does not involve patient intervention methods. Patient's identity was not revealed at any stage of the study and strict confidentiality was maintained. Hence, ethical issue does not arise.

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Effectiveness of Video Assisted Teaching Programme on Knowledge Regarding Practice of Body Mechanics among Staff Nurses in Selected Hosptals, Moradabad

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ABSTRACT

Body mechanics is a term applied for describing the movements that we tend to make normally for carrying out our daily activities including sitting, standing, walking, lifting, lying in bed, pushing and pulling. A quantitative research using true experimental design was conducted to assess the effectiveness of video assisted teaching programme on knowledge regarding practice of body mechanics among staff nurses in selected Hospitals, Moradabad. 60 staff nurses (30 experimental and 30 control group) were selected using simple random sampling technique and knowledge was assessed using structure knowledge questionnaire and assess the effectiveness of video assisted teaching programme in experimental group. Video assisted teaching programme was prepared to provide knowledge regarding practice of body mechanics. After the assessment all experimental and control group participants have moderate knowledge, in post-test experimental group 93% of the staff nurses having adequate knowledge followed by in control group 93% of the staff nurses having moderate knowledge. The unpaired 't' test value (5) post-test mean knowledge score of experimental and control group was obtained, it shows that there was a significant difference between mean post-test knowledge score in experimental and control group at the level of $p<0.05$, after video assisted teaching programme (experimental group).

Nurses with expertise in body mechanics must share their knowledge with other nursing staffs and ensure that their practice is based on the best evidence available and for these various in services, education program should be organized, and the nurses should implement in their daily practices so that the risk of back problems/injuries should be avoided.

Keywords: knowledge on practice, Body Mechanics, Staff Nurses, and Video assisted teaching programme.

INTRODUCTION

Body mechanics is a term applied for describing the movements that we tend to make normally for carrying out our daily activities including sitting, standing, walking, lifting, lying in bed, pushing and pulling. A nurse is not only considered to have massive scientific knowledge of body mechanics but also about its implementation in daily practice, if not the muscles which are unable to provide the support and strength are thereby forced to exert strain, cause injury, fatigue to the body tissues[1].

Maintaining good body mechanics still remains a challenge for the clinical nurse's in-order to safeguard themselves from the injuries that might occur to them, if not taken care of. Safe methods of carrying out daily activities in a ward must be taught to them so that they can actually put it into practice and thus protect themselves from a lot many otherwise occurring complications of improper body mechanics[2].

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The bureau of labor statistics says that nearly 80% of all back as well as shoulder injuries is mainly a result of not maintaining proper body mechanics while handling and transferring clients. Injuries occur due to over exertion resulting from certain procedures like lifting, pulling, pushing, carrying and turning motions. As per their report there are around 66500 injuries that might result. Nursing assistance.17% nursing home workers lost work time due to injury on the job that is at the rate of 216400 injuries and illness with untold pain and suffering. Hospital workers therefore acquire greater chances of suffering from lower back pain. Hence, clinical nurses therefore must be aware of body mechanics and for that they need to incorporate knowledge and implement the same[3].

MATERIALS AND METHOD

A quantitative research approach was used. Research design adopted for this study was true experimental pre-test post-test design. The target population for the study was staff nurses. Number of sample was 60 staff nurses (30 experimental group and 30 control group) working in selected Hospitals, Moradabad. The sampling technique used was simple random sampling. Structure knowledge questionnaire was prepared for assessing the knowledge regarding practice of body mechanics among staff nurses (pre-test and post-test). Video assisted teaching programme was prepared to provide knowledge regarding practice of body mechanics. The data obtained was analysed by both descriptive and inferential statistics on the basis of the study. To compute the data, a master data sheet was prepared by the investigator.

RESULTS

The level of knowledge regarding practice of body mechanics was assessed by using descriptive measures (mean, standard deviation). While, the effectiveness of video assisted teaching programme was assessed by using unpaired 't' test and paired 't' test. The demographic variables were analysed using descriptive measures (frequency and percentage) and association between knowledge regarding practice of body mechanics with their selected demographic variables were assessed using Chi- Square test.

Table no.1: Frequency and percentage distribution of sample according to their pre-test and post-test level of knowledge in experimental and control group $N_1=30$, $N_2=30$

Level of Knowledge	Range	Experimental Group				Control Group			
		Pre-test		Post-test		Pre-test		Post-test	
		F	%	F	%	F	%	F	%
Inadequate	0-9	-	-	-	-	-	-	2	7
Moderate	10-18	30	100	2	7	30	100	28	93
Adequate	19-27	-	-	28	93	-	-	-	-

The table no.1 indicates that in pre-test experimental group, 100% of the staff nurses were having moderate level of knowledge (range 10-18), followed by in post-test experimental group, 93% of the staff nurses were having adequate level of knowledge (range 19-27), followed by 7% of the staff nurses were having moderate level of knowledge (range 10-18). In pre-test control group, 100% of the staff nurses were having moderate level of knowledge (range 10-18), in post-test control group, 93% of the staff nurses were having moderate level of knowledge (range 10-18), followed by 7% of the staff nurses were having inadequate level of knowledge (range 0-9).

Table 2: Chi-Square test showing association of pre-test mean knowledge score with selected demographic characteristics of experimental and control group   **N=60**

Sr. No.	Demographic Variables	Below Median	Above Median	Chi-Square X^2	df	Table Value	Inference
1	**Age** a) 22-25 years b) 26-29 years c) 30-35 years d) Above 35 years	8 17 10 11	3 5 2 4	0.49	3	7.81	NS
2	**Gender** a) Male b) Female	15 29	5 11	0.04	1	3.84	NS
3	**Religion** a) Hindu b) Muslim c) Christian	34 5 6	6 7 2	9.24	2	5.99	S*
4	**Marital Status** a) Married b) Unmarried	33 12	8 7	2.08	3	3.84	NS
5	**Educational Status** a) G.N.M b) B.Sc (N)	34 11	10 5	0.45	1	3.84	NS
6	**Experience** a) 1-2 years b) 3-5 years c) 6-8 years d) Above 8 years	3 28 10 4	2 6 3 4	4.27	3	7.81	NS
7	**Duties in Wards** a) Medical ward b) Surgical ward c) Ortho ward d) ICU e) Emergency f) GYN/OBS	15 7 8 2 9 5	5 1 0 4 1 3	11.18	5	7.81	S*

NS= Non-significant   **S*= Significant**

The Hypothesis was tested at the 0.05 level of significance. The major findings of the study obtained were: Experimental group, 37% of the staff nurses were found with the age group of 22-25 years. In control group 47% of the staff nurses were found with the age group of above 35 years. Experimental group, 60% of the staff nurses were belonged to the female gender group. In control group 77% of the staff nurses were belonged to the female gender group. Experimental group, 63% of the staff nurses staff nurses were Hindu, in control group, 73% of the staff nurses staff nurses were Hindu. In experimental group, 65% of the staff nurses staff nurses were married, in control group, 73% of the staff nurses staff nurses were married. In experimental group, 67% of the staff nurses were had educational status G.N.M, in control group, 80% of the staff nurses were had educational status G.N.M. Experimental group, 50% of the staff nurses were having experience of 3-5 years, followed by; in control group 47% of the staff nurses were having experience of 3-5 years. In experimental

group, 37% of the staff nurses were having duties in Medical wards, in control group, 30% of the staff nurses were having duties in Medical wards. The unpaired 't' test value (5) post-test mean knowledge score of experimental and control group was obtained, it shows that there was a significant difference between post-test mean knowledge score in experimental and control group at the level of $p<0.05$. Chi-square test shows significant association between pre-test mean knowledge score regarding practice of body mechanics with their selected demographic variables such as Religion, and Duties in wards. However there was no significant association with their selected demographic variables such as Age, Gender, Marital status, Educational status, and Experience.

DISCUSSION

Pre-test experimental group, 100% of the staff nurses had moderate level of knowledge in post-test experimental group, 93% of the staff nurses had adequate level of knowledge, followed by 7% of the staff nurses had moderate level of knowledge.

Mercy VA et al (1999), conducting a pre-experimental study to evaluate the effectiveness of a self-instructional module on the knowledge about body mechanics for staff nurses on 100 subjects randomly (One group pre-test and post-test design), Chandigarh. Result shows that there was a significant improvement in the level of knowledge after introduction of SIM[4].

CONCLUSION

After the assessment it was revealed that in pre-test staff nurses having moderate knowledge in (experimental and control group), Video assisted teaching programme was conducted to provide knowledge regarding practice of body mechanics (experimental group). In post-test experimental group 93% of the staff nurses have adequate knowledge, in control group 93% of the staff nurses have moderate level of knowledge. It shows that Video assisted teaching programme was effective and it increases the knowledge regarding practice of body mechanics (experimental group).

Nurses with expertise in body mechanics must share their knowledge with other nursing staffs and ensure that their practice is based on the best evidence available and for these various in services, education program should be organized, and the nurses should implement in their daily practices so that risk of back problems/injuries should be avoided.

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Effectiveness of Group Assertiveness Training in Social Anxiety and Meta-cognitive Beliefs of Students Living in the Dormitory

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ABSTRACT

The research purpose was to assess the effectiveness of group assertiveness training in social anxiety and meta-cognitive beliefs of students living in the dormitory. Therefore, a sample of 30 individuals (15= experimental group and 15=control group) was selected through simple random sampling. The research employed a semi-experimental method with pre-test, post-test and control group design. The research tools included Watson and Friend Measurement of social-evaluative anxiety and meta-cognitive questionnaire-30. Covariance analysis (MANCOVA) was used to analyze the data. Findings revealed that group assertiveness training decreases social anxiety, uncontrollability related meta-cognitive beliefs, positive cognitive beliefs, low cognitive assurance, the need to control thoughts and cognitive awareness of students living in the dormitory. Hence, it can be concluded that group assertiveness training is effective in the decrease of meta-cognitive beliefs and social anxiety of students.

Keywords: Group Assertiveness Training, Social Anxiety, Metacognitive Beliefs.

INTRODUCTION

University students as the talented and selected stratum of the society are the influencers and creators of the country's future and their level of body and mental health exerts significant effect on learning and increases the academic awareness and academic achievement. Students experience challenging life due to their specific social-mental status. Furthermore, their performance-related emotions can influence their academic achievement[1]. Social anxiety is the result of someone's appraisal from different social situations. A person who is afflicted with social anxiety has no tendency to establish a bond with others due to his/her irrational resistance and phobia and avoids any situations that might be associated with judgment. A person's perception or image of being assessed or evaluated with regard to his/her personality can be imaginary or real[2]. When faced with such anxiety, the individual's self-confidence may decrease, realistic attitude and mutual relationship with others may decrease and the feelings of distress, depression, tension, inability to de-stress, agitation and restlessness, escaping from the usual social communication and excessive preoccupation[3].

Irrational metacognitive beliefs are effective factors of mental health. Such beliefs endanger mental health by changing metacognitions that increase maladaptive strategies of negative thoughts or increasing general negative beliefs. Metacognitive beliefs are the beliefs that are related to the uncontrollability, the importance and risk of thoughts and cognitive experience[4]. Moreover, research shows that negative and positive metacognitive beliefs may prolong worry. Such beliefs lead to some disorders that influence thinking style and adjustment and reinforces emotional responses that are the outcomes of mental rumination and worry [5].

It should be stated that necessary assertiveness and skills are crucial for the progress and decrease of psychological problems because non-assertive behaviors are preventive and avoidant and are also positively and significantly correlated to phobias, anxiety, depression, fears and internal aggressions[6]. Therefore, this particular population are confronted with different cognitive, emotional and affective problems and their psychological

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health and the lack of psychological disorders can be decreased through life skills trainings such as group assertiveness training. Group training is of great benefit because group is representative of the society and helps individuals realize that their problem is not unique. Given the above-mentioned text, the present research aimed to assess the effectiveness of group assertiveness training in social anxiety and meta-cognitive beliefs of students living in the dormitory.

METHOD

The research employed a semi-experimental method with pre-test, post-test and control group design. The statistical population included 73 female individuals living in the dormitory of Ahvaz city, out of which, a sample of 30 individuals (15= experimental group and 15=control group) was selected through simple random sampling and assigned into the experimental and control groups. The research tools included Watson and Friend Measurement of social-evaluative anxiety and meta-cognitive questionnaire-30.

Social anxiety questionnaire: this 58-item questionnaire was designed and developed by Watson and Friend (1969) and then translated by Ebrahimi Ghavam (1999). This questionnaire evaluates the individual's worry in social settings. There are 15 positive-response and 13 negative-response items in the subscale of social avoidance. Higher score is indicative of social distress and avoidance[7]. Mehrabi Zadeh & Bahar Lou (2008). The validity of this questionnaire using construct validity was equal to .45 and .67 with other social subscales. The reliability coefficient of the questionnaire using Cronbach alpha and test-retest is equal to .92 and .89.

Metacognitive beliefs: this 30-item questionnaire evaluates individuals' beliefs about their thoughts. This tool has been designed to assess some meta-cognitive elements that have central role in the metacognitive model of psychological disorder. The items are scored on four-point Likert scale from (1=I don't agree to 4=I strongly agree). These scales have five scales: positive beliefs about worry, uncontrollability-related beliefs, risk of thoughts, beliefs about cognitive assurance, beliefs about the need to control thoughts and cognitive self-awareness[8]. In the research by Velz et al (2004), the Cronbach alpha coefficient for the subscales are equal to .72 to .93 and its reliability using test-retest in the time interval of 18 to 22 days is .75. Moreover, it is equal to .59 to .87 for the subscales[8].

Group assertiveness training program: this program was based on the handbook of life skills and assertiveness strategies of Klinke (1990, translated by Mohammad Khani)[9]. The summary of the sessions are as following:

First session: Introduction, describing the assertiveness program and its importance in daily life / Second session: people's rights and familiarity with their rights / Third session: self-expression and alternative behaviors / Fourth session: anger, negative and preventive consequences / Fifth session: catharsis / Sixth session: decision-making skills / Seventh session: criticism, appropriate and effective feedback / Eighth meeting: summarizing the sessions, expressing opinions and conclusions.

FINDINGS

The present research aimed to assess the effectiveness of group assertiveness training in social anxiety and meta-cognitive beliefs of students living in the dormitory. In this section, the research data will be discussed in detail.

Table 1- Mean and standard deviation of the scores of social anxiety and metacognitive beliefs in the experimental and control groups and in the pre-test and posttest

Variable	Step	Statistical index	Mean	SD	Min	Max
		Group				
Social anxiety	Pretest	Experimental	50.20	5.14	45	53
		control	49.60	4.15	46	55
	posttest	Experimental	24.33	4.22	21	25
		control	49.93	4.31	47	52

Cont... Table 1- Mean and standard deviation of the scores of social anxiety and metacognitive beliefs in the experimental and control groups and in the pre-test and posttest

positive beliefs about worry	Pretest	Experimental	19.01	2.79	17	22
		control	20.01	1.73	18	23
	posttest	Experimental	10.30	2.49	8	11
		control	20.60	1.50	19	23
uncontrollability-related beliefs	Pretest	Experimental	18.30	2.01	17	22
		control	16.86	2.44	14	17
	posttest	Experimental	11.20	1.81	8	12
		control	18.20	2.07	15	19
low cognitive assurance	Pretest	Experimental	18.21	1.87	14	19
		control	16.66	2.55	13	21
	posttest	Experimental	10.90	1.19	8	13
		control	19.01	2.32	16	25
beliefs about the need to control thoughts	Pretest	Experimental	19.20	1.22	16	23
		control	17.46	1.72	15	24
	posttest	Experimental	10.80	1.13	7	11
		control	19.01	1.46	17	26
cognitive self-awareness	Pretest	Experimental	18.80	1.75	14	23
		control	17.66	2.19	15	26
	posttest	Experimental	11.01	1.33	7	12
		control	18.26	1.48	15	27

Table 2- The results of multivariate covariance analysis on the mean scores of social anxiety in the posttest and metacognitive beliefs in the experimental and control groups

Test	Ratio	Df Hypothesis	Df Error	F	P	Effect Size	Statistical Power
Pillai's Trace	.96	6	12	60.12	.001	.94	1
Wilks' Lambda	.03	6	12	60.12	.001	.94	1
Hotelling Trace	30.06	6	12	60.12	.001	.94	1
Roy's Largest Root	30.06	6	12	60.12	.001	.94	1

As observed in table 2, all the significance levels with the control of pre-test indicate that there exists at least one significant difference in one of the dependent variables (social anxiety and metacognitive beliefs) (p<.001, F=60.12).

First hypothesis: group assertiveness training improves social anxiety of dormitory students.

Table 3- One-way covariance analysis (MANCOVA) on the mean scores of social anxiety in the experimental and control groups with the control of pre-test.

Variable	SS	DF	MS	F	p	Effect size	Statistical power
Social anxiety	1585.93	1	1585.93	45.39	.001	.72	1

As observed in table 3, there exists significant difference between the experimental and control groups in social anxiety (F=45.39, p<.001). That is to say that, group assertiveness training decreased the level of social anxiety among the dormitory students in the experimental group. The effect size was equal to .72. For want of a better word, 72 percent of the between-group differences in the scores of social anxiety in the posttest is explained by the effectiveness of group assertiveness training. Therefore, the first hypothesis is confirmed.

First hypothesis: group assertiveness training improves metacognitive beliefs of dormitory students.

Table 4- Results of one-way covariance analysis (MANCOVA) on the mean scores of metacognitive beliefs in the experimental and control groups with the control of pre-test

Test	Ratio	Df Hypothesis	Df Error	F	P	Effect Size	Statistical Power
Positive Beliefs About Worry	401.43	1	401.43	176.42	.001	.91	1
Uncontrollability-Related Beliefs	201.77	1	201.77	49.94	.001	.74	1
Low Cognitive Assurance	255.80	1	255.80	64.10	.001	.79	1
Need To Control Thoughts	222.47	1	222.47	161.29	.001	.90	1
Cognitive Self-Awareness	237.18	1	237.18	168.34	.001	.89	1

As observe in table 4, there is significant difference between the dormitory students of the experimental and control groups in the variables of positive beliefs about positive beliefs about worry (F=176.42, p<.001), uncontrollability-related beliefs (F=49.94, p<.001), low cognitive assurance (F=64.10, p<.001), need to control thoughts (F=161.29, p<.001) and cognitive self-awareness (F=168.34, p<.001).

DISCUSSION AND CONCLUSION

The present research aimed to assess the effectiveness of group assertiveness training in social anxiety and meta-cognitive beliefs of students living in the dormitory. Results indicated that there is significant difference between the dormitory students of the experimental and control groups. For want of a better word, group assertiveness training decreased students' social anxiety in the experimental group as compared to the control group. This finding is in line with the results of the research by Heidarian and Adelian (2015)[10], Rastgari and Ali Pour (2015)[11], Taheri (2014)[12]. They found out that group assertiveness training is effective in decreasing students' social anxiety. Tadayon (2012) revealed in his research that group assertiveness training caused this difference between the experimental and control groups[13].

In the explanation of this fining, it can be stated that, dormitory students face more varied limitations and socio-cultural paradigms which may cause more anxious evaluations of different social settings. Social theories state that feelings of lack of control over situations and negative viewpoint provokes social anxiety in individuals [14]. However, in this research,

group assertiveness training decreased the level of social anxiety in students. It should be stated that, group assertiveness training leads to the formation of real perception of self-assertion in an assertive way. It also increases self-confidence and self-esteem and teaches the ways of dealing with criticism, praise, change in internal conversation, observing the personal rights and self-assertive behaviors [15]. These factors can decrease social anxiety, avoidance, distress and fear of negative social evaluation.

Furthermore, there exists significant difference between the dormitory students of the experimental and control groups in the variables of positive beliefs about worry, uncontrollability-related beliefs, low cognitive assurance, need to control thoughts, and cognitive self-awareness. To put it differently, group assertiveness training decreased the variables of positive beliefs about worry, uncontrollability-related beliefs, low cognitive assurance, need to control thoughts, and cognitive self-awareness in the experimental group as compared to the control group. Therefore, the second hypothesis was also confirmed.

This fining is in harmony with the results of the research by Darabian (2014). According to this researcher, group assertiveness training decreases positive beliefs about worry, uncontrollability-related beliefs, low cognitive assurance, need to control thoughts, and cognitive self-awareness. Khosravi (2011) indicated that life skills training in the experimental group causes the students to demonstrate lower levels of positive beliefs about worry, uncontrollability-related beliefs, low cognitive assurance, need to control thoughts, and cognitive self-awareness. In fact, life skills

training decreased the levels of positive beliefs about worry, uncontrollability-related beliefs, low cognitive assurance, need to control thoughts, and cognitive self-awareness among the students. In the explanation of this fining, it can be stated that college students who live in the dormitory perceive different academic, social, cognitive and economic problems and encounter with maladaptive beliefs and negative metacognitions. Based on the theory of self-regulative executive functioning, psychological disorders persist when irrational beliefs take their roots from an individual's metacognitive beliefs and get activated and processed in problematic settings. However, the present research indicated that group assertiveness training decreased dormitory students' metacognitive beliefs.

It should be stated that assertiveness skill training is a multi-content behavioral method and its therapeutic elements that include guidance, role playing, modeling, feedback, visual-behavioral practice and review can induce decisiveness and assertiveness in expressing the needs[19]. Students are not confronted with problems by learning daring, explicit and decisive methods in expressing their ideas and beliefs. Moreover, the outcomes of negative thinking about the inability can be decreased through learning assertiveness techniques. Assertiveness training can increase students' energy, activity and motivation. This kind of training can direct students toward specific goals and particular activities, decrease students' beliefs about the negative consequences, change their focus of attention and generate personal peace so that students can be aware of their positive feelings and behaviors and perceive empowerment beliefs to assert themselves in the society[20].

Sampling faced difficulty due to the lack of the cooperation of the dormitory's authorities to provide a list of students. Moreover, time limitation and lack of control over the socioeconomic status of students were two other limitations of this research. It is recommended that a one-month or two-month follow-up study be done to assess the effectiveness of group assertiveness training in the decrease of social anxiety and metacognitive beliefs of students living in the dormitory. Furthermore, it is recommended that the effectiveness of group assertiveness training in social anxiety and metacognitive beliefs be studied on other students. What's more, the results should be generalized with caution.

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Implication of the Rule of Halves for Hypertension in an Urban Area, Belagavi

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ABSTRACT

Introduction: Hypertension is the most common chronic disease with substantial socio economic consequences. The prevalence of hypertension in the last six decades has increased from 2% to 25% among urban residents and from 2% to 15% among the rural residents in India. This study was done to evaluate the implication of 'rule of halves' as an assessment tool for detecting the status of awareness, management and control measures for hypertension in the community.

Methodology: A community based cross-sectional study was conducted among subjects aged 30 years and above among residents of urban area Ashoknagar. A sample of 300 was selected by systematic random sampling. Informed consent was obtained. A predefined pre-structured questionnaire was used to collect the data on sociodemographic characters and also regarding diagnosis and treatment of hypertension.

Result: The overall prevalence of hypertension in urban area was 38.3% (115/300). Among them 67(53.1%) of them were already diagnosed of hypertension, of which 47(77.1%) of them were on treatment. Of the 47 on treatment, 30(63.8%) of them had Blood pressure under control.

Conclusion: Comparing with rule of halves, our study showed the population had poor awareness, relatively better treatment and adequate control of Hypertension.

Keywords: *Rule, Halves, Urban, Implication*

INTRODUCTION

Hypertension is the most common chronic disease with systemic health complications that contribute to decrease in life expectancy[1,2]. It is estimated to cause 7.1 million deaths annually accounting for 13% of all deaths and it is projected to increase to 29.2% by the year 2025.[3] Recent reports indicate that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000, and this is predicted to increase to 1.56 billion by 2025.

The prevalence of hypertension in the last six decades has increased from 2% to 25% among urban residents and from 2% to 15% among the rural residents in India. According to Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, the overall prevalence of hypertension in India by 2020 will be 159.46/1000 population.

In Hypertension, the 'rule of halves' is well known which states that 'half of hypertensives are not known remain undiagnosed, half of those with known hypertension do not receive any treatment and half of those on treatment, have inadequately controlled blood pressure.[4] In this study, we made an attempt to assess, if the rule of halves in hypertension is still applicable among the midst of rapid urbanization and improved health coverage among an urban population in north Karnataka. How far this rule is authenticate is always in debate.

METHODOLOGY

A community based Cross-sectional study was undertaken among subjects aged more than 30 years in catchment area of Urban Health Centre Ashoknagar, which is the field practice area of department of

Community Medicine, Jawaharlal Nehru Medical College, KLE University, Belagavi. The duration of study was six months from July to December 2015. This study included 300 participants who were residing at least from one year in Ashoknagar and have given written informed consent. Pregnant women and ill patients found during data collection were excluded. Systematic random sampling was used to select the sample.

Blood pressure was recorded with a mercury sphygmomanometer in the sitting position in the right arm to the nearest 2 mm Hg. Two readings were taken 5 minutes apart and their mean was taken as the blood pressure. Variation in blood pressure (BP) measurements was minimized by ensuring 10 minutes rest before recording, using standard cuffs for adults and the same observer doing the recording. Hypertension was defined as "any individual who had systolic blood pressure (SBP) of 140 mmHg or greater and/or diastolic blood pressure (DBP) of 90 mmHg or greater or was a known hypertensive and on antihypertensive medication was considered as Hypertensive.[5] Controlled hypertension was defined as those who were on treatment and had a BP of < 140/90 mmHg.

RESULTS

Clinical and demographic profile of the patients is shown in Table 1. Prevalence of hypertension was found to be 38.3% and increase in prevalence was seen with increasing age, highest being 64% among those aged more than 60 years. Larger number of females 42.2% were hypertensives compared to males (33.3%). Among the hypertensives, 21.7% were diagnosed to have Diabetes mellitus.

Graph 1 depicts the distribution of the population based on their hypertensive status and treatment adherence. Among the 115 (38.3%) hypertensives only 61 (53.1%) were diagnosed to have hypertension, among the diagnosed only 47 (77.1%) were on treatment, of which 32 (63.8%) participants had Blood pressure within normal range.

DISCUSSION

In the present study the overall prevalence of hypertension was 38.3% which was on par with studies conducted in Mumbai and Chennai [6,7]. On the contrary there were studies conducted at Tirupati, Bangalore

where the prevalence was lower than that of present study[8,9]. It was seen in our study that with the increase in age the prevalence of hypertension also increased, similar findings were seen in many studies .[10,11] With the increase in age, risk factors for hypertension also increases so do the comorbid diseases. We found that more than 20% of hypertensives were diabetic too.

A cross-sectional community based survey conducted in Scotland put forth the rule of halves in hypertension way back in 1990. Time and again various authors worldwide have put fort contrasting views on this theory. Some studies have supported its validity[12,13] and some are in contrast to this theory[14]. In our study, we found that the rates of awareness, treatment and control were 53.1%, 77.1% and 63.8% respectively.

The first rule of halves stresses upon the screening component of the disease for early diagnosis and awareness regarding the disease. In our study as depicted in the flowchart below, 53.1% of the population was aware of their hypertensive status. This finding is almost on par with the rule. Majority of people less than 50 years hardly get their blood pressure checked, with a false belief that hypertension is the disease of old age per say. With more concentration of programmes on communicable diseases till date, this finding is more expected than surprise. With government involvement in more of NCD programmes in recent times and NUHM in picture frame, a lot of the hypertensive iceberg is expected to melt, showing us the exact picture of hypertension and early interventions among the public.

The second rule portrays on self-care nature of the population to prevent complications, by stressing on the treatment of those diagnosed with hypertension. Comparing to the actual rule, in our study the number of people opting for treatment was way better with 77.1%. This might be due to increased awareness regarding hypertension and its complications brought by health staff among the people of Ashoknagar by repeated health education during the camps and the urban health centre itself.

The final rule throws the light on the control of blood pressure by regular follow-ups and adherence to antihypertensive drugs and diet advice. With relation to it, in our study around 64% of those on treatment had Blood pressure in normal range (<140/90 mm hg). Most of the hypertensives opt treatment at urban health

centre. In the UHC drugs are prescribed for fifteen days, indirectly making the people visit the health centre monthly twice. This keeps their blood pressure in check along with repeated counselling on salt restricted diet and increased physical activities during the follow up has thought to have a had an impact in their Blood pressure control. Prompt and timely referral is made possible with increased visits of the patients Along with this a monthly specialist camp conducted has served the purpose.

Table 1: Distribution based on prevalence of Hypertension

Variables	NORMOTENSIVE NUMBER (%) n=185	HYPERTENSIVE NUMBER (%) n=115	TOTAL NUMBER (%) N=300
AGE IN YEARS			
30-40	53 (81.5)	12 (18.5)	65 (21.6)
41-50	65 (74.7)	22 (25.3)	87 (29)
51-60	40 (54.8)	33 (45.2)	73 (24.3)
>60	27 (36)	48 (64)	75 (25)
SEX			
MALE	88 (66.7)	44 (33.3)	132 (44)
FEMALE	97 (57.8)	71 (42.2)	168 (56)
DIABETES	11 (6)	25 (21.7)	36(12)

Graph 1: Distribution of the Community as per rule of halves

Table 2: Implication of rule of halves in study population

RULE OF HALVES	OUR STUDY SAMPLE	COMPARATIVE COMMENTS
50% Undiagnosed	46.9% Undiagnosed	" Iceberg theory" valid
50% Untreated	22.9% Untreated	" Improved Awareness "
50% Inadequate control	36.1% Inadequate control	"Good Adherence"

CONCLUSION

The implication of the rule of halves in urban population shows poor awareness, relatively better treatment and adequate control of Hypertension, when compared to the rule of half theory (Table 2). Thus the "rule of halves" is objectionable in the current population.

Conflict of Interest: Nil

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A Study of Non Alcoholic Fatty Liver Disease (NAFLD) Diagnosed on Ultrasound with Association of Lipid Profile in Western Uttar Pradesh

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ABSTRACT

Objective- To detect & compare lipid profile abnormalities in patients diagnosed with different grades of non-alcoholic fatty liver disease (NAFLD) on USG.

Method-A Total of 200 ultrasound proven Non alcoholic fatty liver disease (NAFLD) patients were included in this study & investigated with serum lipid profile. A Comparison of lipid abnormalities between different grades of fatty liver which were diagnosed on USG was done. P value was calculated by using analysis of variance test (ANOVA) & P value <0.05 was considered as statistically significant.

Results- Out of 200 cases which were diagnosed as NAFLD on USG,39% were grade III followed by grade0-27%, gradeII- 20%,gradeI- 14%. On Statistical analysis we found increased values of total cholesterol, triglyceride, LDL, VLDL. The Total cholesterol level was significant, p<0.001 was higher among fatty liver grade III followed by grade o, gradeI, grade II & difference was significant . Similar observations were found for HDL,LDL & VLDL. Most of the patients had history of cholecystectomy which was more in females as compared to males.

Conclusion- We found abnormal lipid profile levels amongst patients with NAFLD. Though Liver biopsy is the gold standard method for diagnosis of NAFLD but a Case control study is recommended to find better understanding of lipid levels among NAFLD Subjects.

Keywords- *Lipid level, Non-alcoholic fatty liver disease (NAFLD),Non alcoholic steato-hepatitis (NASH), Ultrasonography.*

INTRODUCTION

The term Nonalcoholic Steatohepatitis (NASH)[1] was coined by Ludwig in 1980 to describe the biopsy findings in patients with steatohepatitis in the absence of significant alcohol consumption. NASH is part of

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spectrum of steatosis, known as non-alcoholic fatty liver disease (NAFLD), which ranges from simple steatosis (fatty change/deposition)to steatohepatitis with fibrosis or cirrhosis[2]. A NAFLD classification system (grade 1 to grade 3) has been proposed that correlates certain histological features with the long termprognosis[2,3]. In this classification system: Grade I constitutes simple steatosis. Grade II is steatosis withlobular inflammation and ballooned hepatocytes. Grade III is steatosis, lobular inflammation, ballooned hepatocytes and mallory hyaline or fibrosis. NAFLD is the most common chronic liver disease in Western countries[4]. It encompasses a

wide spectrum of disease ranging from simple steatosis characterized by hepatic lipid accumulation in the form of triglyceride (TG) to nonalcoholic steatohepatitis (NASH) characterized by the association of lipid accumulation with evidence of hepatocyte injury, inflammation and various degrees of fibrosis[5.] A liver biopsy remains the only method to distinguish NASH from simple steatosis and establish the extent of liver damage and fibrosis[6]. NAFLD are now being increasingly recognized as a major health burden. The prevalence of fatty liver in India has been shown to be as high as 15%-30%[7], which is similar to that reported from some of the western countries[8,9.] Earlier reports indicated that majority of cases of NAFLD are relatively mild and have a benign course. However, now it has been documented that number of these cases can progress to fibrosis, cirrhosis, liver failure and hepatocellular carcinoma and thus contributes to mortality and morbidity[10,11]. NAFLD is one of the most common cause of chronic liver disease affecting 10-30% of population. Apart from liver related morbidity & mortality, patients of NASH are at increased risk of atherosclerosis, cardiovascular system, chronic kidney disease, Type II Diabetes mellitus, and multiple sclerosis[12]

On ultrasonography, the grading system is as follows:

Grade I: Minimal diffuse increase in the fine echoes. Liver appears bright compared to the cortex of the kidney. Normal visualization of diaphragm and intra hepatic vessel's border.

Grade II: Moderate diffuse increase in the fine echoes. Slightly impaired visualization of the intrahepatic vessels and diaphragm.

Grade III: Marked increase in the fine echoes. Poor or no visualization of intrahepatic vessels and diaphragm and poor penetration of the posterior segment of the right lobe of the liver. On Clinical Examination, Hepatomegaly may be present. Obesity is frequent but may be absent[13.]

FREDRICKSON AND LEVY classified hypolipoproteinemia's according to the type of lipoprotein particles that accumulates in the blood (type I to typeV)[14]

MATERIAL AND METHOD

The study was approved by the Ethical Committee of the Institute. This was a hospital based cross-sectional study conducted between May 2015 to May 2016 in the Department of General Medicine, Saraswathi Institute of Medical Science, Pilkhuwa, Hapur Uttar Pradesh, India. A total of 200 patients were included in the study. All patients of age more than 18yrs, diagnosed with non alcoholic fatty liver in our institute were included. All Demographic data such as age, sex, height and weight were recorded. A detailed clinical history for all the patients was taken and careful general examinations were done. The Exclusion criteria are patient on lipid lowering drugs, When Alcohol consumption is>30gm/d and >20gm/d in male and female respectively, Diabetes mellitus, Hypertension and very low and high Body Mass Index (BMI). Ultrasonography of all the patients was done for diagnosing and classifying grades of fatty liver. All Ultrasound were performed by SIEMENS ACUSON 2.5-6MHz and MEDISON 2.5-6MHz. The grading was done as Grade 0 -normal US fine diffuse, no increase in echogenicity of liver texture, Grade-I: fine diffuse increase echogenicity of liver texture, Grade-II: diffuse increase coarse echogenicity of liver texture with mild attenuation of Ultra sound beams, Grade-III: diffuse increase coarse echogenicity of liver texture resulting in poor visibility of portal vein radicle walls and right hemi diaphragm. BMI was calculated by using the formula [weight (kg)/height (meter^2)]. Lipid profile such as total cholesterol, serum triglycerides, serum high-density lipoprotein (HDL), serum low-density lipoprotein (LDL) and serum very low-density lipoprotein (VLDL) was measured. Informed consent was taken from each of the patients before including them in this study.

Statistical analysis

Data was collected and analyzed using SPSS software. The dichotomous/categorical variables were compared by using Chi-square Exact test. More than two continuous variables were compared by using Kruskall-wallis test with multiple comparison tests. P value was calculated by using Analysis of variance test(ANOVA) and p value <0.05 was considered statistically significant.

RESULT

A Total of 200 ultrasonographically diagnosed NAFLD cases were included in the study. Table 1 shows the distribution of male and female according to grades. In this table 48 male and 30 female belongs to grade III, followed by 30 Male and 24 Female to grade0, 30 male

and 10 female to grade II,20 male and 8 female grade 1.

Table-1: Fatty liver grade according to sex

Grade	Male(n)	Female(n)	total
Grade 0	30	24	54
Grade I	20	8	28
Grade II	30	10	40
Grade III	48	30	78
Total	128	72	200

Table-2: Fatty liver grade by age wise distribution

Age group	Grade 0	Grade 1	Grade II	Grade III	Total
18-23	10	22	9	8	49
24-29	10	3	11	6	30
30-35	19	2	8	14	43
36-41	5	1	4	12	22
42-47	6	0	2	4	12
48-53	3	0	5	10	18
More than 54	1	0	1	24	26
Total (%)	54(27)	28(14)	40(20)	78(39)	200(100)

In the study group, Majority of patients were in grade III (39%) followed by grade 0 (27%), grade II(20%), grade I(14%). Majority of patients according to age distribution are 18-23 yrs 49(24.5%),30-35yrs are 43(21.5%),24-29 yrs 30(15%), more than 54 yrs 26(13%),36-41 yrs 22(11%), 48-53 yrs 18(9%), 42-47 yrs 12 (6%) shown in table 2

Table-3: Comparison of Liver functions test according to fatty liver grade.

LIPID PROFILE	Grade 0	Grade 1	Grade II	Grade III	P value
Triglygcerides	172.96±75.45	172.96±75.45	177.25±69.98	181.66±72.94	p<0.001
Total cholesterol	188.48±37.45	212.28±35.87	208.87±27.52	215.92±53.08	0.003
HDL	44.88±6.14	39.42±7.86	40±37.57	78±40.16	p<0.001
LDL	113.7±36	130.35±32.26	116.82±27.02	123.35±37.10	0.151
VLDL	25.14±7.56	34.21±15.42	29.89±8.45	34.41±12.78	p<0.001

Table 3 shows that the total cholesterol level was significantly (p<0.05) higher among fatty liver grade III(215.92+53.08) than grade 0,grade I and grade II. Similarly triglyceride level was also higher among the fatty liver grade III (181.66+72.94) patients as compared to grade 0,grade I (172.96+75.45), grade II(177.25+69.98) and the difference were statistically significant(p<0.001). Similar observation was found for VLDL. However, LDL was almost similar among all grades of the patients(table 3)

Table-4: Incidence of Cholecystectomy in Fatty liver disease

FATTY LIVER GRADE	Grade 0	Grade 1	Grade II	Grade III	Total	p value
Male	0.000±0.000	0.000±0.000	0.133±0.345	0.1364±0.347	0.0806±0.2733	P > 0.061
Female	0.1250±0.338	0.000±0.000	0.400±0.516	0.853±0.359	0.4737±0.502	P < 0.001
Total	.0556±0.231	.0000±.0000	.200±.405	.4487±0.500	0.230±0.4218	P <0.001

Table 4 shows the incidence of cholecystectomy in fatty liver disease significantly higher in females as compared to males. Soft drink consumption & cholecystectomy have associated with NAFLD.

Table 5 shows the statistically highly significant result regarding triglyceride(41.35%), total cholesterol(21.18), HDL(18.38),VLDL(38.27) and also shows the statistically significance to LDL(28.84) by (ANOVA) and grouping variance kruskall wallis test.

Table 5: Lipid levels

	Triglycerides	Total cholesterol	HDL	LDL	VLDL	Cholestectomy
CHI- square	32.109	19.768	28.124	9.948	26.724	38.72
Df	3	3	3	3	3	3
Asymtomatic significance	.000.	.000.	.000.	0.019	.000.	.000.

DISCUSSION

NAFLD has emerged as the most common liver disease in the 'Western' world. Prevalence of nonalcoholic fatty liver disease is rising in the Asia-Pacific region as the society becomes affluent and traditional lifestyle is changing (increasing fat in the diet, less physical activity, increasing prevalence of type 2 diabetes). NAFLD occurs in approximately 20% obese and 5% overweight subjects. A 2.6 fold increase in prevalence of NAFLD was found when it occurred in association with type2 diabetes. It has been estimated that by the year 2020 number of people having type 2 diabetes will reach 100 million, 60%of whom will live in Asia. NAFLD appears to be common in some ethnic groups like Philippians, Indians and aboriginals of Australia/Malaysia. Thus, NAFLD is not a western disease. NAFLD can cause end stage liver disease including some cases of 'cryptogenic cirrhosis' and has been proposed to lead to hepatocellular carcinoma. NAFLD has traditionally been described as a disease occurring predominantly in female patients who are obese, diabetic and hypertensive. Very few ultrasound based studies have been reported from India in NAFLD patients. In India, NAFLD occurs predominantly in men and majority of these patients are non obese, non-diabetic and non-hypertensive. This demographic profile differs from that reported in the West. The clinical and histological criteria for diagnosis of NASH have been described but NASH is a clinic-pathological entity and is still evolving. We undertook this study with the aim of diagnosing fatty liver on ultrasound in non-alcoholic patients presenting to radio-diagnosis department who area symptomatic or with symptoms like abdominal pain, fatigue, malaise etc. The pathologic picture of non-alcoholic fatty liver disease, ranging from simple steatosis to steatohepatitis, advanced fibrosis, and cirrhosis, resembles that of alcohol induced liver disease, but it occurs in patients who do not take alcohol. Non-alcoholic that is characterized by the hepatic steatosis, liver cell injury, hepatic inflammation, fibrosis and necrosis is believed to be an intermediate stage of NAFLD. The present study attempted to describe the abnormality of lipid levels among the patients of NAFLD in National Capital Region (NCR). A total of 200 non-diabetic, non-alcoholic subjects of both sexes free from hepatitis participated in the present study. In the present study, male sex was higher than females

which is supported by the study by Acharya et al[15] who reported the male predominance 91% males in his study. Increased lipid profile among NAFLD subjects had been reported in many studies. Clark in USA in a cross-sectional study found that NAFLD subjects were higher in high triglycerides levels. In another cross-sectional previous study, subjects with NAFLD had a higher triglyceride[16]. However, Lizar-di-Cervera et al[17] in Mexico found that the high level of cholesterol was found in 63 percent of the NAFLD subjects. In our study, age of the patients ranged from 18 years to 66 years with a mean age(34.58)years. Mean age in females was (40.4) years and mean age males was (31.64) year. Raised serum triglycerides, total cholesterol, LDL and VLDL were seen in 60.42%, 48.71%, 30.18% and 22.71% of cases respectively. Roli Agrawal et al[21]reported hyper triglyceride mainly 63.7%, hypercholesterolemia in 50%-80% patients, elevated LDL in 25% of patients and elevated VLDL in 56.5% of patients. In our study low HDL was seen in 54.85% cases. Roli Agrawal et al[21]reported low HDL in 45.16% of patients. In our study, serum total cholesterol, serum HDL, serum LDL and VLDL shows statistical significance with increasing grades of NAFLD(P<0.05). Serum triglyceride shows no statistical significance with increasing grades of NAFLD (P=0.05).The pathogenesis of NAFLD is still poorly understood since the earliest description of the disease. Much current thinking remains hypothetical, since the mechanism or mechanisms are still being worked out .Differences in body-fat distribution or antioxidant systems, possibly in the context of a genetic, may be the explanations. A net retention of lipids within hepatocytes, mostly in the form of triglycerides, is a prerequisite for the development of nonalcoholic fatty liver disease. The primary metabolic abnormalities leading to lipid accumulation is not well understood, but they could consist of alterations in the pathways of uptake, synthesis, degradation, or secretion in hepatic lipid metabolism resulting from insulin resistance. Insulin resistance is the most reproducible factor in the development of nonalcoholic fatty liver disease[18].Liver biopsy is the gold standard for diagnosis of NAFLD. But because of its invasiveness, complication, painfulness and sampling error, it is not feasible in every asymptomatic cases. In this aspect ultrasonography offers promising role to diagnose NAFLD which is supported by significantly increased lipid profile values in our study. Ultrasonography can be used for the early detection of NAFLD. Sonographically diagnosed NAFLD patients showed statistically significant association with serum lipid profile except Serum triglycerides. It may be possible to say that Ultrasound is the least expensive modality for detecting changes associated with NAFLD and minimizes the exposure of unnecessary, expensive, complicated and tedious investigation in these patients and asymptomatic cases. In Indian studies, mean age was reported to be (42.90+10.54) years by Roli Aggarwal et al[21], 55.4 years by Amarapurkar et al[19]. Most of the western studies have reported the mean age of NAFLD between 41-45 years. In our cases NAFLD most commonly seen in the fourth and fifth decade, this is about a 5-10 years elder than what has been reported from other countries. In our study, the total cholesterol, triglycerides, LDL and VLDL was higher. In an Indian population, the subjects with NAFLD had significantly higher values of total cholesterol and triglycerides than controls. Bajaj et al[20]had also reported that the subjects with NAFLD had significantly higher values of total cholesterol and serum triglycerides.

CONCLUSION

In this study we have found that NAFLD are common in Indian society & in increasing trend. This is because of availability &accessibility to diet which is more in fat & caloric value. Apart from this other causes of NAFLD is sedentary life style & less physical work by Indian society especially in urban area. We found abnormal lipid profile levels amongst patients with fatty liver. Though liver biopsy is the gold standard method for diagnosis of NAFLD. In last we recommended that a large case control study is required to find better understanding of lipid levels among NAFLD Subjects.

Conflict of Interest- None

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Assessing the Burden of Bronchial Asthma in Rural Adult Population of Bangalore

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ABSTRACT

Background: Data on asthma prevalence in India is scarce. Hence, the present study was undertaken to assess bronchial asthma prevalence in India using questionnaire and spirometry.

Objectives: 1. To assess bronchial asthma prevalence among rural adult population 2. To list risk factors associated with bronchial asthma

Materials and method: The study was conducted in the rural field practice area of Kempegowda Institute of Medical Sciences, Bangalore, India. 3194 adult individuals (18-70years) were selected from 30 villages (clusters) using cluster-sampling technique. A standardized and validated questionnaire, in local Kannada language was filled for each individual. Respondents with symptoms suggestive of asthma were clinically examined and sputum for acid fast bacilli (AFB), chest radiography and spirometric measurements were done for asthma diagnosis. We selected equal number of age and sex matched individuals among respondents who gave negative response to asthma questions. The data was compiled and analyzed.

Results: Among the 3194 respondents, there were 47.5% males and 52.5% females. Bronchial asthma prevalence was 0.91%. Risk factors such as family history of atopy and asthma, all forms of tobacco products, wall dampness in the house and pervious floor were found to be significantly associated with asthma.

Conclusion: Asthma prevalence was found to be low when questionnaire and spirometry was used for asthma diagnosis.

***Keywords:** Bronchial asthma, rural adult population, prevalence, wheezing, spirometry*

INTRODUCTION

Bronchial asthma is a chronic respiratory disease affecting any age, sex and socioeconomic class globally.[1] Asthma prevalence is reported in the range of 7.1 -12% in England, 9.5%-17.9% in Australia and is highest at 56% in Tristan de cunha.[1,2] Variations in prevalence reported in different studies are often due to the different methodologies employed and definitions used for asthma diagnosis.[3] There is very limited data on asthma epidemiology from the developing world, including India.[4]

The development of a standardized questionnaire by the International Union Against Tuberculosis and Lung Disease (IUATLD) has allowed comparison of asthma prevalence and asthma-like symptoms in adults in different countries.[5]

Most Asian countries including, India and China, although they report relatively lower prevalence rates

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than the West, account for a huge burden in terms of absolute numbers of patients.[6] In India, asthma prevalence is found to be about 2.4 % in adults of over 15 years of age using IUATLD questionnaire.[4]

Asthma diagnosis is usually done based on the presence of characteristic symptoms. Measurement of lung function provides an assessment of the severity of airflow limitation, its reversibility and variability; and provides confirmation of asthma diagnosis. Spirometry is the recommended method for measuring airflow limitation and reversibility to establish asthma diagnosis.[7]

Very few studies have been conducted in India, and no studies have been conducted in Karnataka to assess bronchial asthma prevalence using spirometry. The present study was undertaken to assess bronchial asthma prevalence using questionnaire as a screening tool and spirometry to diagnose asthma among rural adult population.

MATERIAL AND METHOD

The study was conducted in the rural field practice area of Kempegowda Institute of Medical Sciences, Bangalore, India. This is situated 20 km from Bangalore, covering a population of 44,387 residing in 71 villages. The study was conducted from January 2008 to December 2008. 3194 adult individuals were selected from 30 villages (clusters) using cluster-sampling technique. In each cluster, house-to-house survey was done to cover the required sample of 104 adult individuals. On visiting each house, adult individuals aged between 18 years and 70 years were interviewed using previously validated[5,8] and standardized translated Kannada version questionnaire. The socioeconomic status was assessed based on the Standard of Living Index (SLI).[9]

All the respondents who answered affirmatively, both to-

(a) Whistling sound from chest, or chest tightness, or breathlessness in the morning, and

(b) having suffered from asthma, or having an asthma attack in the past 12 months, or using bronchodilators, were labeled as positive to questionnaire definition for asthma diagnosis.[4,8]

To confirm the diagnosis, all these individuals underwent clinical examination followed by spirometric

measurements (FVC, FEV1, FEV1/FVC and PEFR). Spirometry was done after confirming their negative status to sputum for acid fast bacilli. Testing was done in sitting position.[10] Best of three readings were taken. Asthma was diagnosed if the individual showed a reversibility in FEV1 of $\geq$ 12% and $\geq$200 ml from the pre-bronchodilator value.[7,11] Among those individuals who gave negative response to the asthma questions, equal number of age and sex matched controls were also subjected for spirometry. The data was compiled and analyzed.

RESULTS

In the present study it was observed that, out of 3194 subjects there were 47.5% males and 52.5% females. 38.1% were in the age group of 21-30 years. The mean age of the total study population was 34.78 $\pm$ 13.49 years.

Out of 3194 subjects, 5.1% had breathlessness on exertion, 4.6% had breathlessness on exposure to dust and 4.0% had chest tightness on exposure to dust. Respiratory symptoms suggestive of asthma like wheezing and breathlessness in the morning were present in 2.7% and 2.3% respectively. 4.7% had family h/o atopy and 10.4% had family h/o asthma (Table 1).

15.4% subjects were using smoked tobacco and 10.1% smokeless tobacco. Passive smoking was present among 50.7% subjects. Approximately 51.4% of subjects were regularly cooked food at home. Smoke forming fuels were the most commonly used cooking fuels (Table 2).

Overall asthma prevalence was found to be 0.91%. Asthma prevalence among males was 1.20% and females were 0.60%. The difference in bronchial asthma prevalence among males and females was found to be statistically not significant (χ^2 = 3.798, p>0.05). Asthma prevalence was found to be high i.e. 4.05% in the age group of 61-70 years and the prevalence was found to be increasing with increasing age. Asthma prevalence was found to be high among individuals from high socioeconomic status (Table 3).

Risk factors such as family h/o atopy and asthma, all forms of smoked and smokeless tobacco conbsumption, dampness in the walls of the house and pervious floor were found to be significantly associated with bronchial asthma. No significant association was observed

between asthma and risk factors such as ETS exposure, use of smoke forming fuels like kerosene, wood, cow dung and charcoal overcrowding and inadequate ventilation (Table 4).

Among the 92 individuals subjected for sputum for AFB, all were negative for AFB. Among 92 subjects with symptoms suggestive of asthma, 74 individuals were subjected for chest radiography and 20.3% subjects were found to have obstructive airway disease, 13.5% had consolidation, 1.4% of subjects had signs suggestive of fibrotic Koch's and 4.1% had fibrocalcific Koch's.

DISCUSSION

Based on the need, setting, and available resources, investigators have used different definitions of asthma, which partly accounts for the high variability in prevalence estimates. Chronic obstructive pulmonary disease and asthma cannot be differentiated based on single symptom like wheezing, and hence such a definition leads to over-diagnosis of asthma and artificially inflates prevalence estimates. A lot of patients of COPD, including those having dyspnoea from unrecognized cause, are labelled asthmatics by physicians.

In the present study it was observed that Asthma prevalence based on questionnaire definition was 2.88%, which was in accordance with the observation by Aggarwal et al[4] that Asthma prevalence in rural Bangalore is 3.54%.

In the present study, to make the diagnosis more explicit, all individuals with symptoms suggestive of asthma were subjected to spirometry and prevalence was observed to be 0.91%, which was much lesser compared to the questionnaire-based diagnosis. Asthma prevalence is reported in the range of 7.1 -12% in England, 9.5%-17.9% in Australia and is highest at 56% in Tristan de cunha.[2]

Difference in bronchial asthma prevalence among males (1.2%) and females (0.6%) was found to be statistically not significant, which differs from the findings of study conducted by M. Chan-Yeung et al.[12] They observed that asthma prevalence-like symptoms and reported asthma attacks was higher in females and increased with age. Rohini V et al[13] observed that Asthma prevalence was 3.8% among males, 3.1% among females and the overall prevalence was 3.5%.

Asthma prevalence was observed to be increasing with age. This finding was in accordance with the observation made by Aggarwal et al[4] in their multicentre study and Rohini et al.[13]

Asthma prevalence was found to be high among high socio-economic status groups. This Aggarwal et al.[4] study findings where it was observed that asthma prevalence was associated more among lower socioeconomic groups. This socioeconomic status based difference may have arisen due to different measuring scales for socioeconomic status.

Asthma prevalence was found to be significantly higher among those with family h/o atopy and asthma. This finding is in accordance with observations made by other studies.[1,3,4,]

Asthma was found to be significantly associated with the habit of consumption of smoked or smokeless tobacco. This observation was in accordance with the findings of other studies.[1,4] Arif et al[14] in their study observed that both current and past smoking were strong predictors of wheezing, but not of asthma, compared with never-smokers.

Asthma prevalence was found to be higher among those with Environmental Tobacco Smoke (ETS) exposure compared to those without ETS exposure but the difference was statistically not significant. This finding differs from the observation made by Aggarwal et al[4] and Gupta D et al[15] who found a significant association between ETS exposure and asthma prevalence.

It was observed that there was no statistically significant difference in asthma prevalence among those who used smoke-forming fuel like wood and charcoal compared to the prevalence among those who used non smoke-forming fuel such as LPG in their houses, which was similar to the observation made by SN Gaur et al.[1] This finding differs from the observation made by Aggarwal et al[4] in a multi-centric study where they found a protective effect with the use of non-smoke forming fuel like LPG.

It was observed that asthma prevalence was significantly higher among those who were living in houses with dampness in the walls and pervious floor. This finding was similar to the findings from the other studies such as Krieger et al,[16] Zock et al [17] Williamson

et al.[18]

No significant association was found between asthma and presence of BCG scar, whereas Akefeh Ahmadiafshar et al[19] observed a significant reverse correlation between asthma and BCG scar. Linehan et al[20] demonstrated an association between asthma symptoms and neonatal BCG vaccination, relating to a possible 27% reduction in prevalence, and were therefore of considerable public health importance.

Table 1: Prevalence of respiratory symptoms among the subjects during the last 12 months (n=3194)

Respiratory symptoms	Percentages
Wheezing	2.7
Morning breathlessness	2.3
Breathlessness on exertion	5.1
Breathlessness without exertion	1.1
Breathlessness at night	2.8
Chest tightness on exposure to dust	4.0
Breathlessness on exposure to dust	4.6
Cough more than 3 weeks	2.0
Cough at night	3.1
Cough in morning	2.8
Phlegm in morning	2.4
Ever diagnosed to have asthma	1.3
Attack of asthma in last 1 year	1.3
Asthma medications	1.5
Atopic manifestations	
Recurrent skin rashes	1.9
Recurrent coryza	2.8
Recurrent eye itchiness	2.7
Family h/o atopy & asthma	
Family history of atopy	4.7
Family history of asthma	10.4

Table 2: Smoking and cooking habits in the study population

	No. of subjects (n=3194)
Smoked tobacco	492 (15.4)
Cigarette	282 (57.3)

Beedi	317 (64.4)
Others (e.g. hookah, pipe)	6 (1.4)
Smokeless tobacco	324 (10.1)
Jardah	21 (6.5)
Khaini	4 (1.2)
Pan parag	51 (15.7)
Gutka	52 (16.0)
Snuff	10 (3.1)
Others*	196 (60.5)
ETS exposure	1370 (50.7)
Regular cooking	1641 (51.4)
Cooking fuel	
LPG	490 (29.9)
Smoke forming fuels**	1151 (70.1)

* Others included mainly tobacco areca nut and slaked lime

** Smoke forming fuels included kerosene, wood, cow dung and charcoal

(Figures in parentheses indicate percentages)

Table 3: Distribution of asthma cases according to age, sex and socio-economic status

	No. of subjects	Asthmatics
Sex		
Male	1518 (47.5)	19 (1.20)
Female	1676 (52.5)	10 (0.60)
Age (years)		
≤20	387 (12.1)	-
21-30	1217 (38.1)	1 (0.08)
31-40	709 (22.2)	4 (0.56)
41-50	459 (14.4)	10 (2.18)
51-60	249 (7.8)	7 (2.81)
61-70	173 (5.4)	7 (4.05)
SES		
Low	557 (17.4)	6 (1.07)
Medium	2226 (69.7)	15 (0.67)
High	411 (12.9)	8 (1.95)
Total	**3194**	**29 (0.91)**

(Figures in parentheses indicate percentages)

Table 4: Association of asthma with certain risk factors

	No. of subjects (n=3194)	Asthmatics	OR	χ^2	p value
With family h/o atopy	150	5 (3.3)	4.34	Fisher's exact probabilities = 0.01	
With family h/o asthma	331	7 (2.1)	2.79	Fisher's exact probabilities = 0.025	
Smoked tobacco	492	11 (2.2)	3.41	Fisher's exact probabilities = 0.003	
Smokeless tobacco	324	8 (2.5)	3.43	Fisher's exact probabilities = 0.007	
ETS exposure (n=2702*)	1370	11 (0.8)	0.65	0.77	>0.05
Smoke forming fuel (1641**)	1149	8 (0.7)	1.14	Fisher's exact probabilities = 1.14	
Inadequate ventilation	833	9 (1.1)	1.28	0.37	>0.05
Pervious floor	291	12 (1.3)	7.3	Fisher's exact probabilities = 0.00	
Dampness in the walls	361	11 (3.0)	4.92	Fisher's exact probabilities = 0.00	
Overcrowding	1348	13 (1.0)	1.11	0.08	>0.05
Absence of BCG scar	1426 (44.6)	10 (0.7)	0.65	1.22	>0.05

*   492 subjects with h/o smoking were excluded.

** 1553 subjects who were not cooking regularly were excluded.

CONCLUSION

Asthma prevalence was found to be low when questionnaire and spirometry was used for asthma diagnosis. Based on the results, conducting similar studies across the country to find the disease magnitude is recommended.

Conflict of Interest: Nil

Source of Support: Self

Ethical Clearance: From Institutional Ethics Committee of KIMS, Bangalore

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Household Injuries: A Comparative Study among Rural and Urban Area of Allahabad District

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ABSTRACT

Objective: The term 'injury' is used to describe the physical damage that results when a human body is suddenly or briefly subjected to intolerable levels of energy. A sprained ankle, severe backache, dog bite, any hurt or damage to the body is referred as injury. This study is planned out to compare the socioeconomic profile of the persons having household injuries in rural and urban area and also finds out the prevalence of household injuries in rural and urban area.

Material & Method: The present study is a cross sectional descriptive study was conducted on residents of urban and rural areas of Allahabad district. Data was collected by a structured questionnaire designed for the purpose.

Result: A total 2583 respondents of Allahabad district were covered. Out of them 1437(55.6%) were from rural community and 1146(44.6%) were from urban community with average age of rural and urban respondents was 29 years and 32 years respectively .Age wise distribution showed that majority 1506(58.3) were in the age group of 15-49 years followed by age 50 years and above were 464(18%) . Among rural areas majority were illiterate 524(36.46%) while in urban areas , majority of the respondents were educated 989(86.30%) and only 157(13.70%) were illiterate. Out of total respondents 272(10.5%) who had history of household injuries during the recall period of preceding six months. The overall prevalence come out to be 210/1000/year in this present study majority of the injured respondents were from rural areas 171(62.87%) and the rest were from urban areas 101(37.13%).Prevalence of household injuries was significantly higher among rural areas as compared to urban areas being 238/1000/year and 176/1000/year respectively.

Conclusion : Based on the study findings it was concluded that injury causes large number of morbidity in Allahabad both in rural and urban areas.

Keywords: *Household Injuries, Rural, Urban, and Prevalence.*

INTRODUCTION

The term " injury" is used to describe the physical damage that results when a human body is suddenly or briefly subjected to intolerable levels of energy[1]. A sprained ankle, severe backache, dog bite, any hurt or damage to the body is referred as injury. These injuries range from minor to life threatening. Injuries can happen at work or play, indoors or outdoors, driving a car or walking across the street. Eight of the 15 leading cause of death for people ages 15 to 29 years are injury related: road traffic injuries, suicides, homicides, drowning, burns, poisonings and falls [2].

Injuries cause almost half of all deaths among children aged 1-4 years. Unintentional injury is the leading cause of death in kids 1-4 years old and under, with more than a third of these injuries happening at home [3]. Injuries among elderly are of special importance for a

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number of reasons. With ageing many normal reactions of an individual's begin fading due to ageing process. A study on " Injury among elderly " at NIMHANS reveals that falls were the second leading cause for injury hospitalization among elderly [4]. According to rules and conventions of International classification of disease (ICD) 10 [1], injuries are subdivided into three main categories: Unintentional, Intentional, Undetermined intent .The term "Unintentional" is used to refer to injuries that are no volitional but preventable like slipping in the bathroom or cut by kitchen knives. The term "Intentional" is used to refer to injuries resulting from purposeful human action, whether directed at oneself or others. Intentional injuries include self – inflicted and interpersonal acts of violence intended to cause harm such as gunshot injuries. When it is difficult to judge whether an injury inflicted intentionally or accidentally it is considered as "Undetermined intent". In the intentional group, suicide and violence accounted for 41% and 43% of total DALY s, respectively. Unintentional injury constitutes a serious health threat to children who are especially vulnerable to injuries that occur at home [5].

The aim of present cross sectional study is to compare the socioeconomic profile of the persons having household injuries in rural and urban area and also finds out the prevalence of household injuries in rural and urban areas of Allahabad District.

MATERIAL & METHOD

The study was community based cross sectional study conducted in urban and rural areas of Allahabad city. The sampling technique used was multistage random sampling. This study was conducted for the period of eight months . During this period 2583 persons were interviewed (1437 from Rural and 1146 from Urban) and this was considered as the sample size. Study subjects were all the members of selected household. A pre –designed, pre – tested and structured questionnaire was used for the data collection. Domestic injuries were considered when any of these individuals had met an injury inside the house or in the immediate premises of the house during the last six months from the date of survey.The surveyed questionnaires were collected and coded in a MS Excel database and analyzed by using the SPSS 17.0. Descriptive statistics were performed to obtain patients profile. Pearson's chi-square test was used to examine the association between household

injuries and their socio demographic characteristics. Z -test was used for comparing the type of injury of household among rural and urban. A value of less than or equal to 0.05 was considered as significant.

RESULT

A total 2583 subjects of Allahabad city were covered. Out of them 1437(55.6%) from Rural area and 1146 (44.6%) were from Urban area. The age wise distribution showed that majority 1506 (58.3%) were in the age group of 15-49 years followed by age 50 years and above were 464(18%). Children below 5 years and 6-14 years of age were 226 (8.7%) and 387 (15.0%) respectively. Mean age of Rural and Urban respondents was 28.52 ± 18.54 years and 32 ± 17.72 years respectively and mean age of male were 30.12 ± 18.43 years while mean age of females were 30.3 ± 18 years. Majority of the respondents were married both in Rural and Urban areas. Among Rural areas majority were illiterate 524(36.46%) and the educated subjects were 913(63.38%) whereas in Urban only 157 (13.70%) were illiterate. According to occupation majority of the respondents were homemakers and students in both Rural and Urban areas. Respondents who belonged to upper socioeconomic status class I were more in Urban 423(36.9%) as compared to Rural areas 133(9.2%) whereas subject who belonged to lower socioeconomic status class V were more in Rural areas 291(20.25%) as compared to Urban areas 35(3.05%)Table[1].

The common reported mode of injuries were fire, flame or heat (25.73%) ,Cut/stab (19.85%) , fall (19.5%),being struck/hit by person or moving object (13.2%) animal bites (8.8%) and electric shock (5.8%) . Other causes were poisoning (3.0%), explosion (2.2%) and gunshot (0.7%). All type of injuries was more common among females as compared to males except falls, electric shock and explosion injuries. Falls among males and burns among female were commonest cause of injury at home .The commonest cause among children aged up to 5 years and in the age group 50 + years was fall, among age group 6-14 years it was being struck/hit and in the age group 15-49 years it was burn Table[2].

Out of total study respondents 272(10.5%) had history of domestic injuries during the recall period of preceding six months. The overall prevalence came out to be 210/1000/year in the present study majority of the injured respondents were from rural areas 171(62.87%)

and rest were from urban areas 101(11.9%) and 176/1000/year (8.8%) respectively. Prevalence of household injuries was significantly higher among females as compared to male being 236/1000/ year (11.8%) and 176/1000/year (8.8%) respectively. Among those who gave history of injury, majority belonged to the age group 15-49 years (58.1%). Prevalence of household injuries was more in age below 5 years being 284/1000/year (14.2%) followed by age 50 and above being 224/1000/year (7.8%). Prevalence of household injuries was significantly higher among unemployed respondents 280/1000/year (14.0%) followed by casual laborers and homemakers being 276/1000/year (13.8%) and 244/1000/year (12.2%) respectively and it was least among self employed 142/1000/year(7.1%) prevalence of household injuries was maximum among lower socioeconomic class V being 246/1000/year(12.3%)Table[3].

DISCUSSION

This study was carried out on 2583 subjects of whom 55.6% were from Rural and 44.6% were from Urban areas.The age distribution showed that majority were in the age group of 15-49 years in both Rural and Urban areas being 56.2% and 60.9% respectively. The mean age of males was 30.12±18.43 years while the mean age of females was 30.3±18.1 years.The proportion of married subjects was more as compared to unmarried subjects in both Rural and Urban areas.The average literacy rate for Allahabad District was found to be 73.60% which is almost similar to the census report of Allahabad District (2011) [6] being 74.41%.By occupation majority of the study population were homemakers and students 27.5% and 25.5% respectively. Subject who belonged to upper socioeconomic status were more in urban areas 36.9% as compared to rural areas 9.2%, whereas subject who belonged to lower socioeconomic status were more in rural areas 20.25% as compared to urban areas 3.05%.

Out of total study subjects (2583), 10.5% had history of domestic injuries during the recall period of preceding 6 months. The overall prevalence came out to be 210/1000/year in the present study. When compared to other studies in India and abroad this prevalence falls in between their reported prevalence rates.The prevalence of domestic injuries reported by M.Neghab et (2006)[7] in Shiraz, Islamic Republic of Iran was 244/1000/year, which is higher than the present study. The reason may be their data was collected from families on a regular basis as well as from rural and urban health centers and hospital emergency department.

In the present study, injured female were 54.0% as compared to males 46.0% and majority belonged to age group 15-49 years (58.1%). This could be related to the fact that most men are absent from home during the daytime being at work and most women spend long hours working in the home.This observation is consistent with findings of R.Aggarwal et al (2010) [8] who observed in their study in Punjab that females met with most of the home accidents in the middle age group.

Prevalence of household injuries in the present study was more in age below 5 years being 284/1000/year (14.2%) followed by age 50 and above being 224/1000/year.This may be explained by the fact that children below 5 years and elderly above 50 yrs spend almost all their time at home and are also more vulnerable to injuries.The reasons may be that young children art in learning phase and being inquisitive, they have tendency to touch anything. This leads to burn injury when they touch hot water or cut injuries when they attempt to play with sharp objects. On the contrary,elderly get injured due to ageing complications.Ageing alone does not make people fall. Diseases like Diabetes, Heart and Eye problems also affect balance of aged people and lead to falls at home.This is consistent with the study of Kopjar B et al (1996)[9] among the residents of Stavanger, Norway who reported that the prevalence of home injuries were highest among children age 6 years or younger and among older age group.

The category of persons who gave history of domestic injury in the present study were mainly homemakers (32%) followed by student (20.6%), unemployed subjects (13.6%) and retired government employees/private service persons (9.5%). Various studies in India and abroad support these findings. Jixiang Ma et al (2008)[10] reported similar findings as present study in Shandong Province, China and found that students, farmers, retired individuals, professionals and laborers show high incidence of injury, accounting for 82.9% of total injuries.

Domestic injuries were maximum among lower socioeconomic class with a pevalence246/1000/year as compared to other socioeconomic classes in the present study. The most likely reason may be that persons in this category live in overcrowded conditions in confined

spaces and have unsafe electrical connections or use unsafe procedures like use of wires without plugs. This finding is similar to the study of Jixiang Ma et al (2008) [10] who reported that injury incidence varied among different levels of income and respondents with lower income tended to have a higher incidence of injury.

Out of total mechanism of injuries, the highest was by burns (25.73%). Injuries by cut/stab (19.85%), fall (19.5%), being stuck/hit by person or moving object (13.2%), animal bite (8.8%) and electric shock (5.8%) were the other common reported domestic injuries. Similar causes of injuries has been observed in the study of M. Neghab et al (2006)[7] in Shiraz, Islamic Republic of Iran where burns and sharp object injuries were the most common types of domestic injuries.

Table 1: Socio demographic characteristics of Respondents

Background characteristics	Rural N=1437(%)	Urban N=1146(%)	Total N=2583(%)	p Value
Age Group				
0-5	138 (9.6)	88 (7.6)	226(8.7)	
6-14	262(18.2)	125(10.9)	387(15.0)	0.0001*
15-49	808(56.2)	698(60.9)	1506(58.3)	
50+	229(15.9)	235(20.5)	464(18.0)	
Gender				
Male	740(51.49)	601(52.44)	1341(51.19)	0.632
Female	697(48.50)	545(47.55)	1242(48.08)	
Marital Status				
Married	805(56.01)	723(63.08)	1437(55.6)	0.0002*
Unmarried	632(43.98)	423(36.91)	1146(44.4)	
Education				
Illiterate	524(36.46)	157(13.69)	681(26.4)	
Primary School	227(15.7)	108(9.4)	335(13.0)	
Middle School	252(17.5)	111(9.68)	363(14.1)	
High School	142(9.88)	169(14.7)	311(12.0)	0.0001*
Intermediate	101(7.02)	159(13.8)	260(10.1)	
Graduate	149(10.36)	319(27.8)	468(18.1)	
Post Graduate	42(2.92)	123(10.73)	165(6.4)	
Occupation				
Farmer	156(10.85)	02(0.17)	158(6.1)	
Government/Private	86(5.98)	198(17.27)	284(11.0)	
Retired	22(1.5)	24(2.09)	46(1.8)	
Self Employed	91(6.33)	149(13.01)	246()9.3	
Street Vendor	07(0.48)	18(1.5)	25(1.0)	0.0001*
Professional	21(1.46)	58(5.06)	79(3.1)	
Student	377(26.60)	282(24.60)	659(25.5)	
Homemaker	411(28.60)	300(26.17)	711(27.5)	
Casual labor	106(7.3)	10(0.87)	116(4.5)	
None\Unemployed	160(11.1)	105(9.16)	265(10.2)	
Socioeconomic Status				
Class I	133(9.25)	423(36.9)	556(21.5)	
Class II	261(18.16)	290(25.30)	551(21.3)	
Class III	266(18.51)	205(17.88)	471(18.2)	0.000*
Class IV	486(33.82)	193(16.84)	679(26.3)	
Class V	291(20.25)	35(3.05)	326(12.6)	

Table 2: Household Injuries reported by respondents

Type of Injury	Rural N=171(%)	Urban N=101(%)	N=272	Prevalence/ 1000/Year	P Value
Fall	40(75.5)	13(24.5)	53(19.48)	42	0.001*
Struck/Moving Object	22(61.1)	14(38.9)	36(13.23)	28	0.0002*
Cut/Sab	31(57.4)	23(42.6)	54(19.85)	42	0.0168*
Gun Shot	02(100)	0(0)	02(0.73)	02	0.0012*
Fire ,Flame or heat	37(52.9)	33(47.1)	70(25.73)	54	0.4237
Ingestion of Poisonous Substance	04(50)	04(50.0)	08(2.94)	06	0.999
Animal Bite	19(79.2)	05(20.8)	24(8.82)	18	0.001*
Electric Shock	11(68.7)	05(31.3)	16(5.88)	12	0.001*
Explosion	03(50)	03(50.0)	06(2.20)	04	0.999
Others	02(66.7)	01(33.3)	03(1.10)	02	0.001*

Table 3: Association of Household Injuries with the characteristics of the respondent

Background characteristics	Household Injuries		Total N=2583(%)	Prevalence/ 1000/Year	pValue
	Yes N =272(%)	No N=2311(%)			
Age Group					
0-5	32(11.76)	194(8.39)	226(8.7)	284	
6-14	30(11.02)	357(15.44)	387(14.9)	156	0.087
15-49	158(58.08)	1348(58.32)	1506(58.3)	210	
50+	52(19.11)	412(17.82)	464(17.96)	224	
Residence					
Rural	171(62.86)	1266(54.78)	1437(55.63)	238	0.011*
Urban	101(37.13)	1045(45.21)	1146(44.36)	176	
Gender					
Male	125(45.95)	1216(52.61)	1341(51.91)		0.037*
Female	147(54.04)	1095(47.38)	1242(48.08)		
Marital Status					
Married	179(65.80)	1349(58.37)	1528(59.15)	234	0.0182*
Unmarried	93(34.19)	962(41.62)	1055(40.84)	176	
Occupation					
Farmer	18(6.61)	140(6.05)	158(6.11)	228	
Government/Private	26(9.55)	258(11.16)	284(10.99)	184	
Retired	04(1.47)	42(1.81)	46(1.78)	174	
Self Employed	17(6.25)	223(9.64)	240(9.29)	142	
Street Vendor	02(0.73)	23(0.99)	25(0.96)	160	0.128
Professional	09(3.30)	70(3.02)	79(3.05)	228	
Student	56(20.58)	603(26.09)	659(25.51)	170	
Homemaker	87(31.98)	624(27.01)	711(27.52)	244	
Casual labor	16(5.88)	100(4.49)	116(4.49)	276	
None\Unemployed	37(13.60)	228(10.25)	265(10.25)	280	
Socioeconomic Status					
Class I	60(22.05)	496(21.46)	556(21.52)	216	
Class II	57(20.95)	494(21.37)	551(21.33)	206	
Class III	52(19.11)	419(18.13)	471(18.23)	222	0.668
Class IV	63(23.16)	616(26.65)	679(26.28)	186	
Class V	40(14.70)	286(12.37)	326(12.62)	246	

CONCLUSIONS

Based on the study findings it was concluded that injury causes large number of morbidity in Allahabad city both in urban and rural areas. Burns, cut/stab, fall, being struck/hit and animal bites were the five leading causes of domestic injuries. The causes of domestic injuries did not differ when comparing urban and rural residents. All types of injuries were more common among females as compared to males. Injury should be treated as public health problem.

Suggestions and Recommendations:

• Most of the domestic injuries go unreported as many of them do not require any hospital treatment and some are so severe that victim succumbs to it before reaching any hospital facility. There is lack of proper data regarding household injuries. There should be formulation of effective policies and programme for prevention and management of household injuries.

• Regular display of special audiovisual advertisements such as Jingles and inserts in television, Radio. Preventing unintentional injuries is a step towards ensuring that all people live to their full potential.

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A Clinical and Epidemiological Study to Access Role of Needle Aspiration for Pneumothorax in Resource Limited Settings and Compare which Side is More Propense for Developing Spontaneous Pneumothorax

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ABSTRACT

Background : Pneumothorax is defined as accumulation of air in the pleural space with secondary collapse of underlying lung. The right main bronchus is wider, shorter and more vertical than left main bronchus.

There is no data available regarding the propensity of one lung for pneumothorax due to anatomical differences between the Right & Left Lung & Main Bronchus.

Method : The randomised study was designed to look at the epidemiological profile of patients with presenting with pneumothorax, compare which side is more commonly involved in spontaneous pneumothorax and the outcome of Needle aspiration vs Tube thoracostomy.

All patients presenting with pneumothorax were included in this prospective study. The age, sex, the predisposing factors, side of lung involvement & outcome were studied. The patients who had Primary Spontaneous Pneumothorax (PPS) or Secondary Spontaneous Pneumothorax (SSP) with stable vitals were subjected to Simple Needle Aspiration (18 Gauze Ven Floen with 3 way, IV set and under water seal etc,) while in others tube thoracostomy was done.

Results : Total of 59 cases were studied over a period of 2 years. The male to female ratio was 2.6:1. The most common age group was 46-55 years. In our study we observed that 35 (59.3%) patients had right side involvement while 24 (40.6%) had pneumothorax on the left sided. All Primary Spontaneous Pneumothorax (n=3) were noted to be on right side. Out of the 56 Secondary Spontaneous Pneumothorax, 32 were on right side and among these 6 were successful treated with needle aspiration.

Conclusion: Spontaneous pneumothorax is more common on right side. Primary Spontaneous Pneumothorax can be successfully treated initially with Needle Aspiration. Patients with secondary Spontaneous Pneumothorax who are hemodynamically stable can be given a trial of Needle Aspiration prior to Tube thoracostomy.

Keywords : Primary, Spontaneous, Secondary, Pneumothorax, Aspiration, Thoracostomy.

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INTRODUCTION

A pneumothorax is defined as the accumulation of air in the pleural space with secondary collapse of surrounding lung.[1] The pneumothorax has been traditionally classified into either spontaneous

pneumothorax or traumatic pneumothorax. Spontaneous pneumothorax has been further classified into Primary spontaneous pneumothorax (PSP) occurring in otherwise healthy individuals and Secondary spontaneous pneumothorax (SSP) which occurs in patients with underlying lung disease.[2]

Flowchart ; Classification of Pneumothorax[14]

Anatomically, the trachea divides into two main bronchi. The right main bronchus which is in direct continuity with the trachea, is broader (1.8 +/- 0.8 cm in length and 1.6 +/- 0.2 cm wide) and shorter in length, while left main bronchus is more angulated, narrow and long (4.8 +/- 0.8 cm in length and 1.3+/-0.2cm wide).[3]

This study was designed to observe the propensity of right lung over the left in development of pneumothorax due to the variation of it's main bronchus compared to the left side. Also the study was designed to evaluate the use of needle aspiration in treatment of Spontaneous Pneumothorax in the limited resources and in rural population of Uttar Pradesh.

MATERIAL AND METHOD

All cases presenting to the Department of TB & Chest with pneumothorax were studied over a period of 2 years (May 2013 - June 2015). The parameters that were observed and recorded included Age, Sex, History of smoking, History of TB, Symptoms at the time of presentation.

The patients who presented with PSP and the patients of SSP who were young and had presented with stable vitals were treated initially with needle aspiration with prior counseling and informed consent.

Patients of SSP who were unstable or who did not respond to needle aspiration were subjected to Tube −thoracostomy. The basic underlying cause for Pneumothorax was also addressed. The duration of hospital stay and the final outcome were also studied.

RESULTS

A total of 59 Patients presented to the institute over a period of 2 years. Out of these, 43 (73 %) were males, 16 (27 %) were females. Incidence of right sided pneumothorax was 59.3% while left sided pneumothorax was noted in 40.6% of patients. Among the cohort, 59.3% had history of smoking (32:3 :: M:F) while 42.3% had history of pulmonary TB in past or at present had Pulmonary Tuberculosis (17:8 :: M:F). There were 3 cases of Primary Spontaneous Pneumothorax. All three were on the right side and were males. Two underwent successful needle aspiration while one went LAMA. Out of the 56 SSP, six underwent successful needle aspiration. These patients were noted to be young and were stable hemodynamically at presentation. These had shorter duration of hospital stay (< 7 days) and had no recurrence of pneumothorax during follow up of one year. 43 patients of secondary spontaneous pneumothorax (SSP) underwent tube thoracostomy, Out of these, 4 were referred later for surgery, 6 went LAMA and 4 expired.

Fig.1 : Male Female ratio in our study and history of smoking in these patients

Fig.2 : Incidence of Right Vs Left pneumothorax in our study group

Fig.3 : Needle Aspiration Vs Tube thoracostomy in PSP and SSP

Fig.4 : Incidence of PSP , H/o smoking , H/o TB in Right Vs Left Pneumothorax

DISCUSSION

Our study pertains to rural population of the Uttar Pradesh. The male to female ratio was 2.6:1 in comparison to 4:1 in an another Indian study by Faruqi et al [4] , 3:1 in a study of Carribean Nation[5], 3.7:1 in a Portuguese study[6], 4:1 in Paris study8, (4:1) in a study at Belgium[9].It was much higher in an earlier study at Edinburg (6.5.1)[7]. This may be attributed to increasing trend of smoking in female in rural population and also due to biomass fumes exposure in females in rural population.

Thirty Five out of 59 patients had right sided involvement (59.3%) while 24 had left sided pneumothorax (40.6%). Though no previous study was found which had highlighted or discussed any comparison in right versus left involvement but on reviewing their data, It was found that in study from South India[10], in a study from Portugal[6] and Paris[8], there were more left sided pneumothorax than right. The studies from kuwait[11], study done at PGI in India[4], the study of Carribean Nation[5] and the Belgium study[9] had more of right sided pneumothorax as in our study.

In our study, all PSP, though they were small in number, were right sided. Other studies do not exclusively mention the side of PSP. Since SSP are due to underlying lung disease, it can vary depending upon the involvement of the lung, which side gets pneumothorax. Hence the variation in studies may be incidental, but the pressure changes due to variation in insertion of right and left bronchi may increase the propensity of right lung for pneumothorax in bilateral symmetrical lung disorders.

59.3% patient had history of smoking and 42.3% had history of Tuberculosis. These findings are similar to previous studies.

Needle aspiration was successful in all PSPs and SSPs of Patients who were young, who had stable vitals and there was lesser degree of lung involvement due to disease. Such patients who underwent needle aspiration had had shorter duration of hospital stay. Hence these findings abide by the BTS guidelines published in 2010 for management of Spontaneous Pnemothorax[12], and are not at par with ACCP Delphi Consensus Statement.[13]

Out of 59 patients, 6 went LAMA, only 4 went referred out for surgery and 4 expired. Hence the success rate of needle aspiration / tube thoracostomy in treating such patients was 85%.

CONCLUSIONS

Our observations suggest that there is propensity of right side for pneumothorax though further detailed Physiology & Clinical studies are required for final documentation. Needle aspiration is a considerable option in all PSPs and in SSPs when patients are young and stable at the time of presentation. SSPs are more common than PSPs, males are more affected, Smoking and Tuberculosis are major predisposing factors in rural population.

Ethical Clearance: The Study was done after approval by Ethical Committee and all references taken are ethical in content.

Conflict of Interest : Nil

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Awareness Regarding Ebola Virus Disease among Health Care Professionals in Tertiary Hospitals

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ABSTRACT

Introduction: Ebola Virus Disease (EVD) or Ebola Hemorrhagic fever is a severe hemorrhagic febrile disease which can be fatal. Person - person or animal - person transmission of EVD occurs through direct contact of blood, organs, other body fluids or mucous membrane of infected person. It is transmitted from person-person, animal-person, and contact with the dead body of an infected person or consumption of raw meat or contaminated fruits and by improper handling of health care wastes. EVD is highly infectious and affected many lives across the borders mainly because of its ease of transmission. **Methodology:** This cross sectional study was conducted in Kasturba Medical College (Manipal University), Mangalore, among the health care providers (doctors, lab personnel, nurses). The sample size calculated was 150. Data were collected using a pre tested semi structured questionnaire assessing the knowledge regarding Ebola. **Results:** The study consisted of 91(60.7%) Doctors, 49(32.6%) Nurses, 10(6.7%) Lab personnel. 36.3% of the Doctors knew correctly that the dead body of an Ebola victim should be buried in a sealed bag. Equal number of Doctors (42.9%) and Nurses (42.9%) knew that confirmation of Ebola infection can be done by any of the convenient techniques like RT-PCR. Seventy percent of Lab personnel believe that particle respirator is required while working on Ebola cases but not required while doing the same on HIV or HBV individuals. **Conclusions:** Public health messages should focus on reducing the risk of animal-to-human, as well as human-to-human transmission. Burial of the dead, should be strictly enforced.

Keyword: EVD, RT-PCR, Specific antigen detection test, Containment measures.

INTRODUCTION

Ebola Virus Disease (EVD) or Ebola Hemorrhagic fever is a severe hemorrhagic febrile disease which can be fatal. It is caused by RNA virus of family Filoviridae and genus Ebola virus. Ebola virus has caused mortality rates of

55-88% [1] and has caused a large number of outbreaks with approximately 25 -90 % [2] case-fatality rate. The first case of EVD was detected in the villages near Ebola [3] river in Democratic republic of Congo and Sudan and then it spread to other countries of the Africa and rest of the world. Ebola Virus Disease (EVD) Outbreak in West Africa (Guinea, Liberia, Sierra Leone & Nigeria) is notified as extraordinary event & Public Health Emergency of International Importance (PHEIC) on 8th August, 2014 by WHO [4].

Person - person or animal - person transmission of EVD occurs through direct contact of blood, organs, other body fluids or mucous membrane of infected person. It is also transmitted by contact with the dead body of an infected person or consumption of raw meat or contaminated fruits and by improper handling of health care wastes. EVD is not transmitted from person who has not manifested the symptoms. Till date, approximately 9%[2] of health care workers have suffered from EVD [5].

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The spread of EVD has been difficult to control because of lack of resources and expertise in health care systems and due to other cultural and environmental factors; and misconceptions like the belief that it is air-borne, spread through mosquitoes and that it can be prevented by washing with hot water and salt. The spread to health care workers is mainly due to lack of proper personal protective equipment. There is no particular vaccine or licensed medicine for EVD[6]. Thus lack of preventive and control measures in association with increase in travel across the countries and civil unrest have made many countries and region vulnerable. The cities and areas with high numbers of international visitors by air or water route become high risk receptive areas for EVD. Those areas especially need to have health care providers with adequate knowledge and skills towards EVD, with respect to its mode of spread, clinical features, differential diagnosis, treatment and prevention. The symptoms appear 8-10[5] days after exposure. These include sudden onset of fever, chills, weakness, abdominal pain, joint muscle aches, headache, and lack of appetite and body aches. Some of these symptoms are similar to malaria and diarrhea.

The current study was carried out in the city of Mangalore, which is a fast growing city in the coastal state of Karnataka, India. Although there is no reported EVD case in Mangalore but because of its international airport and seaport connectivity influx of foreign nationals and goods may introduce EVD to here. The purpose of the present study is to assess the knowledge and awareness for prevention of EVD among health care professionals so that EVD, if introduced in Mangalore can be evaded effectively.

METHODOLOGY

This cross sectional study was conducted in the tertiary care hospitals of Kasturba Medical College (Manipal University), Mangalore, among the health care providers (doctors, lab personnel, nurses) in 2015 April. The sample size was calculated assuming that 50% of medical staff were having adequate knowledge of Ebola. Taking 10% relative precision and 95% confidence level the sample size calculated was 150. Institutional ethics committee (IEC) approval was obtained and study hospitals were selected using convenient sampling (non-random) technique. Permission was obtained from the hospital authorities and on pre informed date they visited for data collection. The study subjects were approached and explained about the nature and objective of the study. Informed consent was obtained from the participants and approval from the Institutional ethics committee of Kasturba Medical College, Mangalore was taken prior to the study. Data were collected using a pre tested semi structured questionnaire assessing the knowledge regarding Ebola. SPSS 16.0 software was used to enter and analyze the data.

RESULTS

A total of 150 health care personnel were the participant of the study. Our study consisted of 91(60.7%) Doctors, 49(32.6%) Nurses, 10(6.7%) Lab personnel.

Table 1: **Correct knowledge regarding the transmission of Ebola among health care personnel**
n=150

Statement	Doctors N= 91 n (%)	Nurses N= 49 n (%)	Lab personnel N= 10 n (%)
Fruit bats – the natural Ebola virus hosts	46(50.5)	16(32.7)	7(70.0)
Dead bodies of Ebola victims are infectious	76(83.5)	40(81.6)	8(80.0)
Handling of dead body of an Ebola victim by burial in sealed bag	33(36.3)	22(44.9)	9(90.0)
Confirmation of Ebola infection through techniques like RT-PCR, Specific antigen detection test, IgM against Ebola detection	39(42.9)	21(42.9)	3(30.0)
Ebola patients are discharged after 2 negative RT-PCR tests at least 48 hours apart	60(65.9)	28(57.1)	3(30.0)
Ebola patient should be kept under total isolation with limited access to selective health workers	75(82.4)	35(71.4)	9(90.0)

Table 1 shows that 70% of the Lab Personnel have answered correctly that Fruit Bats are the Natural Ebola virus hosts. 83.5% of the doctors knew that Dead bodies of Ebola victims are infectious. The above table shows that only 36.3% of the Doctors knew correctly that the dead body of an Ebola victim should be buried in a sealed bag. Equal number of Doctors (42.9%) and Nurses (42.9%) knew that confirmation of Ebola infection can be done by any of the convenient techniques like RT-PCR, Specific antigen detection test, IgM against Ebola detection. Ebola patients can be discharged after 2 negative RT-PCR tests at least 24 hours apart was known to 65.9% of the Doctors.

Table 2: Awareness regarding personal protection equipment for Ebola among the health care personnel

n=150

Statements	Doctors N= 91 n(%)	Nurses N= 49 n(%)	Lab personnel N= 10 n(%)
PPE consisting of Rubber gloves, face mask, boots and impermeable gown	82(90.1)	39(79.6)	10(100.0)
Vaccines for Ebola are NOT available	62(68.1)	33(67.3)	7(70.0)
Particle Respirator [Special PPE] required for working Ebola cases	56(61.5)	24(49.0)	7(70.0)
Hand washing technique – preferably alcohol based disinfectant after washing with water	57(62.6)	34(64.4)	6(60.0)

Table 2 shows that 100% of the Lab personnel were aware that PPE for Ebola consists of rubber gloves, face mask, impermeable gown and boot. Sixty eight percent of the doctors knew that vaccine for Ebola is not available. Seventy percent of Lab personnel believe that particle respirator is required while working on Ebola cases but not required while doing the same on HIV or HBV individuals. Alcohol based disinfectant is used after washing with water for hand washing was known to 64.4% of the Nurses.

DISCUSSION

Transmission of Ebola to the human population is through contact with various body fluids of infected primate species or fruit bats. The disease poses a threat to the whole world especially the developing nations. India with its huge population of immigrants is gazing at the impending outbreak of Ebola disease. India has its task cut out as huge population who stay in Guinea, Liberia Sierra Leone and Nigeria may return here. The case fatality rate of the 2014 outbreak in West Africa is about 50%[7]. The outbreak can be prevented by creating awareness among the health personnel and the high risk population for Ebola[8]. Awareness is the major prevention tool against Ebola disease.

In the present study, 83.5% of the doctors were aware about the transmission of Ebola through dead bodies while only half (50%) knew that the fruit bats are the natural virus host. A similar study done among junior doctors Delhi[9] showed that four fifths of doctors knew about the transmission of Ebola disease through dead body. Out of this, only <60% accurately knew about fruit bats transmitting and being a reservoir of Ebola[9]. Both these cities have an influx of foreign nationals due to international airports making them vulnerable to an outbreak of Ebola. Regular IEC activities in these region maybe the reason for better awareness level regarding transmission of viral disease. The present study finding is also in coherence with a study done in Sierra Leone in which 84.8% of general public knew that bodies of Dead victims were infectious. Sierra Leone was the epicenter of Ebola outbreak and extensive campaign had been done to spread awareness regarding prevention of Ebola.

In the present study equal percentage of doctors and nurses (42.9%) correctly knew that diagnosis of Ebola is done with RT-PCR and IgM antibodies, whereas a study done in Conakry, Guinea shows that 44.4% and 29.2% of health care workers knew that diagnosis can be done by serology and PCR respectively[10]. The present study

shows that a good percentage of doctors (65.9%) and nurses (57.1%) knew that Ebola patients are considered non-infective and discharged after 2 negative RT-PCR tests done 48 hours apart. Kasturba medical college hospital is one of the oldest and advanced hospital of coastal India with good diagnostic laboratory. The health professional here are trained to conduct advanced serological tests and regular CMEs are organized to enhance their knowledge.

In the present study, regarding the availability of vaccines against Ebola almost equal percentage of doctors (68.1%) and nurses (67.3%) responded that no vaccines were available. Whereas 85.8 %[9] of doctors from Delhi and 83.3% study participant from Sudan [11] agreed that no vaccines were available for Ebola. The current study also showed that 90.1% of the doctors were aware of the personnel protective equipment (PPE) needed while examining Ebola patient while only 50% were aware of the same in a similar study done on junior doctors in Delhi. Another study from Shimoga[12] showed that adequate awareness regarding PPE was present among 46.1% doctors and 27.3% of nurses. The difference in the result may be due to the inclusion of senior doctors in the present study who may be more updated about the disease or the reason may also be that the junior doctors in the other study were busy with other clinical practice to know more about this issue.

In the present study done, 62.6% of the doctors correctly knew that alcohol based disinfectants is used for hand washing method while in the study from Delhi showed that 82.9% knew the correct method of proper hand washing technique.[9]. A study done in Lahore[13], Pakistan revealed that 57.5% final year medical students identified that hand washing with soap and water is basic step for prevention of Ebola virus disease.

In the present study, 82.9% of the doctors felt the need for quarantine of Ebola victims which is almost similar to 84% in the study done in Delhi. The results are almost similar due broad based knowledge given to health personnel with influx of foreign national areas. This might have been the reason for having similar results in the 2 studies. A study done in Sudan showed that 93.5% of health care providers believed the patient should be in quarantine [11] and in the study done in Sierra Leone shows that 89%[14] of the respondents believe that quarantining the individual for 3 weeks who were in direct contact with the patient is necessary. The increase

in the result may be due to widespread mass education of Ebola done by government bodies and international health organization in the Ebola outbreak hit areas in Africa [14].

CONCLUSION

Given that there is no effective treatment or vaccine, raising awareness through educative messages and providing much needed health care has to be the top priority. Public health messages should focus on reducing the risk of animal-to-human, as well as human-to-human transmission, particularly through body fluids. Containment measures, including burial of the dead, should be strictly enforced. Given that this outbreak is happening in very poor settings, the provision of basic supplies including gloves, masks, disinfectants and basic drugs must be immediately ensured. Equally, or perhaps even more important, is the setting up of active surveillance systems to detect the early onset of the disease in susceptible animals and humans. Travel to and from locations where the Ebola epidemic continues to rage should be done with care, and anyone developing fever on account of such travel should immediately be reported to the health authorities for observation and treatment.

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Dental Caries Experience and Restorative Needs among Young, Middle-aged and Elderly Rural Women Associated with Self- Help Groups- An Explorative Study

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ABSTRACT

Dental caries is an infectious disease affecting the teeth, which can be debilitating and have a negative impact on the general health of the patient. It can be controlled and halted with timely intervention.

Objective- To estimate the dental caries status and restorative needs among rural women of various age groups who are associated with self-help groups in Mangalore taluk, India.

Material and method- A total number of 605 rural women were selected for the study. 228 women between 20-35 years, 286 women between 36-50 years and 91 women between 51-65 years were examined. Decayed, Missing and Filled teeth (DMFT) index were recorded along with treatment needs. The data was collected using the WHO Oral Health Assessment Form(1997). Data obtained was subjected to statistical analysis by SPSS version 16 (SPSS Inc., Chicago IL) and descriptive statistics was obtained

Results- The mean DMFT index among the rural women examined was 10.51±4.01.The lowest mean DMFT was observed in the younger age group (9.26±4.01) and highest DMFT was recorded among older age group at 14.16±7.19. The treatment needs among younger age group was one surface filling (63.15%) and need for replacement increased with age (75.82%)

Conclusion- Results indicated significantly high levels of decayed, missing teeth which create the definite need for restorative care. There is a need to create awareness among rural women about restorative care so that there is retention of more number of functional teeth and also the replacement of missing teeth .

Keywords- *Dental caries, rural women, DMFT index, teeth, age*

INTRODUCTION

Dental caries and periodontal disease are the most common chronic infectious diseases in the world and indicators of oral health burden all over the world.[1] Presently the prevalence and incidence of dental caries have increased with civilization and consumption of refined sugar. The incidence of dental caries is dependent on dietary habits and oral hygiene practices which are influenced by socioeconomic conditions. Dental caries is age related and the number of teeth affected as a result of decay increases with age.[2] Caries, if left untreated can cause pain, infection and tooth loss.[3] Among adults, loss of natural teeth also has a significant impact on nutritional intake resulting in poor general health. Due to social and economic factors, the burden of oral diseases is always more on the disadvantaged and the socially marginalized groups.[2] According to the WHO Global Oral Health Programme, oral health

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is integral and essential to general health, Also, oral health is a determinant factor for quality of life.[4] In India, oral health problems are given least priority by the people and government .Since the life expectancy of our population has increased, so has the demand for dental restorative care . There is a need to monitor the oral health and associated factors in the middle-aged and older patient to meet the future oral care needs. [5] There exist vast disparities in oral care availability between urban and rural populations in India.[6]

In India, rural women are a vulnerable population with low literacy rate, low income and lack of access to care. With an increase in life expectancy of 69.06 years, their dental restorative needs will also increase. [7] Barriers exist that prevent these women from seeking early restorative care eventually resulting in loss of the tooth. The rural population vastly depend on public and government facilities for their health care needs. [8] But these sectors of the health care delivery system are not actively involved or lack facilities to provide oral health care services, thus the access to care and utilization of restorative dental care is restricted among rural women. It is observed that utilization of restorative dental services is related to social class differences in caries experience. [9] Though 70% Indian population resides in villages, data on oral health status, needs and utilization are scarce. Also, there is no literature from Indian subcontinent regarding the caries status and the restorative needs among rural women. Presently there are social organizations consisting of self- help groups in India that are striving to uplift the rural women by imparting education and financial aid for their overall growth and wellbeing. These groups are suitable to educate the rural women and to promote the necessity to receive restorative care for dental caries. In order render effective education programme, it is important to understand the magnitude of the disease in a given population Hence the present study intended to increase the awareness among rural women and explore the need of dental restorative care. Thus this present study is planned to estimate the dental caries status and restorative needs among rural women of various age groups who are associated with self-help groups in Mangalore taluk, India.

MATERIAL AND METHOD

The study area was located in Mangalore taluk of South Kanara district, Karnataka. These rural women were associated with the Jnana Vikas Kendra (JVK).These JVK's are small groups of rural women with a social worker who educate and guides them in various life skills. Ethical clearance was obtained from the Institutional Ethics Committee (no.13007) to perform the study. Among the 54 JVK located in Mangalore taluk, 18 groups were selected by lottery method . Assuming dental caries prevalence as 60% at 95% confidence interval and significance level at 0.05 the sample size for the present study was calculated as 605.The study subjects were divided into three groups based on their chronological age.

Group 1- 20-35 years(younger age group)

Group 2-36-50 years(middle age group)

Group 3-51-65 years (older age group)

All participants were explained about the objective of the study, clinical examination procedure and consent of participation was obtained. Mouth mirrors and CPI probes were used for clinical examination by a two examiner (Dental surgeons) .The findings of DMFT were recorded using the WHO Oral Health Assessment Form(1997) by trained assistants.

Data obtained was subjected to statistical analysis by SPSS version 16 (SPSS Inc., Chicago IL). The descriptive statistics was obtained regarding the number of carious teeth, missing teeth, restored teeth and treatment needs.

RESULTS

The mean DMFT index among the rural women examined was 10.51±4.01.The lowest mean DMFT was observed in the younger age group (9.26±4.01). The highest DMFT was recorded among older age group at 14.16±7.19. (Table1). The missing component among the 51-65 years age group was higher(13.18±10.28) and lowest in the 20-35 years age group (3.21±2.13) (Table 2). Missing teeth with age is significantly higher when compared to middle and younger age women (p< 0.00) (Table 2)

The need for one surface filling higher among the younger (63.15%) and middle age group(56.64%). An increased need for two surface filling (46.15%) and extraction(32.2%) was observed among the middle aged women. Replacement of missing teeth (75.82%) was the most common treatment need among the older age

group (Graph1).

DISCUSSION

Even though there is a reduction in the prevalence of dental caries in both developed and developing countries, but the population belonging to lower socioeconomic status are still at a risk of being affected by dental caries. [10] These factors associated with socioeconomic status may vary in the form of low income, low education level, occupation, lack of access to care. WHO recommends epidemiological studies on 35–44 years and 65–74 years age groups due to their relevance in describing and analyzing the cumulative damage of dental caries on people's oral health over the years. [11] In the present study, dental caries experience of the rural women among different age groups was evaluated by clinical examination. The different treatment needs of these women were recorded and analyzed. The mean DMFT (10.51±4.01)(Table1) in this study was is higher compared to other studies conducted in rural India in a heterogeneous population. [12,13] But in the present study only rural women were involved hence the higher DMFT concludes, that rural women may have other barriers from seeking timely care such as household and child care responsibilities, dependency on male members financially and in decision making, and logistics. Most of the rural women were daily wagers and do not have the time to spare to receive restorative dental care. The caries experience (decayed teeth) among the various age groups was similar with a mean of 4.19 ±2.57(young), 4.49± 3.12(middle) and 4.78 ± 2.80(elderly)(Table 2). But the increasing social gradient in dental caries experience is notable among rural women with an increasing missing and untreated component of the DMFT. The need for one surface restoration (63.15%) was maximum among the younger age group (20-35 years) and lesser among the elderly. The need for two or more surface restoration (46.15%) was higher among middle age women. The mean DMFT is higher among the elderly patients at 14.16±7.19. (Table 1) The non-attendance for the restorative care of the rural women during their younger age could be the reason for this observation. Two surface or more restorations are needed when the carious lesion becomes more extensive involving usually the occlusal surface along the proximal or smooth surfaces. The treatment options also vary ranging from simple silver amalgam restorations to complex only cast restorations. Teeth indicated for extraction increases among middle

age (32.2%)and older age group(28.57%) women compared to younger women. The older the age group there is an increased need for replacement of missing teeth (75.82%). Extraction of teeth is an indication that the teeth cannot be repaired and restored by restorative procedures. An increasing trend of missing teeth with age which is significantly higher when compared to middle and younger age women (p< 0.00) (Table2) is a reflection of more extensive disease experience or lack of awareness about the specialized dental treatment such root canal treatment indirect restorations. Lack of specialized dental clinicians in rural areas also could have been a reason for a significant number of missing teeth. A prospective cohort study concluded that the annual dental attendance rate decreased significantly from age 5o to age 65.[5] The loss of tooth and negligence in replacing missing teeth which will have an impact on the general well- being of the person since the intake of the quality of food is affected. Timely intervention with restorative dental care throughout a person's lifespan will lead to retention of more functional teeth.

The greater frequencies of disease in small population groups such as the lower socioeconomic status of rural women is known as polarization.[10] Income is considered a socioeconomic measure that determines the person approach towards seeking or not seeking restorative care which reasons for the results of the study since all the participants belonged to the lower income strata. Social epidemiology has helped to understand the social disparities in oral health. A systematic review by Costa et al presents evidence of the association between socioeconomic indicators and dental caries in adults. [14] Kassessbaum et al suggested that there is are a large variation in the prevalence of untreated caries between regions and countries. [15]

Presently there is an increasing interest in understanding how different forms social organizations influence the health and well-being of individuals and the society. [16] In recent years the awareness about dental health and care has relatively increased in India. So there is a need to involve and create awareness about the treatment needs of the marginalized population. The self- help groups operate at grass root level, which can be a powerful medium to create awareness. Paucity of epidemiological studies that consider different determinants of dental caries and the oral health burden and effect on society has hindered the health organization from implementing of adequate health

promotion strategies. [17]

The limitation of the study was that certain confounding factors could not be controlled such as distance from access to care, availability of dentist in the area , occupation. Also, the actual incidence of dental caries may be still higher since no diagnostic tools such as radiographs ,transillumination has been used to diagnose dental caries.So the lack of diagnostic information may have resulted in the need for restorative care being underestimated . Bigger sample size could have been used to represent the entire country since most of our population reside in the rural area.

Table1- Mean DMFT among the rural women

Mean DMFT	10.51±4.01
Mean DMFT GroupI	9.26±3.08
Mean DMFT GroupII	10.59±3.48
Mean DMFT Group III	14.16±7.19

Table 2- Mean DMFT among different age group of rural women

	Decayed	Missing	Filled
20-35 years (228)	4.19 ±2.57	3.21 ± 2.13	2.33 ±1.22
36-50 years (286)	4.49± 3.12	4.92± 3.59	3.11 ± 1.68
51-65 years (91)	4.78 ± 2.80	13.18 ±10.29	2 ± 0.92
	1.07*, 0.34**	80.69*, 0.00**	4.33*, 0.016**

*F value   ** P value

Table 3 -Descriptive analysis of treatment needs according to various age groups.

	One surface filling (%)	Two or more surface filling(%)	Pulp care(%)	Extraction (%)	Replacement (%)
Group 1	63.15	33.3	17.1	12.2	30.7
Group 2	56.64	46.15	18.18	32.2	61.18
Group 3	45.05	26.37	10.98	28.57	75.82

CONCLUSION

Significantly high levels of decayed, missing teeth among rural women creates the definite need for restorative care. There is a need to create awareness among rural women about restorative care so that there is retention of more number of functional teeth and replacement of missing teeth. There is a need for policy reforms to include dental restorative care in basic health provision schemes.

Conflict of Interest - Nil

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Multidetector CT Measurement of Maxillary Sinus Volume Using Dedicated Software to Determine Gender Difference in Normal Population

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ABSTRACT

Objective : To accurately determine the volume of normal maxillary sinus in adults by using multidetector computed tomography aided with dedicated software and to assess the difference in volume between males and females.

Method : Study was conducted in Department of Radiology, School of Medical Sciences and Research, Sharda University , Greater Noida. Normal maxillary sinuses in 69 males and 49 females were evaluated by multidetector CT (64 rows of detectors) using GE OPTIMA 660 scanner. Accurate assessment of volume was done by using the auto-contour software. The data was analysed for range and average sinus volume in males and females. The difference in sinus volume between males and females was tested for statistical significance using the Students t-test.

Results : The range of maxillary sinus volume was 6.1 – 23 millilitres in males and 2.2 – 18 millilitres in females. The average sinus volume was 13.7 millilitres in males and 9.9 millilitres in females. The difference in average sinus volume was statistically significant ($p < 0.05$).

Keywords: *Maxillary sinus Volume, Auto contour.*

INTRODUCTION

The maxillary sinus, also known as the Antrum of Highmore, is an irregular air filled cavity within the paired maxillary bones and is lined by a thin layer of mucosa . The sinuses, which are small and filled with fluid at birth, attain their final size by twelve years of age [1]. The size of the cavity varies in different skulls, and even on the two sides of same skull.

The use of Computed tomography instead of plain radiography in the work up of PNS pathology was first recommended in the 1990's[2]. Since then CT has attained a central place in the imaging evaluation of PNS(2). CT

provides an accurate assessment of PNS, craniofacial bones as well as the extent of pneumatisation of sinuses[3]. The mucosa of the normal maxillary sinus is thin and is not resolved by Computed Tomography. Thus, the radiological margin of the normal maxillary sinus is a high contrast interface between air (HU = - 700 to – 1000 HU) on one side and bone (HU = +700 to +1200 HU) on the other. This property is utilized by the Auto contour software to quickly and accurately mark the irregular margins of the sinus.

Many authors have determined the volume of the maxillary sinuses by CT scans[2-11]. In addition to being an important anatomical record, such data is useful in forensic medicine, where it has been used to determine the gender of disfigured skulls in cases of explosions, warfare and other mass disasters like aircraft crashes [11]. Earlier studies of CT volume determination of maxillary sinuses were limited by lack of multiplanar imaging and

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by thick section acquisition, with the attendant problem of voxel attenuation averaging. Sinus volume was extrapolated from the AP, transverse and supero-inferior dimensions. Such extrapolations are approximate, and do not accurately reflect the sinus volume. With this background, we have performed the present study to accurately determine the maxillary sinus volume, by using thin section multiplanar multidetector CT (slice thickness 0.62 mm, 64 rows of detectors) and by using the auto-contour software .

MATERIALS AND METHOD

The study was conducted in Radiology department of School of Medical Sciences and Research, Sharda University, Greater Noida, from Jan 2016 to June 2016. CT scans of 118 patients were included in the study. 69 subjects were males and 49 were females. Subjects underwent CT examination of head, neck and PNS regions for various indications. Only CT scans with normal sinuses were included in the study. The age of subjects ranged from 12 -60 years. CT of subjects with any sinus pathology and of subjects below 12 and above 60 years of age were excluded from the study.

CT scan was done using GE OPTIMA 660 scanner with 64 rows of detectors. The slice thickness was 0.62 mm. Images were viewed on AW Volumeshare 7 workstation by GE Medical systems. Primary images were reconstructed using the bone algorithm and viewed simultaneously in all three planes using the bone window display.

The margins of the maxillary sinus were marked by using the auto- contour software on the primary axial images (Figure). The computer displayed the markings on all the three planes. The markings on all images were checked by scrolling through the entire sinus. The option of manual override was used in case the marking by auto-contour software was found unsatisfactory on any of the images. Volume was calculated twice on each side, by the same observer and the average for each side was calculated. The average volume of both sides was regarded as the final sinus volume for the particular subject and was taken for evaluation.

RESULTS

The range of volume among males was 6.1 to 23 millilitres and the average was 13.7 millilitres (Standard deviation 4.08). In female subjects the volume ranged from 2.2 to 18 millilitres with average of 9.9 millilitres (Standard deviation 3.07). The mean sinus volume among all subjects was 11.8 ml. The Welch Student T test, which tests the significance of two data sets with different variance, was applied. The difference in volume averages between male and female subjects was statistically significant (p value < 0.05). The minimum sinus volume was larger among male subjects (6.1 ml) as compared to that among female subjects (2.2 ml). The maximum sinus volume was also larger among male subjects (23 ml), as compared to that among female subjects (18 ml).

Table: Maxillary sinus volume parameters in males and females.

	Minium vol	Maximum vol	Mean vol	Std Deviation
Males	6.1	23	13.7	4.08
Females	2.2	18	9.9	3.07

DISCUSSION

The maxillary sinuses are air filled irregular cavities located within the paired maxillary bones. At birth, the sinuses are filled with fluid and they attain their final adult size by twelve years of age. The sinus is lined by a thin layer of mucosa, in vivo. However this thin mucosa is not resolved by CT scanning and as a consequence the sinus appears as an air filled cavity bounded by bone on all sides. This narrow transition zone permits the accurate caliper placement and marking by the dedicated Auto contour software.

The size of the maxillary sinus has an anatomical value as well as importance in the field of forensic medicine. It has been used to determine the sex of badly mutilated skulls in cases of warfare and other mass accidents[5]. In many such cases, it has been reported that the maxillary sinuses remain relatively intact[5].

Earlier studies [1-13] have determined the volume of maxillary sinuses by different methods. Many studies have proved that the size of the sinuses is larger in males than in females.

Sahlstrand-Johnson et al in 2011 [2], measured the different dimensions of the maxillary and frontal sinuses by CT. This study was performed on a 16 slice scanner and the volume of the sinuses was calculated by using the formula Width x AP diameter x cranio-caudal

diameter x 0.5. By virtue of using thinner sections and by using auto- contour dedicated software, the results in our study are more accurate.

Vidya et al in 2013[8] used Multiplanar CT and dedicated software to calculate the volume of maxillary sinuses from recently exhumed skulls. The volume of maxillary sinuses was greater on both sides in males, which is in agreement with our study.

Sharma et al in 2014[4] measured the volume of maxillary sinuses by CT in 102 cases of Gwalior region of India, for gender determination and found that the sinus volume was significantly larger in males. Similar results were obtained in our study.

Gosau et al in 2009 [10] performed a study of the maxillary sinus gross anatomy on 65 Caucasian cadaver heads. Volume of maxillary sinuses was obtained by filling the sinus with water and then calculating the volume of water. In this way, the real ventilated volume of maxillary sinus was obtained. The volume ranged from 5 to 22 ml with a mean sinus volume of 12.5 ml. Female predominance was noticed in the small volume class (5-9 ml), thereby establishing the smaller sinuses in females. In our study, the range was from 2.2 ml to 23 ml and the mean was 11.8 ml, which is in close agreement with the study done by Gosau et al. This is also a validation of the accuracy of our radiological measurements as comparison has been made with direct anatomical measurements.

Kawarai et al in 1999[12] did a study on volume quantification of healthy paranasal sinuses by 3D Computed tomography imaging in 20 Japanese subjects and confirmed that paranasal sinuses were individually and on the whole larger in case of males than females. Similar findings have been found in our study.

Figure 1: Maxillary sinus volume using Auto contour software on CT

CONCLUSION

By using thin section multiplanar multidetector (64 rows of detectors) CT, and by using dedicated Auto-contour software we found that the volume of maxillary sinuses is larger in males (mean 13.7 ml) than in females (mean 9.9 ml) and that this difference is statistically significant. This data can be used for gender determination using the maxillary sinuses.

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Psychological Distress among Family Caregivers of Cancer Patient

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ABSTRACT

Cancer is the one of the leading cause of death, is a disorder in which differentiated body cells undergo changes at molecular level resulting in the loss of the normal cell regulation, characteristics and functions. Today, the millions of people are living with cancer or have had cancer. Cancer patients need care and assistance from their family members, friends, as well as medical personnel. The study was aimed to assess the psychological distress among family caregiver of cancer patients. A descriptive cross sectional design with quantitative approach was undertaken on 300 caregivers of cancer patients who were admitted in the Cancer Research Institute Data were collected by using convenient sampling from 300 caregivers of cancer patients who were admitted in the cancer research institute by using convenient sampling. Data were collected by using GHQ (G-H-Q)questionnaire, Determinants of psychological distress (from DT) Socio-demographic data. GHQ-12(general health questionnaire), Determinants of psychological distress (from DT) tools. The result of the study shows that 30% of caregivers was suffering from severe psychological distress. 45% of care giver having the evidence of stress. There was statistical significant at the level of p=0.05. there was association between the psychological distress and socio-demographic variables like number of children's in family, place of cancer, time since diagnosis of cancer, caregivers not provided care before. There was also statistical significant association between determinants and psychological distress with Emotional problem at the level p<0.05.The investigator observed that the caregivers of cancer patients were having psychological distress and the caregivers who were having emotional problems they are having more psychological distress.

Keywords: *Caregivers, cancer patients, determinants, Psychological distress.*

INTRODUCTION

Cancer is a chronic disease involving long-term treatment and care that is implemented at both hospitals and homes. Cancer patient's need care and assistance from their family members, friends, as well as medical personnel. These family members who offer their physical and emotional help are referred to as informal caregivers. Throughout their illness, it is estimated that 55 percent of cancer patients' care needs are provided by informal caregivers.[1]

The prevalence of cancer in India is estimated to be around 2.5 million, with about 8,00,000 new cases and 5,50,000 deaths per annum. It is believed that in near future the number of cancer patients will increase in the developing and under developed countries, which may rise up to 70%. It is a serious issue for all of us. The magnitude of cancer problem in the Indian Sub-continent is increasing due to poor to moderate living standards and inadequate medical facilities.[2]

According to the Norwegian legal definition (Patient's right law, the primary caregivers is the one defined by the patient regardless of their family

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connection. The caregivers are to be informed about the patient's health condition when the patient wants to share such information.[3]

Since the 1980s, multiple studies have addressed the negative outcomes of family caregiving, which has been termed caregiver burden.[4] Previous research has also revealed several stress reducers. Research demonstrated that as more time passed since the cancer patients' diagnosis or treatment, caregivers reported less psychological distress.[5]

Psychological distress is largely defined as a state of emotional suffering characterized by symptoms of depression and anxiety these symptoms may be tied in with somatic symptoms that are likely to vary across cultures.[6]Psychological distress is usually described as a non-specific mental health problem yet, according to Wheaton, this lack of specificity should be qualified since psychological distress is clearly characterized by depression and anxiety symptoms.[7]

The prevalence of psychological distress is difficult to pinpoint due to the variety of the scales assessing distress, of the time windows used in the documentation of symptoms and of the cut-points applied to dichotomize the score of distress and identify individuals with pathological distress.[8] The prevalence of psychological distress is higher in women than in men in most.[9]

OBJECTIVE

1. To assess the magnitude of psychological distress among family caregivers of cancer patient.

2. To determine the effects of socio-demographic variables on psychological distress, in family caregivers of patients with cancer.

3. To find out the association between determinants and psychological distress among family caregivers of cancer patients.

MATERIALS AND METHOD

A quantitative research approach was used. The research design adopted for the present study was descriptive cross sectional design to assess the psychological distress and determinants of psychological among family care giver of cancer patients. The study was conducted in cancer unit of selected Multi specialty Hospital. 300 family care giver of cancer patients

were conveniently selected from the population. The Care givers whoever is not present at the time of data collection, whoever is not willing to participate in the study were excluded from the study. The GHQ-12 and DT scale was used measure the psychological distress. Ethical committee and administrative permission was taken from the concerning authority. Informed consent was obtained from the study participants before commencement of the study.

RESULTS

Table 1: Frequency (f) and percentage (%) distribution of caregivers according to their selected personal variable.

S.no	Subject Characteristics	Frequency	Percentage %
1.	**Age**		
	18-30	84	28%
	31-40	107	35.7%
	41-60	101	33.7%
	>60	8	2.7%
2.	**Gender**		
	Male	150	50%
	Female	150	50%
3.	**Relationship**		
	Father	24	8%
	Mother	22	7.3%
	Husband	63	21.0%
	Wife	74	24.7%
	Brother	19	6.3%
	Son	58	19.3%
	Other	40	13.3%
4.	**Community**		
	Rural	148	49.3%
	Urban	144	48.0%
	Semi urban	8	2.7%
5.	**Family**		
	Joint family	134	44.7%
	Nuclear family	164	54.7%
	Single parent family	2	0.7%
6.	**Education**		
	Professional	9	3%
	Graduate	54	18%
	Intermediate	76	25.3%
	High school	42	14%
	Secondary education	25	8.3%
	Primary school	82	27.3%
	Illiterate	12	4%

Cont... Table 1: Frequency (f) and percentage (%) distribution of caregivers according to their selected personal variable.

7.	**Marital status**			16.	**Place of cancer**		
	Married	243	81%		Lung Cancer	26	8.7%
	Unmarried	56	18.7%		Blood	12	4.0%
	Widow/widower	1	0.3%		Breast Cancer	32	10.7%
					Head ,neck Cancer	76	25.3%
8.	**Occupation**				Cervix ,uterus ,ovary cancer	40	13.3%
	Professional education	20	6.7%		GI cancer	93	31.0%
	Semi professional	31	10.3%		Skin cancer	9	1.3%
	Clerical, shop owner, farmer	40	13.3%		GU cancer	17	5.7%
		46	15.3%	17.	**Type of cancer**		
	Skilled worker	22	7.3%		Malignant	164	54.7%
	Semi-skilled worker	141	47.0%		Nonmalignant	136	45.3%
	Unemployed						
				18.	**Stage of cancer**		
9.	**Monthly income of family**				1st stage	33	11.0%
	885-4370	9	3%		2nd stage	228	76.0%
	4380-8730	31	10.3%		3rd stage	39	13.0%
	8760-17500	155	51.7%				
	>17500	105	35.0%	19.	**Treatment of cancer**		
					Radiotherapy	7	2.3%
					Chemotherapy	173	57.7%
10.	**Religion**				Surgery	77	25.7%
	Hindu	275	91.7%		Chemo with radiotherapy	43	14.3%
	Muslim	19	6.3%				
	Christian	1	.3%	20.	**When he/she diagnosis with cancer**		
	Sikh	5	1.7%		1-4 month	216	72.0%
					4-8 month	62	20.7%
11.	**Personal habbit**				8-12 month	8	2.7%
	Smoking	26	8.7%		12-20 month	14	4.7%
	Chewing Tabbaco	13	4.3%	21.	**From how many year you taking care of your patient**		
	Alcoholism	3	1.0%		1-30 days	114	38.0
	Nothing	258	86.0%		31-90 days	113	37.7
12.	**Total number of children**				91-180 days	64	21.3
	No children	47	15.7%		>181	9	3.0
	1-2 children	215	71.7%	22.	**Have you provided care of cancer patient before**		
	3-5 children	36	12.0%		Yes	14	4.7%
	>5 children	2	.7%		No	286	95.3%
				23.	**Patient ability of self –care**		
13.	**Total number of Adults**				Yes	279	93.0%
	No adults	3	1.0%		No	21	7.0%
	1-2 members	74	24.7%				
	3-5members	162	54.0%	24.	**Will you do patient care at home**		
	>5members	61	20.3%		Yes	286	95.3%
14.	**History of cancer in family**				No	14	4.7%
	Yes	15	5.0%	25.	**Do your patient have any life insurance**		
	No	285	95.0%		Yes	27	9.0%
15.	**Spiritual belief**				No	273	91.0%
	Theist	300	100%				
	Atheist	0					

Table no: 1 depicts that majority (35.7%) of the participants were in the age group between 31-40y .Male and female ratio were equal in the study. Majority (49.3%) of population were resides from the rural area and most of them (54.7%) were lives in the nuclear family. Most of the population are having primary education (82%) and (76%) are intermediate education.(81%)were married and (47%) were unemployed. Majority of population (155%) got monthly income between 8760-17500.majority (91.7%) wereHindu and only (26%) of sample were having the smoking habbits. majority (95%) were not having any family history of cancer. most of the patients (31%) are having the GI cancers with (76%) were in 2ⁿᵈ stage and (54.7%) were having the malignant cancer. Majority (57.7) patients were admitted for chemotherapy and (72%) of patient were diagnosed between1-4month and majority of caregivers (38 %) are providing care from 1-30days and (95.3%) were not provided any care before to cancer patients. Mostly (93%) of patients are able to perform their own activity and (95.3%) of caregivers can provide care to their relatives in home. Mostly (91%)of patients are not having any life insurance.

Table 2: Frequency (f) and percentage (%) distribution of psychological distress among caregivers of cancer patients.   N=300

S.no	Psychological distress	Frequency (F)	Persen-tage (%)
1.	No distress	75	25%
2.	Evidence of distress	135	**45%**
3.	Severe psychological distress	90	30%

Table no. 2 showed that majority 45% of population having the evidence of stress, 25% of caregivers are having no distress and 30% of caregivers are suffering from severe psychological distress.

Table 3 Frequency (f) and percentage (%) of selected determinants of psychological distress   N=300

S.no.	Determinants	frequency	Percen-tage %
1.	**Practical problems**		
	Housing	240	**80%**
	Child care	140	46.7%
	Work/school	116	38.7%
2.	**Family problems**		
	Dealing with children's	65	**21.7%**
	Dealing with partner	35	11.7%
	Family health issues	10	3.3%
3.	**Emotional problems**		
	Worry	265	**88.3%**
	Sadness	255	85%
	Nervousness	167	55.7%
4.	**Spiritual beliefs**	300	**100%**
5.	**Physical problems**		
	Sleep	218	**72.7%**
	Fatigue	107	35.7%
	Eating	94	31.3%

Table no-3 depicts that under determinants mostly (88.3%) were having emotional problems, (80%) were having practical problems, and (72.7%) were having in physical problems.

CONCLUSION

The caregivers of cancer patients are having psychological distress and some demographic variable also shows the significant association also the caregivers who are having emotional problems are more having the psychological distress. The study concluded that there is need to improve psychological education. On the basis of knowledge and no of cases one clinic can be opened in the hospital where one nurse can appointed who can give the counseling and health education to the both patient and caregiver who are having the psychological distress.

Conflict of Interest: There was no such conflict and bias during the study.

Source of Funding: It is self funded research study.   .

Ethical Clearance: No ethical issue exists.

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Prevalence of Comorbid Medical illness in Depression

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ABSTRACT

Introduction: High prevalence of medical illness in those with mental health problems the coexistence of depression with medical illness is a topic of considerable clinical and research interest. Depression may complicate the treatment of medical conditions is fairly well established, but the extent of and the reasons for these complications are not well understood.

Objectives: To assess the prevalence of comorbid medical illness in patients of depression.

Method: Study comprised of 100 consecutive cases of depression of all severity attending psychiatry OPD at PMCH

Results: Age of the patients range from 21-60 years with mean age of 38.05 years with SD of 11.14. Physical illnesses were associated with 30.77 % between 51 – 60 years. 83.33 % of the patient having physical illness with a duration of depression between 6-10 years and 100 % of the patient having physical illness with a duration of depression of more than 10 years

Conclusion: These findings suggest that patients with depression have an increased risk of certain medical conditions.

Keywords: Depression, medical illness, co-morbidity.

INTRODUCTION

Depression refers to a state of low mood, loss of positive affect, markedly diminished interest and enjoyment in activities that were previously considered pleasurable, and a variety of emotional, cognitive, and behavioral symptoms. Depression has been predicted to be the leading cause of disease burden in 2030 by the World Health Organization (WHO, 2008). [1]

Traditionally, the high prevalence of medical illness in those with mental health problems has been viewed as a consequence of psychotropic medications and an unhealthy lifestyle.[2] However, recent research has suggested that exposure to psychotropic medication does not worsen mortality risk in patients with psychiatric illness [3] and that there may be underlying biological mechanisms linking mood disorder and many medical illnesses (Evans et al 2005).[4]

The coexistence of depression with medical illness is a topic of considerable clinical and research interest. That depression may complicate the treatment of medical conditions is fairly well established, but the extent of and the reasons for these complications are not well understood.[5,6]

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Previous research showed that depression is associated with a wide range of physical diseases with the strongest association being reported with cardiovascular diseases,[7] diabetes,[8] and chronic musculoskeletal disorders (Rosemann et al 2007).[9] However, findings on the direction of the respective associations remain heterogeneous (Wagner et al 2012).[10]

Population-based studies around the world also revealed that the presence of depressive symptoms is strongly associated with the presence of a wide range of physical diseases (Von Korff 2009).[11] This association has especially been reported in subjects with stomach and duodenal ulcer (Kessler et al 2003),[12] high blood pressure (Patten et al 2009),[13] myocardial infarction (Brunner 2014),[7] renal disease and calculi (Murtagh et al 2007),[14] and cancer (Härter et al 2007).[15] This study was undertaken in clinical population in the hospital to assess rates of physical illnesses in patients with a diagnosis of depression. The aim of the study is to assess the frequency of physical illness with depression and to establish their correlation.

METHOD

Study comprised of 100 consecutive cases of depression of all severity attending psychiatry OPD at PMCH diagnosed on the basis of "International classification of diseases and related health problems 10th revision" ICD-10-DCR (WHO 2003)[1] criteria. After diagnosing for severity of depression by ICD-10 criteria, the patients were rated on "Hamilton rating Scale for depression" (HAM–D) for scores of depression (Hamilton 1960).[16] The patient were then thoroughly examined for presence of any physical illness. To confirm or rule out the medical disorder lab investigations were used as and when required. All patients of depression between the age of 21-60 years, of both sexes and all socio-economic groups were included in the study. Patients of any mental illness other than depression and depression associated with other psychiatric comorbidity, those with a history suggestive of delayed developmental milestone of development, patients having history of substance abuse were excluded from the study. Statistical analysis was carried out using the Statistical Package for the Social Sciences (SPSS) 16.0 (SPSS Inc., Chicago, IL, USA).

RESULTS

The socio-demographic characteristics of the study sample are shown in Table 1. In the present study sample size was 100. Age of the patients range from 21-60 years with mean age of 38.05 years with SD of 11.14. The proportion of males were slightly higher than females (53% males, 47% females) and majority of the patients were Hindus as compared to Muslims. Seventy one percent of the patients were married, 23% unmarried and 3% of the patients were widowed. The table 2 shows the percentage of physical illness in the study sample. Physical illnesses were associated with 20.51 % of the patients between age group 21-30, 16.67 % between age group 31-40, 33.33 % between age group 41 – 50, and 30.77 % between 51 – 60 years. The table 3 shows the percentage of physical illness with the duration of depression. The table shows 42.86 % of the patient having physical illness with a duration of depression of less than 1 year, 28.17 % had physical illness with a duration of depression between 1-5 years, 83.33 % of the patient having physical illness with a duration of depression between 6-10 years and 100 % of the patient having physical illness with a duration of depression of more than 10 years. Table 4 shows the prevalence of physical illness with duration of Depression. 34 patients had only one associated physical illnesses and the remaining 5 had more than one physical illness.

The table 5 shows the various correlations. The duration of depression (in years) is significantly correlated to osteoarthritis and renal failure. The duration of physical illness is also significantly correlated to osteoarthritis. The duration of depression (in years) has a very high significant correlation with Hypothyroidism and Diabetes Mellitus. The duration of physical illness has a very high significant correlation with Hypothyroidism, Hypertension, Diabetes Mellitus, Peptic Ulcer and Renal Failure. Diabetes Mellitus is significantly related to heart disease and very significantly related to Hypertension and renal failure. Heart disease is significantly related to hypertension.

DISCUSSION

Physical symptoms are common in major depression and may lead to chronic pain and other physical disorders complicating treatment. In the primary care setting, a high percentage of patients with depression present exclusively with physical symptoms. A World Health Organization study by Simon et al. (1999) [17] analyzed of somatic symptoms in the presentation of depression. Of the 1146 patients in 14 countries included in the

survey who met the criteria for depression, 69% reported only somatic symptoms as the reason for their visit.

Depression has been long associated with hypothyroidism and in line with our results that emphasizes strong association between hypothyroidism and manifestation of depression, almost all previous similar studies could demonstrate this correlation. In a recent study,[18] it was found a positive association between untreated diagnosed hypothyroidism and the BDI depression score. In another recent study by Ojha and colleagues [19] thyroid dysfunction also showed positive correlation with depression severity. It seems that the mechanisms of appearing depressive in hypothyroid patients may be influenced by other potential factors such as gene predisposition. Our results are in line with previous studies reporting associations between depression and physical diseases in general.[20, 21,22]

In the field of mood disorders, there is evidence of a possible biological link between bipolar disorder and hypertension. Specifically, a locus containing the gene CACNA1C, coding for a subunit of the L-type calcium channel, has been identified and replicated as a risk factor for bipolar disorder.[23] The main finding of the study by Graham and Smith[24] was that both men and women with hypertension were more likely to have a recorded diagnosis of depression and anxiety disorder, with slightly greater risk for men than for women. This is concordance with our study findings. A study by Wiehe and colleagues [25] suggest a that hypertension and depression were not associated in this free-living population of adults, suggesting that their concomitant occurrence in clinical practice may be ascribed to chance.

In a study to detect depression and its associated cofactors among type 2 diabetes mellitus (T2DM) patients[26] it was found that one-third patients with T2DM (32.05%) suffered from major depression. We have also demonstrated that in those with depressive disorder, a higher burden of medical illness is associated with certain clinical features indicative of a more severe and long duration of illness course. The mechanisms underlying the relationship between mental and physical health disorders are complex, although evidence suggests that the causal relationships are likely to be bidirectional.[27] The existence of a medical condition may be a stress that increases the risk of developing a mood episode/disorder. Similarly, the existence of an affective disorder may increase the risk of developing a medical condition. This study has numerous limitations. The diagnosis of depressive disorders in medical patients is complicated by the frequent overlap between symptoms of depression and those of medical illnesses. This overlap may contribute to under diagnosis, when symptoms of depression are assumed to be features of the medical condition, or to over diagnosis, when symptoms of a medial illness are attributed to a depressed mood. Study requires more evaluation on large sample size and duration should be adequate.

Table 1: Socio-demographic characteristics

	Age Range	N/ %
Class interval of age group	21 – 30	38
	31 – 40	20
	41 – 51	26
	51 – 60	16
	Total	100
Sex	Male	53
	Female	47
Religion	Hindu	86
	Muslim	14
Marital status	Married	71
	Unmarried	26
	Widowed	03

Table 2: Age wise distribution of physical illnesses with percentage.

Age group	Physical Illnesses		Percentage of physical illness
	Present	Absent	
21 – 30	8	30	20.51 %
31 – 40	6	14	16.67 %
41- 50	13	13	33.33 %
51 – 60	12	4	30.77 %
Total	**39**	**61**	

Table 3: Duration of depression and percentage of Physical Illnesses

Duration	Total Number of patients	Patients with Physical Illnesses	Percentage
< 1 year	14	6	42.86 %
1 – 5 year	71	20	28.17 %
6 – 10 year	12	10	83.33 %
> 10 year	3	3	100 %
Total	100	39	

Table 4: Physical illness with duration of Depression

Physical illness (N) (%)	Duration of depression			
	<1 year	1-5 years	6-10 years	> 10 years
Hypothyroidism (8) 18.18%	1	4	1	2
Hypertension (9) 20.45 %	2	3	4	0
Diabetes mellitus (8) 18.18%	1	2	5	0
Heart disease (2) 4.54 %	0	1	2	0
Irritable Bowel syndrome (5) 11.36 %	0	5	0	0
Osteoarthritis (3) 6.81%	0	1	1	1
Peptic ulcer (2) 4.54 %	0	2	0	0
Tuberculosis (2) 4.54 %	1	0	1	0
COPD (1) 2.27%	0	1	0	0
UTI (1) 2.27%	0	1	0	0
STDs (2) 4.54 %	1	1	0	0
Renal failure (1) 2.27%	0	0	1	0

Table 5: Correlation table

	Hypo Thyroidism	Hyper tension	Diabetes Mellitus	Heart Disease	Osteo arthritis	Peptic Ulcer	UTI	STDs	Renal Failure
Type of depression	.128	.159	.115	.062	.040	.151	-.144	.151	.106
	.203	.115	.254	.539	.692	.134	.154	.134	.293
Duration in years	.321**	.159	.343**	.113	.252*	.021	-.050	-.111	.208*
	.001	.115	.000	.264	.012	.835	.624	.274	.038
Duration of physical illness	.076	.375**	.586**	-.026	.223*	.261**	-.035	-.020	.453**
	.452	.000	.000	.794	.026	.009	.726	.840	.000
Diabetes Mellitus	-.093	.389**	1	.205*	-.055	-.045	-.032	-.045	.320**
	.359	.000		.041	.585	.657	.755	.657	.001
Heart Disease	-.042	.205*	.205*	1	-.025	-.020	-.014	-.020	-.014
	.677	.041	.041		.804	.840	.887	.840	.887

P < 0.05 significant

P < 0.005 Highly significant.

CONCLUSION

These findings suggest that patients with depression have an increased risk of certain medical conditions. Knowledge of the most prevalent medical conditions in patients with affective disorders and developments in the prevention, detection and treatment of such illnesses in this group are essential in improving care and prognosis. It is important to raise awareness among healthcare professionals about the risks to which patients with affective disorders are exposed. Knowing which medical illnesses are likely to coexist with a mood disorder may help to improve diagnostics and management and therefore clinical and social care for patients.

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Ethical Approval: Taken from competent authority.

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A Prospective Study Comparing the Outcome of Dynamic Hip Screw and Proximal Femoral Nail in the Treatment of Intertrochanteric Fractures of Femur

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ABSTRACT

Objectives: The aim of this study was to compare the outcome of Proximal Femoral Nail and Dynamic Hip Screw in the treatment of intertrochanteric fractures.

Method: This study was conducted on 30 cases of Intertrochanteric fractures of femur treated by PFN and DHS. Patients were operated on standard fracture table under image intensifier control.

Results: The average age of the patient was 57.6 years. Most common mechanism of fracture was domestic fall. There were a total of 06 A-1 fractures(20%), 19 A-2 fractures(63.33%) and 05 A-3 fractures(16.67%).The average blood loss was 167 ml and 250 ml in PFN and DHS group respectively. The average operating time for the patients treated with PFN was 67 min as compared to 78 min in patients treated with DHS. In the PFN group the limb length shortening was less as compared to DHS. The patients treated with PFN started early ambulation as they had better Parker and Palmer Score in the early period (at 12 weeks). In the long term both the implant had almost similar functional outcomes.

Conclusion: Both DHS and PFN achieves good functional outcome in treatment of intertrochanteric fractures. Choice of implant depends on the expertise of surgeon and fracture pattern, DHS is more preferable for stable fractures and PFN is more preferable for unstable fractures and old patients who require early mobilization.

Keywords: *Intertrochanteric fracture, Dynamic Hip Screw (DHS), Proximal Femoral Nail (PFN)*

INTRODUCTION

Proximal femoral fractures are one of the commonest fractures in geriatric population and their incidence is predicted to grow rapidly with increase in aging population. Nine of ten hip fractures occur in patient older than 65 years of age of which about three out of four are women and half of these fractures are intertrochanteric fractures.[1]

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In elderly patients fracture occurred after simple fall, however in younger individuals, it occurs as a result of high velocity injury, such as motor vehicle accident.[2] These fractures are classified mainly as stable and unstable fracture based on radiographic appearance, stable one being where stable reduction is achieved on posteromedial cortex of intertrochanteric fracture[3]. The various treatment options for intertrochanteric fractures are operative and nonoperative.Nonoperative treatment should only be considered in nonambulatory patients, patients with unresolved medical comorbidities that preclude surgical treatment. Nonoperative approach include reduction via traction and early mobilization within the limits of pain tolerance.

The operative management of intertrochanteric fractures has evolved from fixed nail plate to

intramedullary devices. Use of DHS in unstable intertrochanteric fractures results in excessive sliding of the lag screw which results in limb shortening and medialization of the femoral shaft[4] and high chances of implant failure[5].

Dissatisfaction with the use of dynamic hip screw devices led to the development of intramedullary screw devices which included gamma-nail, proximal femoral nail and intramedullary hip screw device.

Our study is a prospective study comparing Proximal Femoral Nail and Dynamic Hip Screw.

MATERIALS AND METHOD

The following study was done to compare treatment of intertrochanteric fractures by PFN and DHS in terms of

- Blood loss during surgery (in milliliters)
- Duration of surgery (in minutes)
- Early mobilization
- Postoperative Pain
- Duration for radiological union
- Limb Length Shortening
- Post-operative complications

The material for the present study was obtained from the patients admitted with the diagnosis of intertrochanteric fracture femur from from January, 2015 to July 2016. 30 consecutive patients were selected out of which 15 patients were treated with DHS and 15 with PFN. The inclusion criteria for the patient were surgically fit patients of age > 18 years with fresh intertrochanteric fractures. The exclusion criteria were patients unfit for the surgery, with compound or pathological fractures, re-operation and those unwilling. X-ray Pelvis with both hip A-P and Lateral view was taken to diagnose and classify the fracture.

All cases were operated on a standard fracture table under spinal anesthesia using standard operating technique of the implant chosen. Non weight bearing was started from the second postoperative day. Drain was removed after 24 hrs. Incision site was inspected on the 2nd and 5th post operative day. Stitches were removed on the 12th day. Patients were followed up regularly for 9-10 months. Parameter assessed were

- **Clinical**
  1. Condition of the operated site
  2. Pain

Table 1: Four point scale

1 - No Pain
2 - Mild pain that did not affect walking or require regular analgesic
3 - Moderate pain that affected walking or require regular analgesic medication
4 - Severe Pain, even at rest, that require stronger analgesic medication

3. **Walking ability**

Table 2 : Parker and Palmer mobility score[7]

Walking ability	No difficulty	Alone with an assistive device	With help from another person	Not at all
Able to walk Inside house	3	2	1	0
Able to walk outside house	3	2	1	0
Able to go shopping, to a restaurant	3	2	1	0

- **Radiological**
  1. Fracture union
  2. Signs of implant failure

RESULTS

There were 18 male (60%) and 12 female (40%) patients. The fracture due to low velocity trauma occurred in 17 patients (56.7%) and high velocity trauma in 13 patients (43.3%). The right side was involved in 19 cases (63.33%) while left side in 11 cases (36.67%). Fractures were classified as per the A.O. (O.T.A.) classification.

Table 3: Results

		DHS	PFN	p value
Number of cases		15	15	-
Age (years)		58.53 ± 9.71	56.67 ± 13.62	0.67
Duration of surgery (min)		78.20 ± 10.07	67.67 ± 10.80	0.10
Blood loss (ml)		250.0 ± 53.45	166.67 ± 44.99	<0.05
Pain score (36 wks)		1.0	1.0	>0.05
Walking Ability (36 wks) (Parker & Palmer mobility score[7])		8.93 ± 0.26	8.60 ± 0.74	0.10
Limb length shortening (mm)		10.33±4.80	4.33±3.71	0.001
Radiological union (weeks)		14.87±1.85	15.53±3.81	0.55
Peroperative Complications	Difficulty in implantation	00	01	>0.05
	Lateral cortical breach	01	00	
Postoperative Complicaions	Wound infection	01	01	>0.05
	Medialization	01	00	

PFN group:

Figure 1: Preoperative Xray,   Figure 2 : Xray after 8 months

DHS group:

Figure 3: Pre-operative Xray   Figure 4: Xray after 6 months

DISCUSSION

A Dynamic Hip Screw is the most commonly used implant for intertrochanteric fractures[8,9]. However, because the load bearing in the proximal femur is predominantly through calcar femorale, the lever arm of laterally placed plate is increased so there is a risk of implant cut out[2,10,11].

An intramedullary device decreases the bending force of the hip joint on implant by 25-30%. This has advantages especially in elderly patients, who require early full-weight bearing mobilization.

A search of the review groups of the Cochrane library for the ideal implant in intertrochanteric fractures still favours the use of sliding hip screw over intramedullary implants[12,13]. Also reviews of various other meta-analysis also were in favour of sliding hip screw[13,14]. This was predominantly due to risk of femoral shaft fracture associated with earlier version of gamma nail[8] and complications due to steep learning curve associated with the implant. But with the advent of proximal femoral nail the complications associated with

gamma nail have been reduced and results of proximal femoral nail in treatment of intertrochanteric fractures are comparable or even better than dynamic hip screw especially in unstable intertrochanteric fractures[15,16,17].

The present study was undertaken to compare PFN and DHS in the treatment of intertrochanteric fractures in terms of blood loss during surgery (in milliliters), duration of surgery (in minutes), peroperative complications, early mobilization, post-operative pain, limb length shortening and number of post operative complications.

Mean age of the present study population was 58 years in the DHS group (38-74 years) and 56 years in PFN group (30-75 years).In studies done by Zou et al (2009)[17]and Boldin et al (2003)[18] mean age was 65 years and 73 years respectively.The difference in the mean age in present study may be because the mean age is calculated among operated fractures only and older patients who were unable to get fitness for anaesthesia within 2 weeks were excluded from the study.

Male to female ratio in this study was 1.5:1. In a study done by Melton et al[19] and Simmermacher et al[20]male to female ratio of 1:1.8 and 1:2.6 was noted. The difference in current study is probably because the male to female ratio is measured amongst operated fractures only and not for the actual sex incidence for all trochanteric fractures.

In our study the mode of trauma due to low velocity trauma was seen in 13 patients (43.33%) and due to high velocity trauma in 17 patients (56.67%) which was statistically not significant.Tyllianakis et al (2004)[21] and Efstathopoulos et al (2007)[22]conducted studies which showed low velocity trauma in 67% and 98.7%.The difference in the mode of trauma in our study is because the mean age of patient in our study is less (57.6 years) as compared to abovementioned studies and fracture due to low velocity trauma is more common in older people.

In our study common type was the A2 type accounting for 63.33% of fractures followed by A1 accounting for 20% of fractures and A3 for 16.67%. In the study done by Domingo et al[23] most common fracture was A2 (59%) followed by A1 (26 %) and A3 (15%). Our study is comparable to earlier studies which show A2 to be the most common type of fracture followed by A1 and A3.

In our study mean duration of surgery for DHS was 78 + 10.07 min and for PFN was 67+ 10.80 min with p value of 0.01. In a study conducted by Hardy et al[24] mean duration of surgery for PFN was found to more (79.6 ± 35.2 min.) as compared to DHS (61.5 ± 17.0 min.) which was statistically significant. The results of our study are not comparable, this may be because of the variants like expertise of the surgeon in doing the procedure, the quality of the instrumentations.

In our study mean blood loss in the DHS group was 250 ± 53.45 ml while the mean blood loss in PFN group was 166.67 ± 44.98 ml. The difference between the two groups was statistically significant (p value-0.01). In a study done by Hardy et al[24], mean blood loss in DHS group was 198 ± 82.9 ml and in PFN group was 144 ± 120.5 ml, with a statistically significant difference (p=0.011). Our study is comparable to the previous studies in terms of mean blood loss being more in DHS group and less in PFN group due to the extensive dissection required for placing barrel plate whereas PFN is a minimally invasive procedure associated with a smaller incision.

In our study the difference between numbers of peroperative complications in both the groups was statistically not significant. In PFN group intraoperative complications associated with insertion of implant in 01 patient was difficulty in the insertion of the 8 mm proximal screw and two screws of size 6.5 mm were used for proximal locking in the head and neck fragment. In the DHS group, there occurred lateral cortical breech during surgery in one patient with A2.3 type fracture. In other studies conducted by Hardy et al[24] and Zou et al[17] no statistically difference was found between the DHS and PFN treated group of patients in terms of peroperative complications.

Pain

Pain was measured in both the groups using four point scale[6] at 5 days, 2, 6, 12, 24, 36 and 48 weeks. There was no statistically significant difference between the two groups in terms of mean pain score. These findings are in accordance with the previous studies done by Ahrengart (1994)[25] and Hoffman (1996)[26].

Walking Ability

The walking ability between both the groups was assessed using Parker and Palmer mobility score[7].In the

series, the mean mobility score was significantly greater at 12 weeks post-surgery for the PFN group, whereas mean mobility score was comparable in both the groups at 36 weeks. To conclude there was early return of walking ability in the PFN group whereas long term results were comparable in both the groups.

The results obtained in the current study were comparable to available literature [24,].

Post operative complications

The two groups showed statistically insignificant difference in terms of the number of postoperative complications (p=0.143). Comparative studies show that that total number of post operative complications between the two groups is comparable[6,24].

Delayed Union

The mean duration for radiological union in DHS group was 14.86+ 1.84 weeks whereas the mean duration for radiological union in PFN group was 15.53+ 3.81 weeks. There was no statistically significant difference between the two groups in terms of duration for radiological union (p=0.54).

Wound Infection

One patient showed wound infection at the operative site, in both PFN and DHS on the 5th postoperative day. All these cases were managed by oral antibiotics and regular dressings. It is evident that there was no difference between the two groups in terms of number of postoperative complications.

Limb length shortening

In our series, there was mean shortening of 10.33+4.80 mm in DHS while mean shortening in PFN group was 4.33±3.71 mm, which was found to be statistically significant (p=0.001).

In a study done by Hardy et al[24], mean shortening for DHS group was found to be 13±10.8 mm, and in PFN group it was 6 ± 6.9 mm., the difference between the two was found to be statistically significant (p=0.019). Hence, our study is comparable to other studies.

Ethical Clearance- Taken from ethical committee of the institute.

Source of Funding- Self.

Conflict of Interest- Nil

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Study of HA-MRSA and CA-MRSA Isolated from Clinical Cases in a Tertiary Care Hospital

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ABSTRACT

Background and objectives: Methicillin-resistant Staphylococcus aureus (MRSA) has been a major cause of nosocomial infections since the 1960s. Currently, MRSA can be segregated into two subgroups: the healthcare associated MRSA (HA-MRSA) and community associated MRSA (CA-MRSA) The aim of our study is to identify the CA and HA MRSA in clinical isolates from a tertiary care hospital.

Methodology: Staphylococci isolated from different clinical specimens were studied by routine standard biochemical tests and antibiogram and MRSA thus isolated were taken in the present study. Based on the patient history, biochemical tests and antibiogram CA-MRSA & HA-MRSA were grouped.

Results: A total of 200 *S.aureus* were studied over a period of one year, 111 (55.5%)isolates were MSSA (Methicillin sensitive Staphylococcus aureus) and 89 isolates were Methicillin-resistant Staphylococcus aureus (MRSA) strains accounting to 44.5% MRSA thus isolated where identified as CA 31(35.22%) out of 89 isolates, while HA was 58(65.9%)

Conclusion: In this study HA- MRSA is more predominant than CA- MRSA. Further molecular study has to be done to determine the type of SCC mecA gene and PVL gene.

Keywords: *Methicillin-resistant Staphylococcus aureus (MRSA); Methicillin-sensitive Staphylococcus aureus (MSSA); Healthcare associated MRSA (HA-MRSA); Community associated MRSA (CA-MRSA);*

INTRODUCTION

Staphylococcus aureus is a facultative anaerobic, Gram-positive cocci that causes diseases ranging from common skin infections to life threatening septicaemia It is the most prevalent pathogen causing hospital infection throughout the world, and the incidence is still increasing.[1] Through the years, the bacterium has evolved several mechanisms that render it to be resistant to the antimicrobials. The most common mechanism is the production of β-lactamase that inactivates many of the antibiotics.[2]Methicillin-resistant *Staphylococcus aureus* (MRSA) has been a major cause of nosocomial infections since the 1960s resulting in significant mortality and morbidity.

Methicillin-resistant *Staphylococcus aureus* (MRSA) is no longer only hospital acquired. Currently, MRSA is segregated into two subgroups: the healthcare associated MRSA (HA-MRSA) and community associated MRSA (CA-MRSA). MRSA is defined as community acquired if the MRSA-positive specimen was obtained outside hospital settings or within 2 days of hospital admission, and if it was from a person who had not been hospitalized within 2 years before the date of MRSA isolation. CA-MRSA strains are genetically different from HA-MRSA strains.[3] These divisions were originally based on epidemiological features and microbiological characteristics. Later it become an important character for molecular typing, antimicrobial susceptibility testing, and identification of methicillin

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resistance beside presence of special toxin genes.[4,5]

HA-MRSA is the major problem in nosocomial infections. Hospitalised patients with open wounds, invasive devices or with immune compromise status are at a higher risk of acquiring HA-MRSA. On the other hand, CA-MRSA has recently risen as a major public health concern. The appearance of CA-MRSA in patients with no risk factors is equally worrisome.[6]CA-MRSA is resistant to the β-lactam antibiotics and usually susceptible in vitro to Fluoroquinolones, Trimethoprim/sulfamethoxazole, Clindamycin, and Chloramphenicol.

This is in contradistinction to HA-MRSA, which is usually resistant to Fluoroquinolones, Clindamycin, and Chloremphenicol, and is less sensitive to Trimethoprim/sulfamethoxazole.[7,8] While HA-MRSA isolates are typically multi-drug-resistant, CA-MRSA isolates are susceptibleto more classes of antibiotics.[9]In addition, the Panton-Valentine leukocidin (PVL) gene encodes a pore-forming cytotoxin that acts preferentially against leukocytes and erythrocytes is commonly found in CA-MRSA infections and only rarely in HA-MRSA.[10–12].Table 1 tabulates the differences between HA-MRSA and CA-HRSA.

Table 1: Characters to distinguish between HA-MRSA and CA-MRSA

	CA-MRSA	HA-MRSA
At risk group conditions	Children, athletes, prisoners, soldiers, certain ethnic population	LTC facility residents, diabetics, prolonged hospitalization, ICU patients, patients on IV lines[13]
SCC *mec* type	IV, V, VI[14,15]	I, II, &III
Antimicrobial resistance	B-lactam resistance alone common Usually susceptible to TMP-SMX, clindamycin	Multidrug resistance common Usually resistant to TMP-SMX,
Toxins	More[4]	few
PVL	Common[12]	Rare
Associated clinical syndromes	SSTI, post-influenza, necrotizing pneumonia[11]	Nosocomial pneumonia, catheter related UTI, bloodstream infections, SSIs

METHODOLOGY

Under a prospective observational study design, all samples received in Department of microbiology, in a tertiary care hospital, over the period of one year, from April 2015 to Feb 2016 were screened for staphylococcus aureus. Institutional review board and ethics committee approval was obtained before commencement of the study.

Inclusion criteria: all samples received in department of Microbiology.

Exclusion criteria: Duplicate isolates from the same patients, even if the site of infection was different during the sample collection period were excluded from the study

Patients' demographic data, including age, sex were recorded. Sample site, department requesting for the microbial evaluation was noted.

Isolation of Staphylococcus aureus

Staphylococcus aureus was identified by preliminary tests like gram stain from direct sample and streak culture on 5% sheep blood agar, mannitol salt agar. *Staphylococcus aureus* was identified by colony morphology, gram stain, catalase test, tube coagulase test, slide coagulase test, urease test, mannitol fermentation, etc. Anti-microbial susceptibility testing was done on Mueller Hinton agar using the disc diffusion test as outlined by CLSI. Methicillin resistant *Staphylococcus aureus* detection was done using cefoxitin 30 μg. Those isolates showed zone of inhibition ≤21 mm considered as MRSA.

Categorization of isolates into HA-MRSA and CA-HRSA

Based on the history and clinical presentation of the patient, the MRSA isolates were categorized into CA or HA. Basically, if MRSA strain isolated after 48 h of hospitalization or from a patient with a history of hospitalization for surgery or dialysis, or of a residence in a long-term care facility within 1 year of the MRSA

culture date will come under HA-MRSA.

A MRSA culture obtained within 48 hours of hospital admission or evidence of infection on admission was considered an indication of a community-onset infection. Surgical site infections (SSI's) were not considered to be skin disease and were considered as Hospital acquires as per definition.[16]

Antibiotic susceptibility test was performed by Kirby-Bauer disk diffusion method with antibiotics - erythromycin (15 µg), clindamycin (2 µg), ciprofloxacin (5 µg), cefoxitin (30 µg), tetracycline (30 µg), gentamicin (10 µg), (co-trimoxazole 25 µg), norfloxacin (10 µg), chloramphenicol (30 µg), teicoplanin (30 µg), vancomycin (30 µg) and linezolid (30 µg) (Hi-Media Pvt. Ltd., India).

A MRSA isolate was considered to be an HA-MRSA strain if it was resistant to at least 2 of the following antimicrobial agents: trimethoprim/ sulfamethoxazole (TMP/SMX), ciprofloxacin, gentamicin,and tetracycline. A MRSA isolate was considered to be a CA-MRSA strain if:

a.   antimicrobial susceptibility results were available for at least 2 of the following agents: TMP/SMX, ciprofloxacin, gentamicin, rifampicin, tetracycline

b.   The isolate was resistant to no more than one of the antibiotics and was confirmed to be susceptible to at least two of these antibiotics.

Rifampicin is not routinely used, hence was not tested in the present study.

RESULTS

In our study of over one-year duration 200 samples showed *Staphylococcus aureus* growth. Out of 200 *Staphylococcus aureus* isolated, 89(44.5%)were Methicillin resistant (MRSA)and 111(56.5%) were Methicillin sensitive(MSSA). The samples that showed Methicillin resistance which were received from wards and OPD are as follows- Orthopaedics 23(25.8%) Surgery 22(24.7%); paediatrics 19 (21%); General medicine12 (13%); Obstetrics & Gynaecology 6(6.7%); Skin & STD 5 (5.6%) ENT 2 (2.2%). Figure 1 depicts monthly distribution of MRSA and MSSA cases. Table 2 tabulates the department wise reported number of MRSA cases during the same period.

Figure 1: Bar-chart representing month wise reported cases of Methicillin resistant Staphylococcus aureus (MRSA), n=111and Methicillin sensitive Staphylococcus aureus (MSSA), n=89

Table 2: Tabulation of reported cases of Methicillin resistant Staphylococcus aureus (MRSA) based on departments asking for microbiological evaluation, n=89

Departments	MRSA
Dermatology	5
Otorhinolaryngology	2
General Medicine	7
Medical Intensive care Unit	4
Neonatal Intensive care Unit	3
Obstetrics and Gynaecology	6
Orthopaedics	23
Paediatrics	14
Paediatric ICU	2
Surgery	22
Tuberculosis and Chest	1

Table 3: Drug sensitivity pattern of Methicillin Resistant Staphylococcus aureus (MRSA); percentages are in parenthesis. n = 89

Drug	Resistant isolates
Cefoxitin (30mg)	89 (100%)
Trimethoprim/sulfamethoxazole	66 (74.15%)
Ciprofloxacin (5 µg)	66 (74.15%)
Gentamicin (10 µg)	71 (79.77%)
Chloramphenicol (30 µg)	56 (62.9%)
Tetracycline (30 µg)	79 (88.76%)
Erythromycin (15 µg)	54 (60.67%)
Clindamycin (2 µg)	54 (60.67%)
Vancomycin (30 µg)	0
Linezolid (30 µg)	0

The isolation rate of MRSA among different clinical samples were as follows, high prevalence was seen among pus and swabs that is 59 (66.28 %) followed blood 19 (21.3%), rest of samples were from sputum, urine & other body fluids.

A total of 89 (44.5%) MRSA were detected from various clinical samples using cefoxitin disc diffusion technique (table 3). In our hospital, the highest number of MRSA isolated from 12 samples was observed in the month of December 2015 and the least was in the month of January 2016 from 3 samples. The resistance patterns of the HA-MRSA were higher when compared to those of the CA-MRSA. In our study all the strains isolated were sensitive to vancomycin and linezolid.

DISCUSSION

The present study showed that of 89 samples that were MRSA, 31(35.22%) samples were CA-MRSA and 58(65.9%) were HA-MRSA as compared to Abbas, et al which showed 71.1% HA-MRSA and 28.8% CA-MRSA.[16]High prevalence of MRSA among pus samples was also reported by Tiwari *et al.* 71.20% of MRSA were from pus samples.[17] Deepak *et al.* 43.10%[18]and Abbas, *et al.*(43.8%)[16]also reported high percentage of MRSA among pus samples.

Our results are in accordance with Abbas et al[16](40.20%) Mittal *et al.* (India)[19]40.38%, Seifi *et al.* (Iran)[20] 41.7%, and Mohanasoundaram (India)[21]39.16%, although high prevalence of MRSA have been reported by Venkata *et al.* (India)[22]75.27%. K. H. Harshan et al. (India)[23] reports29.7% MRSA in study with only pus samples.

The resistance patterns of the HA-MRSA were higher when compared to those of the CA-MRSA. This correlated with the results of Huang *et al.* and Vysakh and Jeya.[24,25]Both HA-MRSA and CA-MRSA possess different gene like mecA gene and PVL gene respectively, which enhance resistance to antibiotics and inappropriate use of antibiotics also promotes resistance that could be a possible reason for the difference in resistance pattern of HA-MRSA and CA MRSA.[14,15]Antibiotics such as clindamycin, chloramphenicol and teicoplanin can be alternative for reserved drugs such as vancomycin and linezolid which can be used for life-threatening infections. Clindamycin is still a reliable drug among CA infections.[23]

In our study HA- MRSA is more predominant than CA- MRSA. The principal source may have been the health care professionals. Although a protocol exists for the management of infected patients and colonised health care providers, it is rarely implemented. The protocol requires the physical separation of infected patients and their health care providers from uninfected patients, therapy for eradicating MRSA, stringent environmental disinfection of areas harbouring MRSA and the application of barrier isolation precaution measures including strictly enforced hand hygiene to interrupt spread patterns.[26–30] MRSA is a well-known cause of hospital infection and in India community acquired MRSA strain is now an added concern. This fact should be borne in mind when standard regimens fail, although existing data do not justify empirical use of anti MRSA drugs in treatment. An antibiotic policy and the monitoring of susceptibility patterns of MRSA will help in decreasing the prevalence of MRSA and antibiotic resistance.

CONCLUSION

In this study HA- MRSA is more predominant than CA- MRSA. Further molecular study has to be done to determine the type of SCC mecA gene and PVL gene.

Conflict of Interest: Nil

Ethical Clearance: Taken from the Institution.

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Assessment of Anxiety among Hospitalized Children

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ABSTRACT

Hospitalization is one of the most stressful events in a child's life. There are many stressors for children that surround them like physical circumstances such as ache and underlying disease, procedures done at hospital such as blood investigations or even a medical examination in the hospital. This study was conducted to assess the levels of anxiety among the hospitalized children between 6 to 12 years of age, in four hospitals of Moradabad. Fifty hospitalized children were selected using simple random sampling. The tool used for data collection comprised of two parts: Part A comprised of demographic performa and Part B was modified state trait anxiety inventory for children scale. Findings of the study indicated that majority of these children had severe anxiety. Also it was found that there was significant association between the levels of anxiety and the condition diagnosed, children undergoing painful procedure and children on intravenous therapy (p< 0.5).

Keywords: Puppetry show, Hospitalized children, Anxiety, Modified STAIC scale

INTRODUCTION

For children, hospitalization has always been a stressful experience. The major concerns of hospitalized children include but are not limited to pain, separation from their family members, mutilation, loss of self control, immobility as potentially stressful[1]. So in order to develop interventions that will reduce their worries and strengthen their coping mechanism a more individualized approach needs to be used[2].

The prevalence rate of anxiety disorders rise as children get older. As the anxiety disorders are cognitive in nature so it develops as our cognitive ability increases or develops. Kids who do not receive treatment for anxiety begin to develop poor coping skills[3].

Theory of Psychosocial Development (Erikson) stated that school aged children have a sense of industry Vs sense of inferiority. In this period of development the occurrence of situations that might lead to a sense of inferiority can have a negative impact on the children. The acquisition of certain skills is limited only to those

children who are physically and mentally healthy. Illness may add the feeling of loss of control along with hospital environment. Boredom has proved to be one of the most significant problems of children in this age group[4].

Moreover, in the past 25 years an increased numbers of child psychiatrists are being involved in close liaisons with child care hospitals and services. As the children become ill and are hospitalized they use a number of different ways to deal with the difficult stresses that they encounter, and this has contributed directly to the clinical psychiatric observations and these experiences may lead to the development of psychiatric disorders. The trend in pediatrics has shifted from concentration on diseases of childhood to a concept of comprehensive practice[5].

Connolly SD, et al., during childhood anxiety disorders are the most prevalent mental disorders during childhood and are usually not diagnosed and largely not treated. As anxiety disorders are one of the most predominant psychiatric disorders during childhood and also because these remain undiagnosed and largely undertreated[6].

Due to increased levels of anxiety among hospitalized children and its negative consequences in the future it needs to be addressed on time. This study was conducted in Moradabad to evaluate the effectiveness of puppetry

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show in reducing among hospitalized children.

MATERIAL AND METHOD

A descriptive study was carried out wherein 50 samples were selected using simple random sampling. The study was conducted in four hospitals of Moradabad.The inclusion criteria were: children admitted in pediatric ward, parents who were willing to give consent and children without sensory deprivation. The exclusion criteria were: children who were critically ill and children who were not available at the time of data collection.

In this study data gathering instrument was a demographic performa and modified short state trait anxiety inventory for children (STAIC) scale. The demographic data included were age, gender, previous history of hospitalization, has undergone painful procedure during hospital stay, condition diagnosed, and presence of parents during hospital stay, present length of stay in hospital and child is on IV therapy.

The modified short State Trait Anxiety Inventory In Children Scale comprises of 10 items and are scored on 4- point forced choice Likert-type response scales. The minimum and maximum scores are 10 and 40 respectively. A score of 10 suggests no anxiety while 11-20 denotes mild anxiety; 21-30 suggests moderate anxiety and 31-40 denotes severe anxiety. The short STAIC (a downward extension of the STAI) can be administered to children up to high school level. If needed, the statements can be verbally read for younger children[7].

The reliability was calculated to be 0.79 using Test- Retest method suggesting the scale to be reliable. The tool was also validated by five experts, four from nursing background and one was a pediatric consultant. The necessary modifications were done in the tool.

RESULTS

The following methods of statistical analysis were used in the present study

• Frequency and percentage distribution of the demographic variables.

• The level of anxiety among hospitalized children was assessed by scoring them using modified short state trait anxiety inventory Children scale.

• Chi square test to determine the association between the levels of anxiety with their selected demographic variables.

Table 1: Frequency and percentage distribution of hospitalized children according to demographic variables N=50

Demographic variables		Frequency (N)	%
Age	6-8 years	22	44
	9-11 years	14	28
	12 years	14	28
Gender	Male	27	54
	Female	23	46
Previous history of hospitalization	Yes	23	46
	No	27	54
Has undergone painful procedures during present hospital stay	Yes	39	78
	No	11	22
Condition diagnosed	Acute	40	80
	chronic	10	20
Presence of parents during present hospitalization	Yes	29	58
	No	21	42
Present length of stay in hospital	Less than 7 days	23	46
	7-14 days	19	38
	More than 14 days	8	16
Child is on Intravenous therapy	Yes	38	76
	No	12	24

Table 2: Assessing the levels of anxiety among the hospitalized children   N= 50

Levels of anxiety	Frequency	%
Mild anxiety (11-20)	5	10
Moderate anxiety (21-30)	4	8
Severe anxiety (31-40)	41	82

Table 2 indicates that 82% of the hospitalized children had severe anxiety, 8% had moderate anxiety while only 5% had mild anxiety.

Table 3: Frequency and Chi square value of anxiety scores among the hospitalized children   N=50

Demographic variables		Levels of anxiety			χ^2	Table value	Df	Inference
		Mild	Moderate	Severe				
Age	6-8 years	3	2	17	3.94	12.59	6	NS
	9-11 years	2	2	10				
	12 years	0	0	14				
Gender	Male	3	1	23	1.47	7.82	3	NS
	Female	2	3	18				
Previous history of hospitalization	Yes	1	2	20	1.48	7.82	3	NS
	No	4	2	21				
Has undergone painful procedures during hospital stay	Yes	0	0	39	**38.9**	7.82	3	S*
	No	5	4	2				
Condition diagnosed	Acute	2	1	37	**15.24**	7.82	3	S*
	Chronic	3	3	4				
Presence of parents during present hospitalization	Yes	3	3	23	0.51	7.82	3	NS
	No	2	1	18				
Present length of stay in hospital	<7 days	1	1	21	2.58	12.59	6	NS
	7-14 days	3	2	14				
	>7 days	1	1	6				
Child is on intravenous therapy	Yes	0	0	38	**34.74**	7.82	3	S*
	No	5	4	3				

Level of Significance: 0.05

df: degree of freedom

S*= Significant, NS= Non Significant

The chi square was computed to determine the significance of association between levels of anxiety with their selected demographic variables. The table 3 indicates that the association between the levels of anxiety with selected demographic variables i.e. has undergone painful procedure during hospital stay, condition diagnosed and child is on intravenous therapy is significant at 0.05 level of significance. While the other demographic variables such as age, gender, previous history of hospitalization, condition diagnosed, presence of parents during hospital stay and present length of stay in hospital is non- significant.

DISCUSSION

The result of this study are in line with research done by Ayaz, Ayşe Burcu,et al. in 2011-12 to assess the anxiety levels of the children between 7 to 12 years[7]. Also in a grounded study conducted by Coyne Imelda in 2006 the result indicated that the children were worried and had fear about hospital stay[8].

CONCLUSION

The findings of the study suggested that majority of children had severe anxiety. Also it indicates that there is significant association between the levels of anxiety with selected demographic variables i.e. has undergone painful procedure during hospital stay, condition diagnosed and child is on intravenous therapy is significant at 0.05 level of significance.

RECOMMENDATION

Further studies can be undertaken using some interventions to reduce anxiety among hospitalized children.

Conflict of Interest: No conflict of interest

Source of Funding: Self funded

Ethical Clearance: Ethical clearance was obtained from ethical committee of the college research committee.

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Original Article

Knowledge of Danger Signs of Pregnancy, Labour and Post Partum Period among Mothers in Rural Pondicherry

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ABSTRACT

Background: The pregnant woman may face sudden, unpredictable complications that could end her life or injury to herself or to her infant. Thus, the current study has been planned with an aim to study knowledge of danger signs in pregnancy, labour and post partum period among mothers of infants in rural Pondicherry.

Method: The present study is community based cross-sectional study, conducted during May and June 2013 in the department of Community Medicine, where 4 villages of Bahour Commune Panchayat in Pondicherry were selected by multi stage sampling method. The mothers of infants in the respective villages who were present and consented were interviewed.

Result: Majority 76 (55.9%) of the mothers of infants were in the age group of 19-25 years, 87.5% were housewives and belonging to class IV (34.6%) and class V (31.6%) and were literate. They had better knowledge about danger signs of pregnancy [absent foetal movements after 20 wks 136 (100%), excessive vaginal bleeding after 1st trimester 135 (99.3%), lower abdominal pain 135(99.3%)], labour [excessive vaginal bleeding 135 (99.3%), prolonged labour 134 (98.5%)] and post partum period [excessive vaginal bleeding 136 (100%), lower abdominal pain 130 (95.6%) and breast problems 123 (90.4%)].

Conclusion: The present study observed better knowledge regarding danger signs of pregnancy, labour and post partum period among mothers of infants in study area.

Keywords: knowledge, pregnancy, pregnancy complications, labour, post partum period, infant.

INTRODUCTION

The developing countries have significant number of maternal mortality. Sample registration system (SRS) 2012 found maternal mortality rate (MMR) as 212 for India.[1] Reducing maternal mortality has been included in the Millennium Development Goals.[2]

Pregnant woman may face sudden, unpredictable complications that could end her life or injury to herself or to her infant. It is very difficult to predict pregnancy related complications.[3]

The people are lacking awareness related to danger signs in pregnancy, during labour and in post partum period which delays treatment and affect the outcome. These delays have many causes, including financial

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concerns, available infrastructure and services, as well as inadequate awareness and knowledge about maternal health issues in community and family.

Knowledge of danger signs of pregnancy, labour and post partum period to the woman, her husband and family members is a key in maternal and child health. Ethopian study demonstrated that less than a quarter respondent mothers had knowledge regarding danger signs of pregnancy, labour/childbirth and post partum period.[4] Kushwah SS et al from Rewa, Madhya Pradesh also experienced similar findings.[5]

Thus, the current study has been planned with an aim to study knowledge of danger signs of pregnancy, labour and post partum period among mothers of infants in rural Pondicherry.

MATERIAL AND METHOD

The present study is community based cross-sectional study, conducted during May and June 2013 in the department of Community Medicine. The multistage sampling technique was followed for the study. There are five commune panchayats in Puducherry. In first stage, out of 5 commune Panchayats, Bahour commune Panchayat (total population) was selected by random sampling technique (lottery method). In the second stage, sampling units were villages in Bahour commune Panchayat. Out of 14 villages in Bahour commune Panchayat, about quarter villages (4 villages) were again selected by random sampling technique (lottery method). The villages were Bahour Main, Seliamedu, Seliamedu Pet and Kudiyarupupalayam. Birth in one year i.e. mothers who gave births between 1st April 2012 to 31st March 2013 were included in study. During data collection, an attempt was made to interview all the mothers of infants in the respective villages who were willing and consented to participate in the present study.

Sample size: Considering birth rate of 16.1 per 1000 population in the study area (Census 2011, Govt. of India), the expected number of births in the selected 4 villages (total population 11891) was calculated as,

Population size (N) :11891

Hypothesized % frequency of outcome factor in the population (p): 16.1%

Confidence limit as % of 100 (absolute +/-%) (d): 5%

Sample size $n = [Np(1-p)] / [(d^2/Z^2)_{1-\alpha/2}*(N-1)+p*(1-p)]$

Confidence level (95%) = 205

But as per the birth record available in Bahour Primary Health centre, there were 181 births in these four villages. Investigator had visited homes of all these mothers and at the end 136 mothers could be included in the study (75.13 % response rate). About 26 mothers (14.36%) were not at home even after two visits by investigator/s and rest of the families 19 (10.50%) were shifted to some other place of residence. A predesigned and pre-tested questionnaire was used by trained medical student by house-to-house survey and interviewing mothers for about 15-20 minutes. All mothers of infant in the specified area who were not willing to give consent for the said study and those mothers of infant, who were absent during visit to their house were excluded. Information regarding socio-demographic characteristics, mothers' knowledge regarding danger signs related to pregnancy, labour and post partum period was collected.

Statistical analysis: The data entry was done using Microsoft excel 2007. Statistical Package for the Social Sciences for Windows (SPSS Inc., Chicago, Illinois, USA) version 17.0 was used for data analysis. Descriptive statistics was done by using proportions. The independent variable includes age, respondent's education, family type and socio-economic status etc.

Ethical consideration: After acceptance of study proposal by Indian Council of Medical Research (ICMR), New Delhi, ethical permission was obtained from Institutional Human Ethical Committee (IHEC) before conducting the present study. All the personal information collected was kept confidential by the researcher and study guide during the study period and after the study.

RESULTS

The current cross sectional study has been conducted among 136 mothers of infants in selected villages of Puducherry. Majority 76 (55.9%) of the mothers of infants were in the age group of 19-25 years. All the participants were literate. Majority of mothers (87.5%) were housewives while fathers (66.2%) of infants were labourers. About one third of the families were belonging to class IV (34.6%) and class V (31.6%) of modified Prasad's classification where as more than

half (56.6%) were joint families. (Table 1)

When we enquired mothers of infants about knowledge of danger signs of pregnancy, we found that almost everyone had better knowledge about danger signs of pregnancy like absent foetal movements after 20 wks 136 (100%), followed by excessive vaginal bleeding after 1st trimester 135 (99.3%), lower abdominal pain 135(99.3%), excessive vomiting 133 (97.8%) while nearly half of the mothers knew about convulsions 80 (58.8%) and fever during pregnancy 69 (50.7%) as dangers sings of pregnancy. (Table 2)

When we enquired mothers of infants about knowledge of danger signs of labour, we found that the mothers of infants had knowledge about danger signs during labour. Like excessive vaginal bleeding 135 (99.3%), prolonged labour 134 (98.5%), cord around neck 133 (97.8) identified in better way while about half of them had knowledge about retained placenta 56 (41.2%) and very few 35 (25.7%) knew green colour fluid i.e. meconium stained fluid as the danger signs of pregnancy. (Table 3)

Mothers of the infants were also inquired about their knowledge of danger signs of post partum period. We found that they had good knowledge regarding excessive vaginal bleeding 136 (100%), lower abdominal pain 130 (95.6%) and breast problems like inverted nipples, engorged breast/swelling of breasts in 123 (90.4%). (Table 4)

Mean years of maternal education of respondent who had adequate knowledge about danger signs of pregnancy, labour and post partum period was significantly higher than those who had inadequate knowledge. The mean years of father's education where mother had adequate knowledge about danger signs of labour was 12.0 years of schooling (+-3.1) significantly higher than those who had inadequate knowledge. The family monthly income of the respondent who had adequate knowledge about danger signs of post partum period was significantly higher than those who had inadequate knowledge. (Table 5)

DISCUSSION

Current study has been conducted among 136 mothers of infants in rural Pondicherry to study knowledge regarding danger signs of pregnancy, labour and post partum period. This was necessary to see the current status of knowledge among mother as knowledge is usually followed by change in behaviour in long run.

In present cross sectional study knowledge regarding danger signs of pregnancy like vaginal bleeding (99.3 %), blurred vision (67.6), and oedema of face/hands (94 %) among mothers of infants was found better than reported by Mihret Hiluf et al. from Ethiopia where it was only (10.9%), 2.2% and 5.2% respectively.[4] Mazummdar R et al. from Bankura district of West Bengal also reported similar findings as that of our study.[7] A study by Agarwal S et al. from Indore, Madhya-Pradesh, revealed that awareness of the mothers about at least one danger-sign of pregnancy, delivery, and newborn-related complications was 79.2%, 78.5%, and 82.1% respectively.[8]

Wanboru AW from Ethopia reported that awareness of pregnant mothers regarding danger signs of pregnancy, labour and post partum period was very poor.[9] Another author, Mengesha E from Ethiopia, also revealed that awareness of danger signs of pregnancy was poor and affected by education and occupation of mothers while Hailu M et al. from southern Ethiopia demonstrated that such awareness is associated with place of residence.[10,11]

Similarly, current study shows better knowledge among mothers of infants regarding dangers signs of labour like excessive vaginal bleeding (99.3%), prolonged labour (98.5%), retained placenta (41.2%) and convulsions (66.9%) whereas in Ethiopian study by Mihret hiluf's it was only found in 16.5%, 11%, 7.1% and 0.6% respectively.[4]

Knowledge regarding dangers signs of post partum period like severe vaginal bleeding and high fever among mothers of infants was found to be 100% and 52.2 respectively in the current study where as it is grossly less in Ethiopian mothers i.e. 16.7% and 1.1% respectively.[4] North Indian study by Sibley L et al. established the fact that mother had poor knowledge of danger signs of post partum period.[12] Tanzanian study by Pembe AB also stated less percentage of women who knew at least one danger sign during pregnancy was 26%, during delivery 23% and after delivery 40%.[13] This may be attributed to better educational status among women in study area where more than half (54.4%) of the mothers have studied up to secondary levels and rest had graduate and above. Mangesha E

from North Ethopia reported that knowledge regarding danger signs in pregnancy was poor and affected by education and occupation of mothers.[7] Hailu M from south Ethopia also revealed that maternal education, residence were associated with knowledge of danger signs in pregnancy.[8] Maternal education is a common factor found to be associated with knowledge of danger signs of pregnancy, labour and post partum period in our study. This indicates that a higher educational level for mothers is an essentially important indicator to improve upon knowledge relate to danger signs during pregnancy, birth and post partum period.

Though the knowledge on danger signs was better as compared to other studies, we still expect more improvement in overall knowledge and possible behavioural changes. [4,10,11] We feel that while imparting health education to health workers must focus on danger signs in pregnancy, labour, post partum period and more emphasis on early reporting of such health issues to health care facility. The timely identification and interventions for these danger signs will definitely help in reducing morbidity and mortality among mothers.

Table 1. General characteristics of Mothers of infants

General characteristics	Number (%) N=136	Percentage %
Mother's Age (Years)		
19-25	76	55.9
26-30	47	34.6
30-35	12	8.8
Above 35	1	0.7
Mother's education		
Secondary	74	54.4
Higher secondary	27	19.9
Graduate and above	35	25.7
Mother's occupation		
Housewife	119	87.5
Labour	2	1.5
Service/Business	15	11.0
Father's Age (Years)		
19-25	21	15.4
26-30	59	43.4
30-35	43	31.6
Above 35	13	9.6

Father's education		
Secondary	72	52.9
Higher secondary	24	17.6
Graduate and above	40	29.5
Father's occupation		
Labour	90	66.2
Service/business	46	33.8
Modified Prasad's classification of SES*		
Class I	6	4.4
Class II	20	14.7
Class III	20	14.7
Class IV	47	34.6
Class V	43	31.6
Family type		
Nuclear	59	43.4
Joint	77	56.6

• B.G. Prasad modifies Socio-economic classification (modified as per July 2013 All India Consumer Price Index)

Table 2: Mothers' knowledge regarding danger signs of pregnancy, labour & post partum period (PPP)

Danger signs	Number N=136	Percentage %
Excessive vomiting	133	97.8
Fever	69	50.7
High blood pressure	101	74.3
Headache	101	74.3
Blurred vision	92	67.6
Oedema	128	94.1
Convulsions to mother	80	58.8
Absent foetal movements after 20wks	136	100
Excessive vaginal bleeding after 1st trimester	135	99.3
Lower abdominal pain	135	99.3
Anaemia	126	92.6

Table 3: Mothers' knowledge regarding danger signs of in labour

During labour	Number N=136	Percentage %
Excessive vaginal bleeding	135	99.3
Foul smelling discharge	59	43.4
High grade fever	75	55.1
Prolonged labour	134	98.5
Cord prolapsed	108	79.4
Cord around neck	133	97.8
Convulsion to mother	91	66.9
Green leaking fluid (meconium stained)	35	25.7

Table 4: Mothers' knowledge regarding danger signs of in post partum period

During PPP	Number N=136	Percentage %
Excessive vaginal bleeding	136	100
High grade fever	71	52.2
Lover abdominal pain	130	95.6
Retained placenta	59	43.4

Table 5: Comparison of demographic determinants with adequacy of knowledge regarding danger signs in pregnancy, labour pain and post partum period among mothers

	Knowledge level	Knowledge in pregnancy			Knowledge in Labour			Knowledge in post partum period		
		N	Mean (SD)	P value	N	Mean (SD)	P value	N	Mean (SD)	P value
Mother age	Inadequate	5	23.8 (2.5)	0.288	42	25.0 (3.4)	0.236	60	24.9 (3.3)	0.081
	Adequate	131	25.6 (3.8)		94	25.8 (3.8)		76	26.0 (4.0)	
Mother's education	Inadequate	5	8.8 (3.1)	0.038*	42	10.4 (2.6)	0.003*	60	10.5 (2.5)	0.0001*
	Adequate	131	11.6 (2.9)		94	12.0 (3.0)		76	12.3 (3.0)	
Father's age	Inadequate	5	28.8 (4.3)	0.516	42	29.4 (3.8)	0.283	60	29.8 (4.3)	0.546
	Adequate	131	30.1 (4.3)		94	30.3 (4.5)		76	30.2 (4.3)	
Father's education	Inadequate	5	10.4 (2.7)	0.496	42	10.1 (3.2)	0.002*	60	10.3 (3.0)	0.001*
	Adequate	131	11.4 (3.3)		94	12.0 (3.1)		76	12.2 (3.2)	
Mother's age at marriage	Inadequate	5	20.6 (3.0)	0.271	42	22.3 (2.9)	0.823	60	21.8 (2.8)	0.239
	Adequate	131	22.3 (3.3)		94	22.2 (3.4)		76	22.5 (3.6)	
No of Children	Inadequate	5	1.6 (0.6)	0.560	42	1.3 (0.6)	0.175	60	1.4 (0.7)	0.683
	Adequate	131	1.4 (0.6)		94	1.5 (0.6)		76	1.5 (0.6)	
Monthly Income	Inadequate	5	4200.0 (1303.8)	0.204	42	6523.8 (7771.9)	0.056	60	6041.7 (6160.5)	0.001*
	Adequate	131	8490.1 (7480.4)		94	9140.4 (7104.8)		76	1.01E4 (7803.6)	

*Statistically significant

CONCLUSIONS

The mothers of infants had good knowledge regarding danger signs of pregnancy, labour and post partum period in the study area. The absent foetal movements and excessive vaginal bleeding were most common while passing of meconium stained liquor, retained placenta and fever were less common danger signs known to mothers.

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Profile of Typhoid Fever in Children from a Tertiary Care Hospital in Bhubaneswar, Odisha

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ABSTRACT

Typhoid fever is considered as one of the most serious infectious disease and threat to public health on a global scale, especially in developing countries, with particular concern over the rapid and widespread emergence of resistant Salmonella Typhi to multiple antibiotics. Hence it becomes imperative to assess the extent of drug resistance before treatment is administered. Present study was aimed to analyze the profile of typhoid fever, its different complications and antibiotic sensitivity pattern in a tertiary care setting. A retrospective study of clinical and lab profile was carried out with 105 culture positive pediatric cases during Jan 2013 to Dec 2015; result was analysed which revealed return of sensitivity to old antibiotics i.e. Ampicillin, Co-trimoxazole, highest sensitivity to Cephalosporins, better sensitivity to Ciprofloxacin, total resistance to Aminoglycosides, increased resistance to Nalidixic acid and return of sensitivity of Nalidixic Acid Resistant S. Typhi (NARST) to Ciprofloxacin.

Keywords: *Typhoid fever, Multi drug resistance, NARST, Sensitivity Pattern.*

INTRODUCTION

Typhoid fever still remains a serious disease even after the available vaccination. It is a systemic infection caused by the bacterium Salmonella typhi (S. typhi). The organism is transmitted by feco-oral route; thus the disease is often associated with poor sanitation/hygiene and it may be regarded as an index of sanitation in any country. The term "enteric fever" includes both typhoid fevers and paratyphoid fevers.[1] Case fatality rate ranges from 1 to 4 %, fatality rate in children less than 4 years old being 10 times higher (4 %) than in older children (0.4 %); in untreated cases it may rise to 10 to 20 %.[2] In India, typhoid fever is endemic with morbidity ranging from 107–229 per 1,00,000 population[3]. It is considered as one of the most serious infectious disease and threat to public health on a global scale, with particular concern over the rapid and widespread emergence of resistance to multiple antibiotics. Compared with typhoid fever caused by sensitive strains, a ten-fold higher rate of post-treatment symptomatic bacterial carriers has been reported with MDR strain.[1] The advent of chloramphenicol, globally changed the perception of typhoid fever from a deadly disease to a readily manageable infection.[4] But within few years outbreaks of chloramphenicol-resistant typhoid was again a concern. In the late 1980s and 1990s, outbreaks of typhoid caused by organisms resistant to chloramphenicol, cotrimoxazole, ampicillin and amoxicillin were reported.[4] Decreased susceptibility has also been reported to fluoroquinolones and third-generation cephalosporins.[5-8] With this background in mind, it becomes imperative to assess the extent of drug resistance/sensitivity before treatment is administered. Therefore, this study is aimed to analyze the profile of typhoid fever, its different complications and antibiotic sensitivity pattern in a tertiary care setting.

MATERIALS AND METHOD

A retrospective analysis of patients with typhoid fever admitted to a tertiary care hospital of Odisha was carried out. The study period was from Jan 2013 to Dec 2015. Children from age 1 to 14 years were included in this study. Diagnosis of patients was based on clinical

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features, Widal test, Typhidot test and blood culture. The sensitivity pattern of blood culture was recorded. The mode of presentation, clinical course, treatment history, laboratory investigation reports, antibiotic administered, response to therapy and the complications were recorded. Any addition of the second line drugs were also taken into consideration.

RESULTS

During the study period, 487 (5.2%) cases were clinically diagnosed as typhoid fever out of total 9308 pediatric admissions; of these 487, 105 cases (21.5%) were blood culture positive (Figure-1), who were included in our study. Out of these 105, 21(20%) were females and 84(80%) were males. Average age of presentation was 6-9 years In 85 patients (80.9%) Typhidot IgM was positive.

Fever was the main feature in all the patients (100%); vomiting was present in 20.9% patients. Diarrhoea and dysentery was seen in 38.9% patients; 12.4% patients had pain abdomen. Hepatomegaly was detected in 18.1% patients and splenomegaly was present in 28.6% (Table -1). Eosinopenia was a prominent finding being present in 81% of cases. Liver enzymes (alanine aminotransferase, aspartate aminotransferase and alkaline phosphatase) were raised in 58 (55%) cases. Different types of complications viz-hyponatremia, myocarditis, encephalitis, shock, pancreatitis and intestinal perforation were noticed (Table-2). Hyponatremia being the most common complication seen in 6.6% cases followed by GI complications (3.8% of cases), viz: GI bleeding, intestinal perforation. One case developed hepatic failure, who had Hepatitis-A(HAV) co-infection.

Figure-1: Percentage of culture positive cases out of total clinically diagnosed cases.

Table- 1: Age Related Presenting Clinical Features

Clinical features → Age & nos.↓	Fever	Vomit-ing	Diarrhoea/ dysentery	Coated tongue	Hepato megaly	Spleno megaly	Pain Abdomen	Chest signs/ symptoms
Up to 5yrs/ 14	14	6	4	3	3	3	0	3
6-10 yrs/ 52	52	9	25	12	10	15	8	6
>10 yrs/ 39	39	7	11	9	6	12	5	4
Total-105	n=105 100%	n=22 20.9%	n=40 38.9%	n=24 22.8%	n=19 18.1%	n=30 28.6%	n=13 12.4%	n=13 12.4%

Table-2: Complications

Complications	No. of cases	Percentage
Hyponatremia	7	6.6
Myocarditis	1	0.95
Encephalitis	1	0.95
Shock/Toxemia	3	2.86
Pancreatitis	2	1.9
GI complications(Bleeding, Perforation)	4	3.8
Hepatic failure	1	0.95
Acute cholangitis	3	2.86

Sensitivity to ampicillin and Co-trimoxazole was around 98% (Table 3). Sensitivity to cefixime and ceftriaxone was 100%. All the cases were resistant to amikacin and gentamycin; and almost all the cases were resistant to nalidixic acid except 3 cases(2.8%) who were sensitive to it. Sensitivity to fluoroquinolones (ciprofloxacin) was seen in 96 cases (91%) including those cases who were resistant to nalidixic acid. Majority [50 (47.6%)] of the cases were treated with ceftriaxone. A combination of ceftriaxone and azithromycin were also used in 30 cases(28.6%). Azithromycin was added after 7th day in some cases as fever defervescence did not occur then, in these patients. Meropenem was the initial drug of choice in 5 cases as they presented to us in severe sepsis. All the patients recovered well including the case of HAV co-infection, without any further complications.

Table-3: Antibiotic Sensitivity Pattern

Antibiotic	Sensitive in No. of cases	Percentage(%)
Ampicillin	103	98.1
Amoxycillin-clavalunic acid	78	74.3
Co- trimaxozole	102	97.1
Ciprofloxacin	96	91.4
Amikacin	Nil	0
Gentamicin	Nil	0
Nalidixic Acid	3	2.8
Cefixime	105	100
Ceftriaxone	105	100
Cefoperazone	71	67.6

DISCUSSION

The morbidity of typhoid fever is highest in Asia with 93% of global episodes occurring in this region. Southeast Asia has an estimated incidence of 110 cases/ 100,000 population, which is the third highest incidence rate for any region.[9] It may occur in any age, but highest incidence rate is in 5-19 yrs of age group.[1] In an epidemiological study of typhoid in Karachi, Pakistan in 1998(Luby et al),[8] the median age of afflicted patients was 5.8 years old, with 71% of total subjects being under age of ten years. Sinha et al[10] in 1999, challenged the common view that typhoid fever is a disorder of school age children and reported that it is a common and significant even in under five yrs of age. They reported an incidence rate of typhoid per 1000 hospital pediatric admissions is 27.3 at age under 5 yrs, 11.7 at 5-19 yrs and 1.1 at 19-40 yrs. In our study incidence rate has been 11.3 (up to 14 yrs age) per 1000 pediatric admissions. Clinical features in our study are almost similar to other studies. Fever was the common clinical presentation seen in all(100%) our cases; similar to studies done by other authors.[9, 12] Presenting clinical features in our study in comparison to other published studies shown in Table-4.

Table-4: Prominent Clinical Features in Culture Positive Typhoid Fever in Various Studies

Clinical Features	Our series	Siddiqui et al.[9]	Sinha et al [10]	Ramasw- amy et al.[11]	Walia et al.[12]	Papaeva- ngelou et al.[13]
Fever	+	+	+	+	+	+
Vomiting	+	+	+	+	+	+
Dirrhoea	+	+	+	+	+	+
Hepatomegaly	+	–	–	+	+	+
Splenomegaly	+	+	+	+	+	+

Elevation of serum aminotransferases was seen in 55% of our cases which is similar to earlier studies by Ramaswamy et al[11] 57%, Khosla et al[14] 55%. Hepatic dysfunction in the form of raised liver enzymes was seen in 49.1% of our patients. Eosinopenia, as seen in 81% patients in our study, may be useful pointer towards diagnosis of typhoid fever in children with prolonged fever and hepatosplenomegaly. Mild hyponatremia in typhoid fever, has been reported by ZA Bhutta et al[15]; in our study 6.6% of children had developed hyponatremia. Acute cholecystitis was also reported.[15] Rare presentation such as delirium, Guillain-Barré syndrome and unusual complications like meningitis, orchitis and osteomyelitis, had been reported.[16] We could find encephalitis in 0.95% and pancreatitis in 1.9% of cases. Hemophagocytic Syndrome has been reported as a rare complication of Typhoid fever; [11, 17]   but we didn't come across any such complication. The lone case of hepatic failure is due to associated HAV co-infection. Though co-infection with HAV increased the severity of liver pathology in the ibid case, it is particularly intriguing that immunodeficiency state does not appear to make individuals more susceptible to typhoid fever; indeed, epidemiological evidence suggests that HIV may reduce the risk of typhoid fever.[18]

The antibiotic sensitivity pattern in our study showed a drastic change from the other studies. None of the reports showed sensitivity to aminoglycosides. Ampicillin, and co-trimoxazole were highly sensitive in the figure of 98% each, in conformity to a study from Kolkata,[19] which showed a significant decrease resistance to these drugs. Similar reports are also there from Gupta el study.[20]

In a study done by Thankiwale et al.[21] it was found that all were sensitive to ciprofloxacin and cefotaxime. In our study also the highest sensitivity was seen with cephalosporins in the figure of 100%

and ciprofloxacillin was almost equally sensitive (91.4%). There has been a significant increase in the nalidixic acid resistant S. typhi (NARST) from 56% in 2006-7, 73% in 2007-8[11] to 97.1% in our study in 2013-15. One important observation in our study is that 91.2% of the strains which were resistant to Nalidixic acid were sensitive to ciprofloxacin, thus refuting the earlier message that "the nalidixic acid resistant S. typhi (NARST) is a marker of reduced susceptibility to fluoroquinolones" [22]

CONCLUSION

In the ever changing path of sensitivity pattern of Salmonella typhi, we have to periodically assess the current sensitivity of the organism in a particular geographical area for better management of patients. Our study revealed that there is trend towards sensitivity of the organism to old antibiotics viz- Ampicillin, and co-trimoxazole. It also revealed increase in NARST and dramatic increase in sensitivity of these NARST to ciprofloxacin, thus refuting the earlier message that 'the nalidixic acid resistant S. typhi (NARST) is a marker of reduced susceptibility to fluoroquinolones".[22] This fact may be established with some more studies.

Typhoid may be associated with serious complications, as we encountered in this study(Table-2); hence treating physician should anticipate and promptly identify development of any of such complication and institute proper treatment from the outset to prevent morbidity and mortality. In our study all children recovered in spite of almost all types of possible common and uncommon complications. Hemophagocytic Syndrome(HS) has been reported as a rare complication of Typhoid fever.[11,17] Being an intracellular organism, it is capable of triggering cytokine storm and induce development of HS. Typhoid fever with pancytopenia and shock should be suspected for the development of HS and if associated with increased serum ferritin and

triglyceride, then diagnosis may be confirmed with bone marrow examination. Similarly physicians must possess a high index of suspicion for diagnosing typhoid fever among patients with HS, especially in endemic areas, as antibacterial treatment alone can be life saving without the need of intensive treatment.[17]

Important Points for the Diagnosis and Management of Typhoid Cases:-

1. Early diagnosis of multi-drug resistant S typhi is a therapeutic challenge.[23] As the number of organisms in blood is low (01/mL), blood cultures are usually positive in untreated patients in about 60-80% of cases usually early in the course of the disease. Also, prior treatment with antibiotics is known to inhibit growth on blood cultures and depress Widal titres.[23] Thus at least 5-10 mL of blood should be taken to increase the sensitivity of blood culture. Bone marrow culture is positive in about 80-90% of cases, bacterial load in bone marrow becomes higher as the disease progresses and bone marrow culture often remains positive in the face of antibiotic therapy; where as prior antibiotic therapy makes positive blood culture less likely.[23]

2. Chronic or recurrent fever with bacteraemia may occur in association with concurrent schistosomiasis, as salmonellae are able to survive attached to the adult helminth's tegument, protected from body's defences.[18]

3. The best clinical response in typhoid and paratyphoid is achieved with the highest ratio of the Cmax:MIC. The antibiotics should be used at the maximum dose recommended.[18]

4. Azithromycin (20mg/kg/day) may be considered as an additional therapy if fever defervences does not take place 7 days after therapy either with Ceftriaxone or Cefixime. Azithromycin is concentrated within cells, making it ideal for the treatment of infection by S. Typhi, which is an intracellular organism.[18]

5. Typhoid fever does not always confer solid immunity;[1] vaccination should be given one month after successful treatment. Vi vaccines are ineffective against S. paratyphi A, B and C, as these serotypes lack the Vi antigen. Multiple-antigen or live oral vaccines, including Ty21a, offer potential for protection against Vi-negative typhoidal Salmonella strain.[18]

Conflict of Interest : The authors declare that there is no conflict of interests regarding the publication of this paper.

Ethical Clearance: Since it is a retrospective observational study from analysis of hospital records only, without any interventional work and without any disclosure of patients' identity, thus having no ethical issue; ethical clearance was not considered.

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Burden of HCV- TB Coinfection among Patients of Tuberculosis – A Hospital based Study

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ABSTRACT

Background: The prevalence of Hepatitis C virus is around 2-3% in the world with 170 million persons clinically infected with the virus. Every year 3-4 million persons are infected with HCV infection . TB- HCV coinfection is an emerging public health problem in India . Most of the cases diagnosed as suffering from TB are unaware of HCV infection as they are often asymptomatic.

Aims and Objectives: The retrospective study is carried out in patients of Department of Chest and TB to study the HCV–TB coinfection in 1147 TB patients out of 1526 IPD for the period of Jan 2012 to Oct 2013.

Method: The data of 1526 patients admitted in tuberculosis department of GGS medical college was reviewed . Out of those, 1147 patients were suffering from TB. All of them were screened for HCV.

Results: The TB-HCV coinfection was diagnosed in 6.54% of patients suffering from tuberculosis . Three patients were having TB-HCV-HIV (triple infection) and and 30 patients were having TB – HIV coinfection. 72.3 % were from the rural areas and others from the urban areas . The prevalence of HCV-TB was 65.3% in males and 34.7 % in females. No patient on anti tubercular treatment had significant hepatotoxicity necessitating any interruption of treatment.

Conclusion : This study was based on a limited data .The impact of infection is emerging and may be a future cause of concern. TB including MDR TB is a major health problem in India. Only 33 patients were suffering from HIV and out of those only 3 had triple infection TB-HCV-HIV.

The obvious reason for the paucity of data on HCV-TB coexistence may be due to the fact that all patients suffering from TB are not screened for HCV infection.The patients having TB may be recommended for HCV screening in India. Hepatotoxicity due to anti tubercular drugs in this coinfection is not a major concern.

Keywords: HCV, TB PTB ATT.

INTRODUCTION

Coinfection of Hepatitis C (HCV) with HIV and TB is an emerging health problem across the world especially in the developing countries. The prevalence of HCV is 2-3 % in the world and more than 170 million are the chronic carriers of who are at the risk of developing hepatic diseases like cirrhosis[1-2]. 3-4 million persons are infected every year with HCV infection. A high prevalence of HCV infection 6.9 - 7.8% has been observed in blood donors in Georgia [3,4,5]. The transmission of HCV infection is on the decline day by day due to screening of blood before administration[3] so there is marked reduction of transfusion associated hepatitis[6]. But it still remains high in poor and low income countries with poor infection control and blood

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screening measures. Intravenous drug use, pre existing hepatic disease and transfusion of blood are the well established risk factors[3]. Use of improperly sterilized syringes by drug addicts and quacks and other means of percutaneous exposure are adding new cases of HCV to the global prevalence[9]. Haemodialysis is another common mode of transmission of HCV infection and prevalence was 4.3 % in patients of renal dialysis[7]. Cross infection from the dialysis procedure accounts for 24-28% of cases[11,12]. Both hepatitis C virus and tuberculosis remain important diseases among dialysis patients. The patients of HCV are either immunocompromised or immunodeficient. Sexually transmitted infection (STI) is not the common cause for HCV infection[13]. Some studies have suggested that high risk sexual behavior are a common cause associated with Hepatic C[9,10]. Treatment of HCV is of limited efficacy and very costly and neither readily available nor affordable in the poor countries.

There are 8.6 million new cases of tuberculosis (TB) in the world as estimated by WHO in 2012. India is the second-most populous country and one fourth of the global incident TB cases occur in India annually. In 2012, out of the estimated global annual incidence of 8.6 million TB cases, 2.3 million were estimated to have occurred in India alone[14] and in Georgia, it was 116 cases per million population[15] and the menace of MDR TB is fast emerging[16-19].

Anti tubercular drugs: mainly three first line drugs i.e. Rifampicin (RMP), Pyrazinamide(PZA) and Isoniazid (INH)[20] are responsible for hepatotoxicity.Underlying chronic liver diseases such as chronic viral hepatitis (HCV) increases the risk of hepatotoxicity with anti tubercular drugs. There is even greater risk of hepatic enzymes disturbances among patients undergoing treatment who had TB with HCV infection and hepatic diseases[21].

The purpose of this study was to assess the prevalence of HCV-TB as co infection among patients in those having TB.

METHOD

The data of 1526 patients admitted in our department of Chest and TB GGSMCH, Faridkot, for diagnosis of tuberculosis between January 2012 and October 2013 was done. Secondary data of 1147 patients diagnosed as suffering from TB was studied.

The aim of the study was to estimate the burden of HCV and HCV-TB coinfection in patients suffering from TB and to study their socio-demographic profile and clinic-radiological profile.

The patients were questioned for any H/O pre existing liver disease, alcohol intake, blood donation, blood transfusion, drug abuse (oral or intravenous drug abuse). They were subjected to complete blood count (CBC), sugar levels, blood urea, serum creatinine, liver function tests.They were screened for HIV, HCV. HCV testing was done by SD Bioline HCV kit. The bacteriological examination for acid fast bacilli was done by Auramine–Rhodamine staining under RNTCP and X-Ray chest were also studied. Rifampicin resistance was detected by Gene-X pert CB-NAAT method in MDR suspects.

RESULTS

The definitive diagnosis of tuberculosis was achieved in 1147 patients . HCV was detected in 7.08 % (n=108) patients with or without TB in 1526 patients. Out of 108 HCV infected patients, 75 patients had HCV-TB coinfection. Three patients in 108 had triple infection (HCV-TB – HIV). Thirty three patients among 108 patients having HCV were non tubercular. Record of the patients infected with HCV patients was reviewed. HCV –TB as coinfection was diagnosed in 6.54% (N=75) cases out of 1147 TB patients who were either already on anti tubercular treatment or were diagnosed as cases of TB . All co infected patients were treated with DOTS under RNTCP. Nineteen patients were already receiving ATT from other DOTS centres.

Sociodemograghic profile of coinfected patients

TB-HCV coinfection was found to be significantly higher in males 65.3% (n=49) and lower in females 34.7% (n=26). 70.67% (n=53) of patients were from rural areas and 29.33% (n=22) were from urban areas among 75 TB-HCV coinfected patients. Most of them were working as daily wage laborers (n=51). There was no history of sexually transmitted disease and blood donation. Four patients had history of blood transfusion and 12 patients were intravenous and oral drug abusers. Eighteen patients having HCV infection were chronic alcoholics. The route of transmission was unknown in 74 HCV infected patients.

Clinico- radiological profile

ATT was started in all eligible patients suffering from TB-HCV co infection. Radiological lesions were classified as per National Tuberculosis Association of the USA[24]. Out of 75 patients having tuberculosis, 23 patients had minimal lesions, 28 had moderate lesions and 24 had extensive lesions.37 patients were having Category I treatment and 30 cases were on category II and 8 patients were on MDR treatment (category IV). There were no significant deranged liver function tests .

Table 1. Co - morbidities associated with HCV infection

Category of pt	N	%
HCV	108 /1526 (Total IPD)	7.08
TB – HCV Coinfection	75 /1147	6.53
TB – HCV –HIV	3 /1147	0.26
TB – HIV	30 / 1147	2.62
TB –HCV-DM	17/1147	1.48

Table 2. Sex distribution

Category of pt	Total (n)	Males (n)	% age	Females (n)	% age
TB	1147	734	64	413	36.00
HCV	108	69	63.89	39	36.11
TB with HCV	75	49	65.33	26	34.67
TB – HIV	30	24	75.00	06	25.00
TB – HIV –HCV	03	02	66.66	01	33.33

Table 3. Rural – urban distribution

Category of pt	Total (n)	Urban (n)	%	Rural (n)	%a
IPD	1526	318	20.84	1208	79.16
TB	1147	248	21.62	899	73.38
HCV	108	38	35.19	70	64.81
TB – HCV	75	22	29.33	53	70.67

Table 4. Routes of transmission in HCV infected patients (n = 108)

Risk factors	Number (n)
Blood donation	00
Blood transfusion	00
IV drug abuse	06
Oral drug abuse	06
Alcohol abuse	18
Route unknown	74

Table 5. Co - morbidities other than TB

Old treated cases of TB	09
Bronchial asthma	08
COPD	05
Empyema	05
Pneumonia	03
Bronchogenic carcinoma	02
Bronchiectasis	01
Total	**33**

Table 6: Categorization of tuberculosis cases (RNTCP DOTS) – TB pts

Category	Pulmonary TB	EPTB	N	%	Sputum positive
Cat I	32	05	37	49.33	27
Cat II	30	00	30	40	30
MDR	08	00	08	10.67	08

Table 7. Dots treatment and outcome among HCV - TB coinfected patients

TB- HCV Coinfected pts	category	cured	Treatment completed	default	died	Transferred Out	On treatment From other centres	Total
75	Cat I	13	10	00	2	6	6	37
	Cat II	10	05	00	3	0	12	30
	Non Dots	00	00	00	0	0		00
	MDR	08	00	00	00	00	08	08
75	Total	23	15	00	5	6	26	75

DISCUSSION

There is paucity of data of TB-HCV coinfection in the world. Patients with HCV infection are at risk of infections including TB . Moreover there are no recommendations for screening of HCV infected patients for TB infection as there are for HIV testing. WHO estimates that the prevalence of HCV is 2-3% in the world and 170 million patients are suffering from chronic HCV infection[1,2] .There was there was no history of blood donation unlike i Georgian study[3] though there was history of blood transfusion in four patients. Drug addiction oral or Intravenous use including alcohol intake was the most common precipitating factor of HCV infection. In this series of 108 patients suffering from HCV, twelve patients were drug addicts and eighteen patients were alcoholics. The current incidence of TB reported in Georgia is about 100 cases per 100000 populations. Tuberculosis is more common in low and middle income countries because of poor infection control measures. Improper use or reuse of unsterilized syringes by the intravenous drug addicts and quacks may be the cause of high prevalence of HCV infection in the rural patients as compared to the urban patients . This study suggests that sexually transmitted infection is not a common predisposing factor for HCV infection as also corroborated by Laurel and Wyld et al[6,10.]and was contrary to the study which suggested high risk sexual behavior associated with HCV[25].

1147 were cases suffering from Pulmonary and Extra pulmonary TB. 108 (7.08 %) patients were suffering from HCV infection. 69.44% (n=75) patients had HCV – TB co infection out of 108 patients with HCV infection (table 1) and further it was more in males than females (Table 2). More over TB and TB-HCV coinfection was higher in low socioeconomic group and higher in the rural areas than urban areas (Table 3)

probably due to poverty and poor hygiene and lack of education.

The results of this study showed that HCV is more in the drug addicts ,intravenous drug abusers and alcoholics. Whether the HCV independently affects the course of disease or not is not known but duration of treatment in no case was extended beyond it was required . Hepatotoxicity is the major adverse effect of three of the first-line anti-TB agents: Isoniazid (INH), Rifampicin (RIF), and Pyrazinamide (PZA). Pre existing liver disease may increase the risk of developing drug-induced hepatotoxicity [21,26] and there is a concern that HCV and or HIV co-infection may increase the risk of anti-TB drug-induced hepatotoxicity [20] but no patient who was on ATT and co infected with HCV developed hepatotoxicity. Hence there was no need to stop or interrupt the treatment. Ungo et al reported that HCV or HIV coinfection increased the risk of ATT induced hepatotoxicity and the patients who had both HCV and HIV infection had even more chances of developing hepatotoxicity. The treatment of HCV is of limited efficacy and is beyond the reach of the common man .

LIMITATIONS

It was a retrospective study and was carried out only in the indoor patients having TB admitted in the department and the out patients having TB were not screened for Hepatitis C so it does not reflect the exact data of hepatitis C in the TB patients . The risk factors for transmission of HCV such as IDU and sexually transmitted diseases in TB patients was based on oral questionnaire and patients self reporting and might have been concealed by the patient.

CONCLUSIONS

There is a high burden of HCV infection in the TB patients. One in eleven TB patients had an evidence of HCV. Coinfection with HCV is a growing public health problem worldwide so there is a need for enlightenment and further research work to highlight the importance of the coinfection and for control measures . Serological screening of tuberculosis patients for HCV should be recommended as TB –HCV coinfection appears to be higher than TB-HIV coinfection . Further studies should be carried out to assess the impact of HCV infection on TB , its treatment and side effects due to anti tubercular drugs.

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A Prospective Study of Efficacy of Titanium Elastic Nailing System (TENS) in Pediatric Femoral Shaft Fractures

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ABSTRACT

Background: - Management of Pediatric femoral Shaft fracture is divided between conservative & surgical. Amongst all surgical options TENS provide definitive fracture management, early Mobilization with minimal complications.

Material & Method:- Twenty two children (19 boys & 3 Girls) aged 6-16 years with recent onset (3days) femoral diaphyseal fracture (19 closed fracture, 3 open fracture) were stabilized with TEN (Titanium elastic nail). These fractures were operated within 3 days of injury & these fracture were in proximal third (n=7) middle third (n=11) & in distal third (n=4). These surgery results were evaluated using Flynn's scoring criteria & statistical analysis was done using Fischer's exact test.

Results:- All 22 Patients were available for evaluation after a mean 7 months (6-8 months) of follow up. Radiological union in all cases was achieved in a mean time of 8.8 weeks. Patient started partial weight bearing after 5 weeks and full weight bearing after 6 weeks. Mean duration of hospital stay was 10.7 days. The results were excellent in thirteen patients (59.0%), successful in six (27.2%) and poor in three patients (13.6%). All patients attended school early.

Conclusion:- TEN fixation is a safe & effective management of pediatric femoral shaft fracture in selected patients of 6-16 years age group.

Keywords:- *Titanium elastic nail(TEN), intramedullary nailing, paediatric femoral fracture, diaphysis*

INTRODUCTION

Femoral diaphyseal fracture is among most common and most disabling injuries in childhood. Many treatment options are reported for school age children (6-16 years).[1,2] The Treatment of such children has been age related, influenced by the type of injury, associated injuries and the location and type of fracture. Mostly such treatment options vary according to the Surgeons' preference[3].

The treatment options for school age children include

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immediate[4] or delayed spica cast immobilization[5], skin or skeletal traction on a splint[6], plating[7], elastic nail (TEN)[5] and external fixator.

Because of rapid healing and spontaneous correction of angulation most of femoral shaft fractures in children younger than six years of age can be treated conservatively.[8,9] Above six years of age all such fractures when treated non operatively could have loss of reduction. Near the end of Skeletal maturity accurate reduction is necessary as angular deformity is no longer correctable by growth. [10] Availability of Locked intramedullary nail has made the treatment of femoral shaft fractures in skeletally matured children well established. However, the best treatment between six and sixteen years of age is a matter of debate.[11] Since the last two decades, there has been a growing tendency towards a more operative approach in patients over six

year of age.[3,10,12]

Titanium elastic nailing, which is variously known as Elastic stable Intramedullary nailing has become the choice of stabilization in pediatric long bone fractures, particularly the femoral shaft fractures.

The perceived advantage of this technique includes early union due to repeated micro motion at fracture site, respect for the physis, early mobilization, early weight bearing, scar acceptance, easy implant removal and high patient satisfaction rate.

This is a prospective study with the objective of evaluating the role and efficacy of Titanium elastic nail in selected cases of femoral diaphyseal fractures in the 6-16 years age group.

MATERIAL AND METHOD

Twenty two children (19 boys & 3 Girls) selected in the age group 6-16 years (average 10.8 years) with recent (within 3 days) femoral shaft fracture (19 closed and 3 open (grade II) were stabilized with titanium elastic nail (TEN), between March-2015 to April-2016. Most of the fractures were due to road traffic accidents (RTA, n=14, 63.6%) & associated injuries seen in 5 cases (22.7%).

Among these seven fractures were in the proximal third, eleven fractures in the middle third & four were in the distal third. Fourteen fractures were transverse, four minimally comminuted & four were short oblique. Twenty two children under went surgery within seven days of injury. The surgery was performed under general anesthesia with patient on the fracture table in supine position. Two Titanium nails of identical diameters were used in all cases.

The diameter of the individual nail was selected as per Flynn et al formula [3] (diameter of nail = width of the narrowest point of the medullarly canal on antero posterior and lateral view X 0.4mm) and intra operative assessment. The diameter of the nail was chosen so that each nail occupies at least one third to 40% of the medullary canal.

Fractures were reduced using fluoroscopic guidance. TEN nails were introduced in retro grade fashion from distal femur to proximal in eighteen case (four proximal third & fourteen mid shaft) & with medial and lateral incision 2.5-3.5 cm. above the physis.

In Four cases,TEN were introduced from the proximal to distal (in distal third femoral fracture) & with proximal lateral entry point for both titanium elastic nail of same diameter.

The nails were prebent sufficiently so that apex of the bowed nails rested at the same level on the fracture site to ensure a good equal recoil force. All the cases were done by closed method of reduction on fracture table.

Post positive mobilization was encouraged from the second day, Stitches were removed after 14 days. Partial weight bearing was allowed after 3-5 weeks according to the stability of reduction, type of fracture,weight and compliance of child. Partial to full weight bearing allowed in 5-6 weeks. Full weight bearing was allowed after callus (usually in 6-8 weeks).

All patients were followed radiologically as well as clinically until fractures healed and for any complications. Statistical analysis was done using Fischer's exact test to evaluate the significance of association between the occurrence of skin site irritation and by long untrimmed nail ends.

1. Association of angulation of fracture with smaller and mismatch nail diameter.

2. Out come between patients <10 years and >10 years

Table 1: The scoring criteria with titanium nails

	Excellent	Successful	Poor
Limb Length Discrepancy	<1.0 cm	<2.0 cm	>2.0cm
Sequence Disorder	5^0	10^0	$>10^0$
Pain	Nil	Nil	Present
Complication	Nil	Mild	Major Complication or Extended period for resolvable morbidity

RESULTS

The mean duration of surgery was 75 minutes (60-90 minute). The mean hospital stay was 9.5 days (7-12 days). The hospital stay was dictated by associated injuries and the adequacy of fixation, All 22 patients were available for evaluation after a mean of 3.5 months (3 to 4 months) of follow-ups.

Radiological union was achieved in all cases in a mean 8.5 weeks (7-10 weeks). Full weight bearing was possible in a mean time of 8.8 weeks (6-12 weeks). The result were excellent in thirteen patients (59.0 %), Successful in six (27.27%) and poor in three patients (13.6%) as per the scoring criteria For TEN by Flynn et al [3].

One patient had varus angulation (8^0) whereas two had valgus angulation (10^0). Entry site irritation occurred in three patients. Two patients had skin breakdown at entry site which led to superficial infection. The infection resolved with seven days oral course of cephalosporin (1 gm/day). Limb lengthening of less then 1.5 cm was found in two cases both clinically as well as radiologically, which was clinically insignificant. Results were better for children less than 10 years of age (p value .003). Leaving nail end long (>2 cm) and untrimmed was significantly associated with entry site irritation (p value .0001). Functional range of movement of knee was achieved in an average of 8.4 weeks (6-24 weeks).

Table 2 :Clinical details of patients

Age (years)/ sex	Nail diameter (mm)	Radiological union (wks)	Full weight bearing and return to school (wks)	Hospital days
11/M	3.5	10	140	9
9/F	3.0	8	8	8
16/M	3.5	8	8	8
12/M	3.5	10	10	12
7/M	3.0	6	8	8
12/M	3.5	10	10	10
10/M	3.5	10	8	8
6/M	2.5	8	8	8
15/M	3.5	10	10	8
16/F	4.0	12	12	12
13/M	3.5	8	8	10
10/M	3.0	8	10	12
11/M	3.5	10	8	9
7/M	3.0	8	10	8
13/M	3.5	8	8	8
14/M	3.5	10	12	10
12/M	3.5	8	8	9
6/M	3.0	6	6	8
16/M	3.0	10	10	
13/M	3.5	8	8	8
10/F	3.5	8	8	10

| 8/M | 3.0 | 8 | 8 | 8 |

Figure 1: Post operative radiographs of patients

DISCUSSION

Femoral shaft fractures constitute less than 2% of all pediatric (6-16 years) fractures; the choice of treatment has remained a constant challenge to the orthopedic surgeons. Until recently conservative treatment was the preferred method for the treatment of diaphyseal fractures in children and young adolescents. However, to avoid the effects of prolonged immobilization, to reduce the loss of school days and for better nursing care, the operative approach has been gaining popularity for the last two decades. Plate osteosynthesis is still widely used. It's associated with a large exposure, relatively longer duration of immobilization and the risk of delayed union. Infection and the risk of delayed union and a large dissection for plate removal.[16, 17] The external fixator provides good stability and early mobilization, but is associated with the risk of pin tract infection and it takes a longer time for weight bearing.[18, 19] Intramedullary k wire fixation has also been used for pediatric femoral fracture; but stability and fracture angulation is a huge disadvantage. Interlocking nail is ideal for skeletally matured children. Reports of avasular necrosis of femoral head, coxa valga have been reported with interlocking nail when attempted in skeletally immature patients.[20,21]

However there have been proponents for using interlocking nail in the 11-16 years of age group, avoiding the Pyriform fossa as entry site, with good results.[22]

Titanium elastic nail seems advantageous over other surgical methods particularily in this age group because it is simple, load sharing internal splint that doesn't violate open physis, allows early mobilization and maintains alignment. Micromotion conferred by the elasticity of

the fixation promotes faster external bridging callus formation. The periosteum is not disturbed and being a closed procedure there is no disturbance of the fracture hematoma, thereby less risk of infection. Flynn et al found TEN advantageous over hip spica in treatment of femoral shaft fractures in children. [11] Buechsenschuetz et al, documented titanium nail superior in terms of union, scar acceptance and overall patient satisfaction compared to traction and casting.[23] Ligier et al treated 123 femoral shaft fracture with elastic stable intramedullary nail. All fractures united. Thirteen children developed entry site irritation.[24] similarly, narayanan et al found good outcome in 79 femoral fractures stabilized with TEN[(25).]There is no comparative study regarding the efficacy of ender nail, Rush nail or Titanium elastic nail.All the nails give good results. Ender nail and Rush nail have poor rotational Stability and require multiple nails to achieve good fixation. More over, ender nails is not elastic and flexible enough for pediatric fractures as stated by Ligier.[24] Heinrich et al observe good result in 78 femoral fractures treated with Ender nail.[26]

Fracture geometry and the location is an important determinant for selection of surgical technique. Transverse, short oblique, and minimally comminuted fractures are suitable for TEN as stated by Flynn et al.[3] Narayanan et al[25] stated that transverse, short oblique, short spiral fractures with minimum comminution in the 5-12 years age group were the best indications for TEN.

Lascombes et al [27] stated that TEN would be indicated in all femoral diaphysial fractures of children above six years of age till epiphysis closed except severe type (III) open fractures. Titanium elastic nail does not provide adequate stability in comminuted, long oblique or spiral fractures. Even if it is contemplated, postoperative immobilization becomes essential. Appropriate alternative other than titanium nail should be considered in such circumstances.

The most common complication of titanium elastic nail is entry site irritation and pain.[25.28] Other complications include limb length discrepancy, angulation of fractures, re fracture and infection. Entry site irritation in our series was seen in three cases. We found that entry site irritation was significantly associated with long and prominent nail end (>2cm).

Similarly smaller and mismatch diameter that was incidently used in three cases was associated with increased incidence of varus/valgus angulation, which confirms to the finding by Narayanan et al in their series.

CONCLUSIONS

The Titanium elastic nailing is an effective and viable treatment option in selected cases of femoral diaphyseal Fractures in the 6-16 years age group.

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Prevalence of Obesity in School Going Children of Rajasthan

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ABSTRACT

90 male and 90 female children between the age 5-10 years were studied .They were classified as per their nutritional status. In male children starvation group was 8.8%.and their BMI was between 14-15. Under nourished group was 24.4% and their BMI was between 16-17.Normal nutrition group was 42.2% and their BMI was between 18-22. Over weight group was 15.5 % and their BMI was between 23-24. Obese group was 8.8% and their BMI was between 25-27. In female children starvation group was 11.1%,and their BMI was between 14-15.Undernutrition group was 28.8% and their BMI was between 16-17.Normal group was 35.5% and their BMI was between 18-22. Over weight group was 11.1% and their BMI was 23-24. Obese group was 13.3% and their BMI was between 25-27. This study of BMI in different nutritional status certainly help the pediatrician to treat the particular group with preventive measures of high risk diseases like Cardio vascular, Type -2 diabetes, Osteoarthritis, Gout, sleep apnea syndrome, renal, metabolic disorders, psychological (emotional) disorders, abdominal hernia in school going children. Moreover will also be persisted in adulthood also which may cause stoke, Myocardial infarction, ischemic heart disease etc..Obesity being a global problem this study will be helpful to nutritional expert, parents, and School teachers to create awareness about the risk factors about raised BMI (Over weight and Obesity).

Keywords — *BMI = Body Mass Index, CVD = Cardiovascular Diseases , Over Weight, Starvation*

INTRODUCTION

Obesity is the most prevalent nutritional diseases of children in India and abroad. WHO has declared ,more BMI of the children is one of the ten health risk factors in the world. BMI is an inexpensive and easy to perform method of screening for weight categories that may predict the health problems in the children. Obese children are more likely to become Type-2 diabetics ,coronary heart diseases, Hypertensive, Gall bladder diseases breast cancer, endometrial cancer, colon cancer and osteo-arthritis. The immediate consequences of overweight children are often have more complex about their Obesity which may leads to cardio vascular, metabolic, psychological, orthopedic, neurological, hepatic, pulmonary and renal disorder hence obesity influences both physical and psychological factors of the children. Hence attempt is made to study their BMI by grouping them in different nutritional groups so that early diagnose can be done for particular nutrional status children so that, further risk factors can be prevented.

MATERIAL AND METHOD

90 male and 90 female school going children aged between 5 to 10 years who are regularly visiting to Hospital of Pacific institute of medical sciences Udaipur -3130015. Rajasthan were selected for study. These children of both sexes were classified in Five groups 1-starvation, 2-Under nourished, 3-Normal 4-Over weight, 5-Obese. The BMI was studied in children of both sexes in different nutritional groups. The duration of this study was about two years.

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OBSERVATION AND RESULTS

Table-1: Study of BMI in male children of different nutritional status in the age between 5 – 7 years

GROUP	NO OF CHILDREN	BMI	%
Starvation	08	14-15	08.8
Under Nutrition	22	16-17	24.4
Normal	38	18-22	42.2
Overweight	14	23-24	15.5
Obese	08	25-27	O8.8

Study of BMI in male children of different nutritional status (between 5-10years) Group a-Starvation group of children were 8(8.8%) and their BMI was between 14-15.B-Under nutrition group children were 22 (24.4%)and their BMI was between 16-17 C—Normal nutrition group children were 38 (42.2%)and their BMI was between 18-22.D-Overweight children were 14(15.5%) and their BMI was between 23-24. E-Obese group of children were 8(8.8%).

Table-2: Study of BMI in female children of different nutritional status in the age between 5-7 years.

GROUP	NO OF CHILDREN	BMI	%
Starvation	10	14-15	11.1
Under nutrition	26	16-17	28.8
Normal	32	18-22	35.5
Overweight	10	23-24	11.1
Obese	12	25-27	13.3

Study of BMI in female children of different nutritional group (age between 5 to 10yerars) A—starvation group children were10 (11.1%) and their BMI was between 14-15 B-Under nutrient children were 26 (28.8%) and their BMI was between 16-17.C—Normal nutritious children were 32(35.5%)D-Over weight group children were 10(11.1%) and their BMI was between 23-24 E-Obese group children were 12 (13.3%) and their BMI was between 25-27 .

DISCUSSION

In the present study of prevalence of obesity in school going children, the BMI Study was used and children were grouped in different nutritional categories. Male children of starvation group were 8(8.8%), and female children were 10(11.1%) and their BMI value was between 14-15. In under nutrition group of male children were 22(24.4%) and female children were 26 (28.8%) and their BMI value was between 16-17 .In normal nutrional status male children were 38(42.2%) and female children were 32 (35.5%) and their BMI Value was 18-22. In overweight group of male children were 14(15.5%) and female children were 10(11.1%) and their BMI Value was between 23-24. and Obese group of male children were 8(8.8%) and obese female children were 12(13.3%) and their BMI value was between 25-27. (Table no.1 &2) These present values are more or less with previous studies [1][2][3][4]. The raised BMI due to Obesity and over weight is observed not only in India but in developed countries also.[5][6] One of the major reason for childhood overweight and obesity is due to watching Television, using Computers for long durations, travelling by transport to school instead of outdoor games. Physical activity during leisure period either at school or at home was found to be related inversely to overweight and obesity [7]. Moreover Indian schools give more preference in class room teaching than physical activities. In addition to this Junk foods like Chocolates, Biscuits Pizza, Burger, Cheese etc will also enhance their overweight and obesity[8]. In the present study the percentage of starvation group of male children was 8%, and female was 10%, under nutrition male children was 24.4%, and female children was 28%, on the other hand percentage of Obesity is higher in female children 13.3% and in 8.8% in male children. Hence it can't be denied that, female children were neglected as compared to male children It is also noted that, parents pay least attention towards dietary habits of children due to dual employment of the parents which is one of the major factor for under nutrition, overweight and Obesity[9]. The aetiopathogenisis of child hood obesity is multi factorial interaction between genetic. neuro endocrine, metabolic, psychological, environmental and socio-cultural. Genetic conditions known to be associated with predilection for obesity include praderwilli syndrome, Bardet-Biedl syndrome and Cohen syndrome obesity clearly demonstrates the family tendency [10].

SUMMARY AND CONCLUSION

The present study of prevalence of Obesity in school going children studied with BMI Parameters in both sexes of different nutritional status will certainly help the Pediatrician to rule out the cause of overweight and obesity. A raised BMI due to obesity and over weight is observed globally with serious consequences like CVD, Diabetic, emotional problems. It require health and physical education ,counseling for obese and overweight children to overcome emotional problems regarding their body stature. Moreover it is the prime duty of parents and teachers to discourage the junk food eating and encourage, inspire the physical activities like various sports. This study further demands genetic and nutrional studies because which gene accepts and activated by particular vitamins, carbohydrates, minerals fats is yet to be known.

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Evaluation of Waste Water Treatment Toward Physical, Chemical, and Biology Parameters in WWTP Hasan Basry Banjarmasin, Indonesia 2016

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ABSTRACT

Wastewater is liquid or filth containing hazardous materials that can endanger human life and other living beings, and also destructive the environment. This research aim to analyze the differences in physical parameters (Temperature and TSS), chemical (pH, BOD, NO_3-N, TF-P, oil and fat), and biology (E.Coli) before and after treatment. The research design is observational analytic throught cross-sectional approach. The object used is domestic wastewater before and after treatment in WWTP Hasan Basry Banjarmasin of year 2016. This research use paired T-test and Wilcoxon test. The results in WWTP Hasan Basry showed that average value before and after treatment in TSS (p-value=0.000), pH (p-value=0.014), BOD (p-value=0.034), TF-P (p-value=0.000), E.coli (p-value=0.023), temperature (p-value=0.038), NO_3-N (p-value=1), oil and fat (p-value=0.858). There is a difference before and after treatment in temperature, TSS, pH, BOD, TF-P and E.Coli. Whereas there was no difference in NO_3-N, oil and fat.

Keywords: *WWTP Hasan Basry, wastewater, physic parameters, chemical parameters, biology parameters.*

INTRODUCTION

Wastewater is liquid or filth from households, industry and other public places that contain hazardous materials that could endanger human life and other living beings as well as disturb the environment. According to the Minister of Environment Regulation No. 5 of 2014 on Wastewater Quality Standard mentioned that domestic waste water is waste water that comes from effort and/or settlement activities, restaurants, offices, commercial, apartments and dormitories. For that in 2005 established the feasibility study the Company Wastewater Banjarmasin city which was then on the 24th of August 2006 stood PD PAL Banjarmasin (Local Company of WTP Banjarmasin).[1, 2]

Based on data of average incoming water quality examination in PD PAL Banjarmasin 2015, Total Solid Suspense (TSS) in WWTP Hasan Basry is 28.58 mg/l, for that TSS has suitable with the water quality criteria based on Government Regulation 82 of 2001 that is below 50 mg/l. BOD 18.31 mg/l, based on Government Regulation 82 of 2001 BOD has not suitable with water quality criteria namely 3 mg/l. While E.coli amounted to 311,733 amt/100 ml, based on Government Regulation 82 of 2001, E.coli has not suit with water quality of 1,000 amt/ml.[3]

The high level of domestic WWTP Hasan Basry give a significant impact on the quality of health of people living along the riverbanks as diarrhea and skin diseases. Based on data from 10 diseases in the working area of the WWTP Hasan Basry, there are 343 cases of diarrhea and gastroenteritis and 331 cases of dermatitis.[4,5]

Therefore, wastewater treatment needs to be handled properly and sustainably, so that waste water into the body of water is safe for public health and the environment.[4] Based on this background, it is necessary to do research on the evaluation of waste water treatment in WWTP Hasan Basry Banjarmasin which include

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temperature, TSS, pH, BOD, TF-P, oils and fats, and E.coli.

distribution of each independent variable and bivariate analysis using paired T-test and Wilcoxon test.

MATERIALS AND METHOD

This research is an analytic observational with cross sectional study. The object used is domestic waste water before and after treatment in WWTP Hasan Basry Banjarmasin 2016. Data processing and analyzing consisted of univariate analysis to explain the

RESULTS AND DISCUSSION

The relationship between the temperature, pH, BOD, NO_3-N, TF-P, Oil and Fat, and E.Coli of the waste water treatment in WWTP Hasan Basry can be seen in Table 1 and 2.

Table 1. Result of Paired-T Test and Wilcoxon Test of Temperature, pH, BOD, NO_3-N, TF-P, Oil and Fat, and E.Coli **Before and After Treatment**

	Temperature	TSS	pH	BOD	NO_3-N	TF-P	Oil and Fat	*E.Coli*
p-Value	0.038	0.000	0.014	0.034	1.000	0.000	0.858	0.003

Table 2. Difference of Temperature, pH, BOD, NO_3-N, TF-P, Oil and Fat, and E.Coli **Before and After Treatment**

Month	Temperature		TSS		pH		BOD		NO_3-N		TF-P		Oil and Fat		E.Coli	
	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A
Jan	26,8	26,9	38	26	6.79	7.01	13.9	10.1	0.368	0.357	2.1	1.45	2.3	0	1700	50
Feb	27,3	27,5	27	20	6.86	7.60	11.3	10.8	0.357	0.341	1.18	0.726	1.8	0	90000	59
Mar	28,1	28,3	38	23	6.85	6.93	13.3	10.4	0.344	0.337	2.74	1.05	1.5	0	90000	57
Apr	27,6	27,8	35	22	6.81	7.05	12.7	9.08	0.348	0.345	2.58	1.44	1.7	0	22000	80
May	27,8	27,9	26	16	6.81	7.18	10.2	7.83	0.347	0.294	2.84	1.41	1.5	0	840000	110
Jun	27,0	27,0	35	13	6.70	6.90	14	12.5	0.2571	0.1415	3.0031	1.5683	3	1.5	290000	3800
Jul	27,0	27,0	28	7	7.08	7.48	18	14.7	0.496	0.364	2.5758	1.7802	3	8.5	19000	290000
Aug	27,0	27,0	24	3	7.12	7.42	41.83	63.36	0.226	0.2993	4.9054	2.3916	4	7.5	32000	80
Sep	28,0	28,0	18	2	7.06	6.78	23.1	21.34	1.7675	1.0015	3.6988	3.4292	0.005	0.005	34000	80
Oct	28,0	28,0	32	5	7.05	6.94	29.7	24.06	0.2993	1.5294	7.7436	4.5413	0.005	5.5	7500	90
Nov	28,0	28,0	34	15	6.86	7.14	21.14	19.6	0.2924	3.6498	5.868	4.0906	2	2	14000	0
Dec	27,0	27,0	20	16	7.14	7.28	10.66	10.43	0.2165	0.9834	4.2308	3.5616	0.005	0.005	2600	0
Avg	27.47	27.53	29.58	14	6.93	7.14	18.32	17.85	0.44	0.80	3.62	2.29	1.73	2.08	120233.3	24534

Notes:

B: Value Before Treatment

A: Value After Treatment

3.1 Temperature of the waste water treatment in WWTP Hasan Basry

Based on the table 1, the result of Paired-T Test show that p-value=0.038 (p< 0.05). There are a difference between average of temperature value before and after treatment in WWTP Hasan Basry. The temperature increase before and after the treatment are 0.22%. Wastewater generally have a higher temperature than the local air temperature. The effect of temperature can be annoying and leave a chemical reaction aquatic life. Waste that has hot temperatures will disrupt certain biota. The level of oxidation agents is greater at higher temperatures and decay ja rang occur at low temperatures.[4, 6]

The concentration of the wastewater temperature are 26.9 to 28.3 ^{0} C and it has qualified with criteria of Government Regulation ranged from 24.53 to 30.53 ^{0} C. The decomposition occurs due to the concentration of high temperatures. Decomposition resulting odor that bothered. More and smell of the water cause the higher the concentration of microbes and inorganic substances in the water. If the concentration of microbes on the high water and disinfection is not done. Then it is possible for the occurrence of waterborne disease.[4, 7, 8]

3.2 Total suspended solid (TSS) of the waste water treatment in WWTP Hasan Basry

Based on the table 1, the result of Wilcoxon Test show that p-value=0.000 (p< 0.05). There are a difference between average of TSS value before and after treatment in WWTP Hasan Basry. The TSS percentage decrease before and after the treatment are 52.68%. TSS is the amount of weight in mg / l and dried mud in the waste water after a filtration with membrane measuring 0.45 microns. Suspended solids consist of particles whose size and weighs less than the sediment, such as clay, certain organic materials, cells of certain microorganisms and so forth.[7, 9]

The concentration of TSS in wastewater undergoes treatment has been qualified, ranged from 2 to 26 mg/l. Where this value suitable with criteria of Government Regulation No.82 Year 2001 under 50 mg/l. The high concentration of TSS will cause turbidity so as to disturb the disinfection process for the absorption of some colloidal bacteria may protect the organism from the disinfectant.[7, 8, 10]

3.3 pH of the waste water treatment in WWTP Hasan Basry

Based on the table 1, the result of Paired-T Test show that p-value=0.014 (p< 0.05). There are a difference between average of pH value before and after treatment in WWTP Hasan Basry. The pH percentage increase before and after the treatment are 3%. pH is a measure of the acidity that is determined based on the high and low concentration of hydrogen ions in the water. The pH value of the water is used to determine the condition of acid (hydrogen ion concentration) of waste water. The pH scale ranges from 1-14, pH value range 1-7 including acid conditions. pH 7-14 including alkaline conditions and pH 7 including neutral conditions. pH values either allow organisms to live and grow, as well as biological life is going well. Most microorganisms are sensitive to changes in pH and the like pH between 7 to 8.5.[4, 6, 11]

The concentration of pH in wastewater has been qualified, ranged from 6.78-7.60. The pH value lower than 1-7 mean to be more acidic, so it will be corrosive to the organs of the body when consumed by humans. With the metal content in the water, it will indirectly affect the aesthetics of the water, which cause a sour taste in the water. Besides the waste water has a low pH water becoming corrosive often resulting metal becomes more rusted pipe.[9, 12, 13]

3.4 Biochemical oxygen demand (BOD) of the waste water treatment in WWTP Hasan Basry

Based on the table 1, the result of Paired-T Test show that p-value=0.034 (p< 0.05). There are a difference between average of BOD value before and after treatment in WWTP Hasan Basry. The BOD percentage decrease before and after the treatment are 2.56%. BOD is the oxygen requirement for the number of bacteria to decompose (oxidize) all organic substances dissolved or as suspended in water into organic matter is much simpler.[4, 9]

The concentration of BOD in wastewater has been not qualified, ranged from 7.83-63.36 mg/l. Where this value not suitable with criteria of Government Regulation No.82 Year 2001 are under 3 mg/l. If wastes with high BOD values discharged into the waters of the microorganisms contained in the water will begin to degrade organic matter in the waste. This process will spend the oxygen in the water. When oxygen levels decrease would interfere with the survival of fish and other aquatic fauna.[8, 9, 11]

3.5 The NO_3-N of the waste water treatment in

WWTP Hasan Basry

Based on the table 1, the result of Paired-T Test show that p-value=1.000 (p> 0.05). There are a difference between average of NO_3-N value before and after treatment in WWTP Hasan Basry. The NO_3-N percentage increase before and after the treatment are 81.8%. Nitrate nitrogen is very soluble in water and are stable.[14]

Based on the table 2, that the concentration of NO_3-N in wastewater has been qualified, ranged from 0.1415-3.6498 mg/l, suitable with criteria of Government Regulation No.82 Year 2001 are 10 mg/l. Nitrate is a form stable compounds and derives its existence from the waste, fertilizers, animal and human feces and so on. High nitrate concentrations can be toxic and can affect people's health, especially for infants can cause "blue baby", ie the occurrence of a bluish color because of lack of oxygen.[8, 15]

3.6 The TF-P of the waste water treatment in WWTP Hasan Basry

Based on the table 1, the result of Paired-T Test show that p-value=0.000 (p< 0.05). There are a difference between average of TF-P value before and after treatment in WWTP Hasan Basry. The TF-P percentage decrease before and after the treatment are 36.74%. Total phosphate in the waste water. a portion of the phosphate in wastewater society is in the form of inorganic orthophosphate (PO, HPO, HrPO) increase as much as 25% of the total phosphate.[16]

The concentration of TF-P in wastewater has been not qualified, ranged from 0.726-4.5413 mg/l, not suitable with criteria of Government Regulation No.82 Year 2001 are under 0.2 mg/l. The impact of the high concentration of TF-P is the emergence of silting due to eutrophication, which it is bad for the raw source for taps and surrounding communities.[8, 17]

3.7 Oil and fat of the waste water treatment in WWTP Hasan Basry

Based on the table 1, the result of Wilcoxon Test show that p-value=0.858 (p> 0.05). There are no difference between average of oil and fat value before and after treatment in WWTP Hasan Basry. The oil and fat percentage decrease before and after the treatment are 20.23%. Basically the oils and fats can create a layer on the surface of the water to form a membrane

which inhibits the oxidation process under aerobic conditions.[9]

The concentration of oil and fat in wastewater has been qualified, ranged from 0-8.5 ug/l and suitable with criteria of Government Regulation No.82 Year 2001 are under 1000 ug/l. The concentration of oil and fats can reduce the concentration of dissolved oxygen in the water due to the fixation of free oxygen to be blocked. As a result, there is an imbalance in the food chain of the water. Oils and fats also affect microbial activity and form a layer on the surface of the waste liquid that inhibit the oxidation process under aerobic conditions.[8,9]

3.8 Eschericia coli (E.Coli) **of the waste water treatment in WWTP Hasan Basry**

Based on the table 1, the result of Wilcoxon Test show that p-value=0.023 (p< 0.05). There are difference between average of E.Coli value before and after treatment in WWTP Hasan Basry. The E.Coli percentage decrease before and after the treatment are 79.59%. Escherichia coli practically always present in the digestive tract of animals and humans due to natural Escherichia coli is one of the occupant's body.[18]

The concentration of E.Coli in wastewater has been not qualified, ranged from 0-290,000 amt/100 ml and not suitable with criteria of Government Regulation No.82 Year 2001 are under 1,000 amt/100 ml. If the E.Coli found in other parts of the body organ, it will cause serious illness, such as urinary tract infections, bacteremia, and meningitis. It was also reported when E.Coli in the intestine into the bladder, it can cause sintitis is an inflammation of the mucous membranes of the organ.[8, 10, 18]

CONCLUSION

Based on the results of research in WWTP Hasan Basry in Banjarmasin in 2016, there is a difference before and after treatment at temperature (p-value = 0.038), TSS (p-value=0,000), pH (p-value=0,014), BOD (p-value = 0.034) , TF-P (p-value=0,000), and E.coli (p-value=0,023). Whereas there is no difference in NO_3-N (p-value=1), oil and fat (p-value=0,858). WWTP Hasan Basry should always maintenance and repair, still due to the excess of the standard quality parameters such as BOD, TF-P, and E. coli.

Ethical Clearance: This study approved and received ethical clearance from the Committee of Public Health Research Ethics of Medical Faculty, Lambung Mangkurat University, Indonesia. In this study we followed the guidelines from the Committee of Public Health Research Ethics of Medical Faculty, Lambung Mangkurat University, Indonesia for ethical clearance and informed consent. The informed consent included the research tittle, purpose, participants' right, confidentiality and signature.

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A Timeframe Study on Delay in Seeking Care During Delivery on a Group Representative of Mortality Cases

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ABSTRACT

Background: There is often a paucity of data on maternal mortality partly due to failure to handle a sensitive issue and partly due to under reporting of maternal mortality Most maternal deaths occur just before, during, or just after delivery, It can be assumed that those obstretics morbidities which require active emergency intervention (operative/ instrumental) are representative of causes of maternal mortality, where lack of timely intervention in the peri delivery period can cause mortality. Further the list of most common indications for intervention coincides with the leading causes of maternal mortality. These mothers who receive active and emergency management at a hospital can be justified to be proxy representative of the unfortunate maternal mortality cases where similar circumstances but dissimilar management caused the catastrophe Thus conducting a study on this proxy representative population can throw light on various factors causing maternal mortality.

Objective: Based on the classical 3 delays that model this study was designed to find out the time frame and significant events causing delay in seeking medical attention during delivery on a representative proxy population.

Methodology: Study was done for 45 days (1st July – 15 August, 2011) days on cases which were decided upon intervention (i.e proxy representative population of maternal mortality) within one hour of admission with a pretested questionnaire administered by investigator

Result: 89% were unbooked, . 33% were obstructed labour disorder. 17 cases were referred twice with a total delay of 20.5 hours(transit expense Rs 675), 53 delayed for 13 hours with one referral(transit expense Rs 450) while the last group of 29 delayed 8 hours entirely at home(transit expense Rs 230) 76% received government based health insurance with Rs 100 as transit money.

Conclusion: Conclusive findings were large percent of unbooked cases, untrained personels attending the mothers causing delay at initial stage, inadequacy at first level health facility & lack of reimbursement for travelling. Avid campaigning at household level for institutional delivery, proper reimbursement can cut short the delay in seeking health care. Furthermore these study population can be further explored to find out more about the problems of maternal health which require attention.

Keywords : *maternal mortality, proxy representatives, timeframe of delay in care seeking.*

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BACKGROUND STUDY

More than 350,000 women die during pregnancy and childbirth every year. That is approximately 40 women every hour – a 34% decline from the levels in 1990. Despite this decline, 99% of maternal deaths occur in developing countries.[1,2] Most maternal deaths

occur just before, during, or just after delivery, often from complications that cannot be predicted and are difficult to prevent. Hemorrhage remains the leading cause of maternal death followed closely by sepsis, obstructed labor, hypertensive disorders of pregnancy and complications from unsafe abortion.For every woman who dies, approximately 20 more experience infection, disability, or injuries. Most maternal death and morbidity can be prevented when births are attended by skilled health professionals.

There is often a paucity of data on maternal mortality partly due to failure to handle a sensitive issue and partly due to under reporting of maternal mortality. WHO conducted a study in 2007[3] on causes of maternal mortality wherein one of the methodology adopted was a case control study where cases were maternal mortality in a public institution and Controls were surviving women admitted to public institutions with similar principal morbidity or co-morbidity and at the same stage of pregnancy (post-abortion, antepartum, intrapartum or postpartum). On similar lines it can be assumed that those obstretics morbidities which require active emergency intervention (operative/ instrumental) are representative of causes of maternal mortality where lack of timely intervention can cause mortality. These mothers who receive active and emergency management at a hospital can be justified to be proxy representative of the unfortunate maternal mortality cases where similar circumstances but dissimilar management caused the catastrophe Further the list of most common indications for intervention coincides with the leading causes of maternal mortality Thus conducting a study on this proxy representative population can throw light on various factors causing maternal mortality.

One such factor is the distance and time a woman must travel to get skilled emergency medical care. The "three delays" raise mortality rates[4]: These are firstly delay in seeking care: women may have to get permission from family males, or may not recognize the emergency, or may fear hospital practices. Secondly delay in arriving at an emergency care facility: transportation may be unavailable or unaffordable or take too long and thirdly delay in receiving care from providers: facilities may lack staff, equipment or supplies; or care may be unaffordable.

Based on the classical 3 delays that model this study was designed to find out the time frame of delay and significant events causing delay in seeking medical attention during delivery on a representative proxy population.

METHODOLOGY

The study was conducted for 45 days at MGM Medical college Kishenganj Bihar at the Gynaecology and obstetrics department . Study subjects included were those mothers who upon admission, within one hour of initial examination were decided upon on intervention (operative/ instrumentation) for delivery procedure. Thus the inclusion criteria were mothers who were decided on intervention within one hour of admission or at first examination by eligible person (resident surgeon onwards any senior personel). The justification of selecting these women that these women may be considered to be proxy representative of the unfortunate maternal mortality cases where similar circumstances but dissimilar management caused the catastrophe. This is taking into consideration the fact that any case requiring intervention (e.g ecclampsia, ante partum haemorrage, obstructed labour) if not attended to timely can be potentially dangerous causing mortality. Also the subjects throw light on the morbidity attending delivery in difficult child birth due to delay in seeking proper treatment. Cases of complication in early pregnancy like septic abortion ectopic pregnancy were excluded from the study.

The variables which were studied included the average distance the pregnant lady had to travel, time (and its breakup) of pain endured since start of first symptom, number of places reffered to, treatment provided at these places, first examination by, expenses for travel and borne by also source of cost incurred.

RESULTS

The total number of women in the study was 99 women. The average age was 23years with 85 % in the age bracket of 19 – 28. 44 % were primigravida with 66% being multiparous. A staggering 89% were un booked cases. Analysis were broadly classified according to the first variable i.e the time and distance travelled as 17 cases which spent 20.5 hours before successful intervention with two referral average distance travelled being 64 km, 53 cases endured suffering for 13 hours with one referral and average distance travelled being 38 km. 29 cases were straight away brought to study hospital however with a average delay of 8 hours and an

average distance being 24 km.

In the first group the cases spent (fig 1a) 4 hours at home till reaching the first care centre waiting there for 3.5 hours with a bulk of 13 hours spent at the next referral(time inclusive of travelling to the centre waiting period and time taken to reach MGM Medical College). The average distance from home in these cases were 64 km. However it must be taken into consideration that this is merely the distance from home and much more was travelled due to referral route which often is not the shortest and direct route. The second group(fig 1b) of 53 women spent 4 hours at home with next 9 hours at the first referral till receiving definitive treatment(time inclusive of waiting period and travelling). In these cases also average distance from home was 34 km which does not mandate the distance travelled to be 34 but often referral process being a tortuous route. Finally the last group(fig 1c) spent a prolonged 8 hours at home before seeking any intervention within a distance of average 24 km. The proximity of of tertiary care centre probably prompted the prolonged trial at home whereas in the first two categories time spent at home was relatively less. The picture indicates that for the first group the first health care centre is probably too inequipped hence not much time is spent there, however a large bulk of 12-13 hours are spent the next tier before deciding to refer. In the second group also we see that a large bulk of time 9 hours is spent before referral.

On examining the cause in table 1 we find that 33% cases were obstructed labour/ prolonged labour, 21% hemorrhage, 24% hypertensive and convulsive disorders, 8% malpresentation, 4% post partum complications (retained placenta, hemorrhage, vulval hematoma). These figures when compared with leading causes of maternal mortality it was seen to be similar. It was seen that 53% of the cases were attended initially by untrained personnel's as compared to only 20% by personnel of medical profession.

The treatment in many cases at referral centres could not be ascertained due to lack of proper documentation, however a qualititative analysis showed in most cases an intravenous access was started, tetanus toxoid was given. In cases of ecclampsia sedative was given infrequently. Use of antibiotic was however seen very rarely.

The first group of patients spent an average of Rs675 on transport , the second group spent Rs 450 on average and the third group spent Rs 230 on average. The mode of payment in all cases were cash. 76% were party to receiving insurance as per government norms. (RSBY being fully functional in this institute) with Rs 100 as transport money.

DISCUSSION

Most maternal deaths are due to 5 direct causes, haemorrage, obstructed , ecclampsia sepsis unsafe abortions. These complications are rapidly developing and often cause mortality[5]. In this study 33% were obstructed labour followed by 24% being hypertensive and convulsive disorder and 21% being haemorrage.Whereas bleeding , hypertension , convulsion are easily identifiable causes prolonged and obstructed labour are not so easily diagnosed and are often the most neglected problem. Expectant treatment is carried for long time prior to referral contributing to the most number of cases. Lack of expert obstetric assessment of fetomaternal alignment along with lack of fixed guidelines to diagnose non progress of labour possibly contributes to this problem.

The 'three delays' model, developed by Thaddeus and Maine (1994)[4], is used to identify factors that affect the interval between the onset of obstetric complications and the receipt of appropriate care in Ghana, Nigeria and Sierra Leone These are: *phase one,* delay in deciding to seek medical care on the part of the individual or family; *phase two,* the delay in reaching a health care facility; *phase three*, the delay in receiving adequate care. Maternal mortality can be a result of all three phases of delay, or any one phase. World Health Organization estimates that 75 per cent of maternal deaths can be prevented through timely access to child-birth related care (WHO 2001). Evidence suggests that most of the obstetric emergencies can be managed if Comprehensive Emergency Obstetric Care (EmOC) is reached within 12 hours, with the exception of obstetric haemorrhage which requires attention within 2 hours.

According to the 3 delay model of the first delay is encountered at home i.e delay in decision making to seek care. In this study it was seen in all the 3 groups that the first delay was 4, 4, and 8 hours with notably those living nearest caused maximum delay. Exact reasons were not sought but of the calculated 12 vital hours a substantial average 5.3 hours in all the cases were lost merely at home. Lubbock and Stephens[6] in their study found that delays in seeking health care during

pregnancy are influenced not only by poor access to care and economic barriers but also by individual and community knowledge and acceptance of maternal health services. Partner support, previous maternal health care experiences, and the degree of communication with other women and health workers affect women's decisions to seek care. While cost of transport, non participation of male members of the family are the factors governing the delay also knowledge of absolute necessity of institutionalized and attended delivery by trained personel have not been adequately impressed on the general population. Sufficient campaigning at the level of household to seek advise of trained personel as soon as labour symptoms appear can save a quarter of the wasted time and most likely avert much more complications.

Deviating from the classical second delay which was delay in reaching health centre this study found 2 groups of mothers with delay   not only in reaching but also time spent at the referral   centre without fruitful intervention. The picture indicates that for the first group the first health care centre is probably too in equipped hence not much time is spent there , however a large bulk of 12-13 hours are spent the next tier before necessary referral and subsequent arrival at MGM Medical College. In the second group also we see that a large bulk of time 9 hours is spent similarly. According to the Sara(5) group of study the main reasons for delay

at level of health care centre prior to referral center are factors such as lack of material equipment, theatre space, facility of blood transfusion, expert medical personnel while the main causes of delay on account of transport are mainly unavailability transportation   and travel cost . In our study we see that the delay in travel and waiting at first or second health care centre consumes a substantial amount of the vital 12 hours. Even though finding out the reasons were not a part of the study, the time depicted virtually confirms the delay model. A precious two third of the time is wasted along with maternal suffering due to failure to decide to refer timely along with time in transit. While the proposed EOM plans, to take care of the delay at the facility, the author feels time in transit can be modified if the family can be assured of travel expenses to be fully compensated upon reaching hospital.

The conclusive findings of this study were to start with a large percent of unbooked cases, untrained personels attending the mothers causing delay at first level, inadequate first level health facility, and money spent on transit recieving irregular reimbursement. The author feels that more avid campaigning at household level, proper reimbursement can cut short the delay inseeking health care. Furthermore these study population can be further explored to find out more about the problems of maternal health which require attention.

Fig 1a: n=17 mothers were referred twice before reaching tertiary level care, average time being 20.5 hrs and distance 64 km

Fig 1b :n=53 were referred once before reaching tertiary level care , with time of suffering endured 13 hrs

Fig 1c: n=29 mothers directly reached tertiary level care with average time being 8 hrs

Table 1 a: Showing morbidity distribution leading to intervention among study population as compared to causes of maternal mortality world wide

CAUSE	Number n=99	PERCENT
Obstructed labour	33	33%
Hypertensive/ convulsive disorder	28	28%
Haemorrage	23	23%
Malpresentation	9	10%
Post partum complication	6	6%

Leading causes world wide
Haemorrage
Sepsis
Obstructed labour
Hypertensive disorder
abortions

Source of Funding: Self

Conflict of Interest : Nil

Ethical Clearance: Board of M.G.M Medical College & LSK Hospital, Kishenganj , Bihar

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A Health Seeking Behavior of the Women of Urban Slums of Puducherry Regarding Reproductive Tract Infections

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ABSTRACT

Reproductive tract infections (RTIs) are a global health problem including both sexually transmitted infections (STIs) and non-sexually transmitted infections (non-STIs) of the reproductive tract. RTI/STI is an important concern, as it possess risk for human immunodeficiency virus transmission. Hence a community study was done in Puducherry in terms thirty cluster Sampling. Objective. To find out the knowledge of the suggestive symptoms of reproductive tract infections (RTI) and the relation of these symptoms with the different socio-demographic variables, reproductive characteristics, use of intrauterine devices (IUDs) and other contraceptives among the study population. **Method:** Married women in the reproductive age group (15-45 yrs. Of age) who had delivered in last 2 years preceding the study were taken as study unit & such population was the study population slum of Puduchery were interviewed. Data obtained was collated and analyzed statistically Data analysis was done using SPSS 17.0 version. Pearson chi-square test was applied for categorical variables. **Results:** The distribution of women with any problem of STDs/RTI and their health care seeking behavior. About 95 (17.6%) of women had problem of STDs/RTI in the studied population.

Keywords- *Genital diseases, Female/epidemiology; Genital diseases, Mal/epidemiology; Sexually transmitted diseases/epidemiology;HIV infections/epidemiology; Risk factors; Sex behavior; Marital status.*

INTRODUCTION

Reproductive and Child Health (RCH) programme basically emphasizes on maternal and child health. In the International Conference of Population and Development Program of Action, 'Reproductive health' is defined as: "A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and its functions and processes." Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition are the right of men and women to be informed about the services provided under various family welfare programme and to have access to safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods for regulation of fertility which are into against the law, and the right of access to appropriate health-care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant[1] The poor in urban areas are vulnerable to health risks as a consequence of living in a degraded environment, inaccessibility to health care, irregular employment, widespread illiteracy and lack of negotiating capacity to demand better services. A significant proportion of slums is not listed in official records and therefore remains outside the purview of public services including health which further accentuate their vulnerability.[2] This has been seen for assessing the utilization of the services provided under various health programmes; to assess the knowledge status regarding the services provided under the programme is also an important step thus taking above points in consideration the present study was undertaken by the Department Of Community Medicine, Sri Laxmi Narayan Medical College Pudducherry with the aim to assess the situation of utilization of maternal health care services regarding STI/RTI and health seeking behaviour of the married women of reproductive age group residing in urban slums of Puduchery city.

District Profile

The Union Territory of Puducherry encompasses an area of only 479 sq km with Puducherry town and its villages covering 290 sq.km surrounded by the South Arcot District, Karaikal town and its villages covering 161 sq.km surrounded by Thanjavur District, Mahe and its villages covering 9 sq km surrounded by the Kerala state, and Yanam covering 20 sq.km within the East Godavari District in Andhra Pradesh. While Puducherry, the head quarters of the union territory, lies 162 km south of Madras and 22 km north of Cuddalore, Karaikal is about 150 km south of Puducherry and Yanam about 840 km north-east of Puducherry on the Andhra Coast. Mahe lies almost parallel to Puducherry, 653 km away on the west coast.[3]

MATERIALS AND METHOD

The present study titled "Utilization of Services Under Reproductive and Child Health Programme Amongst married Women of the Reproductive Age Group in Urban Slums of Puduchery City" was designed to measure the utilization of health services provided to women under reproductive age group that is (15-45 years) of age below poverty line residing in urban slums of Puduchery city. It was planned to assess the prevailing knowledge status of mothers in Puduchery district and also to assess the impact of services provided under RCH programme.

3Reference population

The reference population was taken as the population residing in 530 urban slums of Puduchery city that are below poverty line.

Study population & Study unit

Married women in the reproductive age group (15-45 yrs. Of age) who had delivered in last 2 years preceding the study were taken as study unit & such population was the study population. [4]

Study Design

Community based cross-sectional study was conducted after taking approval from the ethical committee.

Total period of period

The study was conducted for a period of one year from June 2016 to July 2016.

Sampling

Sample Size:

As per the report titled **"Concurrent assessment of Health and Family Welfare Programmes and technical assistance to district of Uttar Pradesh"** by the Department of medical Health And Family Welfare, Uttar Pradesh. [4]

sample size was calculated using the formula.

$$N = z\alpha^2 \text{ x } p \text{ x } q/d^2$$

Where   N = sample size

    Z = statistic at α level of significance i.e 2

p = expected prevalence

q = 100 - p

d = absolute error

The Antenatal coverage amongst the recently delivered women was found to be 60%. Taking P as 60 and Q as 40 kand absolute error (L) 6%,

$$N = \frac{4x60x40}{36} = 266$$

Since respondents are chosen by cluster sampling design affect due to complex sample design comes into picture. Taking into account design effect of 2, the sample size will be

N = 266 x 2 = 532

Sampling technique

The maternal care and other components of the Reproductive and Child Health programme were assessed using 30 cluster sampling technique. Thus for the present study, Probability Proportionate to Size (PPS) method was adopted as the sampling strategy. The clusters were chosen from the sampling frame with Probability Proportional to Size (PPS) in order to compensate for the differences due to variable population in each slum. Each household in the sample had an equal chance of being selected. This made the sample self-weighting, which simultaneously had simplified the analysis. The zone and ward wise list of slums of district was procured from the Municipal Corporation and Puduchery Development Authority to select the slums to be used in the survey. The population proportionate to size method was done as follows.

- Column (1) number is assigned to each slum.

- Column (2) : population of each slum was

listed.

- Column (3): cumulative population of each slum was listed.

In the next step sampling interval was calculated by dividing the total cumulative population with the number of clusters required. Thus sampling interval turned out to be 18822. Consecutively to select the first cluster last five digit of the Indian currency note of India was used taking care of the fact that it should be less than cluster interval corresponding to this number first cluster was selected (between 1 and 18822). The first cluster would be located in slum, where the cumulative population was more than the random number was chosen. The second cluster was located in the slum area whose cumulative population exceeded total of the random number & sampling interval (1+18822). The location of each subsequent cluster was identified likewise by adding the sampling interval to the number which located the previous cluster.

The desired number of women to be interviewed in each cluster is 18 in each cluster the first house was chosen at random and from there on, the next nearest house was visited until the desired numbers of mothers were interviewed. If a household had more than one beneficiary, al were included in the survey.

Questionnaire development & pilot testing

The testing study was approved by the ethical committee of Sri Laxmi Narayan Medical College and Hospital. The basic questionnaire of "Concurrent assessment of Health and Family Welfare Programmes and technical assistance to district of Uttar Pradesh" by the Department of Medical Halth And Family Welfare, Uttar Pradesh was adopted and reframed as per the requirement of the study. Fifty subjects were interviewed during the pilot testing of the questionnaire. An informed consent was obtained from the respondent at the start of the interview. The interview was done in the presence of a female social worker of the Department Of Community medicine of Sri Laxmi Narayan Medical college and the family member of the respondent as per advised by the ethical committee.

Inclusion criteria

- Recently delivered women (RDW) who gave birth in the last 2 years.

- RDW having BPL card.

- Locked house holds.

- Non-responders.

- RDW residing in that slum for less than 6 months.

Statistical analysis

Data analysis was done using SPSS 17.0 version. Pearson chi-square test was applied for categorical variables.

Observation

Table-1 depicts the distribution of women with any problem of STDs/RTI and their health care seeking behavior. About 95 (17.6%) of women had problem of STDs/RTI in the studied population. Out of them, 52 (54.7%) had vaginal ulcers and 31 (32.6%) had itching over or inside the vagina. Other symptoms reported were like burning micturition 17 (17.9%), pain during intercourse 15 (15.8%), vaginal foul smelling discharge 14 (14.7%) an lower abdominal pain by on 2 (2.1%).

Majority 84 (88.4%) of the women sought treatment for their STDs/RTI problems from quacks. Very few percentages of the women got treatment from government health facility that is 6 (6.3%) and from private health facility is 5 (5.3%).

About one third, 33 (34.7%) of the women were aware about the curability of STDs/RTI. However, 35 (36.8%) were unsure about the curability.

Table-1 Distribution of women identified with STDs/RTI according to knowledge, symptoms & preferred places of treatment for the persisting ailments.

Type of problem faced	No (n=95)	%
Itching over or inside the vagina	31	32.6
Vaginal ulcers	52	54.7
Lower abdominal pain	2	2.1
Pain during intercourse	15	15.8
Burning micturition	17	17.9
Vaginal foul smelling discharge	14	14.7
Place of care seeking		
Government hospital	6	6.3
Private hospital/Doctor	5	5.3
Quacks	84	88.4
Knowledge about curability		
Yes	33	34.7
No	27	28.4
Can not say	35	36.8

Knowledge about HIV/AIDS

Table-2 shows the distribution of women according to knowledge about HIV/AIDS. About one third of the women 181 (33.5%) were aware about HIV/AIDS. Out of these, 117 (64.6%) were aware that HIV spread through heterosexuality and 83 (45.9%) were aware that HIV spreads through infected blood. However, 80 (44.2%) were aware that HIV spreads through homosexuality and 78 (43.1%) were aware that this spread through mother to child.

More than half 114 (63%) opined that this could be prevented through sex with single partner and 87 (48.1%) were in opinion that this could be prevented through use of condom. However, 58 (32%) of the respondents were aware that this could be prevented through blood screening and according to 55 (30.4%) women it was use of proper syringe. Only 52 (28.7%) of the women were aware that HIV/AIDS as a treatable condition and 64 (35.4%) were unsure of the curability of the disease.

Table 2: Distribution of women according to knowledge regarding HIV/AIDS

Knowledge		No (n=181)	%
Mode of spread of HIV/AIDS	Homosexuality	80	44.2
	Heterosexuality	117	64.6
	Infected syringe/blade	74	40.9
	Mother to child	78	43.1
	Infected blood	83	45.9
Preventive measure	Single partner	114	63.0
	Use of condom	87	48.1
	Blood monitoring	58	32.0
	Disposable syringe	55	30.4
	Counsel HIV positive women for no conception	49	9.1
Curability	Yes	52	28.7
	No	65	35.9
	Do not know	64	35.4

*Multiple responses

DISCUSSION

In India, STDs have become one of the most prevalent communicable diseases, though very little data is available regarding the pattern of the STD in India. This primarily because of lack of a comprehensive national registry system, the inefficient reporting and data collection system and the fact that the patient with STDs seek help, not from the public health facility, but form private sector, reporting of which is abysmal. The problem is compounded by the fact that women with STDs are largely asymptomatic and even if symptomatic do not seek help from the appropriate health care facility. Although, this is a very important public health problem, the prevalence of STDs is not correctly known. There have not been many efforts to estimate the prevalence of STDs in various parts of country.

In the present study, a small percentage of women 17.6% had problem of RTI/STD in the studied population. Based on the symptoms as per told by the

women, 54.7% had vaginal ulcers and 32.6% had itching over or inside the vagina. The percentage of women with other problems were low like burning micturition (17.9%), pain during intercourse (15.8%), vaginal foul smelling discharge (14.7%) and lower abdominal pain (2.1%). The studies conducted by Ray et al (2008)[5][6], Sharma et al (2004)[7] and the NFHS data Uttar Pradesh[8]. The DLHS-3 data shows that 29.5% women have heard about RTI/STD and 20.5% had one of the symptoms of RTI/STD at the time of survey.

The present study reasons shows less prevalence (17.6%). It may be due to the increase use of condoms as previously stated in the study, or it may be under reported as the women are not able to disclose this problem easily due to social coustoms.

There are various studies available which highlight the importance of routine RTI/STD screening of antenatal mothers to avoid adverse consequences to the unborn child, and periodic surveys to detect the infection pattern in of reproductive age group who are infected with, in order to control HIV infection.

In the study conducted by Ray et al, (2009)[9] also highlighted the need for the introduction and/or strengthening of facilities for simple diagnostic tests for RTIs/STDs, especially at the peripheral healthcare level.

Knowledge about HIV/AIDS

In the present study 33.5% were aware about HIV/AIDS. Out of these, 64.6% were aware that HIV spread through heterosexuality, 45.9% that HIV spreads through infected blood, 44.2% through homosexuality and 43.1% spread corresponds with the findings of Swarnlata and Sridevi, etal[10] reported 35.6% had knowledge. Whereas Sahu and Satpathy, etal. (2008)[11], reported only 10.59% had the knowledge regarding HIV/ADIS. and its spread. 21.2% of the study subjects had the knowledge on HIV/AIDS. They knew about multiple sex partners as one of the route of transmission for AIDS.

In the study present 63% opined that this could be prevented through sex with single partner and 48.1% were in opinion that this could be prevented through use of condom. However, 32% were aware that this could be prevented through blood screening and according 30.4% women it was use of proper syringe. 28.7% of the women were aware that HIV/ADIS as a treatable condition and 35.4% were unsure of the curability of the disease.

CONCLUSION

Community based intervention such as FHAC and IEC activites were successful in enhancing the awareness among underprivileged groups who are educated. Still a large section of the population remains unaware as they are illiterate, thus regular efforts must be made to achieve universal awareness and increase education in these vulnerable groups so as the diseases like HIV/AIDS these findings are also proven by the present study.

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Factors Influencing In-hospital Mortality in Acute Stroke Patients in a Tertiary Care Hospital in Kolkata, India

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ABSTRACT

Background and Objectives: Currently there is limited information on mortality after an acute stroke in hospitalised patients. The objective of this study was to identify predictors of in-hospital mortality (30 days) and set out to identify clinical, radiological and co-morbid predictors of early mortality after an acute stroke.

Method: All patients admitted to the hospital diagnosed with acute stroke confirmed by computerized tomography scan were included in the study. We studied the patients by 32 variables (clinical-12, radiological-3, complications-11 and previously handicapped-6). **Results:** A total of 440 (232 male and 208 female) patients with acute stroke were included; 262 (59%) ischaemic and 178 (41%) haemorrhagic. Median age was 60 years. Mortality at one month was 26 %. Among the 12 clinical variables age, features of raised intracranial tension, poor Glasgow coma score (GCS) were the most influential factors for the prediction of one-month mortality with size of lesion and severity of mass effect being the important radiological predictors. Complications like delayed recovery of consciousness (> 7 days), aspiration pneumonia and new onset acute myocardial infarction/congestive cardiac failure (AMI/CCF) were associated with increased risk for short-term mortality.

Conclusion: Delay in recovery of consciousness, new onset AMI/CCF and aspiration pneumonia were the most significant predictors of mortality. Knowledge of in-hospital mortality predictors is required to improve survival rate after acute stroke.

Keywords: *acute stroke, in-hospital mortality, predictors, computerized tomography scan.*

INTRODUCTION

Stroke is one of the leading causes of death in the world, annual incidence being 2 per 1000 population.[1] Due to aging populations, in those countries currently undergoing rapid economic growth, projections to 2020 suggest that stroke will remain the second leading cause of death.[2] The high death rates in stroke patients could be reduced by implementing preventive and specific therapeutic strategies for which the identification of early mortality predictors is of paramount importance.[3,4]

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This study aims to determine the predictors of in-hospital mortality after acute stroke. We tried to include all the important facets in stroke (as studied in different trials) including clinical, radiological aspects along with complications, risk factors and previous handicaps in stroke (either ischemic or hemorrhagic).

PATIENTS AND METHOD

This is a three-year, hospital-based study conducted from September 2011 to August 2014 with inclusion of all patients admitted to a tertiary care centre with a clinical diagnosis of stroke. Consecutive patients who presented within 24 hours after symptom onset were prospectively included and underwent Computed Tomography scan of brain. The local ethical committee approved the study.

Patients with symptoms that had completely resolved within 24 hrs (TIAs) were excluded as well as patients with documented subarachnoid hemorrhage/ subdural hematoma (for different therapeutic approach) and lesions like neurocysticercosis, tuberculoma, meningitis, encephalitis, or hydrocephalus. Acute stroke was defined according to the World Health Organisation (WHO) criteria[5] Diagnosis of stroke was confirmed by non-enhanced CT scan. In the present study the following 32 variables were assessed to follow the early (30 days) outcome of a stroke (ischemic or hemorrhagic) using categorisation of different variables from group 0 to group 3 (Group 0 denotes no abnormality on that variable). A standardized data sheet was used to record pre-stroke risk factors, diagnostic workup, treatment schedule, post-stroke complications. Patients were then followed up in the hospital and reassessed one month after onset of stroke. Patients were managed as per standard protocol followed at this institute.

STATISTICAL ANALYSIS

Frequency of various categorical variables, mean and standard deviation of various numerical variables were used as summary measures of data. Chi-squared Test or Fisher's Exact Test was used to test association between stroke outcome and various categorical variables. In all cases two tailed tests were used and p value <0.05 being considered statistically significant. All statistical analyses were performed with the SPSS 9.0 package and numerical interval data comparison was done using Mann-Whitney's Test. In order to predict stroke outcome from other measures we used tree classification technique[6] Classification trees are used to predict membership of cases in the classes of categorical dependent variables from other measurements on one or more predictor variables.

RESULTS

A total of 440 patients were included during the study period (range: 18 to 82 years), 232 men and 208 women giving a male: female ratio of ~ 1: 1, average age being 60±12 years. There was no significant difference in the mean age between males and females (59 ±11 years for males versus 61±13 years for females).

Two hundred and sixty two (59 %) of the stroke cases were of the ischemic subtype, while 178 (41%) cases hemorrhagic. During the study period, 26% (117 patients; 76 males and 62 females) died. Majority were

between 50-80 years of age, in both sexes. Comparison of demographic and clinical features between alive and dead patients is shown in Table 1. Poor outcome was observed in older patients and in patients with low GCS score, severely paralysis, very high intracranial tension, increased size of lesion and with severe mass effect. Comparison of complications between alive and death groups during hospital stay is shown in Table 2.

Factors significantly associated with in-hospital mortality among the study sample included: delayed recovery of consciousness, new onset CCF, AMI, aspiration pneumonia and new onset atrial fibrillation (AF). However, fever, bed sore, electrolyte imbalances were also statistically significant factors. Outcome of different previous handicaps between two groups (Table 3). Out of all handicaps history of past CVA and past AMI was most important as an adverse prognostic marker. Outcome in two groups with hemorrhage or infarct (Table 4) demonstrates if the lesion is combined cortical and subcortical, the prognosis is worse, whether it is a hemorrhage or infarct. But temporal profile shows that, in case of infarct initially conscious patients may go downhill gradually, whereas in case of hemorrhage, in initially deeply unconscious patients late outcome is good.

DISCUSSION

The burden of stroke is likely to increase substantially in the future because of the aging population. Apart from implementing effective stroke prevention programs, identification of factors associated with more severe stroke may help to ease the burden of this coming epidemic. In our study the overall in-hospital mortality was is 26% (out of which 23% occurred in 7 days, 50% occurred in 7-14 days and rest 27% occurred between 14-28 days).[7] The 28-day case fatality rate for all strokes in the Perth Community Stroke Study was 24% [8] The 30-day mortality rate in our study is in the higher range of the figures reported in the literature. In the present series, we did not observe gender differences in early mortality after ischaemic stroke.

In this study, in ischemic stroke mortality was 27% and in hemorrhagic stroke mortality was 38%. This result is relatively high compared to other studies. [9]A greater number of patients with hemorrhagic than ischaemic stroke died in context to admission stage in context to other studies. The poorer prognosis in hemorrhagic than

ischaemic stroke is probably due to the lower GCS at presentation, more rapid deterioration and the greater frequency of complete paralysis at presentation. [10]

In our study the mean age of patient was 60±12 years. Mortality steadily increases beyond the age of 60 years in our study. Death ratio between male and female was 11: 9. In the study by

Heuschmann et al[4] mortality in stroke steadily increases in men beyond 60 years but in female mortality after 60 years becomes plateau and slopes down after the age of 70 years. So far as mortality in stroke is concerned, our observation is that, early death (1week) is more prevalent in primary ICH (PICH), although it sharply comes down from second week onwards; whereas the mortality in ischemic stroke is not so high in first week but increases later on (2-4 week) ,in concordance with results in the Perth Community Stroke Study[11]. In the study of Henon et al.[12], out of 18 variables, they concluded that only the level of unconsciousness has been the most important independent predictors. Concerning three month's outcome, the severity of clinical deficit, presence of previous stroke and age > 60 years were established as independent predictors. In our study we found that in stroke patients with [12] grade III neurodeficit mortality rate is 65%. In another study [14] the risk of death with a severe focal neurodeficit is 53%. In our study we observed that raised intracranial tension (ICT) was an important predictor of mortality (p= 0.001). In grade II rise of ICT, mortality was 24% and in case of grade III rise it was 36%. Heuschmann et al. in his study[4] observed that raised ICT is an important predictor of mortality in ischemic stroke with taking highest toll. Regarding site of lesion as a predictor, our observation is that in ischemic stroke, cortical lesion has got a higher (30%) mortality rate than subcortical lesion (22%), but it was highest if it is combined cortical and subcortical (32%). In subtentorial infarct mortality was more with brain stem infarct causing higher (25%) mortality as compared to cerebellar infarct (16%). In hemorrhagic lesion, mortality was more in lobar hemorrhage (40%) than in subcortical hemorrhage (basal ganglia ± thalamus) (27%). But it was 65% when the hemorrhage is both lobar as well as subcortical. However in case of infratentorial hemorrhage it was 40%, both for brain stem and cerebellum,non-available infrastructure being important cause.

To conclude, mortality increases when the lesion is combined cortical and subcortical, whether it is ischemic or hemorrhagic. We found that in cases of lobar hemorrhage, if the size of hematoma is > 60 ml the mortality was 57% but with associated basal ganglia hemorrhage and intraventricular extension it increases to 90%. In a single centre study in Kolkata [14] the observation was 30% and 100% respectively.

Hypertension and diabetes were found to be more frequent in lacunar stroke, compared with nonlacunar stroke. [4] Our observation has similar findings. We found lower rate of in hospital death (30 days) among hypertensive women. Petty et al[11]demonstrated that lacunar stroke predicts a better outcome independent of stroke severity, which is also observed in our study.

Regarding complications, delayed recovery of consciousness (>7 days) was an independent predictor of mortality in our study (p < 0.001). Henon et al. [12] reported similar findings. In our observation, new onset AMI, CCF and atrial fibrillation were important predictors of stroke mortality (p=0.001) in context to study by Petty et al [11]in 1998. Recent onset AMI was shown to be a bad prognostic marker in few studies [10-12]as well as recent onset atrial fibrillation. [4, 12]We found in stress ulcer and aspiration pneumonia related mortality to be 49% and 82% respectively. Similar findings were observed in other studies. [4,15]Baird et al in his study has shown that imaging predictors used in combination with clinical markers were more accurate in predicting the early outcome than using either of them alone. Our observation is also in accordance with it.

To summarize, the present study reports a 26% mortality rate at 30 days after acute stroke. Among 32 variables, by decision tree technique, we arrived at a conclusion that 50% of death in acute stroke (within 30 days of hospital stay) is more due to complications like delay in recovery of consciousness or new onset CCF, AMI, AF or aspiration pneumonia. Among the remaining 50% the following factors are more significant than others like Age > 60 years, size of lesion (infarct>1 lobe/200ml. or hemorrhage >60 ml.), features of severely raised ICT (6th nerve palsy, conjugate deviation of eye), severity of neurodeficit (GCS level <7, grade III paralysis in both upper and lower limbs). Associated severe hypertension and uncontrolled diabetes were also important prognostic factors but not showed much significance like the aforesaid variables.

Early onset mortality is common in hemorrhagic stroke, whereas late mortality is prevalent amongst ischemic stroke. Our work adds to the current literature by identifying risk factors for stroke mortality among a small cohort over time period. Future studies are needed to address the impact of newer therapies, process of care and rehabilitative care on stroke mortality over varying periods of follow-up.

Table 1. Shows comparison of demographic and clinical features between the two outcome groups.

	Survivors (n=323)				Deceased within 30 days (n=117)				P value
Age	Mean age=57+-11				Mean age=68+-10				0.001
Sex	M/F ratio=15:14				M/F ratio=7:6				
Grading	Grade 0	Grade 1	Grade 2	Grade 3	Grade 0	Grade 1	Grade 2	Grade 3	0.001
ICT	137(42)	96(49%)	72(22%)	18(5%)	14(12%)	31(26%)	29(24%)	43(36%)	0.001
GCS	23(7%)	109(33%)	144(44%)	47(14%)	1(0.9%)	1(0.9%)	29(24%)	86(73%)	p<0.001
Clinical severity	33(10%)	116(35%)	139(43%)	35(10%)	0	7(6%)	32(27%)	77(65%)	P<0.001
Size	2(0.6%)	146(45%)	136(42%)	39(11%)	0	18(15%)	29(24%)	70(47%)	0.001
Mass effect	145(44)	106(32%)	63(19%)	9(2%)	14(12%)	17(14%)	40(34%)	46(39%)	0.001
H/O HTN	79(24%)	83(25%)	135(41%)	26(8%)	4(3%)	12(10%)	59(50%)	42(35%)	0.001
H/o DM	181(56)	65(20%)	68(21%)	9(2%0	31(26%)	21(17%)	41(35%)	24(20%)	0.01
Lipid abnormality	177(54)	125(32%)	40(12%)	1(0.3%)	27(23%)	47(40%)	42(35%)	1(0.3%)	0.01

Grade 0-no abnormality on that variable;ICT:intracranial tension:GCS-Glasgow Coma Score

Table 2. Showing comparison of complications between alive and death groups during hospital stay.

	Survivors(n=323)				Deceased within 30 days(n=117)				p value
Variables	Grade 0	Grade 1	Grade 2	Grade3 3	Grade 0	Grade 1	Grade 2	Grade 3	
Delayed recovery	25(7%)	152(47%)	118(36)			1(0.9%)	32(27%)	84(71%)	p<0.001
New IHD	152(47%)	159(49%)	12(3%)		11(9%)	71(60%)	35(29%)		0.001
New CCF	258(7%)	50(15%)	15(4%)		30(25%)	39(33%)	48(41%)		0,001
New arrythmia	109(61%)	116(35%)	8(2%)		20(17%)	88(75%)	9(7%)		0.01
Aspiration pneumonia	240(74%)	58(18%)	25(7%)		21(17%)	27(23%)	69(59%)		p<0.001
Dysphagia	187(57%)	136(42%)			12(10%)	103(88%)	2(1%)		0.001
Stress ulcer	288(89%)	25(7%)	10(3%)		59(50%)	25(21%)	33(28%)		0.001
Electrolyte imbalance	199(31%)	124(38%)			13(11%)	104(88%)			0.01
ARF	288(89%)	35(10%)			55(47%)	62(53%)			0.01
Bed sore	290(90%)	33(10%)			49(41%)	68(59%)			NS
Fever/UTI	275(86%)	48(14%)			65(55%)	52(45%)			NS

Grade 0-no abnormality on particular variable;IHD:ischemic heart disease;CCF:congestive cardiac failure;ARF: acute renal failure;UTI:urinary tract infection

Table 3. Shows outcome of different previous handicaps between two groups.

	Survivors(n=323)		Deceased within 30 days(n=117)	
Variables	Absent	Present	Absent	Present
H/O past CVA	238(73%)	85(26%)	38(32%)	79(67%)
H/O past AMI	272(85%)	51(15%)	65(55%)	52(49%)
H/O AF	301(93%)	22(6%)	110(94%)	7(6%)
Valvular heart disease	317(98%)	5(2%)	103(89%)	14(11%)
H/O Hgic diathesis	312(96%0	11(3%)	100(88%)	17(12%)
H/O CRF	310(95%)	17(5%)	95(80%)	22(20%)

CVA:cerebro-vascular accident;AMI:acute myocardial infarction;AF:atrial fibrillation;CRF:chronic renal failure

Table 4. Showing outcome in two groups with hemorrhage or infarct in different CNS sites.

Site of lesion		Total	Survivors	Deceased
A)Infarct		262	190(72%)	72(27%)
	a) Cortical	103	72(70%)	31(30%)
	b) Subortical	79	61(68%)	18(22%)
	c) Cortical+subcortical	52	35(58%)	17(32%)
	d) Cerebellar	6	5(84%)	1(16%)
	e) Brain stem	22	17(75%)	5(25%)
B) Hemorrhage		178	110(62%)	68(38%)
	a) Lobar	54	32(60%)	22(40%)
	B) Basal ganglia(BG)+-Thalamus	76	55(73%)	21(27%)
	c) Lobar+BG/Thalamus	20	7(35%)	13(65%)
	d) Cerebellar	8	5(6%)	3(40%)
	e) Brain stem	18	11(60%)	7(40%)

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Responding to the Ebola Virus Disease at Point of Entry: Experience from Mumbai - India

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ABSTRACT

Background: On August 8, 2014, the WHO declared the Ebola outbreak in West Africa a Public Health Emergency of International Concern (PHEICs). The Government of India took the threat of EVD seriously and heightened the surveillance and tracking mechanisms at national and state levels for early detection of cases. **Method:** International airports were put on high alert. C S I airport is the primary international airport serving the Mumbai Metropolitan Area, India. It is the busiest airport handling more than 780 aircraft movements per day and more than 30,000 passengers arrive to C S I Airport, Mumbai daily. Screening of passengers arriving to C S I airport, Coordination with stakeholders and mobilization of manpower was done. APHO Mumbai is nodal organization to coordinate the PHEIC activities at C S I Airport.

Present paper describes the experience of APHO Mumbai in implementation of EVD containment activities at airport and lessons learned. **Results:** During Ebola Activity period (August 2014 to October 2015) a total of 67, 16,475 international passengers arrived to C S I Airport. Out of these 10,304 (0.15%) passengers were of category- 1, 9 passengers were of category – 2. No passenger was from category – 3. **Conclusion:** Coordination with various stakeholders, deployment of qualified contractual workers of manpower and dealing with passengers were the major challenges faced. Risk communication at every point of time to the passengers and stakeholders were excellent.

Keywords: *EVD, PHEIC, Point of Entry, Risk communication, C S I Airport and APHO Mumbai.*

BACKGROUND

Ebola Virus Disease as PHEIC: On August 8, 2014, the WHO declared the Ebola outbreak in West Africa a Public Health Emergency of International Concern (PHEIC) under the International Health Regulations (IHR, 2005)[1]. More than 95 per cent of cases and deaths occurred in three West African countries of Guinea, Liberia and Sierra Leone[2,3]. The countries affected by the outbreak were categorized broadly into two categories:

those with widespread and intense transmission (such as Guinea, Liberia and Sierra Leone) and those that had initial case(s) or with localized or limited transmission. The latter include Mali, Nigeria, Senegal, Spain and United States. Most cases outside of West Africa were travel related[4,5]. The estimated basic reproductive number in West Africa outbreak was 1.51 (95% CI: 1.50-1.52)[6]. The virulence of a pathogen is measured by case fatality rate (CFR) which is the proportion of cases who die of the disease. CFR of around 50 per cent during the current outbreak is highest among various emerging pathogens.

The Government of India took the threat of EVD seriously and heightened the surveillance and tracking mechanisms at national and state levels for early detection of cases. International airports were put on high alert and passengers were asked about travel to affected countries, with facilities made available for

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quarantine and isolation of suspected cases. Capacity building of health care workers done by conducting training at national and state level and guidelines were issued[7].

APHO Mumbai as POE: Airport Health Organisation (APHO), Mumbai is a designated point of entry (POE) for coordination of activities and containment of PHEICs. APHO Mumbai is nodal organization to coordinate the PHEIC activities at C S I Airport, Mumbai.

CSI airport is the primary international airport serving the Mumbai Metropolitan Area, India[8]. It is the second busiest airport in the country in terms of passenger traffic and international traffic after Delhi and handles more than 780 aircraft movements per day[9]. Daily more than 30,000 passengers arrive to C S I Airport, Mumbai[10].

METHOD

As per the advisory issued by Ministry of Health and Family Welfare, Government of India[11,12] following

steps was taken at APHO Mumbai,

• Screening and Categorization of incoming passengers from Ebola affected countries

• Coordination of activities between Airport Authorities, Terminal Manager, Bureau of Immigration, Airline operators, CISF and customs

• Coordination between local, state and central government.

Screening and Categorization of incoming passengers from Ebola affected countries:

All passengers arriving from Ebola affected countries to C S I Airport were screened for Ebola Virus Disease by using a screening tool and temperature monitoring by using a thermal scanner. Screening of passengers was done in pre-immigration area. Categorization of passengers and action taken was as per the guideline [11-13] in table no. 1.

Table 1: Categorization of passengers and action taken

Category	Description	Action
Category - 1 (Low Risk)	All travellers who have visited/stayed/ transited through any of the EVD affected countries during past 21 days of arrival in India	Given a copy of advisory for self monitoring and referred for Immigration clearance
Category - 2 (Medium Risk)	Those passengers who is having a history of contact with a case of EVD	Passengers kept under surveillance through IDSP network "for any symptoms of EVD" for next 30 days
Category - 3 (High Risk)	All travellers who have symptoms (fever, muscle pain, headache, sore throat, vomiting, diarrhea, body rash) of EVD	Isolated for sample collection and further management

Intersectoral Coordination at POEs: Airport Health Officer being a nodal officer a meeting was conducted with all stake holders working at C S I airports. Stake holders oriented were representatives of Airline operators, officers of terminal manger and GVK, Officers of Bureau of Immigration, officer of BCAS, C I S F and custom. Health alerts were displayed strategic locations in departure as well as arrival areas.

Roles and responsibilities of all stakeholders were discussed and assigned as per the PHECP[14,15].

Meeting was conducted with Director of Health Services and state surveillance officer of Maharashtra, district surveillance officer of Mumbai and medical

superintendent of Hindu Hrudya Samrat Balasaheb Thackeray Trauma Care Centre (HHSBTTCS). HHSBTTCS was designated tertiary care hospital for isolation and management of suspected cases of EVD. State government deployed ambulances for transfer of suspected passengers. There were 6 ambulances (4 of GVK and 2 of state government) kept ready around the clock.

RESULTS

Reporting and communication: As per the guideline daily reporting of number of passengers screened was done to International Health Division of MOH&FW as well as to other stakeholders[11,12]. From

August to September 2014 daily reporting of passengers coming from four affected countries (Guinea, Sierra, Lione, Liberia and Nigeria). Lines listing of passengers were done.

As many African passengers were coming via Middle East, it was decided to screen the passengers coming from these airports also. From 5th October 2014 onwards the number of flight screened were increased to 42 -45 per day and number of passenger screened were around 3500-4500 per day. As the EVD cases started declining in the affected countries, so from 1.4.2015 to 31.10.2015 number of countries to screen were reduced to four and number of flights were four per day and number of passenger screened were 450 per day. The mode of reporting was changed from daily to weekly basis.

During Ebola Activity period (August 2014 to October 2015) a total of 67,16,475 international passengers arrived to C S I Airport. Out of these 10,304 (0.15%) passengers were of category- 1(visited / stayed or transited through any of the Ebola affected countries), 9 passengers were of category – 2 (had history of contact with suspected or confirmed case of EVD). No passenger was from category – 3.

Manpower Mobilization:

Central Government Health Service (CGHS) doctors were deployed to APHO for screening of passengers at C S I Airport. Along with existing regular staff of APHO adequate number of Health Inspectors and nurses were hired. Regular, deployed and hired staffs were working in 3 shifts. Details of manpower involved in PHEIC management are given in table no. 2.

Immigration clearance was given to passengers who were cleared by health team. The outcome of this 'Entry screening programme' was zero cases in Mumbai.

Table 2: Manpower Involved in screening of passengers at C S I Airport

Category of workers	APHO Mumbai staff	Deputed from CGHS or Outsourced from agency
Doctors	3	8
Health Inspectors	5	3
Nurses	0	9
Field Workers	18	0

Lesson learned: Coordination with various stakeholders, deployment of qualified contractual workers of manpower and dealing with passengers were the major challenges faced. Intersectoral co-ordination and co-ordination with other organisations and State Government was made excellent as every minute detail was used to be discussed in 'Airport Facilitation Committee' meeting and solutions to the problem were deliberated jointly. Risk communication at every point of time to the passengers and stakeholders were excellent. It is recommended and will be of useful to give orientation training for CGHS doctors on PHEICs. Manpower recruitment agency should be identified beforehand.

Conflict of Interest: Nil

Source of Funding: Nil

Ethical Clearance: Study was conducted during public health emergency. Permission was taken from appropriate authorities.

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Legal Regime of Bio Medical Waste and Environmental Protection

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ABSTRACT

This article is an attempt made by the author to reflect the concept of bio medical waste and its impact on environment. Soothing watch over our life and wellbeing, however the waste produced from therapeutic exercises speaks to a genuine issue of living nature and human world. Dishonorable administration of waste created in medicinal services facilities causes an immediate welfare on the atmosphere. Day by day, moderately expansive measure of possibly irresistible and dangerous waste are produced in the human services clinics and health care facilities around the world. The present article manages the essential issues as definition, classes, issues identifying with biomedical waste and strategy of taking care of and disposal technique for Biomedical Waste Management.

Keywords: *bio medical waste, environment, health care, public health, waste management*

INTRODUCTION

The Environment has always been a topic of alarm since very long period of time, but legal regimes of the times required saving the environment from hazard wherever it is necessary. In early days there was no specific legal command to control Bio-Medical Wastes. Since the advent of technological growth had not took us to the level of dispose what we are using it now. Many problems linked with Bio-Medical Waste and its Management have risen time and again and scientists are working on it for the safe disposal and managements.

The rapport between the environment and human beings is varying from time to time and place to place. This assertion is justifiable as far as India and for its protection of environment guiding principle is concerned. According to Prof. Upendra Baxi, the Protection of environment in India started only after in the year 1972 which is after the Stockholm Conference and that the Constitution of India was environmentally blind prior to 1976[1].

The Ancient history having the close and proximate relationship with the environment. The environmentalist and humanist Gautam Buddha achieved enlightenment by sitting down under a Bodhi tree. Non Violence and simplicity are the essential doctrine of Buddhism. The values of simplicity educate us that man should not desecrate the natural resources. Buddhism teaches the rules of esteem for environment. It is believed that, there is inseparable tie up with human, trees and forests. Food and Shelter can only be extracted from the tree.

Apart from Buddhism, Jainism also denounces give up of animals to the sacred fire. It condemns detention, beating, overfilling, and depriving of animals from adequate food and drink. Jainism also makes the synchronization with the environment and helps in shielding and preserving the nature from hazard. According to Lord Mahavira Swami, that one who ignores or dismisses the presence of earth, air, fire, water and vegetation, neglects one's own particular presence.

During the historical period also the Arthasastra provided punishments against the citizens for violating the norms of hygine as under[2];

1) For depositing dirt on the street, there shall be fine of one eighth of a pana (Mauryan Dynasty introduced silver punch marked coins, amongst which was a pana) and for obstrcuting with mud or water the fine shall be one quarter of a pana. (2.36.26)

2) For depositing dirt, if on the royal highway street, the fine shall be double. (2.36.27)

3)   Urinating in a holy place, the fine shall be one half of a pana, as a latrine, one pana; for using a water reservoir as an urinal, the fine shall be one pana, as a latrine, two panas; urinating in a temple, the fine shall be one and one half of a pana, as a latrine, three pana and for using a royal building as an urinal, the fine shall be two pana, as a latrine four panas. (2.36.28)

4)   For tossing dead bodies of various animals like cow, dog , cat etc inside the city, the fine shall be three panas, and for other animals like donkey, camel, mule, horse or a cattle, the fine imposed shall be six panas and for human dead bodies the fine shall be 50 panas. (2.36.30)

It was made an offence because it certainly degrades the environments and ecology of the society.

British Legislations during Pre Independence India

The British and their ruling in India witnessed a number of devastation of natural resources. They were unsympathetic to the requirements of forest preservation. The British set their footprint in the year 1600, for trading goods from India by establishing East India Company.

However the British government enacted various kinds legislations to regulate pollution with the environment in India with water, air and wild life. Amongst them, the Shore Nuisance (Bombay & Kolaba) Act, 1853(Act No. 11 of 1853) which was one of the very old laws concerning water pollution. The Oriental Gas Company Act, 1857(Act 5 of 1857) was enacted to regulate the pollution produced by Oriental Gas Company. The next enactment was The Indian Penal Code, 1860 (Act No. 45 of 1860). There shall be punishment to the polluter of the environment , "if any act which causes any common injury, danger or annoyance to the public or to the people in general then the act may be treated as public nuisance" as described under Sec. 268 of Indian Penal Code, 1860 and the offender shall be punishable under Secs. 290 or 291 of the Indian Penal Code. Likewise "if a person who unlawfully or negligently does any work which is or which he knows or has reason to believe to be likely to spread infection of any disease dangerous to life, may be punished under Sec. 269 of Indian Penal Code. Apart from that, there are also other penal provisions under a situation which either causes or destroys or diminishes the value or utility or any property injurious as provided under different Sections like 426, 430, 431 and 432 of Indian Penal Code, 1860. This implies that any person who generates, collects, receives, stores, transports, treats, disposes or handles Bio-Medical Waste in any form shall be considered as the contravener of the above penal provisions[3]. Moreover, this Penal Code also prescribes punishments in other kinds of pollution which do not have a deterrent effect in the present society. In addition, The Police Act, 1861(Act 05 of 1861) also prevents and controls the animals slaughter, cleaning of carcass, depositing dirt into streets and also prescribes punishments for the offenders in the nature of fines.

The Indian Easement Act, 1882 protected the riparian owner against unreasonable pollution by upstream user. The Indian Fisheries Act, 1897 also provides punishments for offender who the kills the fish by poisoning the water. The very old enactments during the British period that is to control air pollution were the Bengal Smoke Nuisance Act, 1905 and Bombay Smoke Nuisance Act, 1912.

Post Independence Scenario

After India became independent from the British rule, there were no specific environmental regulations. When the Constitution of India came into force in the year 1950 and the judiciary constructed the concept of Fundamental Rights that had a impact on environmental protection which is guaranteed under Article 21 of the Constitution. After then, the Government of India enacted legislation to protect the environment as per the needs of the society.

The Factories Act, 1948(Act No. 63 of 1948) also provides, the successful courses of action for disposal of waste and engaged the State to make guidelines to execute these mandates. Under the River Boards Act, 1956(Act No. 49 of 1956) for the direction and advancement of Inter-State Rivers and waterway valleys, the state was engaged to secure water contamination.

Constitutional Mandates for Protection of Environment

The Constitution of India mandates, a few major rights which are presented through Part III among which Art. 21 guarantees people the privilege to life. The extension and access of ecological justice discovers its place in the right to life and a dissident legal was entirely

instrumental for growing the skyline of the soul of Art. 21.

Article 47 of the Constitution of India under DPSP, it sets out that public health improvement is one of the essential obligations of the State. Thus Article 48A visualizes that, the State should attempt to ensure and improve the environment and under Article 51A (g) made it a crucial obligation on each national of India to secure and improve the condition of environment.

In Subhash Kumar v. State of Bihar[4], a Public Interest Litigation (PIL) was documented in the Supreme Court looking for heading to the Director of Collieries to prevent the release of slurry from its washeries into the river Bokaro. It was asserted that, the slurry which gets saved on the agrarian land influences its fruitfulness. Additionally, the gushing as slurry dirties the waterway, making it unfit for drinking and water system. One of the principle issues of the case was, regardless of whether the privilege to life incorporated the privilege to wholesome environment. Justice Singh, opined that, right to life is a fundamental right under Art. 21 of the Constitution and it incorporate the privilege of enjoyment regarding contamination free water and air for full enjoyment of life.

In Kinkri Devi v. State of Himachal Pradesh[5], a writ was documented under Art. 226, 51A (g) and 48A in the Himachal Pradesh High Court, keeping in mind the end goal to secure and protect the Shivalik Hills. As a result a rent for the exhuming of limestone required to be scratched off. The Court watched the significance of issues identifying with environment and natural adjust.

In K.C. Malhotra v. State of Madhya Pradesh[6], a PIL was filed by a specialist with connection to the spread of pandemic cholera (which brought about death of 12 youngsters) because of open deplete, smudged water, stores of soil, defiled water and refuse. This state was landed at plainly by the carelessness of different State bodies/specialists. The Court held that Right to life likewise incorporated the exposed necessaries of life, for example, ideal to sufficient sustenance, apparel, shield, facilities of reading and writing. Appropriate to life implied something more than simply physical survival. The people of that state have a directly under Art. 21 to guarantee that the Government makes strides for the change of general wellbeing as the same is among its essential obligations. The Court at last issued a direction

to maintain the health condition and keep up the strength of the tenants of the region.

Bio Medical Waste and its Laws

The term Bio medical waste has been defined under the Biomedical Waste (Management and Handling) Rules 1998 which was enacted by the parliament of India, which envisages as "any solid, fluid or liquid waste including container and any intermediate product, which is generated during diagnosis, treatment or immunization of human beings or animals or in research activities or in the production or testing of biological products." The waste from the hospitals includes different kinds of infectious, chemical, heavy metals regular municipal wastes, and various other things that are unhygienic products. Bio Medical wastes also includes needles, scalpel blades ,pathological wastes like anatomical human organ, microbiology cultures and sample of blood, infectious wastes like items contaminated with human body fluids and discharges such as dressing, catheters and intravenous lines etc.

Bio medical waste from the hospitals is possibly perilous, since it might have pathogenic specialists. A portion of the pathogenic organisms forms are unsafe, as they might be impervious to treatment and have high pathogenicity. Insufficient waste administration will bring about natural contamination, unpalatable notice, development and increase of bugs, rodents and worms and may prompt to the transmission of illnesses like typhoid, cholera, hepatitis and AIDS through wounds from syringes and needles polluted with human blood.[7]

The Ministry of Environment, Forest and Climate Change, Government of India notified new Biomedical Waste Management Rules 2016 on 28th March 2016 which can be used to oversee bio medical waste and have a major effect to the clean India mission. The new guidelines are a change over the draft 2011 guidelines. Health Care facilities must isolate bio medical waste and differentiate in colored bags / dustbin—yellow, red, blue/white and dark as per the classification of the bio medical waste. These wastes can be store up to 48 hours after which to dispose it safe or a specialist from a common bio medical waste treatment facility (CBMWF) comes to gather wastes. The CMBWF then handle the waste as indicated by the colour of the bag. The different colours call for various sorts of disposal—cremation, profound entombment, autoclaving, destroying,

concoction treatment, transfer in a landfill, and so on.

The Health Care Facilities is presently in charge of pre treatment of research facility and micro biological squander, blood tests and blood sacks through sanitization/cleansing nearby in the way endorsed by the World Health Organization (WHO) or National Aids Control Organization (NACO), paying little mind to whether last treatment and transfer occurs nearby or at a typical biomedical waste treatment facilities. Utilization of chlorinated bags made up in plastic, gloves and blood packs is to be eliminated by the Health Care Facilities within two years to kill outflow of dioxins and furans from blazing of such squanders.

According to the report of the Government of India, the aggregate biomedical waste produced in the India is 484 tons per day from 1,68,869 Health Care Facilities. Of this, lone 447 tons per day is dealt with before disposal. The issues with informal disposal are multi-crease: 85 % of the healing centre waste is non hazardous, 15 % is irresistible /risky. Blending of risky outcomes into sullying and makes the whole waste dangerous. Thus, there is need to isolate and treat. Improper disposal builds danger of contamination; supports reusing of precluded disposables and arranged medications; and creates safe microorganisms.

CONCLUSION

No Doubt the legislators have made the stringent rules for the safe management of Bio Medical waste for the Health care Facilities, but it should be strictly monitored by the different state bodies so as to check the environment from bio hazard. On the same way medicinal squanders ought to be grouped by their source, typology and hazard variables related with their taking care of, capacity and extreme disposal. The isolation of waste at source is the key stride and decrease, reuse and reusing ought to be considered in legitimate points of view. We have to consider inventive and radical measures to tidy up the troubling picture of absence of

municipal worry with respect to healing facilities and slackness in government usage of absolute minimum of guidelines, as waste era especially biomedical waste forces expanding immediate and aberrant expenses on society. The test before us, in this manner, is to logically oversee developing amounts of biomedical waste that go past practices. On the off chance that we need to secure our surroundings and wellbeing of group we should sharpen our selves to this essential issue in light of a legitimate concern for wellbeing administrators as well as in light of a legitimate concern for group.

Ethical Clearance: Not required, as the research article is based on medico legal aspects and doctrinally undertaken.

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Assessment of Immunization Status in Children of 12- 23 Months in Rural Field Practice Area of KIMS, Narketpally

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ABSTRACT

Background: Childhood immunization has been an outstanding public health success in many developing countries. The aim of an immunization programme is to prevent and control vaccine preventable diseases in the community. Objective: To assess the immunization status of children of 12-23 months. Material and methods: A cross sectional study was conducted in the rural field practice area of Kamineni Institute of Medical sciences, Nalgonda district, Telangana. Study was conducted between October 2012- April 2013. A total of 96 children were surveyed. Data was collected by predesigned, pretested questionnaire. Results: Out of the 96 children surveyed 60 were males and 36 were females. 64.6% of the children were fully immunized, 32% were partially immunized and only 3.4 % were not immunized at all. Immunization coverage was found to be more among literate mothers(82%). Conclusion: In the ourstudy the immunization coverage was low, it is much less than 85% immunization coverage which India wanted to achieve.Efforts should be made to educate the mothers and care taker of children about the importance of immunization.The district health authority should monitor the outreach immunization activities by frequent field visits. They should plan aooropriate IEC activities.

Keywords: Immunization status, Fully immunized, Partially immunized, Unimmunized

INTRODUCTION

Childhood immunization has been an outstanding public health success in many developing countries and for the last three decades the programmeon immunization has been promoted as one of the most important key elements of child health intervention in developing countries.[1]

Immunization is highly cost effective and relatively inexpensive health intervention. Of the 10 million children who died during 2004, over 25 million children(25%) died from vaccine preventablediseases that means most of these deaths could have been prevented by immunization.[2]

The aim of an immunization programme is to prevent and control vaccine preventable diseases in the community. The World Health organization launched the Global Programme of Immunization in 1974. India was one of the first countries to adopt the World Health Organization's Expanded Programme of Immunization (EPI). The program was initiated in India in 1978. Since its inception, considerable progress has been made in terms of reduction in disease burden.[3]The main focus of the program is on tackling six major childhood diseases namely measles, tuberculosis, pertussis, diphtheria, tetanus and poliomyelitis. The programme aims at ensuring universal immunization of children against all the above mentioned diseases. The Government of India launched Universal Immunization Program on 19th November, 1985, with the main objective of covering at least eighty five percent of all infants against the six preventable diseases by 1990.[4] Hepatitis B vaccine was added to the programme later in 2002 as a pilot programme and later extended to all the districts in 10 states including Andhra Pradesh.

Despite these achievements and tremendous advances in economic and technological spheres in recent years, the burden of vaccine-preventable diseases remains unacceptably high, in comparison to developed countries and also many developing countries .

As per the National Family Health Survey III (2005- 06) only 43.5 percent of eligible children were fullyvaccinated and five percent have not received anyvaccination at the national level. National Family Health survey (NFHS-3) 2005-06 of India, also mentioned Children who received BCG, measles, and three doses each of DPT and polio (excluding Polio 0) are considered to be fully immunized.[5]

As per District Level Household and Facility Survey- 4 (2012-2013) Telangana, in rural area of Telangana only 48.8% of the children aged 12- 23 months had received full vaccination. [6]Owing to such low immunization coverage a study was done in rural field practice area of KIMS, Narketpally, Telangana.

Objectives: To assess the immunization status of children of 12-23 months.

MATERIAL AND METHOD

A cross sectional study was conducted in the rural field practice area of Kamineni Institute of Medical sciences, Nalgonda district, Telangana. Study was conducted between October 2012- April 2013. All the Children who were brought to the Rural Health training centre, Cherlapallyfor immunization have been taken . 96 children had visited the Rural Health Training centre during the study period. Data was collected by using predesigned, pretested questionnaire by asking informants and by checking their immunization card. Mother's of children were informants.

Fullyimmunized: Children who received BCG, measles, and three doses each of DPT and polio (excluding Polio 0) along with Hepatitis B are fully immunized.

Partiallyimmunized: Children who have received BCG, Measles but not taken all 3 doses of DPT and OPV.

Not immunized: children who have not been immunized at all.

Data thus collected was entered in M.S Excel and was analysed using SPSS version 19.

RESULTS

A total of 96 children were assessed for their immunization status. Of the 96 children 60 were males and 36 were females. 64.6 % of the children were fully immunized whereas only 3.4% of the children were not immunized at all.

Table 1: **Gender wise distribution of the study population**

Gender	Number	Percentage
Male	60	62.5%
Female	36	37.5%
Total	**96**	**100**

Table 2: Distribution According to Immunization status

Immunization status	Number	Percentage
Fully immunized	62	64.6%
Partially immunized	31	32%
Not immunized	3	3.4%
Total	**96**	**100**

Table 3: Association of various factors with immunization status

Variables	Immunization status		Total	P value
	Fully immunized	**Partially immunized**		
Mother's literacy status				
Literate	51	9	60	0.00004***
Illiterate	11	22	33	
Mother's occupation				
Home maker	45	11	56	0.0005***
Working	17	20	37	
Type of family				
Nuclear	40	15	55	0.13
Joint	22	16	38	
Religion				
Hindu	55	25	80	0.29
Muslim	7	6	13	

*** p value is highly significant

Immunization coverage was found to be more among children of literate mother's. In case of literate mothers about 51(82%)children were fully immunized and only 9 children were partially immunized. This difference was found to be statistically significant. There were only 3 children who were unimmunized and the 3 children's mother was illiterate.

Immunization coverage is found to be more in children of home makerscompared to children whose mother's were working.45 (80%) children whose mother's were home maker's were fully immunized whereas only 17 (45%)children were fully immunized whose mother's were working.   This difference was found to be statistically significant.

Around 72% of the children living in nuclear family were fully immunized compared to 57% children living in joint family. However this difference was not statistically significant.

Immunization coverage was found better among Hindus than Muslims. However, this difference was not statistically significant.

DISCUSSION

In the present study 64.6% of the children were fully immunized, 32% were partially immunized and only 3.4% of the study population was not immunized. Our study findings were comparable to a study done by RajaatVohra et. Al who observed that 62.7% were fully immunized, 24.4% were partially immunized .[7]

Similar findings were noted by Padam Singh et.al in their study which they had done in different states of India where 63.3% of children were fully immunized and 27.1% were partially immunized. [8]

Another study done by Dr.PhanindraDulipala et.al showed that 60.6% were fully immunized, 38% were partially immunized and 1.4% were not immunized.[9]

In contrary to our study Dr. M. Sreedhar et.al.noted in their study that only 38.5% were fully immunized, 60.47% were partially immunized and only 0.96% were unimmunized. [10]

In another study done by Joshi H S et. al. in Bareilly district 44.1% were fully immunized, 26.7% were partially immunized and 29.2% were not immunized at all. [11]

Ina study done by MallapaOdomani et.al.inShimoga district, it was observed that about 90.15% children were fully immunized, 9.85% children were partially immunized and he found no children who were unimmunized in his study. [12]

A study done by Mahyavanshi D K et.al. noted that 70% of the children were fully immunized.[13]

Immunization status assessment by Sheth J K et.al[14], Kadri A. M et.al.[15] and Vikram A el.al.[16] all have observed similar results and noted that more than 60% of the children were fully immunized.

In our study Immunization coverage was found to be more among children of literate mother's.

Similar finding was noted by Vilas R. Malkar et.al. in their study.[17]

Similarsignificant association with maternal education was also reported by studies done by NFHS-I, II, III[18,19,5]IRMS[8], and UNICEF.[20]

In our study Immunization coverage is found to be more in children of home makers compared to children whose mother's were working. In opposition to our study , Vilas R. Malkar et.al[17] found that Children of working women were more likely to be fully immunized than those of nonworking women (housewife).

CONCLUSION

In the present study the immunization coverage was low. In our study the children who were fully immunized were only 64.6% , partially immunized were 32% and children who were unimmunized were 3.4%. the immunization coverage is much less than 85% immunization coverage which India wanted to achieve.

Efforts should be made to educate the mothers and care taker of children about the importance of immunization to prevent the various vaccine preventable diseases and hence to reduce the childhood morbidity and mortality.

The district health authority should monitor the outreach immunization activities by frequent field visits and also ensure accountability of staff at various levels for services they provide by effective supervision and monitoring system. They should plan extensive IEC activities generating awareness among the community about the importance of immunization, inviting opinions and suggestions from them and enhancing community participation.

Owing to the low immunization coverage in various parts of India Mission Indradhanush was launched by Ministry of health and family welfare Government of India on 25th December, 2014 with the aim to immunize all children against 7 vaccine preventable diseases.

Conflicts of Interest: None

Source of Funding: Self

Ethical Clearance: Taken from Ethical committee of Kamineni Institute Of Medical Sciences, Narketpally, Nalgonda district.

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A Structural Equation Modeling (SEM) Approach for Mobile Banking Adoption - A Strategy for Achieving Financial Inclusion

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ABSTRACT

Mobile Banking is one of the banking technologies that play an important role in financial strengthening especially in rural areas. Mobile Banking services is said to be a simple payment system designed for the customers for making banking transaction in transparent manner. This Paper has done an investigation on factors that determines the usage of Mobile Banking Services among the rural customers and has identified the significant relationship between the factors and intentional behavioral of rural customers towards mobile banking usage. This study has adopted Technology Acceptance Model (TAM) for constructing the theoretical framework. The findings from the study has displayed that attitude, Perceived Usefulness, Perceived Ease of Use, Trust and Perceived risk are the estimated variables for intentional behavior of rural customers towards accessing mobile banking services. The entire hypothesis between the constructs was supported through structural equation modeling.

Keywords: Rural Customers, Mobile Banking, Financial Inclusion, Banking Technologies, Technological Acceptance Model.

INTRODUCTION

Delivery of financial services to the rural people residing in unreached segments of the society at a very less affordable cost is termed as financial inclusion[1]. Accessing banking services by the poor people pays a very important role in stimulating a development for making a bank related financial transaction in an easier way. According Reserve Bank of India (RBI) 2015, the penetration of mobile phones has been increased to nearly 80% in India. Therefore it has been stated that banking services could be easily delivered even to the rural people at a very low cost through mobile banking technologies. And moreover through biometric identification security transactions could be done[2]. World Bank in 2014 has stated that financial needs of the people could be easily satisfied and achieved by the poor people mobile payment system in cost effective

manner[3]. Therefore this study has done an investigation among the rural customers in the district of Thoothukudi towards the intention for accessing mobile banking services by adopting Technological Acceptance Model.

OBJECTIVES

1. To examine the factors that determines the adoption of rural customers to use Mobile Banking Services.

2. To evaluate the association between the variables in the model using structural equation Modeling.

2.1. Factors Determining Adoption of Mobile Banking Services

2.1.1. Perceived Usefulness:

Perceived Usefulness is defined as the assumptions of the person that his or her work performance will be intensified by using a particular system[4]. The study has done an investigation on the effects of perceived usefulness towards the mediation effect of attitude of

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customers for adopting Internet Banking services. The primary data for the study has been collected from 227 customers in Bangladesh. The findings of the study has highlighted that perceived Usefulness and attitude are positively correlated towards Internet Banking Usage among customers[5]. A Study has identified the factors that have a greater influence on bank customer's adoption towards Internet banking services in Rwanda, Kenya, Tanzania and Uganda. The study has involved nearly 137 respondents. The finding of the study has highlighted that Perceived Usefulness has positively influences the usage of Internet Banking services[6].

2.1.2. Perceived Ease of Use:

Perceived Ease of Use refers that the person or an individual believes that utilizing a specific system will be free of endeavors. Later it has been proclaimed that Perceived Ease of Use determines the degree to which the particular system will not difficult to learn, understand or to work[7]. A study has investigated the impact of perceived ease of use towards internet Banking Adoption through structural equation modeling. Perceived Ease of Use has a significant relationship on intention towards usage of Internet Banking Services among the customers in Tunisia[8]. A study has examined the factors that have a greater influence on Mobile Banking Services among Indian Customers. The study has came out with the findings that Perceived Ease of Use is one among the factors that has the positive impact towards the intention of Indian Customers for adopting Mobile banking services.[9]

2.1.3. Trust

Trust is referred to as the faith or presumption about other trusted group, an intentional behavior of a person or a readiness to relay on another group together with a perception of risk once if the trust is infringed[10]. A study has done an investigation on Adoption of Mobile Banking Services in Isfahanian. The primary data for the study has been gathered by circulating the questionnaire to nearly 310 respondents. The study has concluded with the findings by stating trust is said to be an influential factor which has a positive effect towards the behavioral attitude of customers for adopting mobile banking services[11]. The Researchers has done a study on user adoption on mobile banking services constructed on risk and trust perception. The study has done an adoption model with special reference to mobile banking services.

The study has founded that there is a negative correlation between trust and mobile baking services adoption among the bank customers[12].

2.1.4. Perceived Risk

Perceived risk is defined as customer's perception of unpredictability and potential unfavorable outcomes of acquiring a product or services[13]. A study has done an examination on perceived risk and usability of a system on adopting mobile banking services. The study has developed a conceptual configuration to understand the service quality of mobile banking services. The study has dissolved that perceived risk is an important factor for improving the service quality of the mobile banking services[14]. Another study has made an analysis about the effect of perceived risk on online banking services. The result of the study has highlighted that perceived risk has a direct effect on internet banking services[15].

2.1.5. Theoretical Framework for the study

Figure [1] illustrates the structural equation modeling framework that determines the factors exploring the usage of Mobile Banking Services among the rural customers.

Figure [1]: The Proposed Model

2.1.6. Attitude

Attitude is defined as the negative and positive feelings of an individual about executing a selected behavior[16]. A Study has explored the factors that have influencing the adoption of Internet banking usage in Malaysia. The authors have investigated the attitude of customers and their intention towards accessing Internet banking services by the bank customers in Malaysia. The study has analyzed that perceived enjoyment is considered as an important factor that has a positive relationship towards the usage of Internet banking[17]. The paper has investigated the attitude of retail banking

customers in South Africa towards the usage of Internet banking services. The result of the study has revealed that there is a positive relationship between the factors involving the usage of internet banking services and the attitude of consumers[18].

2.1.7. Behavioral Intention towards Usage of Mobile Banking Services

According to the theory of planned behavioral intention is described as the forecaster of future behavior for a person or an individual towards the usage of a particular system[19]. The study has analyzed the factors that are affecting the usage of mobile banking services. The study has adopted two different theories for constructing a model such as theory of planned behavior and technological acceptance model. Nearly 165 questionnaires have been circulated to the randomly selected customers of Meli Bank. The researches have highlighted their findings in their study by stating that behavioral intention is positively affecting the usage of mobile banking services among the people[20].

RESEARCH METHOD

3.1. Sampling Techniques

Rural customer's perception towards mobile baking adoption has been studied using a structured questionnaire and the questions were taken from the literature review of various articles. The study consists of five dependent variable constructs namely Perceived Usefulness, Perceived Ease of Use, Trust, Risk and Attitude. There are totally 30 items were used in the study. The sample constitute of bank customers from rural areas of Thoothukudi District. The research study is descriptive in nature. The study has adopted simple random sampling techniques.

3.2. Data Collection

The Primary Data for this study has been collected from 300 bank customers in the rural areas of Thoothukudi District. The demographic summary of the respondents is shown in Table [1] .The questionnaire was circulated among the rural bank customers by randomly selecting a group of respondents. For analyzing the data Statistical Package of Social Sciences has been used.

Table [1]: Demographic Profile of the Respondents

Demographic Variables	Frequency	Percentage
Age Group		
18-25	24	8.0
26-30	52	17.3
31-35	91	30.3
40 Above	133	44.3
Gender		
Male	131	43.7
Female	169	56.3
Level of Education		
Illiterate	187	62.3
Secondary	96	32.0
Degree	17	5.7
Occupation		
Farmer	73	24.3
Job	27	9.0
Own Business	34	11.3
Land Labor	128	42.7
Others	38	12.7
Annual Income		
<25K	16	5.3
25K-50K	124	41.3
>50K	160	53.3

3.3.2. Data Analysis & Results

Hypothesis:

The relationship between the constructs has been shown in Table [2]

H1: Perceived Usefulness is positively associated with attitude – Accepted

H2: Perceived Ease of Use is positively associated with attitude – Accepted

H3: Trust is positively associated with Attitude – Accepted

H4: Risk is positively associated with Attitude – Accepted

H5: Attitude is positively associated with Behavioral Intention – Accepted

Table[2] shows that the Critical Ratio as high as 15.456 in absolute value lesser than 0.001 and also the shows that all the items were associated with the indicator of the constructs. The associations were also with only one construct.

Table [2]: Regression Weights

Dependent Variable		Independent Variable	Estimate	S.E.	C.R.	P
Attitude	<---	Perceived_Usefulness	0.238	0.043	5.532	***
Attitude	<---	PerceivedEaseofUse	0.190	0.071	2.654	***
Attitude	<---	Trust	0.434	0.061	7.065	***
Attitude	<---	Risk	0.266	0.055	4.870	***
Behavioral_Intention	<---	Attitude	0.558	0.036	15.456	***

For analyzing the collected primary data and to confirm the model fit Structural Equation Modeling (SEM) was used. Reliability test has been done to analyze the validity of the questionnaire and Cronbach's Alpha values are studied. The reliability value is 0.852.

Model Fit Assessment

Structural Equation Modeling (SEM) was used to analyze the collected primary data. Structural Equation Modeling (SEM) describes the casual relationship between the variables and confirms the fitness of the evaluated model. Importance has been given to the value of Chi-Square (CMIN/DF), Probability Value (P-Value), Comparative Fit index (CFI), Adjusted Goodness of Fit Index (AGFI), Goodness of Fit Index (GFI), Root mean square error of approximation (RMSEA) and RMR. From Table 3 it has been found that the P Value of Chi Square is 5.364 which are more than 0.05 and indicates the model fit. The Value of CFI, GFI, AGFI, NFI, IFI and TLI for this study is greater than 0.90 that represents the goodness of fit. And the value of RMR and RMSEA is lesser than 0.08 that designate the model fit.

Table 3: Model Fit Summary for Structural Equation Modeling

Fit Indices	Results	Suggested values
Chi-square	5.364	P-value >0.05
Chi-square/degree of freedom (x2/d.f.)	2.682	≤ 5.00 (Hair et al., 1998)
Comparative Fit index (CFI)	0.998	>0.90 (Hu and Bentler, 1999)
Goodness of Fit Index (GFI)	0.994	>0.90 (Hair et al. 2006)
Adjusted Goodness of Fit Index (AGFI)	0.938	> 0.90 (Daire et al., 2008)
Normated Fit Index (NFI)	0.996	≥ 0.90 (Hu and Bentler, 1999)
Incremental Fit Index (IFI)	0.998	Approaches 1
Tucker Lewis Index (TLI)	0.982	≥ 0.90 (Hair et al., 1998)
RMR	0.03	<0.08
Root mean square error of approximation (RMSEA)	0.075	< 0.08 (Hair et al., 2006)

The construct reliability and discriminant validity for each constructs were calculated through Cronbach's Alpha, by which construct reliability and average variance value has been extracted. Table [4] shows the construct reliability and Average variance for each construct. The factor loadings for each and every construct should be greater than or equal to 0.5, Composite Reliability should be greater than or equal to 0.7 and Average Variance Extracted (AVE) should be greater than or equal to 0.5[21].

Table 4: Factor Loading, Composite Reliability and AVE Values

Variable Name	Item	Factor Loading	AVE	CV
Perceived Usefulness	PU1	0.835	0.702	0.921
	PU2	0.836		
	PU3	0.843		
	PU4	0.839		
	PU5	0.838		
Perceived Ease of Use	PEOU1	0.854	0.713	0.868
	PEOU2	0.842		
	PEOU3	0.841		
	PEOU4	0.84		
	PEOU5	0.845		
Trust	T1	0.845	0.714	0.874
	T2	0.839		
	T3	0.844		
	T4	0.851		
	T5	0.848		
Perceived Risk	PR1	0.861	0.757	0.868
	PR2	0.862		
	PR3	0.872		
	PR4	0.879		
	PR5	0.878		
Attitude	A1	0.842	0.705	0.922
	A2	0.836		
	A3	0.836		
	A4	0.846		
	A5	0.84		
Behavioral_Intention	BI1	0.839	0.708	0.924
	BI2	0.837		
	BI3	0.839		
	BI4	0.842		
	BI5	0.852		

According to Bagozzi in 2007, Discriminant Validity estimates the extent to which an abstract and its indicators vary from another abstract and its indicators[22]. Hair, et.al in 2010 has stated that the correlations of any two items between the constructs should be lesser than the square root of Average Variance Extracted (AVE) values that was shared by its items within that construct. Thus Table [5] satisfies the discriminant validity of Hair, et.al (2010) and hence the measurement model has demonstrated the sufficient reliability and validity[23].

Table 5: Discriminant Validity

Construct	PU	T	PR	PEOU	A	BI
PU	0.838					
T	0.361	**0.845**				
PR	0.483	0.233	**0.870**			
PEOU	0.436	0.190	0.508	**0.844**		
A	0.529	0.465	0.450	0.446	**0.840**	
BI	0.524	0.440	0.339	0.458	0.746	**0.842**

DISCUSSION AND CONCLUSION

The study has revealed that all the four factors are significantly impacting behavioral intention of rural people using mobile banking services through mediating the attitude of rural customers. Theoretical model has proved TAM. The findings from the study displayed that attitude; Perceived Usefulness, Perceived Ease of Use, Trust and Perceived risk are the estimated variables for intentional behavior of rural customers towards accessing mobile banking services. The findings from the research have shown that the determined model has perfect fit. The entire hypothesis between the constructs was supported through structural equation modeling. Finally the study has explained the factors that affect the usage of mobile banking services for achieving financial inclusion.

Conflict of Interest: Nil

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Air Pollution and Atherosclerosis

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ABSTRACT

Air pollution is a serious and complex environmental health problem cause approximately 800000 premature deaths per year. Air pollution could leads to atherosclerosis progression through many biological and chemical pathways. Subsequent immune response and oxidative stress due to inhaled air pollution suggest hallmark mechanisms of air pollution in atherosclerosis formation. Other risk factors of atherosclerosis such as hypertension, dyslipidemia, and hyperhomocysteinemia also positively correlated with air pollution. Current animal and exposure studies have revealed correlation between air pollution, atherosclerosis, and its risk factors. Nevertheless, further investigation regarding this topic need to be intensified.

Keywords: *Air pollution, atherosclerosis*

INTRODUCTION

Air pollution is an environmental health problem, with its traffic related, also known as traffic-related air pollution (TRAP). This is a major origin of outdoor ambient air pollution.[1,2] Recently many studies showed that air pollution is comprehensively investigated due to its relation with different toxic compounds of ambient air like carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), gen oxide (NO_x), and particular matter (PM).[3] World Health Organization (WHO) have declared that particular matter (PM) contributes to the majority international air pollution hazards.[4] WHO approximately calculates that the worldwide effects of air pollution is about 800000 premature deaths per year, mostly from cardiopulmonary related outcomes.[5]

PM is made up of combination between solid and liquid aerosol particles that various in size and chemical constitution.[6] It is classified according to aerodynamic diameter into coarse ($PM_{10-2.5} = 10\text{-}2.5$ μm), fine ($PM_{2.5} < 2.5$ μm), and ultra-fine ($PM_{0.1} < 0.1$ μm) particles.[2] PM

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is also divided into two class based on its origin, either anthropogenic or natural origin.[7] Anthropogenic origin PM is mainly from motor vehicle emissions, road dust, power generation, industrial combustion, construction, and demolition activities, whereas natural origin is from sea salt, volcanic emissions, and naturally suspended dust.[7] PM levels has been proved associated with acute cardiovascular events and chronic progression of atherosclerosis.[8-11] However, cogent understanding of air pollution mechanisms in causing atherosclerosis has not been fulfilled yet. Despite that atherosclerosis is the underlying cause of majority cardiovascular disease.[12] This review aims to assess association between exposure to air pollution and atherosclerosis.

AIR POLLUTION MECHANISMS TO ATHEROSCLEROSIS

Inhaled PM of air pollution could trigger innate and adaptive immune response system leading to atherosclerosis advancement.[1] Inhaled PM may pass through the lung alveoli, and enter systemic blood circulation hence initiate inflammation and subsequent immune response.[2] Pro-inflammatory cytokines which are released like tumor necrosis factor-α (TNF-α), interleukin (IL)-6, and IL-12 also have been proven act as pro-atherogenic properties in atherosclerotic mouse models.[13-15] Recently, air pollution also has shown constraint effects to regulatory T cells that already

known as protective properties in atherosclerosis.[16-18]

Air pollution also contributes to generation of oxidative stress.[19] Oxidative stress is one of the main causes of endothelial dysfunction leading to atherosclerosis progression.[20] Elevation of reactive oxygen species (ROS) formation stimulate innate immune response system through Toll-like receptors (TLRs) and scavenger receptors.[20] Air pollution exposure also play a part in increased of other markers of systemic oxidative stress such as oxLDL and antibodies to oxLDL.[21-23] Taken together, all these processes could lead to atherosclerosis.

Rao et al observed the effect of $PM_{2.5}$ exposures to atherosclerosis. Those exposures in mice significantly increased lesion areas, lipid and collagen content in the atherosclerosis plaque. A preponderance of lipids present in plaque is composed of oxidized cholesterol derivatives (oxysterols) which have 7-Ketocholesterol as its major component. $PM_{2.5}$ exposure caused 7-KCh level 7 folds higher in aorta 8.58 ± 2.08 vs. 1.25 ± 0.45 µg/g, p<0.05).[24]

In atherogenesis, oxysterols are transported and uptake by macrophage and endothelial cells that cause lipid accumulation in arterial wall. Uptakes 7-KCh in macrophages which was exposed by $PM_{2.5}$, were higher than unexposed macrophage ($9.4 \pm 1.19\%$ vs. $8.18 \pm 0.76\%$, p<0.05). Those uptakes were mediated by scavenger receptors such as CD36. $PM_{2.5}$ exposure doubled CD36 expression. Doubled CD36 expression increased 7-KCh uptake by arterial wall macrophage and endothelial cells that become pathogenesis of atherosclerosis.[24]

Study from Delfino et al try to evaluate air pollution association to atherosclerosis. The study suggested that emission could produce platelet activation marked by P-selectin, thus progressing atherosclerosis.[25-26]

AIR POLLUTION STUDIES TO ATHEROSCLEROSIS

Carotid intima media thickness (CIMT) is well known as marker of atherosclerosis progression. Many exposure studies have shown association between air pollution and CIMT.[27-29] Wilker et al studied 380 subjects in Boston that got black carbon exposure through living close to a major road or average daily traffic within 100 m of residence in a year average. The result is increased of a one-interquartile range in 1-year average black carbon (0.26µg/m³) was positively correlated with a 1.1% higher CIMT (95% CI: 0.4, 1.7%) based on a fully tuned model.[27] Other studies by Armijos et al and Kunzli et al also had a similar result and association.[28-29]

The Multi-Ethnic Study of Atherosclerosis and Air Pollution (MESA Air) did prospective cohort study (reported in 2016) for 10 years with 6795 multiethnic participants (Hispanic, Black, White, and Chinese), aged 45-84 years, in six metropolitan areas in USA (Baltimore, Chicago, Los Angeles, New York, St Paul, and Winston-Salem). The result is $PM_{2.5}$ and NOx associate with coronary calcification which is consistent with acceleration of atherosclerosis. Calcified plaque in the coronary arteries have been associated with cardiovascular disease. Coronary artery calcium becomes a strong risk marker of future ischemic vascular events. Therefore, change in coronary artery calcium also predicts ischemic events. Coronary calcium progressed by 4·1 Agatston for increasing 5 µg $PM_{2.5}$/m³ units per year (95% CI 1·4–6·8) and progressed by 4·8 Agatston units per year (0·9–8·7) for increasing 40 ppb NO_X. The mean progression rate of coronary artery calcium was 24 Agatston units per year (SD 58). Air pollution is not associated with progression of intima-media thickness. The effect of long term exposure to 5 µg/m³ $PM_{2.5}$ in intima-media thickness was –0·9 µm per year (95% CI –3·0 to 1·3)[30].

Study by Rivera et al revealed positive correlation between long-term exposure of TRAP to subclinical atherosclerosis parameters which are CIMT and ankle-brachial index (ABI).[31]

In the most top quartile of traffic load, the adjusted hazard ratio (HR) was 1.32 (95% CI, 1.06-1.65; p-value for trend across quartiles = 0.042). After traffic density is treated as incessant variable, the adjusted HR per one unit increase of log-transformed density was 1.03 (95% CI, 1.01-1.05; p=0.006). For residences inside 300 m of major roads collated to those resided farther away, the adjusted HR was 1.12 (95% CI, 0.95-1.32; p=0.189).[32]

Meta-analysis study by Akintoye et al that have investigated the relationship between fine particulate matter ($PM_{2.5}$) and atherosclerosis, provide results from 11,947 subjects for carotid intima thickness estimates, 10,750 for arterial calcification estimates, and 6497 for ankle-brachial index estimates. Per 10µg/m³ increase in $PM_{2.5}$ exposures, carotid intima media thickness

increased by 22.52 μm but this result did not reach statistical significance ($p = 0.06$). This meta-analysis supports a relationship between $PM_{2.5}$ and subclinical atherosclerosis measured by carotid intima media thickness.[32]

Hu et al study showed that exposure to $PM_{2.5}$ has been highly correlated to endothelial dysfunction. This study investigated the poisonous consequences and underlying mechanism of $PM_{2.5}$ on human umbilical vein endothelial cells (HUVECs). Reduction of cell viability and elevated lactate dehydrogenase (LDH) activity were seen in the $PM_{2.5}$-treated HUVECs in a dose-dependent manner. The production of reactive oxygen species (ROS), malondialdehyde (MDA), and the inhibition of superoxide dismutase (SOD) activity were also stimulated by $PM_{2.5}$ in HUVECs. In addition, $PM_{2.5}$ elevated the intracellular levels of pro-inflammatory cytokines (interleukin-6 (IL-6), tumor necrosis factor alpha (TNF-a), IL-1β, IL-8 and c-reactive protein (CRP)), cell adhesion molecules (intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1) and tissue factor (TF), resulted in endothelial activation. Moreover, the protein levels of IL-6, janus kinase 1 (JAK1) and signal transducer and activator of transcription 3 (STAT3) were up-modulated significantly, while the expression of janus kinase 2 (JAK2) and suppressor of cytokine signaling 1 (SOCS1) were down-modulated moderately in $PM_{2.5}$-treated HUVECs in a dose-dependent manner. These results display that $PM_{2.5}$ stimulated endothelial activation **via** up-modulation of the IL-6 dependent JAK1/STAT3 signaling pathway. [33]

Epidemiologic study from Suwa T et al tried to figure out the effect of exposure to PM <10 μm (PM_{10}) on the development of atherosclerosis in rabbits. Watanabe Heritable Hyperlipidemic Rabbits (WHHR) were introduced to PM_{10} (n = 10) or vehicle (n = 6) for four weeks, and the stimulation of bone marrow was measured. To know the morphologic profile of atherosclerotic lesions, quantitative histologic measurement was used. Exposure to PM_{10} was resulted in elevated circulating polymorphonuclear leukocytes (PMN) band cell counts (day 15: 24.6 ± 3.0 vs. 11.5 ± 2.7 × 10^7/l [PM_{10} vs. vehicle], p < 0.01) and an expanding bone marrow mitotic pool of PMNs. Exposure to PM_{10} also lead to worsening of atherosclerotic lesions. The volume fraction (vol/vol) of the coronary atherosclerotic lesions was elevated by PM_{10} exposure (33.3 ± 4.6% vs. 19.5 ± 3.1% [PM_{10} vs. vehicle], p < 0.05). The vol/vol of atherosclerotic lesions are linked with the number of alveolar macrophages that phagocytosed PM_{10} (coronary arteries: r = 0.53, p < 0.05; aorta: r = 0.51, p < 0.05). Exposure to PM_{10} also resulted in an increasing of plaque cell turnover and extracellular lipid collection in coronary and aortic lesions. Atherosclerosis development and elevated susceptibility to plaque rupture might correlate the possible link between particulate air pollution and cardiovascular death.[34]

EXPOSURE STUDIES TO OTHER ATHEROSCLEROSIS RISK FACTORS

Many risk factors already known significantly associated to atherosclerosis such as hypertension, dyslipidemia, and hyperhomocysteinemia. Recently, air pollution also known to be associated with those risk factors. Study by Fuks et al revealed that long-term exposure to PM positively correlated with elevated arterial blood pressure (BP).[35] An interquartile increase in $PM_{2.5}$ (2.4 μg/m³) was correlated with elevation in mean systolic and diastolic BP of 1.4 mmHg (95% CI: 0.5, 2.3) and 0.9 mmHg (95% CI:0.4, 1.4).[36] The correlation was independent of long-term exposure to many potential bias factors.[35]

Jacobs et al study showed that carbon load of airway macrophage and the proximity of subject residences to high traffic street have positive correlation to plasma oxidized LDL.[22] Each increase of 0.25 μm² interquartile range (IQR) in carbon load was correlated with an elevation of 7.3 U/L (95% CI: 1.3 to 13.3) in plasma oxidized LDL. Each double multiplication of residence from high traffic streets was correlated with a lower level of -2.9 U/L (95% CI: -5.2 to -0.72) in oxidized LDL.[22]

CONCLUSION

Recent evidences exhibit air pollution as one of novel important cause to atherosclerosis progression. Many biological and chemical pathways are linking to advancement of atherosclerosis. Subsequent immune response and oxidative stress due to inhaled air pollution suggest hallmark mechanisms of air pollution in atherosclerosis formation. Other risk factors of atherosclerosis such as hypertension, dyslipidemia, and hyperhomocysteinemia also positively correlated with air pollution. Current animal and exposure

studies have revealed correlation between air pollution, atherosclerosis, and its risk factors. Nevertheless, further investigation regarding this topic need to be intensified. Basic science investigation will simply define air pollution and its mechanisms leading to atherosclerosis in cellular and molecular level, whereas exposure study will reveal explicit impact of air pollution to atherosclerosis. Hence, concerns and work to prevent negative impact of air pollution need to be enhanced.

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Correlation between *H Pylori* Infection, Clinicopathological Features and Related Digestive Disorders among 5172 Symptomatic Patients

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ABSTRACT

Background: Rates of *Helicobacter pylori* infection appear to be higher in developing countries than in developed countries where they seem to be decreasing with improvements in hygiene practices. Few data are currently available on the prevalence of *H. pylori* infection in the Moroccan population.

Objectives: We identified the medical records of 5172 symptomatic patients in order to determine the prevalence of *H. pylori*, and its association with the clinicopathological features and digestive disorders.

Materiel and Method: This is a retrospective comparative and descriptive study. The data were collected from screening archives of patients, suffering from recurrent abdominal pain or other similar symptoms, recruited between 1st January 2003 to 31st December 2008 in CHU Averroes-Casablanca and Pasteur Institute-Morocco. The data were processed and analyzed by Epi-Info software.

Results: In total, 4032 (82.45%) were *H. pylori*-positive. *H. pylori* infection was closely correlated to age but not gender. Chronic gastritis associated with *H. pylori* diagnosis was the most common (94%) and associated severe glandular atrophy and intestinal metaplasia were observed, respectively, in 6.5% and 13% of cases. As for the topography, the antral mucosa was most frequently colonized (64.5%).

Conclusion: The *Helicobacter* infection may be considered as a significant risk factor for chronic gastritis, and the exact prevalence of *H. pylori* infection in gastric cancer patients in our studied population remains difficult to estimate, because infection can be lost from individuals with cancer. The very high frequency found in our population and generally in developing countries should incite us to make a systematic eradication, and to evaluate the interest of an annual screening of *helicobacter pylori* infection in our area.

Keywords : Helicobacter pylori, chronic gastritis, ulcer, gastric cancer, epidemiology.

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BACKGROUND

Helicobacter pylori infection is one of the most common infectious diseases on earth, and is responsible of a number of important upper gastrointestinal (GI) conditions including chronic gastritis, peptic ulcer disease, and gastric malignancy[1,2]. Over half of the world's population is infected with this organism.

The prevalence of *H. pylori* is closely tied to age and socio-economic conditions and accordingly, this infection is more common in developing countries than in developed countries such as the United States. *H. pylori* is also believed to be the most important cause of stomach cancers, and the second leading cause of cancer-related deaths worldwide[3]. However, some combined analysis of incidence and mortality by cancer site distinguished gastric cancer with declining incidence and mortality,especially in developed countries[4].The incidence is 3-10% of the population each year in developing countries compared with 0.5% in developed countries[5].

The present study was designed for a defined symptomatic Moroccan population referred to fibroscopic examinations due to dyspeptic complaints in order to study: (a) The prevalence and the topography of *H. pylori* infection in a Moroccan population, (b) The gender and age-distribution patterns of *H. pylori* infection, (c) The possible relationship between *H. pylori* and digestive diseases, (d) The histological parameters of chronic gastritis.

MATERIEL AND METHOD

This is a retrospective comparative and descriptive study. The data were collected from screening archives recruited between 1st January 2003 to 31st December 2008 in CHU Averroes and Pasteur Institute-Morocco.

The retrospective observational study included in total 4032 *H. Pylori* positive patients and 858 negative cases. 282 (5%) had non mentioned status of *H. Pylori* infection, and these were excluded from the study.

During the study period, most of the 5172 studied population was characterized by poor living conditions. They were suffering from dyspeptic complaints (abdominal pain, weight loss, megaloblastic anemia..), and underwent upper digestive fibroscopy. Clinical diagnosis, major symptoms and fibroscopic findings were recorded and standardized health interviews have been used to investigate factors possibly related to the etiology of *H. pylori* infection.

A statistical analysis program (EPI-INFO version 6.09) was used to analyse the data. A Pearson's Chi-squared test was used to compare between groups and a p-value of 0.05 or less was recognized as the statistical significance level.

FINDINGS

Out of the 5172 investigated subjects, 4032 (82.45%) had evidence of *H pylori* infection. (mean age 45 years) and 17% (17.55%) were negative as shown in Table 1. Whereas, *H. pylori* status was not mentioned in 282 of cases, and these were excluded from the analysis.

Table 1 : The frequency of *H. pylori* infection

H. pylori status	Population	Pourcentages
Positive cases	4032	82.45%
Negative cases	858	17.55%
Non mentionned	282	excluded

Figure 1 shows the age-distribution patterns of *H. pylori* infection. Infection rate was of 9% in subjects aged two months to 19 years, increased to 13% in subjects aged 20-30 years, and continued to increase with age reaching up to 28,5% in those aged 40-50 years old. After this age, the prevalence slightly decreased. As a whole, the prevalence of infection significantly increased with age (*p-value* < 0,05).

Figure 1 : The age-distribution patterns of *H. pylori* infection

Figure 2 shows the distribution of *H. pylori* infection in the study population according to sex. Men and women were equally exposed with a sex ratio = 1,04.

Figure 2 : The distribution of *H. pylori* infection in the study population according to sex

Regarding the topography of *H. pylori* infection, Figure 3 shows that *H. pylori* colonized the antrum, fundus and pylorus in different densities. The antrum was the most infected zone with a rate of 64,5% of cases comparing to 32,5% in the body mucosa and 3% of cases in the pyloric mucosa *(p-value< 0.05)*.

Figure 3: Topography of H. pylori infection

Histological findings are shown in table 2. Chronic atrophic gastritis was detected in 94% and associated to *H pylori* infection vs 28.5% in the *H. pylori* negative group *(p-value< 0.05)*. In the other hand, ulcer disease was not significantly associated to *H. pylori* infection. Indeed, only 1% of ulcer disease patients with associated gastritis were *H. pylori*-positive on histological examination vs 37.5% in the non-infected group. Gastric cancer was found in 198 cases (5%), only gastric adenocarcinomas and B cell Lymphomas types were reported.

Table 2 : *Helicobacter pylori***-associated digestive diseases**

Digestive diseases	HP positive cases	%	HP negative cases	%	p-value
Chronic gastritis	3766	94%	243	28.5%	0
Ulcers	68	1%	321	37.5%	2.5E-173
Cancers	198	5%	294	34,00%	3.26E-240
Total	**4032**	**100%**	**858**	**100%**	

*E : power of 10

Concerning the distribution of major pathological changes and their relationship to *H. pylori* infection shown in table 3, Intestinal metaplasia (IM) accompanying chronic gastritis was observed in 13% of cases. Gastric atrophy (GA) was observed in most chronic gastritis cases but as shown in table three, the severe form of GA was mainly observed in 6,5% of cases.

Table 3: **The distribution of major pathological changes and their relationship to** *H. pylori* **infection**

Gastritis parameters	HP positive cases	%	HP negative cases	%	p-value
Glandular atrophy	262	6.50%	19	2.21%	9.7E-7
Intestinal metaplasia	524	13%	18	2.09%	2.6E-20

*E : power of 10

DISCUSSION/CONCLUSION

The epidemiology of Helicobacter pylori has been changing over the last decades, with a decline of the prevalence of the infection in most countries. The changing epidemiology of the bacterium has been associated with a parallel decline in peptic ulcer disease and gastric cancer[6]. In Morocco, few data are available on the epidemiological aspects of *H. pylori* infection.

In our study, some patients had occasional episodes of nausea or abdominal pain, while others suffered from vitamin B12 deficiency. Indeed, many authors concluded that vitamin B-12 deficiency is a result of gastric atrophy with loss of stomach acid production due to *H. pylori* infection[7].

82.45% of patients were found to be *H. pylori*-infected. These results are in agreement with the 88,5% rate reported in other Moroccan study[8]. By contrast, in some developing countries like Pakistan, a much lower rate has been previously found[9].

As shown in table 3, there is no significant difference in the prevalence of *H. Pylori* infection between males and females. And both of them appear to be equally exposed. This result is in agreement with other studies. In Corsia, 467 individuals participated in the study, 250 males and 217 females, with ages ranging from 18 to 80 years. 32,9% of participants were *H. Pylori* positive, with no significant gender differences ($P= 0.75$)[10].

This finding is also supported by those reported from Japan[11] and North eastern Brazil[12] as has also been found in other studies made in developing countries, there were no gender differences in the risk of acquisition of infection[13].

Our data showed that the prevalence of *H. pylori* infection increased with age, but a slight decrease in prevalence in the oldest age group, is probably due to the reason that the number of participant of the older age in our study was limited or to decreased number of microorganisms as a result of gastric atrophy. Other studies in developing countries showed that the infection begin in younger age and increase annually with age[14,15,16].

Concerning the localization of infection, the antrum is usually reported to be the most common site of inflammation. In this study, *H pylori* was found in 1311 (32,5%) body specimens and in 2600 (64,5%) antral specimens which is lower than the 84% rate reported by other authors[17].

Although local acid production is the major determinant of colonization of *H. pylori*, it has been reported that *H. pylori* has a predilection for antral colonization because of the relatively lower acid production in the antrum[8,18]. Despite the highly acidic environment in the corpus and fundus compared with the antrum, colonization with *H. pylori* is also likely in these areas[19].

A strong correlation between the presence of *H. pylori* and various gastric disorders has been described in several studies. In the present study, chronic gastritis was the most frequent diagnosis associated with *H. pylori* (94%). Our results are consistent with previous observations in African and other developing countries reporting a 90-95%[20,17].

Intestinal metaplasia and glandular atrophy are preneoplastic gastric lesions common in population with chronic gastritis as in those with *H. pylori* infection[21]. The association between intestinal metaplasia, glandular atrophy and the infection features are still controversial[22]. In our study, severe glandular atrophy (6.5%) and intestinal metaplasia (13%) observed in chronic gastritis cases were infrequent. These results confirm previous observations in other African countries showing high frequency of chronic *H. pylori*-associated gastritis with very low frequency of gastric atrophy and intestinal metaplasia[20].

H. pylori can also be found in subjects with gastric ulcer disease which is caused or worsened by non-steroidal anti-inflammatory drugs[23,24]. Approximately 17% of infected patients develop peptic ulcers. In our study, the prevalence of ulcer disease in the *H. pylori*-infected population was only 1%.

Some evidence also links *H. pylori* infection to gastric cancer which represents 35% of all digestive cancers according to the Register of Grand-Casablanca and Rabat[25]. The carcinogenic process is supposed to occur step by step, from a normal gastric epithelium via gastritis, atrophy, intestinal metaplasia to dysplasia[26]. The wide geographical and temporal variations in gastric cancer incidence indicate the fundamental role of environmental factors and it has been declared that *H. pylori* is a class one carcinogen in 1994[27,28].

It is accepted that less than 1% of *H. pylori*-associated gastritis will evolve to gastric carcinoma[29]. In our study, 5% of the *H. pylori*-infected population had gastric cancer. However, the exact prevalence of *H. pylori* infection in gastric cancer patients in our studied population remains difficult to estimate, because infection can be lost from individuals with cancer or its precursor conditions. Moreover, only gastric adenocarcinoma and B cell Lymphoma types were reported in our study, suggesting that *H. pylori* infection might increase their risk.

Summing up, *H. pylori* infection is highly prevalent in the studied population. Men and women are equally exposed to the infection and age is significantly associated with it. As regards gastric related disorders, *H. pylori* may be considered as a significant risk factor for chronic gastritis, and the exact prevalence of *H. pylori* infection in gastric cancer patients in our studied population remains difficult to estimate. The very high frequency found in this population and generally in developing countries should incite us to make a systematic eradication, and the interest of an annual screening of *helicobacter pylori* infection in our area should be assessed.

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Dental Erosion Caused by Carbonated Sports Drinks: A Review

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ABSTRACT

Dental caries and enamel erosion may be caused due to the excess consumption of soft drinks which contains acids and sugars having acidogenic and cariogenic potential. Acidic drinks and foods lower the pH level of the mouth so consuming them causes the teeth to demineralise. Drinks low in pH levels that cause dental erosion include fruit juices, sports drinks, wine, beer and carbonated drinks. Therefore in the present review the erosive mechanism, erosive potential of sports drinks followed by the factors influencing the erosive potential of acidic beverages and the preventive measures are discussed.

Keywords: *Enamel erosion, Soft drinks, Caries, Toothbrushing*

INTRODUCTION

Dental erosion is a result of a chronic, pathologic, localized loss of dental hard tissue that is chemically etched away from tooth surface by acid and/or chelation without bacterial involvement.[1] Dental erosion has been considered as a fast growing health problem.[2, 3]

Dental erosion is commonly caused by the tooth surface being attacked by acids. The acids may be intrinsic which are regurgitated from the stomach into the mouth or they could extrinsic acids present in foods and beverages.[4, 5]

Consumption of acidic beverages like fruit juices and carbonated sports drinks is probably the most common cause of dental erosion in young people. Sports beverages are usually consumed immediately after heavy sporting activities, when the amount of saliva in the mouth is reduced, and have been reported to be associated with severe loss of enamel in these situations.[6]

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Erosion mechanism

Erosion occurs due to acid attack on enamel surface. Acids also cause enamel prism destruction in subsurface layers.[7] The progression of erosion in prismatic and aprismatic enamel has been demonstrated in ultrastructural in vitro studies by Meurman and Frank.[8,9] The erosion lesion has been found to initially develop in the prism sheath areas. This is followed by dissolution of prism cores with sustained exposure. In due course, it affects the interprismatic areas.[8]

In an experimental study conducted on erosion in dentin by Meurman et al, It was found that peritubular dentin was the first area to be affected, where destruction and tubular hollowing were observed. There was progression of lesions to intertubular areas as immersion times increased leading to rough and porous surfaces.[10] These findings explain the increased sensitivity of eroded surface to external stimuli.

However, In vivo, teeth are continuously in contact with saliva which offers protection against mineral dissolution[11]. Hence saliva minimizes the erosive effect of acidic beverages on the teeth. Sports drinks are usually consumed during periods when there is little saliva in the mouth, such as immediately after heavy sporting activities, thereby negating the protective effects of saliva.[6]

Erosive potential of sports drinks

Sports drinks have been found to have a low pH, high titratable acidity, and sometimes viscous.[12] Various research over the years have indicated that drinks with lower ph than the critical pH of 5.5 have a tendency to erode and soften the enamel surface.[13-16] In a laboratory study done by Bamise and Oderinu. The pH of nearly all analyzed sports drinks was in the range of 2.7 to 3.4, considerably lower than the critical pH of enamel demineralization.[17]

In a study done in UK, they confirmed the high erosive potential of sports drinks having a pH between 2.5 to 4.5.[12] However a questionnaire study from Australia reported no significant associations between dental erosion and the frequency of drinking sports drinks.[18] Similarly, in a study done by Milosevic et al, no significant associations were found with regard to the use of sports drinks, quantity and frequency of consumption and years of usage with the prevalence of erosion.[19] This might be related to presence or absence of various factors that influence the erosive potential of these beverages.

Factors influencing the erosive potential of acidic beverages

Significant correlation has been found between acidity, pH values, phosphate and fluoride contents of different drinks and their erosive capacity. In addition, the extent of erosion depends on the baseline surface microhardness or iodide permeability values of the exposed enamel.[20] Other factors that influence the erosive capacity of acidic liquids are type of acid present in the drink, pKa, titratable acidity, buffering capacity, and temperature of the beverage during consumption.[21] All these chemical factors have been found to contribute to the erosive potential of a specific acid.[22]

Lower erosive potential has been found in relation to drinks with higher pH, lower titratable acidity and higher concentrations of calcium, phosphate, and fluoride.[23] The amount of the drink consumed and the frequency of consumption had a direct effect on the severity of erosion.[24] Behavioral factors during and after an erosive challenge, help in altering the extent of erosive tooth wear.

The manner in which the acidic beverage is consumed (gulping, sipping, use of a straw) will determine the time of exposure of the teeth to acid. Therefore the duration of exposure as well as the frequency of exposure of the surface to the acidic liquid plays a role in determining the extent of damage [25]

It has been shown that the susceptibility of both deciduous and permanent enamel to erosion arise over a period of time and with increased frequency of acidic beverage consumption.[26] The amount of time that the individual teeth are in contact with the acidic beverage depends on the manner of drinking. [24] This influences the pattern of damage caused by the acid. Johansson et al tested six different methods of drinking in a randomized order: holding; short-sipping; long-sipping; gulping; nipping; and sucking. Most significant pH drop was seen while holding the drink in the mouth before swallowing. This was followed by the long-sipping method. Whereas, gulping resulted in only a minor decrease of pH. [27] Rapid erosion is seen when erosive drinks are consumed from a straw placed labial to the anterior teeth, or are "swished" between the teeth.[28] According to Edwards and coworkers, drinking through a straw positioned toward the back of the mouth may help reduce the erosive potential of acidic beverages.[29]

CONCLUSION

Dental erosion is one of the common clinical findings in individuals reporting to the dental clinic. The most common cause of erosion, especially in adolescents and young adults is the consumption of acidic beverages. In the recent years, as people are getting more concerned about fitness, the consumption of sports beverages has been on the rise. The acidic nature of these beverages combined with various other factors may be a major cause of tooth erosion. Erosion of the teeth can be managed by proper patient education and by timely intervention. Decreasing the intake of soft drinks, choosing the low erosive soft drinks or by improving the drinking habit can limit the harmful effects on the teeth. Toothbrushing at least twice a day and also avoiding brushing tooth within 1 h after consuming acidic food. Use a fluoride or remineralizing toothpaste which can help maintain the oral health.

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A Study to Assess the Effectiveness of Ginger Remedy in Reduction of Dysmenorrhea among Adolescent Girls

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ABSTRACT

Dysmenorrhea is one of the commonest complaints among women, but the exact incidence is difficult to estimate. Pain is a subjective symptom and cannot be accurately estimated by an outside observer, and different women may perceive pain with different severity and tolerance. Ginger remedy is one of the best and most effective home remedies for dysmenorrhea. Ginger helps to lower the levels of pain causing prostaglandins and makes feel better from the menstrual cramps. The aim of the study was to assess the prevalence of dysmenorrhea among adolescent girls and to evaluate the effectiveness of Ginger remedy in reduction of dysmenorrhea. A true experimental study with pre and post test was undertaken in College of Engineering, Moradabad. Data were collected from 60 adolescent girls who was having dysmenorrhea in experimental and control group by probability sampling technique using simple random (lottery system) method to assess the effectiveness of ginger remedy in reduction of dysmenorrhea. The pre survey result found that the prevalence of dysmenorrhea was 41% among adolescent girls. Pre test score of experimental group was 92 ± 26.57 and post test score was 56 ± 17.14 with difference of 36 revealed that ginger remedy in reduction of dysmenorrhea was effective. The t value obtained was 11.90 ($p<0.05$). There was no association between pre test level of menstrual pain with their selected demographic variables. Most of the adolescent girls at college of engineering had dysmenorrhea. Dysmenorrhea affects the day to day activities and quality of daily living so it requires watchful evaluation. Hence ginger remedy was an effective method to reduce dysmenorrhea among adolescent girls. Since it is simple, easy to practice and easily available.

Keywords: *dysmenorrhea, ginger remedy, adolescent girls*

INTRODUCTION

'Nurses always there for you caring for families"

(International council for nurses, theme for the year 2002)

Yesterday's girl is today's adolescent and tomorrow's mother. As they are passing through a transitional period from childhood to adulthood, they are undergoing a lot of physical and psychological stress due to the changes taking place in the body.[1]

Onset of menarche is one of the major physiological changes in adolescent girls which swis associated with excessive bleeding, problems of irregular menstruation, and dysmenorrhea. During this period many adolescent girls is experiencing dysmenorrhea.[2] Dysmenorrhea is more common among those whose periods started before twelve years of age, or who have a low body weight. Dysmenorrhea occurs less in those who exercise regularly and those who have children early in life.[3]

Adolescent is the period of transition from childhood to adulthood.[4] in young women dysmenorrhea often occurs without an underlying problems. While in older women it is more often due to an underlying issues such as uterine fibroids, adenomyosis, or endometriosis.[5]

Dysmenorrhea is one of the commonest complaints among women, but the exact incidence is difficult to estimate. Pain is a subjective symptom and cannot be accurately estimated by an outside observer, and different women may perceive pain with different severity and tolerance. Now it is estimated that almost 50 % of all women experience some degree of dysmenorrhea while 10% are incapacitated by it.[6]

The Ayurvedic system of medicine is one of the

finest systems of cure available for humankind. This valuable Ayurveda is in grained in the minds of most Indian's which has rooted form the ancient home remedial practice. Even in this modern society the age & old population home remedies are widely used.[7]

Ginger is one of the best and most effective home remedies for dysmenorrhea. Ginger helps to lower the levels of pain causing prostaglandins and makes feel better from the menstrual cramps. It also helps to soothe the cramps and calm stomach. Some of the home remedies for dysmenorrhea are warm bath, hot water bottle, massage, vitamins, exercise, yoga and ginger remedy.[8]

MATERIALS AND METHOD

The selected design was experimental design.i.e.true experimental pre test and post test research design. 60 adolescent girls with dysmenorrhea studying in college of engineering, Moradabad was drawn by simple random sampling method (lottery system) for experimental and control group (30 in each group).In view of the nature of the problem and to accomplish the objectives of the study, structured questionnaire and pain scale (Moo's menstrual distress questionnaire) was used for dysmenorrhea among adolescent girls. After obtaining formal permission from Dr. Rudolf H. Moos to use the Moo's menstrual distress questionnaire was used to collect the needed data. Both descriptive and inferential statistics was used to analyze the data.

RESULTS

Table 1: Prevalence of dysmenorrhea among adolescent girls   N=260

No. of Adolescent Girls	Presence of Dysmenorrhea	Prevalence Rate (%)	No Dysmenorrhea (%)
260	123	41 %	59 %

The table 1 indicates that 41% prevalence rate of dysmenorrhea among adolescent girls.

Table 2: Mean, standard deviation, mean difference and t value of pre test and post test of experimental group showing effectiveness of ginger remedy in the experimental group among adolescent girls   N=30

Test	Mean	Standard Deviation	Mean Difference	T Value
Pre Test	92	26.57	36	11.90*
Post Test	56	17.14		

Keys: T_{29}=2.05, p < 0.05; * significant

The table 2 indicates that in the pre test the mean score of experimental group was 92, the standard deviation was 26.57, in post test mean score was 56, the standard deviation was 17.14. The mean difference obtained between the pretest and post test was 36. The t value obtained was 11.90 and p<0.05. The t value obtained is greater than the table value. So, accepted the alternative hypothesis. There was significant difference in level of menstrual pain before and after giving ginger remedy in the experimental group of adolescent girls.

In pre test of experimental group, majority (46.67%) of adolescent girls belong to the mild distress and in post test of experimental group, majority (63.33%) of adolescent girls belong to the no experience of symptoms, whereas in pre test of control group, majority (60%) of adolescent girls belong to the mild distress and in post test of control group, majority (63.33%) of adolescent girls belong to the mild distress.

Table 3: Association of pretest level of menstrual pain with their selected demographic variables among adolescent girls   N=60

S.No	Demographic Variable	Chi Square	D.f	Table Value	Inference
1.	Age	14.54	15	24.99	NS
2.	Religion	5.36	15	24.99	NS
3.	Marital Status	0.039	10	18.31	NS

Cont... Table 3: Association of pretest level of menstrual pain with their selected demographic variables among adolescent girls **N=60**

4.	Habitat	1.78	5	11.07	NS
5.	Source of Information	3.66	20	31.41	NS
6.	Body mass index	7.96	15	24.99	NS
7.	Age of menarche	3.98	10	18.31	NS
8.	Days of dysmenorrhea	7.10	15	24.99	NS
9.	Duration of dysmenorrhea	17.63	15	24.99	NS
10.	Family History of Menstrual Problem	0.18	5	11.07	NS

Keys:- Table value of χ^2 at 5% level, NS=Not significant

The table 3 indicate that there was no significant association of pretest score with their selected demographic variables.

The Hypothesis was tested at 0.05 level of significance. The major findings of the study obtained in experimental group, 43.33% of the adolescent girls belonged to the age group 18 yrs, 70% hindu religion, 96.67% unmarried, 50% rural and 50% urban area, 83.33% had information through family member and relative, 53.33% underweight, 60% found 13-15 yrs age of menarche, 33.33% first 3 days of dysmenorrhea, 40% feel Above12hrs of dysmenorrhea in a day, 53.33% had family history of menstrual problem. Whereas in control group 53.33% of the adolescent girls belonged to the age group 18 yrs, 60% hindu religion, 93.33% unmarried, 53.33% rural area, 76.67% had information through family member and relative, 53.33% underweight, 60% found 13-15 yrs age of menarche, 30% 4 days and above of dysmenorrhea, 50% of the adolescent girls feel Above12hrs of dysmenorrhea in a day, 50% of the adolescent girls had family history of menstrual problem.

CONCLUSION

Most of the adolescent girls at college of engineering had dysmenorrhea. Dysmenorrhea affects the day to day activities and quality of daily living so it requires watchful evaluation. Hence ginger remedy was an effective method to reduce dysmenorrhea among adolescent girls. Since it is easy to practice, simple and easily available.

DISCUSSION

The results revealed that there was the mean difference obtained between the pretest and post test was 36. Post test of experimental group, 63.33% of adolescent girls belong to the no experience of symptoms, followed by 30% of adolescent girls belong to the mild distress, followed by 6.67% of adolescent girls belong to the moderate distress.

A study in Iran in 2010 showed that the efficacy of ginger for the treatment of primary Dysmenorrhea was assessed by comparing with placebo in the study. The mean change in pain scores in the ginger group was significantly greater than that in placebo group and 82.85% of women in the ginger group reported an improvement in dysmenorrhea symptoms.[9]

RECOMMENDATIONS

In view of the findings and limitations of the present study following recommendations are offered for further research.

1. The study can be replicated on large scale sample to strengthen the findings.

2. The study can be conducted in different settings.

3. The study can be done for other groups such as early adolescent girls and women with dysmenorrhea.

Conflict of Interest: The author has no conflict of interests related to the conduct and reporting of this research.

Ethical Clearance: Before conduct of the study written permission was obtained from the Teerthanker Mahaveer University, Moradabad. Consent and willingness was established from all the subjects who met inclusion criteria of this study.

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Impact of Foot Reflexology Massage on the Patients' Physiological Indicators without Trauma with Loss of Consciousness in the Intensive Care Unit

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ABSTRACT

Introduction: Vital signs are the most common indicators measured by nurses and indicate normal function of the circulatory, respiratory and nervous system and endocrine. This study was conducted to determine the effect of foot reflexology on patients' physiological indicators of non-trauma with loss of consciousness in the intensive care unit.

Method: In this randomized clinical trial, 60 patients were selected by convenience sampling method and the criteria for inclusion in the intensive care unit of Ali Ebn Abitalib (AS) hospital in Zahedan in 2015. Then, they were randomly assigned into two groups of 30 patients of foot reflexology massage and control using permutation blocks. In foot reflexology massage group, patients received massage three consecutive days, per day for 30 minutes and the control group received typical care for pain control in comparison to other patients. Measuring patient's physiological parameters (pulse, blood pressure, and arterial oxygen saturation) was performed 5 minutes before and immediately after the intervention in three groups.

Findings: There was significant difference between the mean change in systolic blood pressure, diastolic blood pressure, respiration and oxygen saturation in the three-days ($P<0.0001$).

Conclusion: The use of complementary medicine such as massage foot reflexology massage can lead to improvement of physiological indices in non-traumatic patients. Therefore, they can be used as simple and practical techniques.

Keywords: *reflexology, loss of consciousness, physiological parameters*

INTRODUCTION

Given that in these patients, the pain may occur as a physical stress for many reasons, it can lead to changes in vital signs, including temperature, pulse, blood pressure, respiration as well as changes in arterial blood oxygen saturation, which are considered as the most common factors measured by nurses and improve the function of the circulatory, respiratory, nervous system and endocrine [1,2] In the study by Bruehl et al., (2010) a significant association between blood pressure and pulse with low back pain was found [3]. The pain is common among patients in ICU and is associated with atypical signs and symptoms such as restlessness, tachycardia, tachypnea, or sleep disturbances and easement [4].Some hormones affected by massage are included dopamine, serotonin, epinephrine (adrenaline), norepinephrine (noradrenaline), oxytocin and cortisol (5-10). Since the effectiveness of massage is taken for 15 minutes, it thus needs 15 minutes to increase the level of endorphins and enkephalins [11]. In addition, massage causes a decrease in systolic and diastolic blood pressure as well as the heart and respiratory rates [12]. In the study by Gunnarsdottir et al., (2006) that examined the effects of foot reflexology

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on patients undergoing coronary artery bypass graft surgery, results showed that the mean scores of anxiety after the intervention in the experimental group were higher than in the control group [13]. One of the theories that have been proposed in foot reflexology massage is that, since the stress and psychological pressures account for 75% of psychological problems and because there are 7000 nerves in each leg, therefore, foot massage and stimulation of these nerve cells may contribute to relaxation and alleviate tension and thus restore balance to the body [14]. According to the studies concerning the pain with loss of consciousness and its negative effects on all body systems and emotional and physical condition of patients, there is a need for further studies. In this regard, the use of techniques without side effects of drugs and with effectiveness should be considered. Cheap and comfortable use of complementary medicine techniques and their safety as well as the capability of complementary medicine by nurses and limited use of complementary medicine in ICU [15], this study was conducted to compare the effect of music therapy and foot reflexology on patients' physiological indicators with loss of consciousness in the intensive care unit of Ali Ebn Abitalib (AS) hospital in Zahedan in 2015.

MATERIALS AND METHOD

This study was a clinical trial conducted on patients without trauma and with loss of consciousness and under mechanical ventilation in the intensive care unit. Inclusion criteria were: having a GCS of 8-5, hemodynamic stability, dose of intravenous fentanyl under sedation protocol, age over 18 years, the first admission in ICU, lack of addiction to drugs, alcohol and cigarettes, the first 24 hours of ICU admission, lack of neuromuscular and sensory-motor disorders, lack of chronic pain such as migraine and backache. Exclusion criteria were: being fixed of invasive catheters except endotracheal and IV line and consciousness and extubation during the study, changing type and dose of prescribed painkillers or interruption by physician therapist, transfer to the operating room for surgery and a substantial drop level of consciousness. The sample size consisted of 60 patients

for each group based on the previous studies [8]. Firstly, convenient sampling based on the inclusion criteria was conducted and then, the subjects were randomly allocated to two groups of reflexology and control by permutation blocks. To collect data, tools including demographic data form, patient information form (admission, underlying disease), and vital signs monitoring device to measure blood pressure, pulse, and arterial oxygen saturation were used. The portable monitoring device with a cuff was connected to a monitor that displayed the information on the screen. Calibration was confirmed by medical equipment engineer. In the intervention group, to administer massage, the patient lying in the supine position with the head of the patient's bed was raised to 30 degrees. Before intervention, the researcher's hands were warmed and any metal object like a ring was taken out. The patient's leg was completely in the hands of researchers. Then, beneath the fingers of the patient's foot in the heart and lungs, massage was administrated for 15 minutes for each leg, that lasted a total of 30 minutes for both legs (refer to the attached picture). The first 5 minutes of public reflexology massage and the second 10 minutes of private reflexology were administrated on the special area in the heart and lungs. This intervention was carried out once a day for three consecutive days and between 16 to 18 hours. The pressure is applied about 10 to 12 kg in order to develop mild pain in patients which was diagnosed with patient's scowl. Data were analyzed with SPSS 15 software. To describe data, descriptive statistics (frequency table, mean and standard deviation) were used. According to the normality of the data after normality testing, t test was used to examine the mean quantitative factors in the studied groups as well as paired t-test to examine the mean quantitative variables before and after the intervention by groups.

RESULTS

Patients' demographic information were given based on a table 1. According to this table, there was no significant difference between patients' individual characteristics.

Table 1. Demographic data of participants

Variables	Group	Intervention	Control (percent)	Chi-square test p1 Independent t-tests p2
Sex	Male	(50)15	(46.7)14	P1=0/8
	Female	(50)15	(53.3)16	
Marital status	Single	(46.7)11	(13.3)4	P1=0/1
	Married	(63.3)19	(86.7) 26	
Underlying disease	Kidney	(10)3	(16.7)5	P1=0/87
	Heart	(16.7)5	(23.8)7	
	Neurological	)33.3)10	(23.8)7	
	Gastrointestinal	(20)6	(20)6	
	Respiratory	(20)6	(16.7)5	
Age	Mean ± SD	51.23±9.22	50.30±7.69	P2=0/7
	Criterion			

The first day of data analysis regarding the systolic blood pressure and based on the paired t-test also showed that the average systolic blood pressure measurements in the intervention group were significantly low (P < 0.0001). However, there was no significant difference in systolic blood pressure in the control group (P= %16). In the second day of intervention, there were significant changes (P < 0.0001). But, there was no significant difference in the control group (P = 1.00). In the third day, the comparison of the mean systolic blood pressure before and after the intervention in both groups by paired t-test showed that the mean changes in systolic blood pressure in the intervention group were significantly higher than the control group (P < 0.0001), but it was not significant in the control group (P = 32% (Table 2).

Table 2. Comparison of mean systolic blood pressure in two groups

Day	Time / Group	Before intervention mean (± SD)	After intervention mean (± SD)	Changes mean (± SD)	Paired t-test P1
First day	Intervention	124.97±1053	117.77±11.87	7.20±5.05	t=7.80 P<0.0001
	Control	129.00±1070	128.83±10.88	16%±0.91	t=1.00 P=16%
	P2	P=57%	P0.0001	P<0.0001	
Second day	Intervention	128.30±12.36	121.97±11.84	6.33±3.97	t=8.72 P<0.0001
	Control	125.67±8.17	125.33±7.76	33%±1.82	t=1.00 P=1.00
	P2	P=78%	P=0.02	P<0.0001	
Third day	Intervention	124.97±1053	117.77±11.87	7.20±5.05	t=7.80 P<0.0001
	Control	129.00±1070	128.83±10.88	16%±0.91	t=1.00 P=32%
	P2	P=15%	P<0.0001	P<0.0001	

P1 Paired t-test, p2 Independent t-tests

In connection with the mean changes in diastolic blood pressure in the intervention and control groups, an analysis of data from the first day of intervention showed that mean and standard deviation of diastolic blood pressure before and after the interventions in control and reflexology were 84.77 ±7.04, 76.00±10.20 and 125.53±10.06, 127.67±67, respectively (table 4-11). This difference was significant in the intervention group (P < 0.0001), but in the control group, there was no significant difference in diastolic blood pressure (P = 1.00= P). In the second and third day, similar trend was observed. The comparison of mean changes in pulse, reflexology and control during the first day of intervention showed that the average heart rate measured at the end of the intervention and its comparison with

the pulse reported earlier in the reflexology group were significantly low (P < 0.0001). But in the control group, pulse difference was not significant (P = 32%). Analysis of the data in the second day of the intervention also showed that the average pulse rate recorded at the end of the interventions and its comparison with the pulse reported earlier in the reflexology group were significantly low (P < 0.0001). But in the control group, pulse difference was not significant (P = 32%). This trend was also observed in the third day (Table 3). These results were repeated in arterial oxygen saturation and T test results indicated the significance of mean oxygen saturation during the three days of intervention than before the intervention in reflexology group, whereas they were not significant in the control group (Table 4).

Table 3 Comparison of mean pulse in both groups

Day	Time / Group	Before intervention mean (± SD)	After intervention mean (± SD)	Changes mean (± SD)	Paired t-test P1
First day	Intervention	84.77 ±7.04	77.20± 7.52	7.56 ±2.83	t=14.61 P<0.0001
	Control	76.00 ±10.20	76.00± 10.20	0.00 ±0.00	t=0.00 P=1.00
	P2	P=0.78	P=17%	P<0.0001	
Second day	Intervention	89.83± 10.21	84.53± 10.01	5.30± 4.34	t=6.68 P<0.0001
	Control	87.70± 9.86	88.17± 9.57	-46% ±5.16	t=49%
	P2	P=0.70	P<0.0001	P<0.0001	
Third day	Intervention	87.80± 6.53	84.77± 8.22	3.03± 4.08	t=4.06 P<0.0001
	Control	83.60 ±8.54	83.90± 8.61	-0.30 ±1.84	t=89% P=37%
	P2	P=0.002	P=0.002	P<0.0001	

Paired t-test P1- Independent t-tests p2

Table 4 Comparison of mean arterial oxygen saturation in both groups

Day	Time / Group	Before intervention mean (± SD)	After intervention mean (± SD)	Changes mean (± SD)	Paired t-test P1
First day	Intervention	94.07± 3.17	97.00± 2.53	-2.93± 2.30	t=-6.97 P<0.0001
	Control	97.00 ±2.53	97.00± 2.47	0.00± 0.26	t=0.00 P=1.00
	P2	P=85%	P=0.0001	P<0.0001	

Cont... Table 4 Comparison of mean arterial oxygen saturation in both groups

Second day	Intervention	95.23 ±2.73	98.30± 1.82	-3.06± 2.50	t=-8.19 P<0.0001
	Control	87.70± 9.86	88.17 ±9.57	-0.46± 5.16	t=-0.49 P=0.62
	P2	P=0.1	P=0.0001	P<0.0001	
Third day	Intervention	97.47± 2.48	99.43 ±1.38	-1.96 ±1.86	t=-.5.77 P<0.0001
	Control	94.17± 3.96	94.17± 3.96	0.00± 0.00	t=0.00 P=1.00
	P2	F=7.73 df=89 P=0.59	F=30.07 df=89 P<0.0001	F=22.37 df=89 P<0.0001	

Paired t-test P1- Independent t-tests p2

DISCUSSION

Results showed that mean changes in systolic blood pressure in the intervention group were significant in three days, but this difference was not significant in the control group, which indicates the effectiveness of the intervention on the systolic blood pressure. Khoshtarash et al., (2011) found that 30 minutes of foot reflexology in two sessions of 24 hours in women after cesarean had a significant effect on physiological parameters including blood pressure, pulse and breathing, which is inconsistent with the results of the present study. According to the author, crying of babies especially infant perhaps may mean that the baby needs breastfeeding which might have an impact on the results [16]. The results of a study by Kaur et al., (2012) showed that reflexology massage led to a reduction in systolic blood pressure in patients [17], which was consistent with the results of the study. A study by Gunnarsdottir et al (2007) was conducted to determine the effect of foot reflexology massage in reducing anxiety in patients undergoing coronary artery bypass graft surgery. Systolic blood pressure in the control group was significantly decreased compared to the intervention group which was inconsistent with the results. According to the author, one of the reasons was probably due to cardiac medications by patients as well as distraction for nurse leaving the room and returning after 2 minutes to assess vital signs, which caused a concern for patients [13]. The results of the study concerning the mean change in diastolic blood pressure per three days showed that foot reflexology could reduce diastolic blood pressure patients after the intervention.

In a study by Kaur et al. (2012), it was shown that changes in diastolic blood pressure after the intervention were significant, but these changes were an increase in diastolic blood pressure [17], while in the study, diastolic blood pressure was decreased. Also, in a study by Akin Korhan (2014) with the aim of determining the effect of reflexology on physiological symptoms of anxiety and sedation in mechanically ventilated patients, the results showed that reflexology can be used as an effective technique to reduce the physiological symptoms of anxiety and mechanically ventilated patients [18]. Based on the results of this study, mean changes in pulse showed that the intervention could lead to a decrease in pulse rate in the third day and reflects the effectiveness of the intervention. Elizabeth et al., also administrated foot reflexology massage in healthy subjects and obtained a different result with other studies. They suggested that the difference in results is probably due to a 40-minute massage and its prolonged time [19]. McVicar et al., demonstrated that foot reflexology massage reduces stress in healthy volunteers. By measuring cardiac markers (blood pressure and pulse), McVicar indicated that foot reflexology is effective in reducing these parameters [20]. The results of the study showed that the average arterial oxygen saturation changes per three days in the intervention group were significant, but they were not significant in the control group. In a study by Kaur et al. (2012), improvement in oxygen saturation occurred after the intervention [17].

CONCLUSION

The results of this study generally showed that the use of complementary medicine can improve

physiological parameters (pulse, blood pressure and arterial oxygen saturation). According to the results, foot reflexology has immediate effects on reducing heart rate, systolic and diastolic blood pressure, and an increase arterial oxygen saturation. Therefore, these findings are of clinical significance of nursing care because the improvement of vital signs without drug use is an important goal of care and can reduce complications associated with pharmacological actions as well as can be used as a simple, uncomplicated and low-cost technique for improving physiological markers in patients with loss of consciousness in the intensive care unit.

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Prevalence of Anaemia and its Association with Demographic Factors among Adolescent Girls in Coimbatore District, India

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ABSTRACT

Background: Anaemia is the most prevalent nutritional problem worldwide and it is mainly caused due to nutritional deficiency. Iron deficiency anaemia is the most common type of anaemia affecting 55.8% of adolescent girls. This study was conducted to estimate the prevalence of anaemia and to study the association between the Haemoglobin and socio-demographic variables. **Materials and Method:** The present study was conducted in Government Schools of Coimbatore among the adolescent girls who were enrolled in Weekly Iron Folic Acid Supplementation (WIFS).Total 605 samples were selected from three schools by convenience sampling method. Blood samples were collected for Haemoglobin estimation. Anthropometry measurement was recorded to calculate the BMI. **Results:** Prevalence of anaemia was 55.7%.There was a significant association identified with number of sibling, type of family, birth order, family income, education & occupation of parents, place of residence and sources of information (P<0.001).Insignificance association found with age, type of diet and religion. Prevalence of anaemia was higher among underweight girls than normal BMI girls. There was no statistically significant association found between Hb and BMI. **Conclusion:** Though the children were enrolled in WIFS the high prevalence of anaemia identified. Comprehensive intervention strategies are required to combat anaemia and maintaining the health of adolescent girls.

Keywords: India, prevalence, weekly iron folic acid supplementation (WIFS), haemoglobin (Hb), BMI

INTRODUCTION

Anaemia is the most prevalent nutritional problem worldwide and it is mainly caused due to nutritional deficiency. Nutritional anaemia refers to a condition in which the haemoglobin content of the blood is lower than normal as a result of a deficiency of one or more essential nutrients[1]. Among the various types of nutritional anaemia's, iron deficiency anemia is the most common, affecting 3.6 billion people globally, with 40% prevalence in the world on an average for the general population, the prevalence in the developing countries tends to be 3 to 4 times higher than in the developed countries[2]. In India 55.8% of adolescent girls 40% of children have iron deficiency anaemia[1].

Adolescence is a crucial phase of growth in life cycle of an individual .It is a period of transition between childhood and adulthood occurring between 12-18 years of age. Adolescents are vulnerable in developing anaemia and the iron needs are higher especially in girls due to growth spurts, weight gain, and blood volume expansion, onset of menarche and menstruation.

In many developing countries like India iron requirements are higher because of infectious diseases, and parasitic infestations that cause iron loss, low bioavailability of iron from diet because of faulty dietary habits, ignorance, with multitude of social customs, and misbelieves of dietary practices.

Iron deficiency has many non haematological consequences, like physical work capacity, lowered indurations, decreased athletic performance, depressed immune function, decreased scholastic performance, compromised growth and development, and increased risk of pregnancy complication including prematurity and growth retardation and impaired cognitive function[3]. Hence the present study was aimed to screen adolescent girls between 13 -16 yrs of age for the prevalence of anaemia and study association between the Haemoglobin and socio-demographic variables.

MATERIALS AND METHOD

Participants:

The participants for the study were 605 adolescent girls between 13-16 years of age and attained menarche and also enrolled in Weekly Iron and Folic-acid Supplementation in the Government Schools. Written Permission was obtained from the school authorities and written consent from the parents and verbal consent from the subjects were obtained. The study was approved the Institutional Ethics Committee (Number 011/11/2013/IEC/SU dated 15-11-2013).

Setting and Sample:

The setting of the study was 3 selected schools of Perur Panchayath of Coimbatore district. The lists of schools were prepared. For the convenience and obtaining permission from school authorities three schools were shortlisted. The total strength of the adolescent girls between 13-16 years was 320, 150, and 155 respectively. The girls not attained menarche and absent were excluded from the study. Assuming the prevalence of anaemia is 40% the sample size was estimated to be 575 for a relative precision of 10% at 5% significance level. To get co-operation from subjects & school authorities all the 605 girls (315, 136, and 154) were included for the study. The girls were selected by convenience sampling.

Methodology:

The study period was from October 2015 to November 2015.Hemoglobin estimation was done by obtaining 2ml of venous blood by venipuncture and analyzed by colorimetric method. For classification of anaemia, reference range of haemoglobin was used as per WHO classification[4]: Mild 10- 11.9gms/dl, Moderate 7.9- 9.9gms/dl, Severe <7gms/dl, Normal ≥12gms/dl

The BMI was calculated by measuring the height and weight. BMI was classified as: Normal 18.5 to 22.9, Underweight <18.5, Overweight 23 to 24.9, Obese ≥25.

Statistics:

Chi-square test of significance was performed for association and correlation coefficient was calculated to assess the extent of association between variables. A probability value ≤ 0.05 was considered as statistically significant. The analysis was carried out using SPSS package (version 17.0).The graph plotting was done by using SigmaPlot 12.0 (SysStat software, USA).

RESULTS

1. Prevalence of anaemia according to the severity of anaemia:

In the present study, of the 605 adolescent girls with mean 10.62± 1.81, 268 (44.3%) girls were having normal Hb (≥12gms/dl) and 337 (55.7%) were anaemic with mean Hb=9.2±1.13. Among anaemic, nearly one-fourth of the girls (86/337) were mild anaemic and the remaining girls (251/337) were moderately anaemic.

2. Description of anaemia and its association with socio-demographic variables:

With regard to age of the girls there was not much difference found among the anaemic group and normal group and it is statistically not significant P=0.787.

Regarding birth order 44.5% of anaemia found among the second born children and 15.7% with third & above and the difference was statistically significant P<0.001. The prevalence of anaemia was increased 38.8% with two siblings and 10.3% with more than 3 siblings and statistically significant P<0.001.

50.4% of the participants from joint family were anaemic comparing to 44.2% nuclear family and statistically significant difference was found P<0.001.There was an insignificant difference regarding religion (P=0.107) and 54.9% of non-vegetarian were anaemic comparing to 48.5% normal, and the difference was statistically not significant P=0.118.

A statistically significant declining trend in the prevalence of anaemia (84.5% to 32.8%) was observed among children with family income increased from Rs. 5000 and less to Rs. 10001 and above P<0.001.

More than three fourth of girls 229 (68%) were anaemic in the rural population compared to the counterpart (25.7%) of urban population and   the difference was statistically significant P<0.001.

The prevalence was significantly lesser (21.4%) among children who received the information about anaemia from electronic media like TV, internet etc; than those received from personnel like parents; teachers and others (78.6%) P< 0.001.

Table 1 depicts that the prevalence of anaemia was more among the children with father's education less than higher secondary level (58.98%) compared to 39.82% among those with higher secondary and above. The difference is statistically significant (P<0.001), the corresponding figures for children with mother's education are 72.61% and 25.59% respectively.

The prevalence of anaemia among children with father's occupation as coolie (28.44%) compared to 69.16% among the semi-professional occupation. Among the professional the prevalence was 2.39%. This showed that there was a significant association between anaemia and occupation of the father P<0.001. The prevalence of anaemia among the children with mothers as house wives was 26.48% compared to 47.91% among coolie which indicated a significant association between anaemia and mother's occupation P<0.001.

3. Frequency distribution and percentage according to BMI and its association with Haemoglobin:

About 223(36.85%) girls had normal BMI and 352(58.18%) girls were underweight, 30 (4.95%) was overweight and obese. Among 337 anaemic adolescents 119 (35.3%) girls had normal BMI, 196 (58.2%) underweight and 22 (6.5%) over weight & obese. Among 268 non anaemic girls 104(38.8%) had normal BMI, 156(58.2%) were underweight and 8 (3.0%) were overweight & obese. The association between BMI and anaemia was not statistically significant P=0.184.

4. Correlation between BMI and Haemoglobin:

Overall negative correlation of Hb to BMI (r= -0.065) for all 605 children. When the relationship was analyzed among normal Hb group there was a positive correlation (r=0.002) and among the anaemic children there was a negative correlation(r= -0.681).However, none of the correlation was statistically not significant.

DISCUSSION

Adolescence is a vulnerable period in the human life cycle for the development of nutritional anaemia. Overall prevalence of anaemia found in present study was 55.7% with varying degrees of anaemia (14% mild and 42% moderate anaemia). The mean Hb value among anaemic was 9.2 ± 1.2. In a study conducted by Jawarkar et al [5]; the prevalence of anaemia was reported to be 54.8%. In another study conducted at Kattangulathur,

Tamilnadu[6] the overall prevalence of anaemia among 8-16 yrs was 52.8% and higher 67.7% among girls with 30.4% mild and 37.3% moderate anaemia. Higher prevalence was reported by various studies, namely, Bharati et al[7]. (99.9%) and Chaturvedi et al[8]. (73.7%), Shanti et al (73%)[9].

In the present study showed that the overall prevalence of anaemia and its significant association with socio-demographic variables such as monthly family income, education and occupation of father. As the monthly family income increases above and 10,000(P<0.001) and occupation of father as semi professional (P<0.001) and education above higher secondary level of both parents (P<0.001) there was a declining trend of prevalence were identified. Similar findings were reported from the studies conducted by Jawarkar et al[5] and Shilpa et al[10] and Rana et al[11]. Another study conducted by Kulkarni et al[12] reported no association between mothers education (P=0.47), type of family (P=0.67), and Verma et al[13]which is contrast to the present study.

There was statistically significant association found in joint family, birth order two and above and more than two number of siblings, as the number of family members increases the prevalence of anaemia also increased, it showed that there was a increasing trend .(P<0.001) Jawarkar et al[5](P<0.05)

Whereas related to place of residence it was identified anaemia was more prevalent in rural (68%) than urban (32%) with significant difference (P<0.001).Insignificant difference was reported by Manal et al[14] (P=0.579).

Regarding the source of information about anaemia and its management as electronic media like TV, and internet showed less anaemia prevalence (35%).

The prevalence of anaemia was higher (58.2%) in underweight girls than normal BMI (35.3%) girls. It was observed that overweight and obese (6.5%) girls were anaemic. Similar results were reported in the study conducted by Sudhagandhi et al[6].

In the present study there was no statistically significant association found between BMI and Hb level(P=0.184).Similar insignificance result observed in Manal et al [14]study findings (P=0.902). In contradict to the present study findings significant association

was found in the study conducted by Deshpande et al[12] (P<0.001) .

In the present study showed the overall negative correlation (r= -0.065), among anaemic (r= -0.023) and normal Hb (r=0.002) children. The positive correlation was found in normal children; however none of the correlation was statistically significant.

CONCLUSION

In conclusion, the present study revealed the overall prevalence of anaemia was 55.7% and 42% were moderately anaemic. Prevalence of anaemia was significantly associated (P<0.001) with some of the socio-demographic variables. It is evident from the study; the rising trend of consuming junk foods and snacks with empty calories is responsible for the healthy and overweight children being anaemic. Also the poor availability of dietary iron and low intake of heme-iron coupled with faulty dietary practices put the adolescent girls high risk of developing nutritional anaemia. Hence it's the time to focus on various strategies to combat anaemia and in maintaining the health of the adolescent girls.

Figure 1: Severity of anaemia

Figure 2: Bar diagram of BMI classification of normal group (n = 268) and anaemic group (n = 337). (A) Under weight, (B) normal BMI (C) over weight and obese. χ^2 = 4.84, p = 0.184.

Figure 3 : Correlation of Body Mass Index and Haemoglobin (g/dl)

Table 1. Frequency and percentage distribution of anaemia according to education and occupation status of parents (n - Normal = 268; Anaemic = 337; All = 605).

S. no	Demographic variables	Anaemia		Normal		Total	Chi square	P value
		Freq	%	Freq	%			
1.	**Education of parents**							
I. Father								
a. Illiterate b. Up to High School c. Higher Secondary and above		4 197 133	1.19 58.98 39.82	2 75 189	0.75 28.19 71.05	6 272 322	58.17	P<0.001
II. Mother								
d. Illiterate e. Up to High School c. Higher Secondary and above		6 244 86	1.78 72.61 25.59	2 138 128	0.74 51.49 47.76	8 382 214	32.41	P<0.001
2.	**Occupation of parents**							
I. Father								
a. Coolie		95	28.44	16	6.01	111		
b. Semi professional		231	69.16	229	86.09	460	55.06	P<0.001
c. Professional		8	2.39	21	7.89	29		
II. Mother								
a. Coolie		161	47.91	32	11.98	193		
b. Technical		86	25.59	119	44.56	205	88.35	P<0.001
c. House wives		89	26.48	116	43.44	205		

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A Cross-sectional Study on Perception Regarding Dengue Fever among Mid-adolescent Boys in South India

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ABSTRACT

Introduction: Dengue is the most rapidly spreading mosquito-borne viral illness, which has become a major public health concern in India. The global incidence of dengue has increased dramatically in recent decades; about half of the world's population is now at risk. The epidemiology and ecology of Dengue Fever are strongly associated with human habits. So the present study was conducted to study the current level of knowledge, attitude and practices regarding dengue fever among mid adolescent school boys.

Materials and method: The present cross-sectional study was conducted during March to August 2013 .As the study was intended to conduct on the mid adolescent boys (age-14-16yrs), so students of the class VIII and class IX were selected from boys schools around urban slum of Guntur with prior consent from the concerned authority. Among the 5 secondary boys school served by the School HealthDepartment, 3 schools were selected randomly. One section of class VIII and IX each from these 3 schools was selected randomly and total sample size of 161 obtained. As 14 students were lost to follow up final analysis was conducted on 147children.

Results: Major source of knowledge regarding dengue was found to be acquired from TV/Radio (59.62%) followed by newspaper/magazines (32.41%).36.05% respondents had correct knowledge about the mosquito vector transmitting dengue, 34.69% correctly knew about the biting habit of AedesAegypti. Preventive practices were mainly directed towards personal protective measures.

Conclusion: Health education to children especially the adolescents always has a long term effect since the correct message will be transmitted for generations to come.

Keywords: Perception,dengue fever,mid-adolescent boys

INTRODUCTION

Dengue is the most rapidly spreading mosquito-borne viral illness, which has become a major public health concern in India. The global incidence of dengue has increased dramatically in recent decades; about half of the world's population is now at risk[1]. Data available from

National Vector Borne Disease Control Programme (NVBDCP) shows,dengue fever in

India is on the way of rapid rise viz 5534 cases,2561 cases, 15335 cases,28292 cases

And18860 cases in 2007,2008,2009,2010 and 2011 respectively.

Dengue affects people of all ages but in south-east Asia where dengue is hyper-endemic, dengue hemorrhagic fever which often is fatal usually affects children younger than 15 years[2]. National surveillance systems, found a significant male excess among dengue victim and this pattern was consistent over a period of 6 to 10 years in three culturally and economically diverse countries and over geographically diverse subnational areas within two countries[3]. The epidemiology and ecology of Dengue Fever are strongly associated with human habits[4]. Despite the large scale of disease ,there seems to have been very little organised effort to combat dengue and documented evidence on perception and practice regarding prevention of dengue is scarce, particularly among mid adolescent boys -the most vulnerable group for Dengue infection. So the present

study was conducted to study the current level of knowledge, attitude and practices regarding dengue fever among mid adolescent school boys.

MATERIALS AND METHOD

The present cross-sectional study was conducted during March to August 2013 .As the study was intended to conduct on the mid adolescent boys(age-14-16yrs), so students of the class VIII and class IX were selected from boys schools around urban slum of Guntur with prior consent from the concerned authority. Among the 5 secondary boys school served by the School Health

Department, 3 schools were selected randomly.One section of class VIII and IX each from these 3 schools was selected randomly and total sample size of 161 obtained. As 14 students were lost to follow up final analysis was conducted on 147children.Ethical clearance was obtained from Institutional Ethical Committee. Questionnaire was developed reviewing previous similar studies and different articles related to dengue fever to assess knowledge, attitude and practices regarding dengue. Statistical analysis was done in MS Excel 2007.

Operational definitions:

Knowledge: The knowledge that the respondents have regarding the cause, transmission, clinical manifestation and prevention of dengue fever.

Attitude: The feeling and belief of the respondents with regard to dengue fever and its prevention.

Practice: The actions intended to do in order to prevent dengue fever.

RESULTS

Mean age of study participants was 14.1 years with SD of 0.655 (range 13-17yrs) and majority of them were Hindus (89%).Major source of knowledge regarding dengue was found to be acquired from TV/Radio (59.62%) followed by newspaper/magazines (32.41%), teachers (38.47%), family members (27.37%) .

36.05% respondents had correctknowledge about the mosquito vector transmittingdengue, 34.69% correctly knew about the bitinghabit of Aedes Aegypti whereas 44.90% of respondents had correct knowledge regarding breeding habit of Aedes mosquito. Again, only 30% of respondents had good knowledge regarding clinical

features of dengue fever and around 40% of respondents knew about avoidance of aspirin for controlling fever in dengue (Table-1).

65.99% of respondents in the study agree that most effective method of controlling dengue infection is to eliminate breeding place of vector mosquitoes. 72.79% study subjects agree that everybody has a risk of being infected with dengue. 75.51% study subjects agree that they are important person in preventing dengue fever. 24.49% of respondents in the study had the misconception that dengue does not infect strong and healthy person (Table -2). Regarding practices to prevent dengue fever,63.27% study subjects examining discarded items that can hold a water around the home. 80.27% study subjects using mosquito net and /or coils in their house. Only 39.46% study subjects using preventive measures in day and night.

DISCUSSION

The study was conducted on 147 midadolescent school boys in a slum of Guntur. ThePresent study reveals that all respondentsunder the study had heard about Dengue, the television and print media being the main sourceof information. Similarly high percentages of dengue awareness was reported from India (90%)[5] andMalaysia (98.5%)[6]. Some studies established that mass media is apowerful tool in generating better awareness in dengue prevention and control[7,8].36.05% respondents had correct knowledge of the mosquito vector responsible for dengue transmission. 34.69% respondents were found to have knowledge about biting habit of dengue mosquito, 24.2% respondents had correct knowledge regarding time needed fordengue mosquito to grow in stagnant water. 44.90% were aware about t breeding places of mosquito. Around83% respondents had the misconception that mosquito which transmits dengue infection laysits eggs in dirty sewage water.No significant association of knowledge wasfound with attitude or practice. This finding is supported by a hospital based study at Delhi doneby Matta et al[9]. On the contrary, a study done at Kuala Kansagar concludes a significant positive association with knowledge of dengue and attitude towards Aedes control[8]. It is also a matter of motivation and perceived benefits. If people do not see the benefit of a given behavior they do not practice it, regardless of understanding .

This study revealed few incorrect attitudes towards dengue prevention among the respondents such as

prevention of dengue is impossible in reality (25.17%); strong and healthy person does not suffer from dengue (24.49%): elimination of larval breeding sources is a waste of time and very complicated (39.4%).

No significant association of practice was found with attitude. This approved with the study ofHairi et al

[8]where they had conducted a study on KAP on dengue among selected rural communities in the Kuala Kangsar district and found out that there was no significant association seen between attitude and preventive practice on dengue.

Table 1: Knowledge regarding dengue fever in study subjects

Knowledge items	Correct Response Frequency (%)
Dengue Fever is a viral disease.	61(41.50%)
The principal mosquito vector for dengue fever is Aedesaegypti.	53(36.05%)
Epidemic of dengue usually occurs in the starting of rainy season.	48(32.65%)
Mosquitoes transmitting dengue infection usually bites during day time.	51(34.69%)
Clear stagnant water from old tires, trash cans, and flower vases can be breeding places for mosquitoes	66(44.90%)
There is no specific treatment for dengue infection	37(25.17%)
Person who once got dengue infection cannot get dengue infection again.	58(39.46%)
Mosquitoes transmitting dengue infection also transmits Chikunguniya.	63(42.86%)

Table 2: Attitude and practice regarding dengue fever in study subjects

Attitude items	Correct Response Frequency (%)
Practically, Dengue Fever is a disease that cannot be prevented.	Agree-37(25.17%) Disagree-88(59.86%) Don't know-22(14.97%)
Most effective method of controlling or preventing Dengue infection is to eliminate the breeding place of the vector mosquitoes.	Agree-97(65.99%) Disagree-29(19.72%) Don't know-21(14.29%)
Everybody has a risk of being infected with dengue	Agree-107(72.79%) Disagree-39(26.53%) Don't know-1(0.68%)
Strong and healthy person will not get dengue infection.	Agree-36(24.49%) Disagree-99(67.35%) Don't know-12(8.16%)
You are one of the important persons in preventing Dengue fever.	Agree-111(75.51%) Disagree-36(24.49%)
Practice items	**Frequency**
Examining discarded item that can hold water around the house.	Yes-93(63.27%) No-54(36.73%)
Covering water jars after using immediately	Yes-97(65.99%) No-50(34.01%)
Using mosquito net and/or mosquito coils/mosquito repellent vapour in your house	Yes -118(80.27%) No-29(19.73%)
Mosquito Preventive measure used at home	Net only-31(21.09%) Repellent-64(43.54%) Both-52(35.37%)
Time when the respondents use any measure to prevent themselves from mosquito bite at home.	Night only-89(60.54%) Day and night-58(39.46%)

CONCLUSION

It is highly recommended that highquality health education is given to school children regarding the prevention of dengue forreducing the incidence of this deadly disease. The adolescents are fast learners and so they willimbibe the correct and appropriate perception and practice which they will readily percolate to their peer group, their elders, their neighbours and when they grow up to their family and progeny. Thus health education to children especially the adolescents always has a long term effect since the correct message will be transmitted for generations to come

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Quit Tobacco: Are We Prepared?

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Background: The pattern of tobacco consumption survey among the students in a private dental college in Mangalore helps us to assess the awareness and pattern of tobacco consumption among the dental students and also to assess the preparedness for tobacco control among the future health care professionals in India.

Aim: To study the awareness and pattern of tobacco use among undergraduate dental students of a private dental College, at Dakshina Kannada, Karnataka.

Materials and Method: A Cross-sectional study was conducted among 100 dental students using a predesigned and pretested, semi-structured self-administered anonymous questionnaire. Data was analyzed by Microsoft excel and SPSS v 16.Statistical analysis comprised calculating proportion and the chi-square ($\chi2$) test with Yates correction.

Results: Among 100 participants, of which 52 students were males and 48 females, out of which 49% believed that the minimum number of cigarettes a person can smoke without causing harm to one's health. About 89% of the students believe that it is the doctor's duty to advice patients not to smoke or chew tobacco. 81% believe that health professional intervention would help the patient quit the habit.

Conclusion: Awareness about harmful effects of tobacco abuse was good and the students feel that tobacco cessation modules should be incorporated in the dental curriculum. Given their important future role as exemplars, more effective measures to help reduce tobacco smoking among dental students are clearly needed worldwide.

Keywords: Tobacco, dental students, cessation.

INTRODUCTION

Tobacco use has been stated as the single largest preventable cause of mortality and premature death worldwide according to a report published by World Health Organization in 2011.[1]

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In developing countries like India, mortality attributed to tobacco use is on an increase and has been estimated to reach around 13% by the year 2020[2]. This grave scenario clearly emphasizes the need to implement tobacco cessation program in the society with full vigour. It is here that health care professionals need to step in and join the battle against tobacco. The WHO framework convention on tobacco control, further emphasize the role of primary healthcare physicians in tobacco cessation campaigns in the community. Patients often seek advice, guidance on these problems from a dental surgeon. Dental students who are the future

doctors of the society become very relevant activists against tobacco; hence this study was conducted with the objective to assess the knowledge, practice and attitude towards tobacco use among dental students of a private dental college in Mangalore, Karnataka.

MATERIALS AND METHOD

The present cross-sectional study will be conducted among undergraduate dental students of a Dental College in a district of Karnataka. Every year 100 students are admitted in an academic session starting from the month of august. Therefore, the total number of undergraduate dental students should be about 100 at one particular time. It was decided to include those students who were present on the day of study and also incomplete forms were excluded from the study. Students will be briefed about the purpose of the study. Ethical consideration will be obtained from Institutional Ethics Committee. Participation in the study will be voluntary and verbal informed consent will be taken from the participating students. This filled questionnaire was made anonymous to ensure confidentiality and to elicit correct responses from them. A predesigned, pretested, semi-structured, self-administered questionnaire will be used to collect data.

Information collected regarding age, sex, year of study, age of initiation, cause for initiation, pattern of tobacco use and parental history of tobacco use.

Questions regarding the awareness of harmful effects of tobacco, passive smoking, and thought of quitting, support on tobacco ban were also asked. The data collected was coded, tabulated and analyzed using Microsoft excel and SPSS v 16.Statistical analysis comprised calculating proportion and the chi- square ($\chi2$) test with Yates correction was used for testing significance of associated.

RESULTS

The questionnaire based study was conducted among a 100 students out of which 52 were males and 48 were females. The study revealed that 49% of the students believed that the minimum number of cigarettes a person can consume without causing harm to one's health is 0. 89% of the students believe that it is the duty of the health professional to advice the patients to quit smoking and 81% believe that this intervention helps the patient quit tobacco smoking. 63% students believe that they have not received any classes or sessions helping people quit tobacco. 75% of students believe that it is very important in receiving education about tobacco in Dental colleges as it helps in creating awareness among the students. 81% of the students agreed in acquiring history of tobacco consumption during routine examination. Around 69.70% students do not receive tobacco cessation training from Dental colleges.83 % students believe that this education was adequate enough to council patients in future.

Table 1: Reveals the frequency distribution among dental students

		Count	Column N %
GENDER	Male	52	52.00%
	Female	48	48.00%
HOW MANY CIGARETTES CAN A PERSON SMOKE WITHOUT HARM TO ONES HEALTH	0	49	49.00%
	1	1	1.00%
	1	19	19.00%
	2	19	19.00%
	3	1	1.00%
	4	2	2.00%
	5	3	3.00%
	6	2	2.00%
	7	2	2.00%
	10	1	1.00%
	12	1	1.00%

Cont... Table 1: Reveals the frequency distribution among dental students

IS IT DOCTORS DUTY TO ADVICE PATIENTS NOT TO SMOKE OR CHEW	YES IT IS THE DOCTORS ROLE TO ADVICE	89	89.00%
	YES ONLY IF PATIENT REQUESTS HELP	7	7.00%
	YES ONLY IF THEY ARE SICK WITH ILLNESS RELATED TO TOBACCO	1	1.00%
	NO IT IS NOT A DOCTORS ROLE TO ADVICE	3	3.00%
DOES HEALTH PROFESSIONAL INTERVENTION HELP PATIENT QUIT HABIT	YES	81	81.00%
	NO	19	19.00%
HAVE YOU RECEIVED ANY CLASSES OR SESSIONS HELPING PEOPLE QUIT TOBACCO	YES	36	36.00%
	NO	63	63.00%
	NO BECAUSE I JUST STARTED MEDICAL COLLEGE	1	1.00%
IN YOUR OPINION HOW IMPORTANT IT IS TO RECEIVE EDUCATION ABOUT TOBACCO IN MEDICAL COLLEGES.	1	75	75.00%
	2	18	18.00%
	3	5	5.00%
	4	2	2.00%
DO YOU TAKE HISTORY OF TOBACCO USE ROUTINELY	YES	81	81.80%
	NO	15	15.20%
	I AM NOT SEEING PATIENTS NOW	3	3.00%
TOBACCO CESSATION TRAINING FROM MEDICAL COLLEGE	YES	30	30.30%
	NO	69	69.70%
WAS THE EDUCATION ENOUGH TO HELP YOU COUNSEL PATIENTS	YES	25	83.30%
	NO	5	16.70%

DISCUSSION

In India, tobacco habit and deaths related to it is expected to rise substantially in the next few years, unless tobacco users are encouraged to quit. In this regard, dental surgeons have a unique role in tobacco control. Randomized controlled trials have demonstrated that counseling from a health professional increases the rate of cessation up to 30% as compared to no advice.[3] Therefore, every opportunity available must be utilized to offer tobacco cessation interventions actively in routine clinical practice.[4]

Our study attempted to understand the knowledge, attitude, and practices towards tobacco usage among the future dental professionals and the present dental students in a dental college setup.

In this study assessment of pattern of tobacco use among the dental students shed light on the early onset of smoking in many with admission into dental school having no much influence on their smoking patterns. Though not many were heavy smokers, many still did not feel the need to quit nor could they perceive their habit as addiction and these sounds disturbing at many levels. Other studies done elsewhere across the globe have shown both similar and varying results on several parameters assessed. [5-11]

In our study, 89% of the participants felt that it is the moral and ethical responsibility of every dentist to encourage and motivate patients to quit tobacco use, which is in close agreement with the other studies.[12, 13] Due to their long interaction with the patients, 81% of our subjects feel they can play a pivotal role in providing cessation counseling to tobacco users, which can be of enormous help in tobacco control. This result is similar to another study done on tobacco use prevention and cessation in dental undergraduate students[14].

Regarding training on habit counseling, 75% of our subjects felt that it is important to receive training on

habit cessation and they felt that inadequate skills and knowledge was the most important barrier by 69% of our participants, despite that 83% felt that the education received is enough to counsel patients.

The current study tried to address some of the gaps that we have in the education system in terms of the current dental curriculum and our training programs. Since this study focused on future dental surgeons, they can be mentored for preventive programs in the future. It is imperative that we include special training programs and workshops specific to tobacco cessation to empower our students to deliver tobacco cessation services to all patients confidently and efficiently.

CONCLUSION

As dental treatment often requires multiple visits, it provides a system for adequate follow up on tobacco cessation activities. Since dentist play an important role in tobacco cessation it is imperative to educate and train them so as to have a country which is free from tobacco.

Conflict of Interest – Nil

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Ethical Clearance – Obtained from IEC of Manipal College of Dental Sciences, Mangalore

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Promising Herbals as Adjunctive to Standard Antituberculosis Therapy

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ABSTRACT

Background: Using 'STOP TB' strategy, World has succeed decreasing TB case and mortality rate. Neverthless, both numbers remains high. By this study, we aimed to find any natural products could be used as adjunctive tuberculosis therapy in order to achieve better treatment result. **Method:** Review related articles found from Pubmed, Google Scholar, cochrane, and personal databases. **Result:** There was five natural products (Dzherelo, Curcumin, Cathecin, Jawarish amla, and Chinesse herbal medicine) showed promising result when used as adjunctive to standard antituberculosis therapy. Dzherelo, curcumin, and CHM enhanced sputum conversion and improved lung lesions. Dzherelo and cathecin reduced free radicals agent. All herbals, except CHM is reported alleviating adverse antituberculosis drugs effects. Additionally, dzherelo also could modulated humoral and cellular immune system. **Discussion:** Inadequate drug regimens for treating TB cases, poor adherence due to long duration of therapy and adverse drug reaction, and uncompetent immune system can lead to treatment failured. Using herbal products as adjunctive tuberculosis therapy could improved tuberculosis treatment result. **Conclusion:** As adjuvant therapy, dzherelo and curcumin products are superior than others herbal products, but further investigation still needed.

Keywords: *Natural products, Plants, Tuberculosis, Adjunctive therapy, Sputum conversion*

INTRODUCTION

It has been more than two decades since the world started concerning about TB disease. TB mortality rate has decreased 47% and TB case rate has decreased 1,5-2%/year since 1990.[1,2] Neverthless, both numbers remains very high.[1,3] TB still ranks alongside HIV as a leading cause of death worldwide.[1]

Since 2006, using DOTS strategy, newly diagnosed TB has achieved 86% of success treatment rate.[1,3-4] However, some regions still face difficulties to control tuberculosis. Their case rates were stagnant or decreased slower than expected.[3] They reported high number of failed treated cases due to MDR TB and loss-to-follow up cases due to long duration treatment, drugs side effects, and other issues.[1,5-6] Those uncompleted treatment patients might became potential sources of new tuberculosis infections which increased the disease burden. Facing those problems, many studies aim to discover new regimens from natural products as an adjunctive to standard TB therapy which would more effective and safer than standard TB drugs alone.[7]

Many natural products and their derivatives reported have antituberculosis activity, lower drugs adverse reaction, and modulate immune response.[7] So by this paper, we would like to find any herbals that have been proved its efficacy on human trial as adjunctive tuberculosis therapy for newly diagnosed, as well as in previously treated or in MDR TB cases.

Current World's Tuberculosis Burden

Based on 2015 Global Tuberculosis Report, estimated 13 millions TB cases around the world. With 9,6 millions incidence and 1,5 millions death every year. MDR-TB is predicted over 3,3% of new cases and 20% of previously treated cases.[1] During 2005-2010,

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TB cases also increased alongside the number of HIV infected population.[8] HIV related TB death accounted 33% among TB deaths and was the biggest portion among HIV deaths.[2,8] Success tuberculosis treatment rate was also worse in HIV patients (73%) compared to non-HIV patients (88%).[1,8] Those high prevalence and incidence of TB, emerging of MDR TB, and high HIV infections are major threats in controlling worldwide tuberculosis.[3,6]

The succeed of controlling TB disease in last two decades proved that TB is a controlable disease. Most of TB disease (97% globally) are drug-susceptible. Based on cohort research (2013), treatment success rate reach out 86% among new and relaps cases. Meanwhile, MDR-TB is also reported by 153 countries with estimated around 480.000 cases. 9,7% among those are predicted have XDR-TB strains.[1] Treatment success rate for MDR and XDR-TB patients remained consistently and miserably low, even with adequate resources for diagnose and therapy and high quality health care provider.[1,3]

Role of Herbal as Adjuctive Antituberculosis Therapy

Many herbals have been used by traditional health practioner and herbalist for treating tuberculosis.[12-13] However not many of them have been investigated for their efficacy, safety, and applicability in human. Investigating the last 10 years study, we found 5 natural products from 8 related articles have been proved its efficacy, safety, and applicability on clinical trials as adjuvant therapy to standard tuberculosis treatment. Those herbal products and plants extracts are presented in the table 1.

Table 1. Adjunctive Herbal on Standard Tuberculosis Therapy Significant Result

No	Plants/Products	Research	Result
1	Dzherelo	**Zaitzeva SI, et al (2009);**[14] open-labeled, newly diagnosed TB.	Sputum conversion*, Clinical features and respiratory function*; Better radiological in 60 days† Decrease bilirubin, AST, ALT*, Decrease urea level*, Oxidative stress marker*
		Nikolaeva LG,et al (2008);[15] paired 60pts TB/HIV cases : dzherelo, dzherelo-anemin, control	Adjuvant dzherelo: Increase IL2, supress TNF-α.† Adjuvant dzerelo+anemin: Decrease IL-6, increase IFN-ϒ.†
		Nikolaeva LG,et al (2008):[17] RCT 40 TB/HIV	Increase CD3+.† Increase CD4*, Decrease HIV viral load.†
		Arjanova, et al. (2009): open-labeld paired 40TB/HIV pts w/o ARV	Culture conversion 3(16%)vs 12(67%)†; Healing pulmonary cavitation†; Increase body weight*
2	Curcuma longa and Tinospora cordifolia	**Adhvaryu MR, et al**[10] **(2008)** RCT, newly, relaps, chronic TB	Incidence hepatotoxicity*, AST, ALT, and Bilirubin level after 1 month* Sputum conversion*, Radiological improvement† , Functional status improvement*, Body weight†
3	Cathecin	**Agarwal A, et al (2010)**[11] RCT, double-blinded, newly diagnosed TB	Decrease lipid peroxidase and NO*, Decrease catalase and RBC-Sulfhydril*, Increase superoxide dimutase and gluthatione*
4	Jawarish amla	**Sherwani AMK, et al**[9] **(2012)** RCT, matched, blinded, TB cases	Lower Nausea*, Vomitting*, abdominal pain*, peripheral neuropathy*, jaundice*, skin rash†, bitter taste* Decrease AST†, ALT†, Alkaline Phophatase†
5	Chinesse herbal medicine	**Shi GC, et al (2015)** RCT, Newly diagnosed TB with DM	Sputum conversion†, Lung improvement†, Fasting plasma glucose†, 2-hours post-prandial plasma glucose†

*=p<0.001, †=p<0.05

Dzherelo

Dzherelo is a concentrated aqueous alcohol extract from 27 species of medicinal plants[16]. It has been approved by Ukrainian Ministry of Health in 1997, and placed as superior category of herbal suplement in 2006.[12,14,15] Dzherelo has been sold in Ukraine and exported with price €10 or USD $11,3 for pax of 30 ml.[16]

Dzherelo eliminate *Mycobacterium tuberculosis*, proved by accelerating sputum conversion, improving chest image especially cavity closure, and also improving overall clinical features and respiratory function.[11] Besides, it also reverse adversed antituberculosis drugs effect, such hepatotoxicity and renotoxicity.[12] The efficacy is showed in both newly diagnosed TB and co-infection HIV-TB patients who commonly have worse result.[12,15,17] This better result are related with better immune response as dzherelo could regulate both humoral and cellular immune response.[15,17] Dzherelo roled in (1)higher IL-2 and IFN- which have role in accelerated mycobacterium elimination (2)surpressed IL-6 which interrupt cellular immune response (3)lower TNF-α. The lower TNF-α usually related with worse result. However in Nikolaeva study, lower TNF-α precisely showed better clinical outcomes. This phenomenon is contradicted with old theory and still couldn't be explained.[15] Better cellular response was showed by significantly increased of CD3+, CD4, and CD3+HLA-DR+ (activated lymphocyte) in TB/HIV patients who even didn't get any antiretroviral.

Anemin which is mentioned in Nikolaeva study is another phytoconcentrate used in Ukraine for anemia. All preparations of the products are also found in Dzherelo, except *Menyanthes trifoliate* which known as antiinflamatory herbs for chronic disease.[15,18] Using this product additionally with dzherelo significantly increased IFN- and surpress IL-6 which did not significantly increased in only dzherello group.[15]

Curcuma Longa- Tinospora cordifolia

Hepatotoxicity induced by antituberculosis drugs is reported in 11,5% in eastern region and 4,3% in western region. In high risk group, hepatotoxicity rate found 18,2%.[10] *Curcuma longa* and *Tinospora cordifolia* firstly introduced as liverprotective herbs for improving liver function, protecting against toxic, and increasing protein synthesis[10]. Curcumin reported safe for human consuming up to 12g/day orally.

Using single isolated plant extract shows lower efficacy than the combination. Adhvaryu study also using combination of Curcuma longa and Tinispora cordifolia for achieving better antituberculosis treatment result. The exact mechanism of this synergist is unknown.[10] Suggesting multi-target action compounds on molecular level so that resorption rate and herbals pharmacokinetics are better.[10] Adjusted with malnourished, low-weight population, Adhvaryu used 500 mg extract powder twice daily for each herbals which equivalent with six gram of crude herbals extracts.[10] There haven't any marketed herbal products contain the combination of 500 mg Curcuma longa and 500 mg Tinospora cordifolia. Products with almost similar ingredients is Extrammune from India, contains 250 mg *Curcuma Longa*, 250 mg *Tinispora cordifolia*, but with addition *Rubia cordifolia* and *Plumbago zeylanica.* It sold USD $6.95/30 tablets.[19]

Cathecin

Cathecin is an active polyphenols derived from *Camellia sinesis* or popularly known as green tea.[11] Cathecin has ability to scavenge active oxygen free radicals and protect cell damaged that induced by free radicals.[11] It is a water soluable compound, metabolism by liver, and excrete in urine after 6-48 hours.[11] No residual/metabolite accumulates in body.

Tuberculosis disease naturally augmented free radicals as macrophage eliminate mycobacterial by phagocytosis. Lipid peroxidase, nitrit oxide, sulfhidryl, and catalase are oxygen free radicals products which would damage tissues directly by cheminical binding reaction.[11] Cathecin as antioxidant works by reducing those products. It also increased SOD level, substance that roles in formation/building new tissues.[11] It's sold for USD $313-443 every 10 unit[20-21]

Jawarish Amla

Traditionally, amla is used as antipyretic, hepatoprotective, appetizer, antitussive, nerve tonic, antihemorrhagic, and anti-inflammatory[9]. To make jawarish amla, amla is processed with cow milk and sugar.[9] Jawarish amla as adjuvant therapy could lower antituberculosis drugs adverse effects significantly by unexplained mechanism. It is believed have blood purifying, antihistamin, and cooling property which

has role in reducing adverse antituberculosis drug symptoms.[9] This products has market priced USD $1,5-2/100 gr [22-23]

<u>Traditional Chinesse medicine</u>

Traditional chinese medicine has widely definition. In Shi GC study, traditional chinesse medicine was prepared in decoctition using *Qi*-boosting and *Yin*-nourishing concept and added to current antituberculosis therapy (3HRZE/6HER).[24] The decoctition contained: Huangqi (*Radix Astragali Mongolici*) 30gr, Xuanshen (*Radix Scrophulariae*) 30gr, and Dihuang (*RadixRehmanniae*) 30gr, Cangzhu (*Rhizoma AtractylodisLanceae*) 10gr, Maidong (*Radix Ophiopogonis Japonici*)10gr, Danggui (*Radix Angelicae Sinensis*) 10gr, Baishao (*Radix Paeoniae Alba*) 10gr, and Zhimu (*Rhizoma Anemarrhenae*) 6gr. Others herbals were also added according to patients symptoms.[24]

Adjunctive TCM showed significant higher sputum conversion and lung improvement in TB with comorbid DM patients. In the other side, fasting blood glucose and 2 hour post prandial blood glucose also better in treatment groups. Because it contained Huangqi (Radix Astragali Mongolici), Dihuang (Radix Rehmanniae), Xuanshen (Radix Scrophulariae), and Cangzhu (Rhizoma Atractylodis Lanceae) which usually prescribe for lowering blood and urine sugar in DM patients. Within the study, no serious adverse effect was observed.[24]

DISCUSSION

Tuberculosis case and mortality rate have been decreased.[1] Neverthless, tuberculosis keep widely spread and infect global populations. Based on WHO report, tuberculosis is the most caused death of infectious disease either in HIV or non-HIV population.[1,2] Taking standard antituberculosis treatment, patients are expected underwent sputum conversion so spreading potentiation may be lowered. However, not all treated patients may encounter sputum conversion. Besides, there are also some who do not complete the treatment. Adding adjuvant herbal products to standard antituberculosis therapy showed some benefits in tuberculosis management. There was five herbals that have gone through clinical trials which showed better tuberculosis treatment result (clinically and objectively) or/and lowered adverse tuberculosis drug reaction.

The better treatment result within newly diagnosed TB are shown in dzherelo, *Curcuma longa* with *Tinospora cordifiola*, and chinese herbal medicine groups. Adding those products may produce higher sputum conversion rate and radiologic and functional lung improvement. Curcuma was also effective for relaps and chronic tuberculosis, while dzherelo was also effective for HIV/TB population as shown in Nikolaeva and Arjanova study. Both products may improved overall functional status and reversed TB associated wasting syndrome by significantly increase body weight.

The others herbal, Catechin and Jawarish amla, only reported having antioxidant and reversed antituberculosis drugs adverse effects' abilities. However, having those abilities, they may also have important roles. Oxygen free radical is related with severe lung damage, while severe adverse drugs effect made physician unabled to prescribe adequate dossage of antituberculosis regimens which lead to treatment failured. Uncomfortable symptoms related to adverse effects such as nausea, abdominal pain, peripheral neuropathy, or even minor ones may brings inadherence to antituberculosis treatment. Therefore, even they don't work directly against the disease, they are still advantegeous as adjuvant therapy. Besides catechin and Jawarish amla, dzherelo also showed antioxidant activity. Both dzherelo and curcuma products also have protective ability (hepatoprotective and renoprotective) against antituberculosis drugs' adverse effect.

HIV and DM are high risk comorbides within TB disease. Inadequate immune response as in HIV patients could lead into treatment failure. TB with DM patients have morbidity 4,8 fold higher than in non-DM population. Both HIV and DM show higher rate of *Mycobacteria tuberculosis* discharges, delay sputum conversion, and drug resistant TB strains. Therefore, controlling DM and achieving better immune response are also important for succeeding tuberculosis therapy. Using dzherelo as adjuvant tuberculosis therapy in HIV patients resulted better both cellular and humoral immune response.While TCM used in Shi-GC study resulted better glycemic status index.

Using adjunctive herbal products to standard tuberculosis therapy may improve tuberculosis treatment result. However, other psycho-socio-economic problems also have potential roles in succeeding TB therapy. Using DOTs strategy is supposed to address

inadherence patients problems. But in reality, not all regions could provide volunteers to observed patients' therapy directly. Instead they use family members as volunteers which in our experience was as ineffective as using no volunteers. Modeled after USA, using CDC tuberculosis law may became a promising strategy. If patient refuses treatment, he/she may be ordered by a court to remain isolated until no longer considered a threat to public health.[25] However implemented this strategy globally may need large efforts, especially in high burden countries.

CONCLUSION

Dzherelo and combination curcuma product is more superior than three others herbals. Using combinations two or more herbal extracts, like in dzherelo and curcuma, would result in better efficacy than single isolated plants. However, before implemented, further studies still required in various-bigger population and longer duration. Besides, others strategies should also be thought in order to deal with psycho-socio-economic problems.

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To Study the Clinical Profile, Microbiology, Radiological and Therapeutic Aspects of Empyema Thoracis in Children

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ABSTRACT

The purpose of study was to ascertain the clinical profile, microbiology, radiological and therapeutic aspects of empyema thoracis of children admitted in the Department of Pediatrics, Pt. B.D Sharma PGIMS, Rohtak. The commonest symptoms observed were fever, cough and chest pain. The commonest organism isolated was staphylococcus. The main factor leading to the stage of chronicity were delay in seeking the therapy and inadequate and inappropriate treatment prior to admission. Our experience has shown that tube thoracostomy along with suitable systemic antibiotic is the sheet anchor in the treatment of empyema thoracis.

Keywords: *Empyema thoracis, thoracostomy, antibiotics.*

INTRODUCTION

The acute respiratory infection (ARI) accounts for considerable morbidity and many admissions to hospital among infants and children. 26% of all outpatient paediatric consultations and 12-45% of admissions of children in less developed countries are due to ARI[1-4]. An acute respiratory infection leads to variety of complications such as otitis media, lung abscess, and empyema. Empyema is known to be one of the most serious complications of acute lower respiratory tract infection[5]. Empyema is the presence of pus in the pleural cavity and represents an effusion containing great number of polymorphonuclear leucocytes and fibrin. The causative organisms of empyema can be both aerobic and anaerobic. Antibiotic era has resulted in marked alteration in the causative organisms[6,7]. Streptococcus and H. Influenza were common in preantibiotic era. With the evolution and usage of antibiotics staphylococcus became more common[8-10], but now with the control of staphylococcus by various antibiotics the organisms responsible have once again changed and gram negative bacilli are emerging as commoner organisms for empyema. Contributory factors for development of empyema thoracis include malnutrition, delay in seeking therapy, inappropriate management of ARI with antibiotics, skin infections and measles. Associated infections could be otitis media, conjunctivitis, dysentry and gastroenteritis[11-13]. The clinical picture of empyema thoracis varies with the age of the patient[14]. The predominant complaints are fever, cough and tachypnoea. The modes of management of empyema include antibiotics, fibrinolytic therapy, thoracocentesis, intercostals tube drainage and surgical procedure (decortications). Ultimate goal of therapy in all cases is expansion of lung[15].

OBJECTIVE

The present study was carried out in an endeavour to see the clinical profile, microbiology, radiological and therapeutic aspects of empyema thoracis in children in this part of the state.

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Material and method:

Children presenting with clinical picture of empyema over a period of 1 year were included. The selection criteria of patients with pleural fluid collection were considered as patients of empyema if at least one of the following criteria was fulfilled.

a. **Gross pus**

b. **Bacteria on gram stained smears**

c. **pH less than 7.20**

d. **Glucose level less than 40mg/dl.**

e. **Elevated LDH (>1000 IU/L)**

Cases with tuberculosis, malignancy, bronchiectasis, cystic fibrosis were excluded.

The provisional diagnosis was made on detailed history and physical examination. It included the demographic profile i.e. age/sex, socio economic status and whether the patient was from rural or urban background.

Chest radiographs and ultrasonography were obtained on admission, before and after thoracocentesis, before and removal of chest tube and at discharge. Pus is demonstrated by thoracocentesis which was done in each case with thick bore needle, 18-20G from the point of maximal dullness or point marked for aspiration. The cytological examination was done for the presence of pus cells and polymorphonuclear leucocytes. Gram's stain was done to know whether the organism is gram positive, negative or cocci or bacilli.

Pus was also examined for AFB, proteins, pH, glucose, blood culture and antibiotic sensitivity was done simultaneously to detect the causative organism. Total duration of antibiotic therapy depended on the organism and clinical response. CT scan chest was undertaken, whenever indicated. Patients were managed with thoracocentesis and/or intercostal drainage whichever indicated. Assessment was made of clinical spectrum, bacteriological flora, antibiotic sensitivity pattern, radiological findings, time taken to respond to conservative management course and duration of intercostals drainage and complication, if any. The results were subsequently analysed using appropriate methods.

OBSERVATION

The maximum number of cases were seen in the age group of 0-5 years (44%). 10 patients (40%) cases each were seen in the age range of 6-9 years and 3(12%) cases were seen in the range of 10-14 years. The youngest child was $1^{1/2}$ years old and the oldest was 14 years old. Males outnumbered females in the ratio of 24:1 respectively. Out of 25 patients, 22 patients (88%) were from rural background and rest 3 patients (12%) were from urban area. Predisposing and associated infections were seen only in 7(28%) patients. The commonest predisposing factor was pyogenic skin infection (16%). Anaemia was seen in almost all the patients. Two (8%) patients had haemoglobin less than 6 gm%. In ten (40%) cases haemoglobin was ranging from 6-8 gm%. In 9(36%) cases haemoglobin was between 8-10 gm%. Five patients (20%) had haemoglobin between 10-12 gm%. The degree of malnutrition seen in our patients is shown in table 1. The common radiological finding were complete opaque hemithorax in 14(56%), Hydropneumothorax in 7(28%) patients. Other features observed were mediastinal shift in 6(24%), thickened pleura in 5(20%) and encysted pyothorax in 4(16%) of patients. Further radiologically patients were divided upon the size of effusion. Small, if less than 1/3ʳᵈ of hemithorax was covered, medium if the effusion covered <1/3ʳᵈ or more of hemithorax, and large, when there was complete opacification of the hemithorax. Accordingly, 14 patients (56%) showed large effusion, 10(40%) showed medium sized effusion and 1 patient (4%) had a small effusion. The type of pleural collection i.e. free or loculated was seen. Further, whether the loculated pyothorax was of septate or non septate characteristics was also evaluated. 14 (56%) patients showed free pleural collection, 11(44%) showed loculated collection, out of which 8 patients had septate loculated pyothorax and 3 patients had loculated pyothorax of non-septate nature. The organisms isolated from patients with thoracic empyema, procedure done and respective outcomes is shown in table 2. A combination of antibiotics to start with, used were crystalline penicillin, chloramphenicol and cloxacillin in most of the patients. In sick patients third generation cephalosporin was used together with vancomycin. The antibiotics were changed as per the culture sensitivity report. In majority of cases (48%), antibiotics were given for 4-5 weeks. Intercostals drainage was done in 23 patients (92%) altogether. In seven patients (28%) antibiotics were given for more than 5 weeks, and in

6(24%) cases, antibiotics were continued for 2-3 weeks after admission. Repeated thoracocentesis was done in 3 cases. However, lung expansion was not appropriate and further intercostals drainage had to be done in two patients after 3-4 tappings. One patient improved on thoracocentesis alone, and needed no further surgical procedure. Intercostals drainage was done in 23 patients (92%). They were divided into 3 groups. Group A required intercostals drainage for less than 2 weeks. Group B required intercostals drainage for 2-4 weeks and group C required intercostals drainage for more than 4 weeks. Out of the 23 patients who underwent intercostal drainage 14 patients had complications. One patient had formation of bronchopleural fistula. The commonest complication was surgical emphysema seen in 4(17.4%) patients. Other problems encountered were blockage of the tube and kinking of the tube in 3(13%)

patients. Patients in which tube had to be repositioned due to malpositioning of the tube were 2(8.6%) cases. All the complications and problems encountered were appropriately managed. All the 25 patients taken in the study were discharged. There was no mortality.

Table 1: The degree of malnutrition and empyema thoracis in children

Malnutrition	Number of patients (n=25)	%age
Grade I	4	16%
Grade II	11	44%
Grade III	3	12%
Grade IV	2	8%
No malnutrition	5	20%

Table 2: The organisms isolated from patients with thoracic empyema, procedure done and respective outcomes

Organism	Number of patients		Procedure dose			Outcome
	Pus culture	Blood culture	Thoraco centesis	ICD	Decor tication	
Staphylococcus	4	-	-	4	-	DISCHARGE
Pseudomonas	3	-	1	3	2	DISCHARGE
Klebsiella	2	1	-	2	-	DISCHARGE
E.coli	1	-	-	1	1	DISCHARGE

DISCUSSION

Empyema remains a condition with significant morbidity and mortality, despite the development of effective antibiotics and improved diagnostic capability. The traditional treatment of empyema is for all children to receive intravenous antibiotics and closed chest drainage. The present study was carried out to see the clinical profile, microbiology, radiological and therapeutic aspects of empyema thoracis in children. The high preponderance of males (96%) in this study could be explained on the basis of low reporting of females to the hospital[16-18]. Most of the patients (88%) were from rural background and of low socio economic profile. The contributory factors to empyema include malnutrition, delay in therapy and partial treatment with antibiotics[12,13]. In the present study skin infection like boils (16%) was the commonest predisposing infection. Similar finding has also been reported by other

workers[11]. Malnutrition ranging from grade I to grade IV was seen in 80% cases. In a study by Sanathakrishnan et al varying degrees of malnutrition were present in 67% children[11]. Predominant involvement of right sided hemithorax was shown by Padmini et al and Aggarwal et al[12,19]. The causative organism of empyema are both aerobic and anaerobic[20,21]. Padmini et al and Sanathakrishnan et al have shown Staphylococcus to be the commonest organism isolated in 55% and 60% cases respectively. Due to advent of newer antibiotics there is a shift in the causative organism of empyema which has been demonstrated by Alaxender S. Geha in a 14 year study from 1954 to 1967[8]. The management of empyema depends on the stage of disease. Recommendations range from parenteral antibiotics with repeated needle aspiration in early cases to early open thoracotomy for children who fail to respond to a three to five day trial of conventional therapy[22-24]. There are two basic principles for successful management of empyema. Control of

infection with appropriate antibiotics and adequate drainage of pus with the restoration of the pulmonary ventilatory function[25]. 90% success rate has been shown by Dondapat MC et al and Padmini et al with antibiotic and intercostals drainage. Decortication was carried out after 4-6 weeks of conservative management mentioned above, if lung remained collapsed due to thickened pleura, presence of bronchopleural fistula not allowing expansion of lung and continuous discharge of pus. The outcome of the modalities of treatment in this study was dependent on the duration of illness, predisposing factors, treatment taken outside and the etiological agent. Length of hospital stay for empyema is long because of multiple procedure and co-existent disease[26]. Two meta-analyses conclude that primary surgery has the advantage of shorter hospital stay and shorter duration of antibiotic treatment[27,28]. Prospective randomized trial comparing VATS with drain plus fibrinolysis could not show any difference in terms of hospital stay, days with drain, or treatment failure[29]. We concluded that the traditional management with parenteral antibiotics and tube thoracostomy remains the mainstay first line treatment. Thoracotomy should only be considered for those patients with persistent severe bronchopleural fistula, major limitation of lung expansion by multiple loculation of exudates, extensive pleural peel and severe parenchymal destruction.

CONCLUSION

The pathogenicity of empyema is a dynamic process: it is not feasible to manage all stages of PE with a single therapeutic strategy. Management must be decided on a case-by-case basis and requires clinical experience. Since outcome is usually good and evidence comparing treatment regimens are scarce, there is not one single optimal treatment. Key steps to success are expertise and a clear management plan adapted to the stage of the disease. Early referral to a pediatric center with expertise is important not to miss a critical time window and should be done before the organizing stage has set in.

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Knowledge of Higher Secondary School Students Regarding Reproductive Health

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ABSTRACT

Adolescence is a phase of transition from childhood to adulthood during which individual undergoes enormous physical and psychological changes. Adolescent at times may be impulsive, do experimentation & face serious reproductive health risks. This study was undertaken to evaluate the knowledge of higher secondary school students & to identify the sources of information regarding Reproductive Health in Solapur City. The results revealed that i) Overall knowledge of students (n=500) regarding Reproductive Health was fair. ii) Changes during adolescence were known to 77.4% students. iii) Boys had significantly poor knowledge of age of menarche compared to girls. 72.6% students noted masturbation is harmful iv) Most of the students knew about occurrence of pregnancy (93.3%), Ideal age of Motherhood (78.2%), MTP is legal (72%) & legal age of marriage (78.6%). v) 86.8% students knew at least one method of family planning. vi) 84.8% students knew that STD and AIDS can be avoided by using condom. vii) Boys, 12th standard & Biology Reading students were found to be more knowledgeable viii) Doctor / Health worker, Mass media & Friends were main sources of information.

Keywords: *Knowledge, Reproductive health, Students, Source of information*

INTRODUCTION

The period from 10-19 years is a phase of transition from childhood to adulthood. During this period, the body develops to reach the adult size and strength and acquire reproductive capabilities[1].Today's adolescent going through this stormy period of life, is expected to mature under tremendous academic and emotional pressure of changing life styles, high degree of competitiveness, peer pressure and influences compounded with curiosity and confusion regarding their own physical, emotional and psychological developments, make them highly susceptible to deviation from normal to abnormal development[2].

Reproductive Health of adolescents has started to receive increasing recognition now, as more than half the world population is found under 25 years of age and 1/5 of them (> 1 billion) are adolescent of whom more than 85% are living in developing countries[1] In India, adolescents constituting 21 % of the total population form a major force to reckon with[3].

Adolescent needs a full range of quality reproductive health care and information. But government tends to either ignore adolescent health issues or consider them indistinguishable from childhood concerns[4]. Adolescents particularly 15-19 years old need to be empowered on reproductive health issues to help them avoid risks due to unprotected sex, early marriage, childbearing and STDs especially, HIV/AIDS which is prevalent at alarming rates in their age group. In India talk about sexuality in traditional families is still a taboo. Hence this study was undertaken to evaluate the knowledge of higher secondary school students towards Reproductive Health and to identify the sources of information regarding Reproductive Health.

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MATERIAL AND METHOD

The present study was a cross-sectional study and study participants were Higher Secondary School Students of Solapur city. Those schools having all streams were sorted out and one school was selected by using simple random sampling technique. A written permission was obtained from the Principal of School to conduct the study. A self administered Questionnaire was prepared and pre-tested on a sample of 50 students (pilot study). Mean knowledge score in pilot study was 60.18%. Keeping the approximate estimate of Parameters as 60 % (p=0.6 and q=0.4) and view to estimate within a 95 % of confidence interval of 55-65% (i.e., accepted deviation of 0.05) and conventional alpha error of 5 %, minimum sample size worked out to be 369 but in the present study 500 students were included. There were seventeen Questions on Knowledge regarding reproductive health with single correct response. Each correct response was given one mark and incorrect or response stating "don't know" was given zero mark. The percentages of correct responses were calculated and knowledge score allotted on the basis of percentage obtained. Statistical analysis was done with Mean, Proportion & Chi-square test.

RESULTS AND DISCUSSION

Out of 500 students, 211(42.2%) were girls and 289 (57.8%) were boys. Most of the students (88.4%) were in age group of 16 to 18 years. Overall student's mean age was 16.93 year. 34.6% students were from science stream having biology as a subject, while 327 (65.4%) students belonged to non-biology group (Art, Commerce).

Higher Secondary School student's knowledge regarding Reproductive Health was evaluated under various subheads. Overall knowledge of students regarding Reproductive Health was fair (Mean Knowledge score 62.36).

Knowledge of Students regarding Reproductive Biology

Changes during adolescence were known to 82.46% girls and 73.70% boys (p<0.05), physical changes in adolescent girl were known to 39.81% girls compared to 25.95% boys (p<0.001). Physical changes in adolescent boy were known to 51.56% boys compared to 39.34% girls (p<0.01). Boys had better knowledge about male reproductive organ and girls had better knowledge about female reproductive organ and this association of sex with identification of same sexual reproductive organ was found to be significant (Table No.1). Ahuja A et al [5] in their study reported that only 50% students were able to identify the pubertal changes correctly.

Table No. 1: Knowledge of Students regarding Reproductive Biology

Sr. No.	Questions	Correct Response						P value
		Girls (n=211)		Boys(n=289)		Total(n=500)		
		No	%	No	%	No	%	
1	Changes during Adolescence	174	82.46	213	73.70	387	77.40	P < 0.05
2	Physical Changes in Adolescent girl	84	39.80	75	25.95	159	31.80	P < 0.001
3	Physical Changes in Adolescent boy	83	39.34	149	51.56	232	46.40	P < 0.01
4	Identification of female Reproductive Organ	103	48.82	115	39.79	218	43.60	P < 0.05
5	Identification of Male Reproductive Organ	88	41.71	150	51.90	238	47.60	P < 0.05

Knowledge regarding Adolescent Sexuality

Boys had less knowledge regarding age of menarche (32.87%) compared to (71.56%) girls (P < 0.001). As girls experiences menstruation obviously they will have better knowledge about menarche than boys. Durge PM et al [6] in their study reported that 69.5% adolescent girls had no knowledge about menarche in premenarcheal period. Misconceptions prevail strongly as 72.6% students consider masturbation harmful and 51% students consider wet dreams / nightfall a disease (Table No. 2). Adolescents may develop various psychological problems later in life as these fears become embedded. Hence this misconceptions needs to be corrected by giving sex-education to the students. Thakor HG et al [7] also observed similar misconception in their study as most of the respondents consider masturbation is dirty, immoral and harmful to health.

Table No. 2: Knowledge regarding Adolescent Sexuality

Sr. No.	Questions	Correct Response						P value
		Girls(n=211)		Boys(n=289)		Total(n=500)		
		No	%	No	%	No	%	
1	Age of Menarche	151	71.56	95	32.87	246	49.2	P < 0.001
2	Are Wet dreams / Night falls a disease?	95	45.02	150	51.90	245	49	P > 0.05
3	Is Masturbation harmful to body?	36	17.06	101	34.94	137	27.4	P < 0.001

Knowledge regarding Legal Age, Pregnancy, Motherhood and Medical Termination of Pregnancy (MTP)

Majority (78.6%) students were aware about legal age of marriage for boys and girls. 93.3% students aware of that pregnancy occur due to sexual relation between man and women. Boys had better knowledge than girls (p<0.001). Ideal age of Motherhood was known to 78.2% students while 72% students knew that MTP can be done legally (Table No. 3). Knowledge regarding these issues was fair suggesting positive future trends in family formation. But more than 20% students were unaware stressing need of family life education to adolescents. Benjamine A I et al [8] found that 54.4% boys and 70% girls knew legal age for boy while 61.8% boys and 81.3% girls knew legal age for girls. Kumar R et al [9] reported that 88% boys and 58% girls knew that a female conceive through sexual intercourse while majority of respondents favoured termination of unwanted pregnancy. Qazi YS [10] found that fewer female respondents knew how a woman becomes pregnant.

Table No. 3: Knowledge regarding Legal Age, Pregnancy, Motherhood and MTP

Sr. No.	Questions	Correct Response						P value
		Girls(n=211)		Boys(n=289)		Total(n=500)		
		No	%	No	%	No	%	
1	Legal age of Marriage	161	76.30	232	80.28	393	78.8	P > 0.05
2	Pregnancy occurs by	189	89.57	280	96.89	469	93.3	P < 0.001
3	Ideal age of motherhood	160	75.82	231	79.93	391	78.2	P > 0.05
4	MTP can be done legally	146	69.19	214	74.05	360	72	P > 0.05

Knowledge regarding STD's and HIV / AIDS

Most (72.4%) of the students mentioned that they knew about STD while 79.8% students knew about the mode of transmission of STD. 86.6% students knew that AIDS is a STD with significant difference (p<0.05) between knowledge of boys and girls. STD and AIDS can be avoided by using condom was known to 84.8%

students (Table No. 4). More knowledge regarding HIV / AIDS might be due to increased use of media for promotion of AIDS awareness in recent years. Elizabeth Persson et al [11], Edwin Amalraj R et al [12], Sonia Singh[13] and Bhasin S K et al [14] in their studies also noted that majority of the respondents knew that AIDS is a sexually transmitted disease.

Table No. 4 : Knowledge regarding STD's and HIV / AIDS

Sr. No.	Questions	Correct Response						P value
		Girls(n=211)		Boys(n=289)		Total(n=500)		
		No	%	No	%	No	%	
1	Do you know about STD?	126	59.72	236	81.66	362	72.4	P < 0.001
2	Mode of transmission of STD's	161	76.30	238	82.35	399	79.8	P > 0.05
3	Is AIDS is a STD?	172	81.52	261	90.31	433	88.6	P < 0.05
4	Can you prevent STD and AIDS by using Condom	165	78.20	259	89.62	424	84.8	P > 0.05

Knowledge regarding Family Planning

Figure No. 1 shows that 86.8% students knew at least one method of family planning, sterilization (51.4%) followed by Condom (46.4%), Oral pills (45.6%), Copper T(38.2%). Girls had significantly less knowledge about condom compared to boys (p<0.05). Overall knowledge regarding family planning method found to be poor. While substantial adolescent population are sexually active and are at risk of teenage pregnancy; unwanted pregnancy, abortion, STDs and AIDS, there is urgent need to improve knowledge of family planning method amongst adolescent. Durge P M et al [6] and Verma K et al [15] found that 54 – 57 % respondent knew one or other contraceptive method.

Figure No. 1: Knowledge Regarding Family Planning

Factors related to Knowledge regarding Reproductive Health.

1.   Sex

As mentioned in Table No. 5, Boys were found to be more knowledgeable on most aspect of Reproductive Health compared to girls (P < 0.05). In our society, boys have more freedom, social life and accessibility to sources other than formal education causing this statistically significant difference in knowledge. This further reinforces the need to lay more stress on increasing girls' knowledge along with boys. Gita Devi et al [16] also reported similar findings.

Table No.5: Knowledge Score and Sex

Sr. No.	Marks Secured	Girls		Boys		Total		P Value
		No	%	No	%	No	%	
1	< 60%	118	55.92	126	43.60	244	48.8	
2	> 60%	93	44.18	163	56.40	256	51.2	P < 0.05
	Total	**211**	**100**	**289**	**100**	**500**	**100**	

2. Standard

Table No. 6 shows that 58.13% students of 12th standard scored more than 60% marks in knowledge score compared to 11th standard (41.71%) students (P < 0.01). As adolescent advances in age, curiosity propels them to find out more out of themselves leading to increase awareness. Thus, an effective school based program needs to target lower standard students. Gita Devi et al [16] & Gupta N et al[17] also reported that awareness increases with age and standard.

Table No. 6: Knowledge Score and Standard

Sr. No.	Marks Secured	11th Std.		12th Std.		Total		P Value
		No	%	No	%	No	%	
1	< 60%	123	58.29	121	41.87	244	48.8	
2	> 60%	88	41.71	168	58.13	256	51.2	P < 0.01
	Total	211	100	289	100	500	100	

3. Biology Reading

Table No. 7 revealed that 75.14% Biology reading (science) students compared to 38.53% Non-Biology reading (Arts +Commerce) students scored more than 60% marks in knowledge score

(P < 0.01). This necessitates an effective Reproductive Health Program should be adopted incorporating all students from various fields with more stress on non-biology stream students. Thakor HG et al[8] also noted similar findings.

Table No. 7: Knowledge Score and Biology Reading

Sr. No.	Marks Secured	Biology Reading (Science)		Non-Biology Reading (Arts+Commerce)		Total		P Value
		No	%	No	%	No	%	
1	< 60%	43	24.86	201	61.47	244	48.8	
2	> 60%	130	75.14	126	38.53	256	51.2	P < 0.01
	Total	**173**	**100**	**327**	**100**	**500**	**100**	

Sources of Information Regarding Reproductive Health

Overall 68% students named Doctor/Health Worker as their main source of information regarding Reproductive Health followed by Mass Media (65.6%), friends ,Print Media, Parents and Teachers (Figure No. 2). Mass media was the main source information mentioned by respondents in Singh M M [18], Mukherjee G G[19] studies while Friends was the main source of information mentioned by respondents in Ahuja A et al[6] Sonia Singh[15], Thakor H G et al[8] and Aggarwal O et al[20] studies. Only 9.6% students mentioned teacher as a source of information. This shows that role of schools in providing reproductive health information is very limited hence there is need to introduce Reproductive Health Education in school curriculum.

Figure No. 2 : Sources of Information Regarding Reproductive Health

CONCLUSION AND RECOMMENDATIONS

Overall knowledge amongst Higher Secondary Students regarding reproductive health was fair. Boys, 12th standard & Biology reading students were found to be more knowledgeable. Doctor / Health worker, Mass media & Friends were main source of information on Reproductive Health issues.

"Reproductive Health Education" needs to be incorporated as a part of regular school teaching irrespective of the stream. A group of students (Peer Educator) can be trained first who can then relay their learning to other students. Media should also take the responsibility of providing technically correct, culturally acceptable and relevant information on Reproductive Health issue by involving Health professionals, trained counselors and other experts.

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Laparoscopic Cholecystectomy in Acute Cholecystitis: A Pilot Study

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ABSTRACT

In spite of worldwide acceptance of laparoscopic cholecystectomy as gold standard for treatment of symptomatic gall bladder disease, the application of laparoscopic cholecystectomy for acute cholecystitis is associated with higher rate of morbidity & conversion to open surgery. However, in the hands of experienced surgeon, these difficulties can be overcome & similar results can be obtained as seen in elective laparoscopic cholecystectomy. In this study, we evaluated the feasibility of laparoscopic cholecystectomy in cases of acute cholecystitis with cholelithiasis.

Keywords: *Acute cholecystitis, laparoscopic cholecystectomy.*

INTRODUCTION

Elective laparoscopic cholecystectomy has been the gold standard treatment for symptomatic cholelithiasis. However, the laparoscopic approach has remained controversial for patients with acute cholecystitis because of higher rate of morbidity & conversion to open surgery. But when done by experienced surgeons, results comparable to elective laparoscopic cholecystectomy in form of lesser hospital stay, lower incidence of wound infection can be obtained. In the present study we will review our results of laparoscopic cholecystectomy in acute cholecystitis done at L.L.R.M. Medical College, Meerut.

MATERIAL AND METHOD

This study was conducted on patients having acute cholecystitis with cholelithiasis who presented in emergency department from Sept. 2009 to October 2010. All the patients were fully investigated and ultrasonography was done to confirm the diagnosis of acute cholecystitis with cholelithiasis. All the patient were operated within 72 hours of admission. Laparoscopic cholecystectomy was started first by creating pneumoperitoneum with CO_2 by closed method (Veress needle). Then 10 mm port was introduced through incision given on upper margin of umblicus and laparoscope was inserted through it. Then under vision another 10 mm port was inserted through incision given in epigastric region just left to the midline. Two 5

mm ports were introduced, one through incision given in subcostal region in mid clavicular line and another through incision given in anterior axillary line at the level of umblicus. Adhesions (with omentum, stomach and duodenun) were separated from gall bladder and then dissection was started initially in posterior Calot's triangle and then in anterior Calot's. Blunt suction was used often during stage of window formation and separation of gall bladder from liver. The procedure was completed by extraction of gall bladder through umblical port. In post operative period, all the patients were observed for post- op pain, incidence of wound infection and days of hospitalization.

RESULTS

During this study a total of 36 patients were operated by laparoscopic cholecystectomy. The age distribution of patients is shown in table 1.

TABLE 1: AGE DISTRIBUTION

Age group	No. of patients	Percentage
11-20	0	0
21-30	10	27.77
31-40	11	30.55
41-50	10	27.77
51-60	3	8.33
61-70	2	5.55
Total	**36**	**100%**

Out of 36 patient, 31 were female and 5 were male. During dissection, perforation of gall bladder occurred in 30 patients out of 36. Stones that were spilled in peritonial cavity were removed with grasper and thorough irrigation and suction of liver bed was done. Out of 36 patients, drain was placed in 19 patients. Table 2 is showing different days of drain removal. No case was converted to open cholecystectomy. Wound infection occurred in 1 case out of 36. (The patient had seroma collection at of the umblical port site which was aspirated). Table 3 is showing the length hospital stay of the patients.

TABLE 2: DAY OF DRAIN REMOVAL

Day of Drain removal	No. of patients	Percentage
2nd POD	6	31.5
3rd POD	9	48.3
4th POD	3	16
5th POD	1	5.2
Total	**19**	**100%**

TABLE 3:LENGTH OF HOSPITAL STAY

Day of Discharge	No. of Patients	Percentage
2 day	0	0
3 day	4	11.11
4 day	16	44.44
5 day	10	27.77
6 day	4	11.11
7 day	2	5.55
Total	**36**	**100%**

DISCUSSION

Laparoscopic cholecystectomy is among the most common operation performed[1]. Acute cholecystitis was initially considered a contraindication for laparoscopic cholecystectomy, but today the laparoscopic route is generally used even for severe acute cholecystitis. In our study peak incidence of gallstone disease was in 4th decade (30.55%). Tiwari et al (1982) and Kapoor et al (1984) have reported a maximum incidence of 37.7% of gallbladder disease in 4th decade. Baig et al (2002) also reported a maximum incidence in 4th decade of life with mean age of patient being 38 years. .The mean duration of operation in this study was 74.37 minutes. KA Stevens et al have reported a mean operating time of 92 minutes in their study of 132 patients who were operated within 72 hours of acute attack In our study wound infection in the form of discharge was observed in 1 patient[2] (2%). Keus F et al, Cochrane database of systemic reviews in his series showed an incidence of 0.25% (3 among 1165 patients) wound infection.. In our study the average hospital stay was 4.5 days[3].Grace et al (1991) reported the hospital stay of 3.5 days for laparoscopic cholecystectomy. Drain was placed in 19 patients. Majority of patients had approximately 50-100 ml drainage which was serosanguinous in nature. Drain was removed on an average of 3.4 days postoperatively. In our study no case was converted to open cholecystectomy[4]. No mortality was observed in our study[5] Kiviluoto T et al in their study of laparoscopic versus open cholecystectomy for acute and gangrenous cholecystitis, reported no mortality in laparoscopic group. Majority of patients devolped nausea and vomiting postoperatively after successful laparoscopic cholecystectomy. Significant complications like bile leak or CBD injury were not seen in this study

CONCLUSION

When performed by experienced laparoscopic surgeons, laparoscopic cholecystectomy for acute cholecystitis is feasible and as safe as open cholecystectomy, with significant benefits to the patients.

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Prevalence, Risk Factors and Clinical Spectrum of Migraine among Medical Students in India

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ABSTRACT

Background: Headache is highly prevalent among medical students and migraine is the leading entity in them. There are many ancillary symptoms along with headache in migraine patients that hamper the quality of life in them. Our study aims at identification of prevalence, clinical features, triggers, severity of headache and knowledge regarding their headache among different batch students of a medical college.

Material and Method: All the students of a medical college, year wise were given the migraine questionnaire which contained 31 questions regarding headache. Those who have headache were asked to tick the relevant features. Out of them, students who met the criteria for migraine based on IHS ICHD 2 criteria were included in the study and others were excluded. The frequency of headaches among different batches (year of study), clinical characteristics and knowledge regarding their headache were tabulated and analyzed. Descriptive statistics were presented in the form of mean ± standard deviation, frequencies and percentages. Statistical analysis was done by using Microsoft excel 2007.

Results: Out of 736 students, 37.2% had chronic headache while 26.7% met the diagnostic criteria for migraine. The prevalence of migraine among females and males was 35.4% and 15.5% respectively. The severity, duration and disability is much higher in females and the prevalence of menstrual migraine is 6.2%. Various types noted, were migraine without aura in 67.6%, migraine with aura in 21.8%, chronic migraine in 16.7%, probable migraine in 10.6% and status migrainosus in 9.6%. The most common aura is flashes of light, the most common prodrome is irritability and the most common trigger is lack of sleep. 77% had unilateral headache and the commonest site is temple region. 77% had relief by sleeping in a dark room, 69.1% used medications, 12% had taken prophylaxes for their headache at least once and only 52% know that they have migraine.

Conclusion: Migraine is highly prevalent among medical students, with females being more affected than males. There is a need to increase the knowledge about the diagnosis and use of prophylaxes to reduce the substantial burden, the disease carries.

Keywords: Headache, Medical students, Migraine.

INTRODUCTION

Headache is among the top 20 causes of diseases causing disability[1]. Among headaches, migraine tops the list with a prevalence varying from 5-50%. Variation in the prevalence of headache may be a factor of ethnicity, as Japanese have least prevalence of 6%, Western world 20-30% and Indian studies have shown a prevalence of 25-40%[2,3,4,5]. Migraine differs from other diseases in that its diagnosis is clinical. Even though for a practicing physician the diagnosis barely requires imaging, more dangerous neurological diseases like malignancies are often found late, having been treated for migraine for sometime before imaging is sought. Flip side,

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subjecting every headache patient to neuro imaging imposes financial burden and exposes the patient to the perils of radiation. Hence, a rational approach is needed and investigations should be ordered only if the headache is atypical or if there is a neurological deficit on examination. The knowledge about migraine in the society is poor, given the fact that not more than half of migrainers know their diagnosis. This may be due to the tendency to use OTC (Over The Counter) medications on a temporary basis, not bothering to understand the importance of getting diagnosed, which ends up with drug dependence and medication induced headache. The symptoms of migraine are typical where as signs are very few, if at all. The triggers of migraine, clinical presentation and risk factors may vary among different populations. A doctor who treats the headache, is very often a victim of his own headache. It has been proved that medical students, are more prone to headaches, most commonly migraine[6].Migraine is known to worsen over time and may become chronic and resistant if not treated. For a medico, it can substantially affect the class attendance, impair concentration and skill which not only impedes the quality of life, but also translates into poor performance in the examinations[7,8]. Our study aims at identification of the prevalence, habitual risk factors or triggers and various clinical presentations of migraine and to estimate the level of knowledge about their own diagnosis among medical students.

MATERIAL AND METHOD

All the medical students of 1st, 2nd, 3rd, 4th year and interns of a medical college belonging to the academic year 2013-14 formed the study population. They have been given the questionnaire related to headache, and were asked to mark the relevant features of their headache. The questionnaire consisted of 30 relevant questions regarding their symptom profile like prodrome, severity, duration, triggering factors, relieving factors etc. Informed consent from all the students and approval from the Institutional Ethics Committee of the hospital has been taken. We ensured that they understood the purpose of the questionnaire and clarified their queries. Age, sex and family history of headaches were taken. After collecting the data, Patients who met the IHS diagnostic criteria for migraine were included in the study. Where ever appropriate, thorough neurological examination was done. Students with headaches other than migraine, new onset headaches, and those with an abnormal neurological examination were excluded from the study. Based on ICHD 2, International Headache Society classification for migraine, we classified migraine into 1) Migraine with aura 2) Migraine without aura 3) Complications of migraine 4) Probable migraine. The frequency of headaches among different groups (year of study), clinical characteristics and risk factors were tabulated and analyzed. Descriptive statistics were described in the form of frequencies and percentages. Statistical analysis was done by using Microsoft excel 2007.

RESULTS

A total number of 736 students were enrolled in the study, out of which 415 (56.3%) were females and 321 (43.7%) were males. 275 (37.3%) had chronic headache while 197 (26.7%) met the diagnostic criteria for migraine. Of these 197 students who have migraine, 147 (74.6%) were females and 50 (25.4%) were males.

The prevalence of migraine among females and males was 35.4% and 15.5% respectively. Age and batch (study year) wise distribution of migrainers were as shown in table 1.

Table 1 showing the batch wise and age wise distribution of migraine.

Students class wise	Mean age (years)	N=736 (%)
1st year	18.3±2.4	22 (2.9%)
2nd year	19.6±1.7	31 (4.2%)
3rd year	20.4±1.5	47 (6.4%)
4th year	21.6±1.4	59 (8%)
Interns	22.8±2.1	38 (5.2%)
Mean	20.54±1.82	

Among 197 Migrainers, the most common type of migraine is Migraine without aura in 133(67.6%), followed by migraine with aura in 43 (21.8%), probable migraine in 21(10.6%). We identified the complications of migraine like chronic migraine in 33 (16.7%) and status migrainosus in 19 (9.6%). The most common aura observed was flickering lights or spots or lines in 22, scotomas in 9, paraesthesias and dysesthesias in 9 and dysphonias in 1. The clinical features of migraine among different participants were noted. The headache is pulsatile in 48.3%, piercing in 21.8%, gripping in 20%, heaviness in 16.2% and burning in 1.4%. A variety

of stimuli that triggered migraine were as shown in table 2.

Table 2 shows various activities that act as triggers of migraine

TRIGGERS	N=197 (%)
1. Lack Of Sleep	124 (62.9%)
2. Physical/mental stress	101(51.2%)
3. Prolonged exposure to strong light/ Sound	49 (24.8%)
4. Delay in meals	37 (18.7%)
5. Head bath	36 (18.2%)
6. Menstruation	26 (12.1%)
7. Watching TV/Movie	22 (10.2%)
8. Strong odors	19 (9.6%)
9. Coffee/Tea	12 (5.5%)
10. Alcohol/Smoking	6 (2.8%)

Among 415 female students, 26 (6.2%) had menstrual migraine. After the onset of headache, the following maneuvers resulted in exacerbation as shown in table 3.

Table 3 shows various factors that increase the severity of headache after its onset.

EXAGERATED BY	(%)
Light/heat exposure	119 (60.4%)
Reading books/watching TV	92 (42.7%)
Head Bending	60 (28%)
Walk/Work	25 (11.6%)
Cough/Sneeze	22 (10.2%)

The relieving factors were sleeping in a dark room as felt by 154 (78.1%), Vomiting in 49 (24.8%), coffee or tea in 40 (18.6%). 77% had a unilateral headache while 23% had bilateral headache, sites were as shown in figure 1

Figure 1 shows various sites of pain in migraine

92 (42.7%) revealed that they identified no specific time for headache whereas remaining had headaches during specific times like evenings in 56 (28.4%), mornings in 30 (15%), afternoon in 12 (6%) and night in 17 (8.8%). On a pain scale of 0-10, the mean pain among females and males was 5.3 ± 2.2 and 3.9 ± 1.1 respectively. The mean duration of pain was 12.1 ± 5.8 hrs in females and 9.4 ± 3.6 hrs in males. Numerous associated features were reported as shown in figure2.

Figure 2 shows various associated features that accompany headache in migraine

126 (64%) students were using OTC medications including local balms and oils issued in medical shops while only 24 (12%) used prophylaxis at least once. The drugs used to treat the attack in descending order of frequency were paracetamol, naproxen, ibuprofen, diclofenac, tramadol, sumatriptan. The prophylaxes being taken were Amytriptiline, Propranolol, Flunarizine and Topiramate in the same order. Only 106 (53.8%) students know that they have a migraine.

DISCUSSION

We conducted the study based on history and physical examination (as required). We did not recommend neuroimaging in patients who met the IHS diagnostic criteria for migraine. This is supported by a recent statement from the American headache society which proposed not to order a CT brain routinely in every case of headache[9].The prevalence of migraine among medical students in our study (26.7%) is a little lower than the studies done in western population (40-45%), while Indian studies reported similar prevalence of 20-30%[10,11]. This may be due to geographical and

ethnic factors, temperature differences, diet habits etc. In our study, two thirds of migrainers were females, outbalancing males by a huge margin and is consistent with many other studies. They also had higher pain as rated on pain severity scale, longer pain duration and higher frequency of attacks compared with males. This translates to a loss of 486 ± 121 hours/anum for boys and 790 ± 267 hours/anum for girls, a factor that can impair performance in studies. Specific factors responsible for the gender variation have not been elucidated, but the association of migraine with female sex hormones is most appropriate[12]. Menstrual migraine also contributes to the burden of migraine in females, causing higher study loss. The prevalence of menstrual migraine in our study (6.2%) is much lower than earlier studies documenting 50-60% prevalence in adult females[13]. In this study, final year students showed highest prevalence of migraine (39.7%). This period coincides with the maximum stress faced by students during their tenure with regard to clinical postings, final examinations and anxiety regarding their pass out. Migraine without aura (67%) predominated in our study over other types of migraine put together (33%), in accordance with most of the studies[14]. Even though scotomas were complained by 29 (13.4%), we were unable to subject them to opthalmological examination at the time of headache and hence we could not exclude the possibility of retinal migraine in them. We also found that the prevalence of chronic migraine (16.7%) and status migranosus (9.6%) is high. Previous studies have only rarely documented these two complications of migraine which pose significant threat to the quality of life, and comprise a substantial portion of the disability caused by migraine. The most common trigger for migraine was lack of sleep or late night sleep the preceding night (62%) as documented in many studies, pointing stress as the trigger. Delayed food intake and head bath were also common triggers of migraine in this study. Studies from India have documented head bath as an important trigger with a prevalence of 10-20%, the pathogenesis unknown[15]. Most of the clinical features of migraine in this study are consistent with other studies across the world[16]. Vomiting, nausea, irritability and fatigue are known to occur with dopaminergic activation, a common phenomenon seen in migraine patients[17]. Sun exposure significantly exaggerated headache in this study and 70% of students reported that they avoid light due to photophobia and wish to sleep in a dark room during headache. The normal subcortical suppression

of glare and light induced pain are known to be blunted in migraine patients resulting in photophobia. Vasodilatation of cranial arteries through activation of the trigeminal–parasympathetic reflexes induced by factors like light, water, breeze etc will either trigger or worsen headache in them[18].

The usage of 'over the counter' drugs for headache is very high in this study (70%) compared to studies done on the general population as medicos live in proximity to the pharmacy and have better knowledge about pain killers than the general population. It is interesting to note that the usage of prophylaxis for migraine is yet only 12%, similar to other non medical patients, despite being in the hospital premises and having regular interaction with doctors[19]. Similarly, the knowledge regarding their own diagnosis (53.8%) is also poor. This lack of awareness is due to inconstant and episodic nature of migraine that do not bother the patient in the interval period, which is wrongly regarded as 'simple headache that comes and goes' and lack of knowledge regarding the risk of progression to debilitating complications. Numerous studies have pointed the possible association of migraine with depression, anxiety, and bipolar disorder[20]. Association of migraine with ischemic stroke and cardiovascular disease in women is also proposed[21]. Almost all students (98.9%) confessed that they are unaware of these complications. Focusing on the need for self diagnosis and the importance of timely prophylaxes can substantially reduce the disease burden and can help not only in improving the quality of life but also reduce the time loss inflicted during headache period. The limitations of the study are dependence on history given by students, the non inclusion of other types of migraine like basilar, retinal and hemiplegic variants.

CONCLUSION

The prevalence of migraine is high among medical students, with highest prevalence seen in final year students. The clinical presentation and triggering factors are similar to other studies done outside India. The prevalence is much more common in females, who suffer more frequent and more prolonged episodes and lose significant time due to headache. There is poor knowledge regarding their diagnosis despite being medical students and the tendency to use over the counter medication is high and prophylactic drugs were taken only by a few. This study emphasizes the

need for improving the knowledge about migraine among medical students, which can help in avoiding triggers, bringing awareness regarding the timely use of prophylaxes so that the disability caused by migraine can be mitigated.

Conflict of Interest: Nil

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Predictive Factors of Breast Feeding in Urban and Semi Urban Population of Aligarh

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ABSTRACT

Background: Despite all these advantages and measures being taken, in the last century and more so in the last fifty years there has been a marked decline in the levels of breast-feeding. The decline in breast-feeding is certainly linked to the far-reaching changes that have taken place in educational, socio-cultural and demographic environment of the mother infant unit. Working mothers, increase in per capita income, exposure to alternative feeding methods, rural to urban movement of the population etc. are some of the factors that could be influencing the breast-feeding trends.

Aims: We need more research to determine risk factors for non-exclusive breast-feeding especially from the urban areas, where the breast-feeding rates are worst affected. There has been no reported breast-feeding rate from our place and also since we do not have any data regarding breast-feeding rates from urban home deliveries, the current study has been planned.

1. To assess the factors influencing the breast-feeding practices.

2. To identify the risk predictive factors for non-exclusive breast-feeding.

Materials and Method: infants between ages 0-12 months would be enrolled in this study .Data collected from each infant and mother pair will be recorded in a separate pretested Performa. Breast feeding indicators used in this study would be as per WHO 1991 recommendations. Sample size of 907 was entertained. Univariate as well as multivariate would be done to identify risk predictive actors for non-exclusive breast-feeding. The data would be analyzed with the help of SPSS version 7.5 and EpiInfo-60. On univariate analysis the chi-square statistics and student t-test will be used for categorical and continuous data respectively. Both Univariate and logistic regression analysis would be done for Exclusive versus non-exclusive breast-feeding. Further analysis would be done to identify factors influencing introduction of top milk. This would be done by comparing the partially breast-fed with exclusively top-fed babies

Results: In total there are about 15 factors, which seem to be significantly associated with non-exclusive breast-feeding. But some of these factors might be confounding for others. Hence univariate analysis is not strong enough to identify true risk factors for non-exclusive breast-feeding. Therefore logistic regression analysis was done for all factors, which were significantly associated with non-exclusive breast-feeding on univariate analysis. The factors found significantly associated with non-exclusive breast-feeding on univariate analysis were:

When logistic regression analysis was done we found only 7 of these factors showing significant association (Table-7). The valid cases used for this analysis model ware 531 and predictive value of this model of risk factors for non-exclusive breast-feeding was 73.26%.

Conclusions: To remove confounding logistic regression analysis was applied and following were independent risk factors for non-exclusive breast-feeding.

1. Family income less than Rs. 5000 p.m.,	2. Nuclear family
3. Vaginal delivery	4. Prelacteal feeds
5. Absent past experience of EBF	6. Below average approx. birth size

Keywords: *Exclusive Breast feeding, bottle feeding, risk predictive factors*

INTRODUCTION

Breast milk is the best food in the early months of life. From times immemorial, breast milk has been considered the most suitable food for infants. Recent researches have shown that for human infant, breast milk alone is sufficient for the first 4-6 months of life.. In 1983, the Govt. of India adopted the national code for protection and promotion of breast-feeding. In 1992 the Indian parliament passed the infant milk Substitutes, Feeding Bottles and Infant Food (Regulation of Production, Supply and Distribution) Act[2]. India also joined the World community in taking the so called Baby Friendly Hospital Initiative (BFHI) [3]

The decline in trends can be reversed if appropriate training is arranged for all the health workers who in turn can educate and train the mothers for breast-feeding. Baby Friendly Hospital Initiative is an important step towards the objective of hundred percent exclusive breast-feeding up to 6 months in the infants.. There has been no reported breast-feeding rate from our place and also since we do not have any data regarding breast-feeding rates from urban home deliveries, the current study has been planned.

2.   To assess the factors influencing the breast-feeding practices.

2.   To identify the risk predictive factors for non-exclusive breast-feeding.

REVIEW OF LITERATURE

Table 1: Causes of lactational Failure

Breast feeding factors		Mother psychological factors	
1.	No night feeds	1.	Lack of confidence
2.	Short feeds (<5-15m/feed)	2.	Worry, stress anxiety
3.	Poor attachments	3.	Dislike of breast-feeding
4.	Bottles, pacifiers	4.	Rejection of baby
5.	Complimentary feeds	5.	Tiredness
6.	Delayed start	6.	Poor literacy level
Mother Physical conditions		**Baby's condition**	
1.	Contraceptive pills	1.	Illness
2.	Pregnancy	2.	Abnormality
3.	Alcohol	3.	Prematurity
4.	Smoking	4.	Small for date
5.	Poor breast development	5.	Colic

In the Urban India starting from the breast-feeding pattern in 1960's and 1970's,the ever breasts fed rates are ranging from 90-100% Later from 1980 onwards the ever breast fed rates have dipped down to 70%[4] and 60-90%[5] in the least 2 reports. Similarly, in breast-feeding at 6m, a downward trend was reported from Chandigarh[4] and Madhya pradesh[6] . Rest of the recent studies report 90-100 % ever breast-fed rates and breast-feeding at 6m . More recent reports from Delhi are showing an improvement to 52% of exclusive breast-feeding rates at 3 months. A study from Utter Pradesh in 1987[7] reported 85% exclusive breast-feeding rates

A wide range of factors has been studies over the course of time and place. Broadly, they can be categorized under three headings.

1.   Socio-demographic variables

2.   Parental/ delivery veriables

3.   Infant and feeding variables .

Table 2 depicts some of the common factors studied by various workers. Apart from these commonly studied factors, there are factors which are either sparingly studied or not studied at all.

Data in the available reports has been analyzed in a simple univariate manner rather than accounting for compounding factors, though recently a few studies from abroad have attempted to answer this. Moreover since the data from abroad may not be applicable locally since the factors responsible for poor levels of breast-feeding may vary geographically.

Table 2: Comparison of risk factors as reported by Various Workers

STUDY VARIABLE	Ghosh[8]	Sjolin[9]	Jaiswal[10]	Bathija[11]	Kumar[12]	Jeeson[13]	Lindquist[14]	Chye[15]	Mazrouzi[16]	Chabbra[17]	Sachdev[18]	Agarwal[19]	Voge[20]
Soico-demographic													
Urban stay	−				−						−		
Higher socio-economic status		−			+	−		−		+	−	−	
Media													
Family size					−	−				−	−		
Parental/Delivery													
Younger mother					−	−	+	−	+		+		+
Illiterate mother		+	+				+						
Literate mother	+				+	+	−			+	−	−	−
Working mother					−	−		+	+		−		−
Non vaginal delivery							−	−			+		−
Episiotomy							−	−					
Primigravida		−			+		+	−		−	+	−	−
Absent ANC motivation				+			+				−		
Infants variable													
Low birth weight						−	−		+		+		
Female sex	−	−		−		−				−	−	−	
Delay in start of B/F											+		
Non human milk first-feed					−						+		

MATERIAL AND METHOD

This study would be carried out in the department of pediatrics. J.N.M.C.H., AMU, Aligarh. Infants between age of o-12 month would be enrolled with their mothers in the study. The sample size would be drawn from the health clinic of Urban Health Training Center of Department of Community Medicine and from well Baby Clinic of our hospital.

There would be 13 such groups starting from less than 1 Month, which would be 0-month group to 1, 2,3… 12 Month group on a average 50-100 infant-mother pairs would be enrolled in each such group.

Data collected from each infant and mother pair will be recorded in separate pre-tested Performa information regarding parents age, education, occupations. Family type, duration of urban stay, details of antenatal care details of delivery, time of first feeds, prelacteal feeds etc would be recorded. In case of hospital deliveries, gestational age and birth weight if documented would be recorded. Univariate as well as multivariate would be done to identify risk predictive actors for non-exclusive breast-feeding. The data would be analyzed with the help of SPSS version 7.5 and EpiInfo-60. Both Univariate and logistic regression analysis would be done for Exclusive versus non-exclusive breast-feeding. Further

analysis would be done to identify factors influencing introduction of top milk. This would be done by comparing the partially breast-fed with exclusively top-fed babies.

OBSERVATIONS

On comparing the place of antenatal care and breast feeding advice given during ANC visit, The following data was collected.(Table3)

Table 3. Breast feeding advice during antenatal visits in different health setups

ANC Place	Advice not Given	Advice given	Total
JNMCH	39(8.2)	435(91.8)	474
Distt. Hosp.	34.(48.6)	36(51.4)	70
Pvt. Nursing home	37(52.1)	34(47.9)	71
Total	**105(17)**	**510(83)**	**615**

Figure in parenthesis are percentages

Any visit to the health practitioner was also recorded along with the type of health practitioner and type of feeding advice given. On further analyzing this information it was found that of the 502 mothers gone to a pediatrician, 94.2% had received breast-feeding advice where as only 43% of the general practitioner and 11.9% of other practitioner gave breast-feeding advice. Further, 76% of the other practitioners advised bottle-feeding (Table-4).

Table 4 : Advice given by health practitioner:

Type of health practitioner	Number of times breast feed advised	Number of times bottle feed advised	Number of times no advice given	Total No. of cases
Paediatrician	475(94.2)	18(3.6)	9	502
General practitioner	56(43.1)	73(55.7)	2	131
Other Practioner	11(11.9)	70(76)	11	92

To find the socio-demographic factors having significant association with non-exclusive breast-feeding we have done univariate analysis of these factors against non-exclusively and exclusively breads-fed infants(.Table 5)

Table 5: Socio-Demographic Factors

S.No	Variable	Non EBF(n=512)	EBF (n=391)	*OR*	95%CI
1	**Family type** Nuclear Joint	202 311	122 268	1.42	1.08-1.88
2	**Family income** <5000 Rs. P.M. ≥5000 Rs. P.M.	166 347	55 335	2.91	2.07-4.09
3	**Religion** Non-Muslim Muslim	93 420	52 338	1.44	0.99-2.08
4	**Duration of Urban stay** ≥5 year <5 year	399 114	324 66	0.71	0.51-1.00

Among factors like family type, family income, religion and duration of urban stay we found nuclear families (OR 1.42: 95% CI1.08-1.88) and family income <2000 Pm (OR 2.91: 95% CI 2.07- 4.09) to be significantly associated with non-exclusive breast-feeding. Religion (OR 1.44; 95% CI 0.99-2.08) and longer urban stay (OR 0.71; 95% CI 0.51_1.00) did not show any significant association with non-exclusive breast-feeding.

Among antenatal and perinatal factors most of the factors showed significant association with non exclusive breast feeding except except mode and place of delivery as well as birth order. A very high association was found between type of health practitioner and breast feeding pattern. The factors found significantly associated with non-exclusive breast-feeding on univariate analysis were: (Table 6)

Table 6: Antenatal and perinatal factors

1	Nuclear families	9	Breast-feeding advice at delivery
2	Low family income	10	Prelacteal f eed
3	Illiterate fathers	11	Time of 1st feed
4	Illiterate mother	12	Short hospital stay
5	ANC at Distt. Hosp & private nurs. homes	13	Lack of past experience of EBF
6	Less than 3 Antenatal visits	14	Practitioner other than Paed./GP
7	Vaginal delivery	15	Below average birth size
8	Episiotomy		

But some of these factors might be confounding for others. Hence univariate analysis is not strong enough to identify true risk factors for non-exclusive breast-feeding. Therefore logistic regression analysis was done for all factors, which were significantly associated with non-exclusive breast-feeding on univariate analysis.

When logistic regression analysis was done we found only 7 of these factors showing significant association (Table-7). The valid cases used for this analysis model ware 531 and predictive value of this model of risk factors for non-exclusive breast-feeding was 73.26%.

Table 7: Logistic regression analysis:

S.No.	Variable	Non EBF	EBF	Adjusted OR	Adjusted 95% CI
1	Family income • < 2000 Rs./m • ≥2000 Rs./m	166 346	55 336	3.55	1.44_4.53
2	Family Type • Nuclear • Joint	202 311	122 268	1.84	1.20_2.82
3	Mode of Delivery • Vaginal • Caesarean	465 44	307 84	3.47	1.89_6.34
4	Prelacteal feed • Given • Not given	394 118	186 205	1.82	1.21_2.74

Cont... Table 7: Logistic regression analysis:

5	Past experience • Absent • Present	174 214	82 199	2.12	1.35_3.32
6	Approx. B. Wt. • Bow & above avg. • Average	59 453	16 375	6.59	2.46_17.64
7	Type of HP • Others • Paed/ G.P./	76 350	4 292	14.05	3.29_59.96

SUMMARY AND CONCLUSION

Following conclusion were drawn about the breast-feeding practices in urban population of Aligarh.

1. A large number (32) of the mothers did not received antenatal advice, more so during their antenatal visits to private nursing homes and district hospital.

2. Breast-feeding was delayed beyond 1 hour in favor of Prelacteal feeds in a large number of cares. This was more common among non-JNMCH borne babies.

3. Exclusive breast-feeding seems to be for longer duration in mothers having past experience of breast-feeding.

4. Visit to health practitioners other than pediatrician and general practitioners were found as definite risk factor for non-exclusive breast-feeding.

Various factors when grouped and analysed statistically by univariate analysis revealed 15 factors to be significant risk factors.

To remove confounding logistic regression analysis was applied and following were independent risk factors for non-exclusive breast-feeding.

7. Family income less than Rs. 5000 p.m.

8. Nuclear family

9. Vaginal delivery

10. Prelacteal feeds

11. Absent past experience of EBF

12. Below average approx. birth size

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The Key Challenges and Recommendations for Healthy Cities Implementation of North Kolaka, Indonesia

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ABSTRACT

The purposes of this paper were to investigate the implementation and challenges of Healthy Cities in North Kolaka. This research used a descriptive qualitative approach. Six informants from different background and governmental bodies were interviewed. They were Healthy Cities Forum, Heads of Governmental Bodies such as Department of Health, Regional Planning and Development Board, Department of Tourism, Food Security and Nutrition Office. They involved in the application of Healthy Cities in the region. Focus Group Discussion was also applied from the members of Healthy Cities Forum. This research was also based on document reviews. Data were analysed using thematic analysis.

This research found that the Healthy Cities program for North Kolaka focuses on the settings of settlement area and public facilities and infrastructure, and idependent-healthy community life. The challenges included understanding of Healthy Cities for Advisory Team, Healthy Cities Forum, Healthy Villages Communication Forum and Working Group; cross sector collaboration, community participation, funding, capacity building, and lack of facilities and infrastructure. This study recommends strengthening four settings of Healthy Cities which are the settlement area, public facilities and infrastructure, independent-healthy community life, healthy tourism and food security and nutrition.

Keywords: Healthy Cities, North Kolaka, settings

INTRODUCTION

Indonesia has a long history in the development of Healthy Cities yet Healthy Cities movement started running effectively since the issuance of joint regulation between the Ministry of Home Affairs and the the Ministry of Health [1-3]. The concept of Healthy Cities in Indonesia refers to the structure of government districts/cities (kabupaten/kota) which in this paper uses the term Healthy Cities [2, 4]. WHO set up a general concept of

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Healthy Cities as settings in each region [5-10] but each country can develop the Healthy Cities based on the problems and the needs and available resources [11].

Healthy Cities movement in Indonesia varies. In early 2005, the number of districts/cities involved in Healthy Cities was very limited. Only a few districts/cities involved, such as Makassar, Pare Pare and Palopo in South Sulawesi; Payakumbuh in West Sumatera; Medan in North Sumatera; Denpasar in Bali; Semarang in Central Java; Manado in North Sulawesi; Balikpapan in East Kalimantan [2, 12].

The development of Healthy Cities in Southeast Sulawesi province is very slow compared to other provinces in Indonesia. Up to 2015 in Indonesia, only 137 districts/cities (26.65%) in 23 provinces (67.64%) have been involving in the implementation of Healthy Cities [13], and only two districts/cities in Southeast

Sulawesi (Kendari City and North Kolaka) [13, 14]. The application of Healthy Cities in a region relies heavily on commitment among government and community. The Healthy Cities implementation in North Kolaka is not well documented, including the current achievement and challenges.

The purposes of this paper were to investigate the implementation and challenges of Healthy Cities in North Kolaka, Indonesia.

MATERIALS AND METHOD

This research used a descriptive qualitative approach. This research was conducted in North Kolaka, one of districts in Souteast Sulawesi Province, Indonesia. Data collection process consisted of in-depth interviews, Focus Group Discussions and document reviews. Six informants from different background and governmental bodies were interviewed. They were Healthy Cities Forum, Heads of Governmental Bodies such as Department of Health, Regional Planning and Development Board, Department of Tourism, Food Security and Nutrition Office. They involved in the

application of Healthy Cities in the region. Focus Group Discussion was also applied from the members of Healthy Cities Forum. The members of Healthy Cities Forum were from government staff from in line with selected settings of Healthy Cities. However, they were from community representatives, including local leaders such as youth and religious leaders. This research was also based on document and report reviews in relation to the implementation of Healthy Cities in the region. Data trianggulation such as method trianggulation was applied. Data were analysed using thematic analysis.

FINDINGS

1. North Kolaka at Glance

North Kolaka was officially formed on 7 January 2004. This district was formerly a part of Kolaka District of Souteasth Sulawesi. Administratively, the government of North Kolaka consists of 15 sub districts, 6 urban villages, and 127 villages with an area of approximately 3391.6 km2 (seen Table 1.1).

Tabel 1.1: Names of Sub Districts, Capital City, Villages and Urban Villages in North Kolaka

No	Sub Districts	Capital City	Areas (Km²)	Urban Villages	Villages
	Wawo	Wawo	189,9	1	6
2	Rante Angin	Rante Angin	162,7	0	7
3	Lambai	Lambai	235,0	0	7
4	Lasusua	Lasusua	287,7	1	11
5	Katoi	Katoi	82,6	0	6
6	Kodeoha	Mala-mala	250,5	1	11
7	Tiwu	Tiwu	81,9	0	7
8	Ngapa	Lapai	149,2	1	11
9	Watunohu	Watunohu	110,0	0	8
10	Pakue	Oloholoho	313,3	1	10
11	Pakue Tengah	Latali	131,3	0	10
12	Pakue Utara	Pakue	191,8	0	9
13	Batu Putih	Batu Putih	375,0	1	10
14	Tolala	Tolala	183,6	0	6
15	Porehu	Porehu	647,2	0	8
Jumlah			**3.391,6**	**6**	**127**

Source: Central Bureau of Statistics of North Kolaka [15]

The population growth rate of North Kolaka was very dynamic. In 2011 the population of North Kolaka was 127.295 inhabitants; increased in 2012 to 130.531 inhabitants. Total population of North Kolaka in 2015 reached approximately 140.706 (see Figure 1.1.).
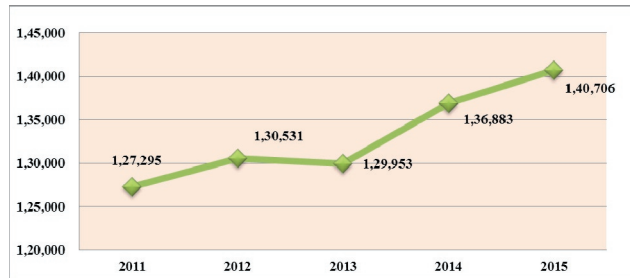

Figure 1.1: The population growth rate of North Kolaka, Indonesia in 2015

Source: Central Bureau of Statistics of North Kolaka [15]

2. Healthy Cities Achievement of North Kolaka

There are two settings for Healthy Cities of North Kolaka at the beginning of the district involved in the implementation of Healthy Cities in Indonesia. The settings were Settlement Areas, Facilities and Public Infrastructure and Independent-Healthy Community Life. Activities strengthened in the respective setting were:

Settlement Areas, Facilities and Public Infrastructure

a. Clean air

b. Clean rivers and canals

c. Individual and public clean water supply

d. Domestic wastewater disposal

e. Waste management

f. Housing and settlement

g. Landscape gardening and urban forest

h. Schools

i. Market management

j. Sports and Recreational Facility and Children's Playground

k. Informal Sector Management (peddler or household)

Independent-Healthy Community Life

a. Clean and healthy behaviors

b. Public places

c. Settlements, housing and healthy building

d. Clean water supply

e. Occupational Health and Safety, Prevention of Accidents and Involuntary

f. Family health, reproductive health and family planning

g. Development of Community Mental Health and Parenting Children

h. Sports and Physical Fitness

i. Anti-tobacco program

j. Immunization

k. Treatment and care services

l. Malaria eradication

m. Dengue eradication

n. Tuberculosis eradication

o. Diarrhea eradication

p. Degenerative disease prevention

q. Nutrition

r. National health assurance

3. Challenges of the application of Healthy Cities in North Kolaka, Indonesia

The challenges of Healthy Cities implementation in North Kolaka could be divided into several aspects:

a. Advisory Team. The members of Healthy City advisory team generally were from heads of relevant governmental bodies. They do not have the same understanding of the healthy cities. Most of departments outside of the health sector assume that a healthy city is a matter for the health department. There is no "passion" for them. Strong socialization for them is absolutely necessary.

b. Healthy Cities Forum. The members of Healthy Cities Forum were not all actively involved as expected. The Secretariat had been provided but it activity was rarely conducted. Synchronization between the Forum and the Advisory Team also needs to be strengthened.

c. Healthy Villages/Urban Villages Communication Forum. The members of Healthy

Villages/Urban Villages Communication Forum have not been involved optimally. Secretariat of the forum also requires attention. Usually the secretariat is located at the district office and there is no clear program. Preparation of work plans should be strengthened.

d.   Working Group. Not to all the villages and urban villages in the Working Group has not yet formed. Secretariat and the work plan as well as the activities need to be strengthened. There is no special secretariat for the Working Group. General secretariat is located at the village or the urban village office but not permanent.

e.   Cross Sector Collaboration. The cross sector collaboration has not run optimally, especially in the relevant governmental bodies based on selected settings of Healthy Cities.

f.   Community participation. The community participation needs to be strengthened, especially in relating to efforts to create clean, safe and comfortable environment.

g.   Funding. The funding both for advisory team and forum as well as activities which are in each sector has not been allocated clearly.

h.   Capacity building. The implementation of Healthy Cities relies heavily on the capacity both the members of advisory team and Forum and community in general. Knowledge on Healthy cities was still lacking almost at all levels of Healthy Cities application: Healthy Cities Advisory Team, Healthy Cities Forum, Healthy Villages/Urban Villages Communication Forum, and Working Group.

i.   Facilities and infrastructure. Providing facilities and infrastructure in the application of Healthy Cities was still weak.

4.   Future Plan and Recommendations of Healthy Cities of North Kolaka, Indonesia

North Kolaka will develop 4 settings of Healthy Cities. The selected settings are based on an agreement between the government and the public and potential of the area. The settings include Settlement areas, public facilities and infrastructure; independent-healthy community life; healthy tourism and food security and

nutrition. Each setting has leading sector and supporting sectors as shown in Table 1.2.

In order to implement more effectively the Healthy Cities in North Kolaka, several activities should be carried out both in the advisory team, governmental bodies and Forum:

a.   Institutional strengthening. Establishment of the Healthy Villages and Urban Villages Communication Forum in all sub-districts and the Working Group in all villages and urban villages.

b.   The proper functioning of the advisory team, Healthy Cities Forum, Communication Forums of Healthy Villages and Urban Villages and Working Groups marked the work programme and various administrative and operational activities as well as strengthening data collection activities to document the activities.

c.   Secretariat. The availability of the secretariat for the advisory team, Healthy Cities Forum, Communication Forums for Healthy Villages and Urban Villages and the Working Group permanently and is equipped with supporting facilities.

d.   Funding. It is necessary to provide clear funding for Healthy Cities officers: Advisory Team, Healthy Cities Forum, Healthy Villages and Urban Villages Communication Forums, and Working Group as well as respective governmental bodies by selected settings.

e.   Srengthening capacity building. Orientation, sosialisation, workshop, training in order to enhance capacity for Healthy Cities officers at all levels: District, sub district and village and urban village as well as respective governmental bodies by selected settings.

f.   Contact person. It is necessary to provide a contact person or person in charge to help documenting activities at respective governmental bodies by selected settings.

g.   Memorandum of Understanding. It is necessary to have MoU among relevant governmental bodies and Forum to encourage all stakeholders of Healthy Cities.

h.   Pilot projects. It is necessary to develop Healthy Cities projects based on selected settings.

Tabel 1.2: Settings of Healthy Cities, Leading Sectors and Supporting Sectors for North Kolaka, Indonesia

No	Settings	Leading Sectors	Supporting Sectors
1	Settlements, public facilities and infrastructure	Department of Public Work	Regional Planning and Development Board (Bappeda), Department of Health, Department of Housing, Environmental Health Body, Department of Sanitary, Department of Social Affairs, Department of Forestry, Department of Education, Department of Industry and Commerce, Community Participation Body, and Village Governance, Police Unit and the Civil Service, Police
2	Healthy tourism	Department of Tourism	Bappeda, Department of Health, Department of Regional Revenue, Department of Social Affairs, Department of Sanitary, Community Participation Body, Village Governance, Hotel and Resturant Association, Regional AIDS Commission, National Narcotics Body, Police Unit and the Civil Service, Police
3	Food security and nutrition	Food Security and Nutritional Office	Bappeda, Department of Health, Department of Perkebunan dan Holtikultura, Department of Agriculture and Veteriner, Department of Marime and Fishery, Department of Cooperatives, Micro Small and Medium Enterpretise, Community Participation Body, Village Governance, Agricultural Extention Officers, Community Economic Institution
4	Independent-healthy community life	Department of Health	Bappeda, Regional AIDS Commission, National Narcotics Body, NGOs, Hotel and Restaurant Association, Department of Tourism, Local Water Company (PDAM), Department of Industry and Commerce, Department of Marime and Fishery, Department of Labour, Department of Sanitary, Community Participation Body, and Village Governance, General Hospital of DJAFAR HARUN, ndonesian Heart Foundation, Food Security Agency and Extension, and the Indonesian National Sports Committee

Source: developed from FGD

CONCLUSIONS

a. North Kolaka has been involving in the application of Healthy Cities in Indonesia. Two settings have been set up which are Settlements, Public Facilities and Infrastructure and Independent-Healthy Community Life. Two others would be developed including Healthy Tourism and Food Security and Nutrition.

b. The challenges of Healthy Cities included lack of understanding of Healthy Cities for Advisory Team, Healthy Cities Forum, Healthy Villages Communication Forum and Working Group; cross sector collaboration, community participation, funding, capacity building, and lack of facilities and infrastructure.

c. Integrated Healthy Cities planning needs to be done to achieve a more comprehensive Healthy Cities movement.

d. It is necessary to measure the quality of Healthy Cities with different methods and to develop elemental settings such as healthy schools, healthy hospitals, healthy public health centers and healthy markets.

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An Interaction Effect of Emotional Intelligence & Gender on Student's Adaptation to College Environment

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ABSTRACT

The present research focuses to find out the effect of emotional intelligence (EI), gender & their interaction on overall students adaptation & it's dimension separately. It was found that EI significantly influenced overall student adaptation & each dimension of adaptation. Gender had no significant influence on adaptation of students. Interaction effect of EI & gender on student adaptation could not be found for both academic & personal emotional dimensions. The output of this particular study is expected to help the technical undergraduates who are struggling hard to get adjusted to their college environment.

Keywords- *Emotional intelligence (EI), students adaptation, gender, interaction effect, college environment*

INTRODUCTION

EI is a concept that has been research extensively during past days. EI is considered as a subset of social intelligence which involves understanding, monitoring of own & others emotions[1]. But the concept of EI received exemplary popularity after publication of the best seller book "Emotional intelligence" by Daniel Goleman in 1995 & after that EI took precedence over IQ. Since then EI is being measured by many standardized instruments & it could predict many other variables related to personality & human behavior[2]. Human adaptation is one such vital variable which is believed to be influenced by EI which the present study focuses. Adaptation is a concept derived from Charles Darwin's theory of evolution which says "survival of the fittest"[3]. Darwinism is more like biological in scope & nature. But the contemporary adaptation process is more complex & multidimensional in nature. EI is an aptitude to identify, understand & control one's own emotions & others emotions which facilitates individuals to adapt in better way[4]. EI plays a vital role in educational process which helps the teachers to mentor the students as well as can be a great motivator for students in all aspects of their life[5]. Student life is very dynamic in nature as a roller coaster ride is involved to it. Students always joggle with their own dreams, family expectations, competitive academic achievements, learning new things, shaping their social mannerisms, grabbing a job

etc. These situations really bring pressure to the students & they struggle hard to live up to all those expectations. In such scenario it is believed that students draw strength from their positive emotions. It is observed that EI has bearing in first year students adaptation to college environment[6] as they remain in the transition phase. EI positively related to students adjustment process. Students successful adaptation depends on the emotional quotient[7]. Research also contributed that high EI gets translated to better adjustment[8]. Studies also noted that being in technical education engineering students scored poor in EI as they lack in emotional enunciation[9]. Another finding again noted that emotionally intelligent students can sense potential hazards & adapt to new environment in a supple way[10]. Students who are better at EI leads quality relationships, have greater life satisfaction & prosper mentally, that is the reason why EI supersedes intelligence quotients[11]. Students possessing higher EI experience optimum level of their personality level. Past evidence also added that not only EI facilitates overall growth of students but also acts as a protective shield against delinquent behavior like suicide & socio-psychological injuries[12]. EI is a great minimizing factor of stresses coming from all around to students[13]. The role of gender in boosting EI is still a debate. Findings in the past noted males & females exhibited no difference in level of EI[14]. For university students EI level is at par for both genders[15].

As far as EI is concern boys & girls behaved equally[16]. There are four major dimensions of adaptation which are vital for students such as academic adjustment, social adjustment, personal-emotional adjustment & attachment. But this study made an attempt to include only two dimensions namely academic adjustment & personal emotional adjustment as academic adjustment is considered to be the most fundamental adjustment process. And of course personal emotional adjustment is such a dimension which combines personal & emotional aspect of any student including socialization process, emotional stability, developing connections etc.

MATERIALS AND METHOD

Participants were students who enrolled themselves in four years degree engineering program age ranging from 17 to 23 years. Sample size comprised of 679 engineering undergraduate students studying in institutions of National origin like IIT, IIIT, NIT, three deemed universities of Odisha & BPUT, Odisha were surveyed. EI was assessed though a standardized measure which is known as Assessing Emotions Scale (AES) developed by Schutte & Malouff et al., (1998) & adaptation of students was measured through SACQ developed by Baker & Syrik (1999). Out of 900 responses only 679 could be filtered to be entered into SPSS. Reliability score of EI & SACQ measures were noted 0.87 & 0.85 respectively.

FINDINGS

Influence of EI, gender & their interaction on overall adaptation of undergraduate students

Total EI score was classified into three category i.e. high, average, & low EI. Similarly gender was categorized into two levels males & females. The output of overall student adaptation was extracted by 3X2 factorial design ANOVA.

Impact of EI on overall adaptation of students

The statistical analysis output resulted the F-Value for EI is 6.73 which is significant at 0.01 level with df=2/673. It indicates that the mean scores of overall adaptation vary with the variation of EI level. So there was a significant influence of EI on overall adaptation of students.

Table 1: Mean, Standard Deviation, sample (N) & t-values of overall adaptation of students according to level of EI.

Level of EI	M	SD	N	Average EI	Low EI
High EI	101.52	13.60	101	5.63	3.61
Average EI	94.49	10.92	485		0.42
Low EI	95.01	11.34	93		

The t-value of 5.63 is fairly significant at 0.01 level with df= 584 (Table 1). The mean score of overall adjustment of highly intelligent undergraduates & average EI are is 101.52 & 94.49 respectively. Thus it is deciphered that highly emotionally intelligent undergraduates were having reasonably improved overall adjustment process to their college environment than their other counterparts.

From Table 1 t- value has been noted down 3.61 which is significant at 0.01 with degrees of freedom 192. The mean scores recorded are 101.52= high EI & 95.01= low EI for overall adjustment. Therefore highly emotional intelligent students exhibited higher intensity of overall adjustment than less emotional intelligent undergraduates.

Table 1 detailed that the t-value of 0.42 is not significant. Students with average & low EI were found to demonstrate similar extent of overall adaptations.

Gender Influence on Overall Students Adaptation

The estimation of F for gender is 1.43 which is not significant (Table 1). Hence both male & female subjects exhibited similar degree of adaptation to their college environment.

Influence of interaction between EI & Gender on Overall Adaptation

The F-value for relationship between EI and Gender is 2.66 which is not critical (Table 1). So there was no impact of interaction between EI & gender on overall adaptation of understudies.

Influence of EI, Gender & their interaction on Academic Adjustment of students

EI classified into three different levels such as high, average and low. Gender has been categorized into two i.e. males and females.

Table 2: Outline of 3X2 Factorial Design ANOVA of Academic Adjustment of Students

Source of Variance	Degrees of freedom	SS	MSS	F-Value	comment
Emotional Intelligence (A)	2	163.57	81.79	4.54	p<0.01
Gender (B)	1	7.95	7.95	0.44	
AXB	2	47.41	27.70	1.31	
Error	673	12131.31	18.03		
Total	678				

Influence of EI on Academic Adjustment of Students

Table 2 shows the F-Value for EI discovered 4.54 which is significant at 0.01 level with df=2/673. It represents that the academic adjustive process of undergraduates fluctuate as indicated by the change in the level of EI.

Table 3: M, SD, N and t-estimations of academic adjustment of students according to level of Emotional Intelligence

Level of EI	M	SD	N	Average EI	Low EI
High EI	29.17	4.81	101	4.27	3.29
Average EI	27.20	4.08	485		0.47
Low EI	26.98	4.43	93		

The t-value is observed to be 4.27 which is significant and it demonstrates that the mean scores of academic adjustment significantly varies because for high EI students which is 29.17 & for average EI students it is 27.20. Highly EI students undergo better academic adjustment when contrasted with average EI students.

It is apparent that the t-estimation of 3.29 is significant at 0.01 level with df= 192 (Table 3). The two different mean scores of academic adjustment for high EI & low EI undergraduates are reported, these are 29.17 & 26.98 respectively. Thus we might say that pupils with high EI are better acclimated to academic adjustment.

Table 3 made it apparent that the t-estimation of 0.47 is insignificant. Here average EI students & low EI students almost equal degree of academic adjustment.

Influence of Gender on Academic Adjustment of Students

The value of F for gender is noted 0.44 which is insignificant (Table 2). Both male & female undergraduate students had similar intensity of academic adjustment as the mean score did not vary.

Influence of interaction between EI & Gender on Academic Adjustment of Students

From Table 2, the F-value for interaction between EI & gender is noted down 1.31 which is not significant, hence no interaction effect was found for the above variables.

Influence of EI, Gender & their interaction on Personal-Emotional Adjustment (PEA) of undergraduate students

There were three levels of EI, namely, high EI, average EI, & low EI, Males and Females were the two levels of Gender.

Table 4: Summary of 3X2 Factorial Design ANOVA of PEA of Students

Source of Variance	df	SS	MSS	F-Value	Remark
EI (A)	2	161.51	80.76	6.76	p<0.01
Gender (B)	1	9.90	9.90	0.83	
AXB	2	25.00	12.50	1.05	
Error	673	8043.07	11.95		
Total	678				

Influence of EI on PEA of Students

The Value of F for EI is 6.76 which is significant at 0.01 level with df=2/673. The mean scores of PEA changes when level of EI changes.

Table 5: Level of EI-wise M, SD, N and t-values of PEA of students

Level of EI	M	SD	N	Average EI	Low EI
High EI	17.75	4.10	101	1.48	1.83
Average EI	17.19	3.32	485		4.12
Low EI	18.74	3.38	93		

Table 5 clearly shows that the t-value of 1.48 is not significant. It might, in this manner, be explained that there is not much difference in the process of emotional-personal adjustment of high & average EI pupils.

Similarly it is evident from Table 5 that the t-value of 1.83 is not significant & the intensity of undergoing PEA in case of high & low EI groups students is also equal like above.

From Table 5, it is apparent that the t-value of 4.12 which is significant at 0.01 level with df=576 which interprets that the mean scores of PEA of less EI students is 18.74. Mean score of PEA of averagely EI pupil is 17.19. Thence, it is said that low EI pupils possessed higher PEA than students with average EI.

Influence of Gender on PEA of Students

The F-value for gender is derived 0.83 which is not significant which means there is no significant influence of gender on PEA of students.

Influence of interaction between EI & Gender on PEA of Students

From Table 5, F-value is drawn & noted 1.05 which is not significant. It says that the mean scores of PEA of both genders belonging to three levels of EI did not vary extensively which means PEA of students was observed to be independent of interaction between EI & gender.

CONCLUSIONS

Emotional intelligence significantly influenced overall students' adaptation to their college environment. Significant impact of EI on each aspect of adaptation noted. Unlike other researchers the present study also put utmost emphasis to include EI in curriculum[17] & the suggestion made conduct workshops to instill & impart EI among technical students. As after graduation the job environment would be much more demanding & multifarious, in such situation from their EI they can draw strength to deal with diversified situations like client relations, leadership building, decision making etc[18]. The probable reasons why gender did not show any influence on adaptation could be boys & girls studying engineering belonging to today's contemporary families & both genders are putting equal effort to adapt their new college environment. Clearer outcome is expected if both variables can be studied in different educational programs.

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Examining the Prevalence of Depression and Anxiety in Patients with Chronic Headache Visiting Neurology Clinic of Imam Ali Hospital in Zahedan in 2015

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ABSTRACT

Introduction and Objective*:* Migraine and tension-type headache are the most common types of headache in all human societies. Previous studies have shown that depression and anxiety are associated with persistence and severity of headache. Therefore, psychological aspects of chronic headaches should be considered in diagnosis, prognosis and treatment of these headaches. The frequency of depression and anxiety in patients with chronic headaches was studied in order to offer useful strategies for effective therapies for chronic headaches in this study.

Materials and Methods*:* This was a descriptive-analytical study. Eligible individuals were selected using convenience subsequent sampling method. The statistical population consisted of all patients over age of 15 with chronic headache visiting neurology clinic of Ali Ibn Abi Talib Hospital in Zahedan in the first semester of 2015. Data collection tools were the Depression Anxiety Stress Scales—21 (DASS-21) and patients' records. Information form and DASS-21 were distributed and filled out by the patients with chronic headache who were diagnosed by a neurologist. The completed forms and questionnaires were collected. The collected data was logged into SPSS.

Results*:* In total, 345 patients were studied among which 94 patients (27.2%) were males and 251 patients (72.8%) were females. Total prevalence of depression was 78.3% (n = 270) and total prevalence of anxiety was 302 patients (87.5%), which represented high rate of depression and anxiety in the patients. The results also showed that such factors as gender, age, education and type of headache are effective in incidence of mood disorders and anxiety in these patients. Accordingly, the prevalence and severity of these disorders were higher in females than males. The prevalence of these disorders increased with age. On the other hand, the prevalence of these disorders reduced with increased education.

Conclusion: Given the high prevalence of depression and anxiety in patients with chronic headaches, it is recommended that common treatment methods (for both headaches and mental disorders) be used for treatment of chronic headache. Other prospective studies should examine the effect of these methods in reducing depression and anxiety in the patients.

Keywords: *Depression, anxiety, headache.*

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INTRODUCTION

Headache is a common complaint in modern societies. Refrain from personal activities or incomplete personal capability affects individual emotional life. Inefficacy and inefficiency in pain management reduce

self- efficacy and cause cognitive errors in individual lives. On the other hand, false beliefs about pain increase negative mood and sometimes impair self-concept and self-esteem. Given the adverse effects of headache on psychological state of the patient and the role of stress in inducing and exacerbating the severity of headaches, psychological therapies were used to treat headaches since the late 1970s [1].

Migraine is a pulsating recurrent headache with neurological symptoms. Headache may be unilateral accompanied by nausea and vomiting and sensitivity to light and sound in migraine. Family history is involved in most cases [2]. There are two types of migraine as classical migraine or migraine with aura or warning signs and common migraine without aura [3]. Tension-type headache refers to chronic headache with unknown causes without certain characteristic of migraine [4-6]. Migraine and tension-type headache are the most common types of headache in all human societies. Many chronic headaches are associated with mental and behavioral problems [7, 8].

Previous studies have shown that the risk of migraine-associated depression is 1.3. Migraine and depression have reciprocal effects on each other. Accordingly, each one of these disorders increases the risk of another (incidence of migraine increases the risk of depression and vice versa). A common etiology is found for migraine and depression [9], e.g. tyramine conjugation in migraine and depression [10].

The risk of headache in depressed people is two-fold higher than non-depressed individuals. Incidence of major depression in adolescence with no earlier complaints about headache underlie the risk of headache in the future. Thereby, there is a neural chemical and pharmacological connection between depression and headache [11, 12].

Depression and anxiety are associated with continued recurrent headache rather than severity of headache. Therefore, psychological aspects of chronic headaches should be considered in diagnosis, prognosis and treatment of these headaches. Psychological therapy is a complementary therapy for chronic headaches because successful treatment of chronic headaches depends on diagnosis of anxiety and depression [13].

Frequency of depression and anxiety in patients with chronic headache was investigated in this study in order to offer useful strategies for effective treatment of chronic headaches (migraine and tension-type headaches).

MATERIALS AND METHOD

This was a cross-sectional study on patients over 15 years of age with chronic headaches visiting Neurology Clinic of Ali Ibn Abi Talib Hospital in Zahedan. Various reports have shown that prevalence of depression and anxiety disorders varies from 48.2% to 92% [2, 5]. The sample size was calculated as 384. Given time constraints and difficulties in data collection, several patients were excluded from the study. In total, 345 patients diagnosed with chronic headache (migraine and tension-type headache) by a neurologist were eligible for the study. DASS-21 scoring system was used to determine presence or absence of depression and anxiety and severity of these disorders. Other information such as age, gender, education and type of headache was assessed using both descriptive and analytical statistics. Significance level was intended as 0.05. Validity and reliability of DASS-21 were confirmed in various internal and external studies using Cronbach's alpha (0.97).

Ethical codes of 1, 7, 10 and 17 were considered according to Ethics Committee of Medical Studies in Iran.

FINDINGS

In this study, 94 patients (27.2%) were males and 251 patients (72.8%) females among 345 patients. In addition, 21.9% were between 15 and 24 years old, 31.8% were between 25 and 34 years old, 27.4% were between 35 and 44 years old and 19% were above 45 years old. Furthermore, 52.5% had no diploma, 25.8% had diploma and higher than diploma degree, 17.4% had bachelor degree and 4.3% had master degree and higher than master degree. Moreover, 90.7% of the patients suffered from migraine and 9.3% suffered from tension-type headache.

The findings showed that 78.3% of patients were depressed among which 11.3% suffered from minor depression, 18% suffered from moderate depression, 18.3% suffered from severe depression and 30.7% suffered from highly severe depression. Frequency of anxiety was 87.5% among which 6.1% suffered from mild anxiety, 12.5% suffered from moderate anxiety,

9.6% suffered from severe anxiety and 59.4% suffered from highly severe anxiety. In addition, 81.3% suffered from depression, 90% suffered from anxiety, 54.6% suffered from severe and highly severe depression and 72% suffered from severe and highly severe anxiety among female patients. Furthermore, 70.2% suffered from depression, 80.9% suffered from anxiety, 34% suffered from severe and highly severe depression and 61.7% suffered from severe and highly severe anxiety. Thereby, the prevalence of depression and severity of anxiety are higher in females than males. The prevalence of depression and anxiety in the patients with no diploma was 82.3%, in the patients with diploma and higher than diploma degree was 89%, in the patients with bachelor degree was 92.1% and in the patients with master degree and higher than master degree was 53.3%. The results showed a significant reduction in prevalence of depression and anxiety with increased education.

Frequency distribution of depression and anxiety in terms of age was as follows: 66.7% and 81.3% among patients from 15 to 25 years old (36% severe depression and 64% severe anxiety), 82.3% and 89% among patients from 25 to 34 years old (63.5% severe depression and 67.9% severe anxiety), 88.3% and 91.5% among patients from 35 to 44 years old (53.2% severe depression and 67.9% severe anxiety), 80% and 87.7% among the patients≥45 (50.8% severe depression and 66.2% severe anxiety) . The prevalence of depression in the patients with migraine and tension-type migraine was 82.4% and 37.5% respectively. The severity of depression in the patients with migraine and tension-type migraine was 52.33% and 15.6% respectively. The prevalence of anxiety in these patients was 91.7% and 46.9% respectively. The severity of anxiety in these patients was 74.1 and 18.7% respectively. The prevalence and severity of these disorders are apparently higher in migraine patients.

DISCUSSION

In this study, the frequency of depression and anxiety was 78.3% and 87.5% respectively. Severity of depression and anxiety was mild in 11.3% and 6.1% of the patients, moderate in 18% and 12.5% of the patient, severe in 18.3% and 9.6% of the patient and highly severe in 30.7% and 59.4% of the patients. The prevalence and severity of these disorders were higher in this study compared to other studies. In the study performed by Light *et al.*, 34.4% of the patients with

chronic headache were not depressed, 18.4% suffered from mild depression, 36% suffered from moderate depression and 11.2% suffered from severe depression. Furthermore, 23.2% of the patients with chronic headache did not suffer from anxiety, 55.2% suffered from moderate anxiety and 21.6% suffered from severe anxiety [14]. These results were consistent with the results of the studies conducted by Farnam *et al.* [15] and G-Felber [16]. High prevalence of depression and anxiety in studied patients reflect that these patients should cope with many stressors in their lives. This indicates that more comprehensive studies should be performed in this area.

Frequency of panic disorder was studied in the patients with headache visiting Baghiyatallah Hospital in 2004. In the former study, 87% of migraine patients suffering from panic attacks were females [17]. Farnam *et al.* showed stronger relationship of depression with severity of headache in females [15]. These results are consistent with the results of the present study that showed that frequency of depression and anxiety is significantly higher in females than males.

The prevalence of depression and anxiety in patients with chronic headache with no diploma was 82.3% and 89% respectively. On the other hand, the prevalence of depression and anxiety decreased with increased education. Accordingly, the prevalence of depression and anxiety was 53.3% and 73.3% in the patients with bachelor degree. A significant difference in frequency of depression and anxiety between different education groups suggest protective effect of increased education and social awareness on incidence of these disorders (suggest that educated people are protected against mental disorders and are more familiar with symptoms and the risk of these disorders). Probably, educated people better cope with stressors. These findings are consistent with findings of other studies [17].

The frequency of depression and anxiety in the patients with chronic headaches was higher in 25-45 age group than other age groups. This may be due to increased rate of stressors in this age group. Similar results were obtained by Ameli *et al.* [17].

The frequency and severity of depression and anxiety in patients with tension-type headaches were significantly higher than migraine patients. G. Dyb *et al.* showed that stronger correlation of depression

and anxiety depends on recurrent headache rather than diagnostic categories in Norway (G. Dyb *et al.* showed that depression and anxiety disorders are highly correlated with recurrent headache. They found out that depression and anxiety disorders are not highly correlated with type of headache, either migraine or tension-type) [18]. Felbinger J *et al.* reported noticeable correlation of severity of headache with depression and anxiety in Bavaria [19]. In another study, Beghi. E *et al.* Psychiatric comorbidity (prevalence and types) was tested in a naturalistic sample of adult patients with pure migraine without aura, and in two control groups of patients, one experiencing pure tension-type headache and the other combined migraine and tension-type headaches (n = 374). Statistics showed that psychopathology of primary headache can be a reflection of the burden of the disease rather than a hallmark of a specific headache category (20). The results of these studies cannot be compared for three reasons: a) tension-type headache was differentiated from migraine in this study; b) statistics on both types of headache (migraine and tension-type headache) was not available; c) headache severity was not assessed in this study.

Kai-Di Juang *et al.* conducted a study in Italy in 2008 and found out that the prevalence and concurrency[1] of mental disorders was apparently higher in patients with modified migraine. These results are consistent with the results of the present study [21].

CONCLUSION

Academics have always sought new treatment methods for chronic headaches given the high prevalence of this disease in human societies and large effects of this disease on quality of life and economic costs imposed on the individual and society due to treatment of the disease and workplace absenteeism. The results of this study showed high prevalence and severity of depression and anxiety in patients with chronic headache. Furthermore, such factors as gender, age, education and type of headache are effective in type and severity of these diseases. Since chronic headache-associated psychiatric disorders exacerbate severity of the headache [22], treating these disorders can lessen the severity of headache, so that chronic headache may not be as annoying as accompanied by psychiatric disorders. Using common treatment methods for chronic headaches and psychiatric disorders can increase the quality of life in patients with chronic headaches. Thus,

it is recommended to diagnose and treat comorbidities for effective headache management, especially mental disorders.

Conflict of Interest – None declared

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SEM Modeling Approach for Studying the Social Impact of Whatsapp Usage

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ABSTRACT

Social Media has made a pioneering impact by promising to deliver innovation, propel cost effective measures for cost saving and enhancing the brand strength through mass cooperation. Whatsapp is one such social innovator in recent times that has garnered immense popularity among youngsters and studies have found it to be more popular than Facebook too. The main objective of this study is to examine the importance of whatsapp as a social innovator among youngsters. The study aims to analyse the drivers of whatsapp usage among these youngsters. Using SEM the social impact of this whatsapp usage is studied and whatsapp usage factors having an influence on social impact are highlighted. This paper has strongly advocated that whatsapp has been a major social innovator among youngsters and through this empirical study it was found that whatsapp usage significantly influences social impact.

Keywords: *Social Innovation, social impact, whatsapp, communication*

INTRODUCTION

"It has become exceedingly obvious that our technology has exceeded our humanity." **-Albert Einstein**

Facebook acquired whatsapp with a whopping amount of $19 billion and at present almost one billion people use this mobile app.[1] Presently whatsapp is the second most widespread and used app next only to Facebook. It has been reported that almost 700 million users send 30 billion messages every day. Fig 1 stats only prove that fact.[2]

Fig. 1 Growth of Watsapp messaging

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Technology today has been paving way for innovative and user friendly approach. Whatsapp today has been one such innovation that has been named as one of the most innovative technology for strong social impact. Reports have suggested that every one in seven person today uses whatsapp and the trend has been same globally. Whatsapp has been hugely prevalent for exchanging messages, images, files and videos without having to pay any fees. There are many extremely useful features like voice calling facility which enables users to call through internet. Recently whatsapp has forgone its yearly subscription fees for its users and this has only added to its popularity even more. [3]

OBJECTIVES

• To study whatsapp's as a social innovator among youngsters.

• To analyze drivers of whatsapp usage for communication

• To find out the social impact of whatsapp usage among youngsters through SEM Modeling

Theoretical Background and Hypothesis Developement

Whatsapp- The Social Innovator

Innovation can be defined as a novel idea, an effective product or process or an application that can deliver better solutions according to the market requirements.[4] Social media is one such innovation that has propelled the communication among the users where they can create, share and interact with other users and exchange messages, files, videos and pictures freely through internet.[5] Internet and social media has impact people's life and also brought about drastic changes in various aspects of it. Since the emergence of Web 2.0 technology the internet has been more or less driven by user generated content and huge data related to consumer identity.. Andreas Kaplan has defined social media as medium that allows users to share, create and interact with like-minded people and exchange the information in virtual communities which are an integral part of these social networks.[6] Whatsapp too has this feature where in groups can be created and users can interact with their family and friends within the confinement of these groups. Whatsapp's penetration has been huge in very less time and more research needs to under taken to actually understand its social impact and influence on interpersonal communication among its users. Majority of these users being young population further studies needs to be done to ascertain the impact it has on social lives of the users.[7]

In one of the studies done at university in South Africa, it was found that whatsapp actually had a very positive feedback as students claimed it to be very useful for communicating and interacting with their friends and family members. It was found that this has helped students in engaging with the teachers and subjects more efficiently as the environment on the whatsapp group is very informal allowing them to make learning a fun experience.[8] It has been further stated that such interactions helps in bridging the gaps that has been prevailing between knowledge and physical remoteness. Studies have proven that whatsapp has now become more relevant and a necessity for students as this platform has allowed them ease of accessibility, encouraged them to be more cooperative and heightened their motivation levels to be an active participant in academic projects and assignments.[9] Students can share lectures, discuss information and also interact with the teachers.

Whatsapp Usage

Using whatsapp is very easy, user has to just enter the number of the device and the app starts working. It also shows the list of contacts in the mobile currently using this application and to whome u can connect. Existing users can be invited for sending messages. Whatsapp was developed by Acton and Jan Koum in 2009 as their college project for communicating and distributing the multimedia messages at a faster pace and easy to use. That is one sole reason for whatsapp being so popular among youth. Apart from sharing the pictures and videos one can also create groups, update status and display pictures.

In order to test the model fit two hypotheses are framed. Null hypothesis suggests that model is a good fit and alternate suggests that it is not. Study has proposed that if the probability of association with chi square is high then the hypothesized model that is closer is best fit.

Drivers of Whatsapp Usage

A survey conducted by TCS in 2012-2013 that covers 17500 high school students spanning 14 indian cities has revealed that almost 70% of students have a smartphone and they access mostly these social networking sites to keep in touch with their friends and they build virtual communities on these platforms very frequently. They have now started utilising the true potential of the smartphone they own. Another article published in The Indian Express on Feb 21, 2014 has highlighted the facebook acquiring whatapp for a huge amount. [10] It was stated that since cheaper smartphones are available in Indian market and also the data plans are very affordable hence younger population is soon to follow this trend of adapting this technology. The acquisition is more like a future investment more so for a country like India which boasts of being a young nation. It was found that the limitations posed by microblogging sites and students being unfamiliar with these site too may add to them not using it more often, further propelling whatsapp usage (Gao, Luo & Zhang, 2012; Leitch & Warren, 2011). [11]

Social Impact through Whatsapp Usage

Social impact is the phenomena that happens when people's emotions, opinions and behavior is impacted by others. Studies have shown that social impact can be seen to occur in various ways such as conformity, socia lization, peer-pressure, obedience, leadership, persuasio n, sales and marketing. Herbert Kelman has identified three classification of social impact such as Compliance, Identification and Internalization.[12] Compliance is said to occur when people agree with opinion of others but also express their disobedience in private.

Identification is the attribute that occurs when people can relate or get influenced by someone they admire or like. Internalization occurs when people accept the belief of others and are open about their acceptance of the belief. Whatsapp has impacted all these areas to a great extent and hence we can conclude that whatsapp usage is driving the social change and impacting the lives of youngsters. Due to increase in the penetration of smartphones whatsapp has found larger customer base and according to the reports it is observed that by the year 2016 there are 220 million smartphone users in India. India is hence becoming the largest market with 100 million active users. Users prefer whatsapp over other social networking applications and they have made whatsapp conversation as a preferred platform for personal conversation.

METHODOLOGY

Data Collection and sample

Data were collected from youngsters of Chennai region who are users of whatsapp and totally 201 respondents have answered the online questionnaire. The perception of whatsapp users was measured with a self – administered questionnaire.

Data Analysis

Collected data was analysed with the help of software package AMOS 20, Structural Equation Modeling (SEM) was use d for data analysis.

RESULT

Demographic Profile of the Respondents:

Out of 201 youngsters from Chennai city, 42% were males and 58% were female. Almost 70% population was in the age group of 19-28 years. 20% of the population was in the range of 29-38 years of age. With respect to educational background 40% of

the respondents were bachelor degree holder, 40% were professionals, 10% were PhD's and 10% were from high school.

Measurement Model

Reflective measurements were used to indicate the changes in the latent constructs. [13] Established scales were used from the literature and adapted to suit to the study. Reliability and validity of the reflective measurement was assessed using Cronbach's alpha and Confirmatory Factor Analysis (CFA). The constructs used in the study show a high value of Chronbach's alpha, ranging from 0.86 to 0.91. Average variance extracted (AVE) and Composite reliability was assessed for all the constructs. All the values of the construct are greater than 0.65 for AVE exceeding the acceptable value of 0.50. [14] Our scale properties and the corresponding reliability and validity values are provided in Table I.

Null Hypothesis - Hypothesised model is a good fit.

Alternate Hypothesis - Hypothesized model is not a good fit.

The GFI of this study was 0.994 more than the recommended value of 0.90 the other measures too fitted satisfactorily; AGFI=0.942, CFI=0.998, TLI=0.984, IFI=0.998 and NFI=0.993 with x2/df < 5 at 1.487 and RMSEA=0.049 indicate a good absolute fit of the model. The model is considered fit if the Goodness of Fit indices support the structural model. Goodness of fit indices support the model fit and these emphasized indices indicate the acceptability of this structural model. Fig 1 shows the theoretical model and hypothesis stated for the study.

To check for the goodness of fit the fit indices were analysed and the fit model was achieved. Hence the null hypothesis was accepted as p value was more than 0.05 for the model under consideration.
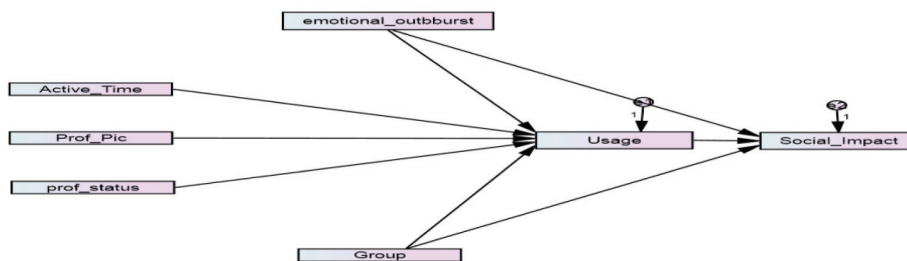

Fig.2 Theoretical Model

On the basis of collected samples structural equation model was developed to analyse the feasibility of the model. As per the recommendation given by Gerbing the measurement model was analysed for testing the reliability and validity of the survey instrument. The software used is SPSS- AMOS Version 20.[15] As highlighted by Peter structural equation modeling is suitable for evaluating the causal relationship between the identified variables. The model can also be used for checking the harmony of the used model. [16]

Structural equation modeling assesses whether the data will be fitting in a theoretical model. In order to analyze the model, stress was given to Chi-square/

degrees of freedom (x2/df), CFI, GFI, AGFI, TLI, IFI, RMSEA and PGFI. Common model-fit measures like chi-square/degree of freedom (x2/df), the comparative fit index (CFI), root mean square error of approximation (RMSEA), the normed fit index (NFI), incremental fit index (IFI), and the Tucker Lewis index (TLI) were used to evaluate the measurement model fit. Gerbing and Anderson have studies and stated that the criteria for satisfactory model are as follows: RMSEA of 0.08 or lower; CFI of 0.90 or higher; and NFI of 0.90 or higher. Hu and Bentler have suggested that the fit between the data and the proposed measurement model can be tested with a chi-square goodness-to-fit (GFI) test where the probability is greater than or equal to 0.9 specifies a good fit. [17,18]

Table-1 Standardized Structural Coefficients

Hypothesis		Standardized structural Coefficient	P	Acceptance or rejection
Active_Time	Whatsapp Usage	0.527	.006	H2 Accepted
Prof_Pic	Whatsapp Usage	0.513	.001	H3 Accepted
prof_status	Whatsapp Usage	-0.203	.184	H4 Rejected
emotional_outbburst	Whatsapp Usage	0.629	***	H1 Accepted
Group	Whatsapp Usage	1.130	***	H5 Accepted
Usage	Social_Impact	0.301	***	H7 Accepted
Group	Social_Impact	0.713	***	H6 Accepted
emotional_outbburst	Social_Impact	0.139	.273	H8 Rejected

RESULTS AND IMPLICATIONS

Main Effects

Table 1 depicts the standardized structural coefficient. Active time, profile picture, emotional outburst and group exerts significantly positive influence on whatsapp usage. The Hypothesis H1,H2,H3 and H5 are supported. However profile status has no significant effect on whatapp usage. Therefore H4 is not supported. Consistent with the whatsapp usage whatsapp usage and Group had positive influence on social impact leading to acceptance of H7 and H6. Whereas H8 was not supported that showed non- significant influence of emotional outburst on social impact.

DICUSSION AND CONCLUSION

The objective of this research was to analyse whatsapp as a social innovator and find out the attributes of this platform that drives its popularity among youngsters. Also one can send unlimited messages, photos, videos, files etc with an internet connection instantly. It was also found that its quite easy to use and old messages can be easily stored. The very important

feature associated with whatsapp is its feature to form private groups and interact with their friends and family members. There is no geographic constrained and we cannot connect with anybody across the globe freely. The SEM model was developed that showed a good fit confirming the whatsapp's impact on social lives. Whatsapp usage was positively impacted by Active time, profile pic, emotional outbursts and groups. That states how the penetration of whatsapp has made alterations in the people's lives.

There were few side effects too which were highlighted. Profile pictures can easily be downloaded by anyone and used for dubious purposes. Whatsapp consumes a lot of space in mobile which can lead the phone to hang. Contacts can be easily visible to others in the group and that can also be misused. Since there are no restrictions on length of the message that can be sent via messages lengthy messages can be sent which is very annoying at times. Excess whatsapp usage leads to students not being able to concentrate in class. Due to constant engagement with whatsapp there is very less interaction with family members at home too. From the above discussion it is clear that whatsapp has

become an integral part of lives of youngsters making communication a lot easy and fast.

CONCLUSION

This study is to examine the importance of whatsapp as a social innovator among youngsters. The study aims to analyse the drivers of whatsapp usage among these youngsters. Using SEM the social impact of this whatsapp usage is studied and whatsapp usage factors having an influence on social impact are highlighted. This paper has strongly advocated that whatsapp has been a major social innovator among youngsters and through this empirical study it was found that whatsapp usage significantly influences social impact.

Ethical Clearance- Not Required

Source of Funding- Self

Conflict of Interest - Nil

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Benefit of the Application of New ARDS Criteria (Berlin) Compared to Old Criteria (AECC) in a Tertiary Hospital in a Developing Country

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ABSTRACT

Background: There have been several ARDS definitions throughout years, including those by Laennec, Ausbagh, the Lung Injury score (LIS), and the American-European Consensus Conference (AECC) criteria in 1821, 1967, 1998, and 1994, respectively. In 2012, a new diagnostic criteria, the Berlin criteria, was published.

Objective: To identify benefits of implementing the Berlin criteria as compared to the AECC criteria in a tertiary hospital of a developing country

Method: This is a prospective, observational study conducted at a tertiary hospital in Jakarta from October 2015 to June 2016. Data was collected from ARDS patients in the emergency room, ICU, resuscitation room, and in-patient ward.

Result: There were 104 ARDS patients according to the Berlin criteria, while only 75 patients were diagnosed as ARDS according to the AECC criteria. Both criteria showed that majority of the patients were male; the APACHE score was <20; the Charlson comorbidity index 2; and sepsis was the most common etiology. Seven-day survival was higher in the Berlin criteria (51.9%) than in the AECC criteria (48%).

Conclusion: Application of the Berlin criteria in developing countries is more beneficial compared to the AECC criteria as a larger number of ARDS patients can be diagnosed, earlier diagnosis leads to earlier management thus increasing the survival rate, and excluding the use of a pulmonary artery catheter to measure the pulmonary wedge pressure

Keywords: Berlin, AECC, criteria, developing country.

INTRODUCTION

Laennec in 1821 described a condition characterized by pulmonary edema that occurred with no evidence of heart failure. Some terms were used to described the condition, such as double pneumonia, lung shock, and post traumatic lung.[1] Asbaugh et al, in 1967 was the first to coin the term Acute Respiratory Distress Syndrome (ARDS). This condition was based on 5 clinical features including an associated risk factor, severe hypoxemia despite adequate oxygen supplementation, bilateral infiltrates on chest x-ray, decreased lung compliance, and no evidence of congestive heart failure.[2] In 1998, another ARDS diagnostic criteria was made, the Lung Injury Score (LIS). There were 4 aspects of the respiratory injury, including positive end expiratory pressure (PEEP), PaO_2/FiO_2 ratio, lung compliance, and infiltrates on chest X-ray. Each item was assigned a score from 1 to 4 points. The patient would be diagnosed with ARDS if the total score was more than 2.5.[3]

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The definition of Acute Respiratory Distress Syndrome (ARDS) according to the American-European Consensus (AECC) in 1994 was acute hypoxemia (PaO_2/FiO_2 ratio of 200 mmHg) with bilateral infiltrates on chest X-ray, without evidence of left atrial hypertension. On the other hand, Acute Lung Injury (ALI), which has a similar clinical criteria similar to ARDS, has a lower degree of hypoxemia compared to ARDS (PaO_2/FiO_2 ratio of 300 mmHg).[4]

In 2012, a panel of experts from The European Society of Intensive Care Medicine, the American Thoracic Society, and the Society of Critical Care Medicine revised the ARDS definition. The panel agreed on the earlier concept of ARDS and further detailed the understanding of acute onset; the classification of decreased oxygenation; the minimum PEEP value; exclusion of hydrostatic pulmonary edema; and the new radiologic criterion.[5] Further, a new classification of ARDS; mild, moderate, and severe ARDS was determined.[6] The objective of this study was to highlight the benefits of implementing the Berlin criteria, as compared to the AECC criteria in the tertiary hospitals of developing countries.

MATERIALS AND METHOD

This was a prospective, observational study conducted in the emergency room, intensive care unit (ICU), high care unit (HCU), resuscitation room, and in-patient wards of a tertiary hospital in Jakarta from October 2015 to June 2016. The inclusion criteria were as follows: (1) diagnosed as ARDS based on the Berlin criteria and AECC criteria, (2) age 18 years and older. The exclusion criterion was patients discharged within less than 7 days since diagnosed as ARDS. This study has been reviewed and approved by The Health Research Ethics Committee of the Faculty of Medicine Universitas Indonesia and Dr. Cipto Mangunkusumo National General Hospital.

Variables and Measurement

The demographic characteristics included age and gender. The clinical characteristics reported include etiology of ARDS; ARDS classification according to the Berlin criteria and the AECC criteria; comorbidity; Charlson comorbidity index (CCI); Acute Physiology and Chronic Health Evaluation (APACHE) II score; ventilator utilization; and outcome of the patient in the following 7 days (dead or survived).

In this study, two diagnostic criteria (the Berlin criteria and AECC criteria) were applied. The specifics of each diagnostic criteria can be seen in Table 1.

Table 1. ARDS Diagnostic Criteria

Berlin Criteria	AECC Criteria
Mild ARDS: PaO_2/FiO_2 ratio ≤300 and >200	PaO_2/FiO_2 ratio of 200 mmHg
Moderate ARDS: PaO_2/FiO_2 ratio 100-200	Bilateral infiltrates in chest X-ray
Severe ARDS: PaO_2/FiO_2 ratio <100	No evidence of left atrial hypertension

The etiology of ARDS was categorized into sepsis and non-sepsis. Comorbidity was defined by the presence of a documented clinical diagnosis at the end of hospitalization. The diagnosis included were diabetes mellitus, chronic kidney disease (CKD), systematous lupus erythematous (SLE), liver cirrhosis, cerebrovascular disease (CVD), cancer, acquired immune deficiency syndrome (AIDS), and kidney transplant recipient.

The CCI is a method of measuring the severity of a patient's co-morbidities. Each comorbidity is given a score; 1 point for myocardial infarction, congestive heart failure, peripheral vascular disease, dementia, cerebrovascular disease, chronic lung disease, connective tissue disease, gastrointestinal ulcer, mild liver disease, diabetes mellitus; 2 points for hemiplegia, moderate to severe kidney disease, diabetes with end organ damage, any tumor, leukemia, lymphoma; 3 points for moderate or severe liver disease; 6 points for autoimmune deficiency syndrome, metastatic solid tumor.[7] The points are totaled, and then categorized into >2 and 2.

The APACHE II score is a measurement of disease severity. It is used to assess the risk of in-hospital mortality.[8] This score is calculated within the first 24 hours of ARDS, and it is categorized into <20 and 20. Ventilator utilization is the use of a ventilator within the first 48 hours following ARDS diagnosis. Outcome of the patient is their condition after 7 days of hospitalisation, dead or survived.

Statistical Analysis

Analysis was conducted using the SPSS software version 20.0. For qualitative variables, a descriptive

analysis is presented as frequencies (percentage). Frequency of the quantitative variables were calculated and are presented as mean±SD. If the data was not normally distributed, the data is presented as median (interquartile range/IQR).

RESULTS

There were 104 ARDS patients based on the Berlin criteria and 75 patients according to the AECC criteria. The demographic and clinical characteristic of the patients are listed in Table 2 and 3.

Tabel 2. Demographic Characteristic

Variables	Berlin Criteria (n: 104)	AECC Criteria (n:75)
Age, mean±SD	53,06 ± 17,103	52,92 ±17,584
Gender	Male 52 (50%) Female 52 (50%)	Male 38 (50,7%) Female 37 (49,3%)

Tabel 3. Clinical Characteristic

Variables	Berlin Criteria (n: 104)	AECC Criteria (n:75)
Classification of ARDS	Severe 26 (25%) Moderate 49 (47,1%) Mild 29 (27,9%)	_
Etiology of ARDS	Non sepsis 5 (4,8%) Sepsis 99 (95,2%)	Non sepsis 5 (6,7%) Sepsis 70 (93,3%)
APACHE II score	<20: 67 (64,4%) 20: 37 (35,6%)	<20: 47 (62,7%) 20: 28 (37,3%)

Diabetes Mellitus
 SLE
 CKD
 Cirrhosis
 Cancer
 CVD
 AIDS
 Kidney transplant recipient
	26 (25%)
	 3 (2,9%)
	 15 (14,4%)
	  2 (1,9%)
	  34 (32,7%)
	 14 (13,5%)
	 3 (2,9%)
	  (1%)
		18 (24%)
		 3 (4%)
		 12 (16%)
		 1 (1,3%)
		 22 (29,3%)
		 11 (14,7%)
		 3 (4%)
		 1 (1,3%)

CCI	>2: 28 (26,9%) 2: 76 (73,1%)	>2: 23 (30,7%) 2: 52 (69,3%)
Ventilator	Yes 45 (43,3%)	Yes 32 (42,7%)
Outcome	Survived 54 (51,9%) Dead: 50 (48,1%)	Survived 36 (48%) Dead: 39 (52%)

The mean age of patients according to the Berlin criteria is 53.06 ± 17.103, while in the AECC criteria is 52.92 ± 17.584. Majority of the patients in both groups were male. Based on the Berlin criteria, most patients were classified as moderate ARDS, 49 (47.1%). The primary etiology of ARDS in the Berlin criteria and the AECC criteria was sepsis consisting of 99 patients (95.2%) and 70 patients (93.3%), respectively.

In both criteria, majority of patients had a Charlson comorbidity index 2, 76 patients according to the Berlin criteria (73,1%) and 52 according to the AECC criteria (69,3%). Further, an APACHE II score of <20 was most common among the participants, 67 according to the

Berlin criteria (64,4%) and 47 according to the AECC criteria (62,7%). Patient co-morbidities include diabetes mellitus, SLE, CKD, cirrhosis, cancer, CVD, AIDS, and kidney transplant recipients. Most of the patients were not ventilated. Patient survival as based on the Berlin criteria was 54 patients (51.9%), while patient survival according to the AECC criteria was 36 (48%).

DISCUSSION

There were 104 ARDS patients according to the Berlin criteria, while only 75 patients was diagnosed as ARDS according to the AECC criteria. This result may be attributed to the wider PaO_2/FiO_2 ratio range in the Berlin Criteria as compared to the AECC criteria.[4, 6] Thus, the advantage of the Berlin criteria in encompassing more ARDS patients as compared to previous criteria; and its ability to detect ARDS patient earlier are highlighted.

The mean age of patients diagnosed by the Berlin criteria and AECC criteria were similar (53.06 ± 17.103 and 52.92 ± 17.584, respectively). A study by Rubenfeld et al, showed that the incidence of ARDS increased with age. For patients age 15-19 years, the incidence was 16 per 100.000 person/years and the rate increased to 306 per 100.000 for patients age 75-84 years.[9]

Males were predominant in both criteria. A study by Nadia et al, showed similar results, that males were predominant among those diagnosed with ARDS.[10] However, a different result was showed by Daithi et al. This study reported that females are more likely to develop ARDS than males following critical injury, but the mortality rate is similar in both genders. The relationship between immune-depressing testosterone and pro-inflammatory estrogens are thought to be important factors, regardless of gender.[11]

Sepsis is a major etiology of ARDS in both criteria. ARDS usually develops in a condition that induces systemic inflammatory response, such as sepsis, pneumonia, major trauma, multiple transfusions, aspiration, or acute pancreatitis. However, among these factors, sepsis is the most common cause of ARDS.[12]

The APACHE II score was <20 in both criteria. Saleh et al, in their study concluded that performance of the APACHE II/III score was superior to other scores with regard to mortality prediction.[13] Chawla et al, stated that the APACHE score is one of the factors that contributes to mortality other than shock, low PaO_2/FiO_2, and ARDS severity.[14] E.Seeley et al, concluded that a higher APACHE II score was associated with increased mortality rate.[15]

Majority of the patients in this study had a Charlson comorbidity index 2. Han-Yi Wang et al, stated that a high CCI index (2) in the emergency department revisiting patients showed higher admission rate, longer hospital stay, poorer prognosis, and high in-hospital mortality.[7] Another study conducted by Ando et al, stated that patients with CCI 4 had poor prognosis.[16]

The list of co-morbidities found in this study were diabetes mellitus, SLE, CKD, cirrhosis, cancer, CVD, AIDS, and kidney transplant recipients. The presence of co-morbidities (pulmonary or non-pulmonary) is one of the risk factor that contributes to mortality in ARDS patients. In addition, factors such as increasing age, worsening multi-organ dysfunction, higher APACHE II score, and acidosis contribute to mortality as well.[17] It should be noted that this study was conducted in a tertiary hospital which accepts patients referred from another hospitals in Jakarta and other provinces of the country. Thus, the patients tend to present with more complicated diseases. Further, a large percentage of the patients have multiple co-morbidities that worsen their condition.

In both criteria, most of patients did not receive ventilation. In the Berlin criteria group, there were 59 patients (56,7%) who were not ventilated with 17 patients classified as severe ARDS. Ideally, these patients should be ventilated, but they were not due to the limited number of ventilators available at the hospital. In fact, mechanical ventilation is important for ARDS patients. Ventilation works by two mechanisms, first it allows precise titration of FiO_2 in the gas delivered, and secondly, it provides sufficient pressure to open some of the collapsed lung during the inspiratory phase.[18] It is hoped that this result may provide sufficient support so hospitals can increase the number of ventilators as ventilators are of prime importance in ARDS treatment.

This study compared the Berlin criteria to the AECC criteria. In comparison, there have been several studies that compared the various ARDS diagnostic criteria. Goh et al (1998) compared the Lung Injury Score (LIS) with the AECC criteria. The results show that both criteria identified a similar group of ARDS patients.[19] Further, Niall et al (2005) compared the diagnostic accuracy of

three ARDS diagnostic criteria: AECC criteria, LIS, and Delphi definition. It was concluded that ARDS was under-diagnosed by the clinicians.[20]

In this study, we compared two ARDS diagnostic criteria according to patient survival. Patient survival was higher in the Berlin criteria (51,9%) than in the AECC criteria (48%). This may be attributed to the larger number of patients that are encompassed by the Berlin criteria compared to the AECC criteria. However, it should be noted that patients with PaO_2/FiO_2 ratio ≤300 are diagnosed with ARDS, thus, earlier ARDS diagnosis can be made compared to when the AECC criteria is used. Moreover, earlier diagnosis allows earlier management of the ARDS patient, hence it can increase the survival rate of ARDS patients in general.

Moreover, the Berlin criteria rules out the use of a pulmonary artery catheter to measure the pulmonary wedge pressure. A patient can be diagnosed with ARDS whether the respiratory failure is not caused by heart failure or fluid overload, as it is based on clinical judgement.[4] This may be beneficial in developing countries that have limited resources and facilities.

There are several limitations in this study. Firstly, the number of patients included was small as the duration of this study was short. In addition, it used descriptive statistics alone to compare the Berlin criteria and the AECC criteria. Further study using a more comprehensive statistical analysis statistic may reveal a more detailed result.

CONCLUSION

The Berlin criteria allows a larger number of patients to be diagnosed with ARDS as compared to the AECC criteria. There were 104 ARDS patients according to the Berlin criteria, while only 75 patients were diagnosed with ARDS according to AECC criteria. Earlier ARDS diagnosis can be made based on the Berlin criteria due to the higher PaO_2/FiO_2 ratio limits implemented as compared to the AECC criteria. Earlier diagnosis allows earlier management of the ARDS patient, Hence it can increase the survival rate of ARDS patients. Additionally, the Berlin criteria excludes the use of a pulmonary artery catheter to measure the pulmonary wedge pressure which is beneficial for developing countries with limited resources and facilities. However, further investigation is required to further detail the benefits of the Berlin criteria as compared to the AECC criteria.

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Determine the Ideal Time for Weaning of Patients from Mechanical Ventilation: A Literature Review

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ABSTRACT

Introduction: This systematic study reviewed all studies conducted to determine the ideal time for weaning of patients from mechanical ventilation.

Method: The present study reviewed 379 studies conducted to examine the ideal time for weaning of patient from mechanical ventilation. In this regard, all electronic information resources including Google scholar, PubMed, SID, Science direct Magiran, Medline were searched using single and combined keywords of weaning, weaning time, ideal time, and mechanical ventilation, and they were investigated based on the inclusion criteria of study. Finally, 351 studies were excluded from study and 28 related studies were examined.

Results: twenty and eight review papers conducted to determine the ideal time for weaning of patients from mechanical ventilation have not referred to specified time to start the weaning process, but this process can be started any time when patient with spontaneous breathing is mentally ready for weaning of ventilator. To continue it, both subjective and non-subjective (physical) assessments are required.

Conclusion: no study has specified that when the weaning process should be started, but we can determine when patient has readiness for weaning from ventilator based on subjective and objective parameters.

Keywords: weaning, patient, mechanical ventilation, weaning time.

INTRODUCTION

Mechanical ventilation is one of the most commonly prescribed forms of treatment for patients in intensive care units [1] and more than 90% of adults need for mechanical ventilation in the intensive care unit in critical condition [1, 2]. The advent of ventilators in order to protect the oxygenation and ventilation could save the lives of many patients from imminent danger in patients who are not able to continue normal breathing for any reason [1,3-5-8].It is clear that timely, fast, uncomplicated,

and successful weaning period with reduced mechanical ventilation period reduces ventilation side effects such as decreased cardiac output, hemodynamic disorders, ventilator-associated pneumonia, hyper and hypoventilation, atelectasis, airway damage, increased need for sedation, oxygen toxicity, barotrauma and psychological dependence of person to mechanical ventilation [1, 3, 4, 5, 9, 10, 11]. The tracheal re-intubation rate has been reported from 4% to 33% [12, 13] and early weaning causes severe stress on the respiratory cardio - vascular system. It is also associated with problems such as difficulty in re-inserting of the artificial way, disturbance in gas exchanges, aspiration, and acute lung injury, 8 times increase in risk of pneumonia and 6 to 12 times increase in mortality [2, 13, 5]. Physiological factors of patient leading to failure or success in the process of weaning are not quite clear. In a study, body mass index has the strongest correlation with the failure of

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mechanical ventilation, and in another study, serum level of CRP (CRP) was correlated with respiratory failure [14, 15]. The test of CO2 response measures the hypercapnic respiratory effort response (defined as the ratio of change in airway obstruction pressure 0.1 seconds after the start of inspiratory flow to change PaCo2) and hypercapnic ventilatory response (defined as the ratio of change in minute change to PaCo2). In mechanically ventilated patients, readiness for spontaneous breathing efforts is determined by examining the relationship between CO2 response and duration of weaning from ventilator [17]. While predictor criterion for mechanical ventilation duration can be useful in evaluating the ideal time for weaning of patient from mechanical ventilation, APACHE criterion efficiency requires further investigation[18]. Since mechanical ventilation is associated with many complications and patients dependent on ventilation need for specialized care, frequent monitoring and prolonged hospitalization in intensive care increase the cost of patients and occupation pf the beds [3, 41, 13,18]. Therefore, it noteworthy that the fastest and the most ideal time to wean patient from ventilatory support should be found so that timely and safe removal of mechanical ventilation leads to favorable outcomes for patients. Therefore, the use of strategies that help to timely weaning must be evaluated and used. Thus, the question of this review study is "what is the ideal time for weaning of patients from mechanical ventilation"?

METHOD

The present study is a review study conducted to examine the ideal time for weaning of patient from mechanical ventilation. In this regard, all papers conducted since 2000 to 2013, all electronic information resources including Google scholar, PubMed, SID, Science direct Magi ran, Medline were searched using single and combined keywords of ventilator, weaning, weaning time, ideal time, and mechanical ventilation. After three reviews by 4 researchers, among papers that their title and abstract were related to subject of study, 351 studies were excluded from study and 28 related studies were included in study.

Criterion to select the papers

The research papers written in Persian and English languages between 2000 and 2013 in scientific databases and emphasized on the ideal time for weaning

of patients from mechanical ventilation were selected for this study.

RESULTS

Out of 29 papers reviewed in this study, none of them has specified that when the weaning process should be started, but there are parameters that determine when patients have readiness for weaning from ventilator. If patients are mechanically ventilated more than 24 hours, relevant protocols should be implemented. If this process is more than 72 hours, this process is called as prolonged weaning. The cases lead to prolonged mechanical ventilation include inappropriate use of sedation and malnutrition, lack of psychological support, lack of cardiovascular support, impaired lung protective strategies that lead to pulmonary infections. Each time patient has spontaneous breathing and appropriate consciousness level, the patient's readiness to be weaned form ventilation is examined. It should be noted that when patients underwent mechanical ventilation, they should be routinely evaluated and patients requiring mechanical ventilation for more than 24 hours should be examined in terms of the factors that violates ventilatory resistance, and ventilatory supports should gradually decline. For weaning patient from ventilator, both physical and subjective assessments should be performed. Subjective assessments include stability of consciousness (lack of agitation, awareness of time and space, using the minimum dose of sedative, having an effective cough, lack of paradox breathing, and lack of sweating).

Table 1: Stability of consciousness in the process of weaning from ventilator

Level of consciousness stability

lack of agitation
awareness of time and space
using the minimum dose of sedative
having an effective cough
lack of paradox breathing
lack of sweating

Objective assessments (physical) include respiratory symptoms (respiratory rate less than 35, arterial oxygen saturation greater than 90% if fraction of inspired oxygen of patient is less than 40% and arterial oxygen pressure is more than 60 mm Hg, end-expiratory positive

pressure less than 5 cm of water and maximum arterial pressure of lung is -20 to -30, and lung compliance is more than 25 cm of water), symptoms of arterial blood gases (carbon dioxide arterial pressure is less than 50 cm of water, PH is in the normal range, and the fraction of inspired oxygen to fraction of arterial oxygen pressure is greater than 200), hemodynamic stability (heart rate less than 120 to 140 beats per minute, systolic blood pressure between 90 and 180 mm Hg, lack of inotrope infusion or at least inotrope that is unchanged in the past 24 hours, and hemoglobin greater than 8-10) (Table 2).

Table 2- Physical assessment of weaning from ventilator

The respiratory symptoms in the presence of fio2≤40% and spontaneous breathing	The symptoms of arterial blood gases	hemodynamic stability
Spo2>90%	Pao2/fio2>200	HR<120-180
RR<35	Pco2<50 mm Hg	90<SBP<180 mm Hg
VT/F > 105	7/35≤PH≤7/45	HB>8-10 gr/d lit
C >25 cc/kg	Pao2>60 mm Hg	Inotrope<5 µ/kg in 24h
PEEP<5 cm H2O		
-20≤PIP≤-30		
MV>10 lit/min		

General and laboratory assessments included body temperature between 36.8 – 38.5, Sodium between 128-150, and potassium between 3-5, having no surgery during next 48 hours and lack of symptoms of increased ICP and cerebral ischemia (Table 3)

Table 3: General and laboratory assessments in the weaning process

General and laboratory assessments
36/8<T<38/5
3<K<5
128<Na<150
having no surgery during next 48 hours
lack of symptoms of increased ICP and cerebral ischemia

Criteria that inhibit the weaning process include SPO2 <90%, breathing> 35 per minute, heart rate changes more than 20% of baseline, lasting change in blood pressure of more than 20% from baseline, deteriorating level of consciousness, severe arrhythmia, sweating, urinary output less than 0/5 CC / kg / h, increased chest tube drainage more than 200 cc/h.

DISCUSSION

According to results of study, cases that lead to prolonged mechanical ventilation include inappropriate use of sedation, malnutrition, lack of psychological support, lack of cardiovascular support, over-ventilation, impaired lung protective strategies that lead to pulmonary infections. These results are consistent with results of the study conducted by Jalalian et al who examined the factors affecting the duration of patients' weaning from mechanical ventilation in intensive care units [4]. In addition, they are in line with results of study conducted by Raurich et al [17]. One study suggested the use of sedation protocol and it showed that deep sedation is a factor leading to need for prolonged mechanical ventilation that these results are consistent with results of current study [20] In a study conducted by Modawal et al to predict the successful weaning of 145 patients dependent on mechanical ventilation, clinical and demographic indicators were effective to predict the ideal time of patients weaning from ventilator, which these results are in line with current study results [21]. Salmani conducted clinical trial on 50 patients admitted to the intensive care unit of the AlZahra Hospital in Isfahan, which these patients underwent mechanical ventilator for more than 48 hours. Results indicated that the use of structured protocols and weaning tools leads to successful results compared to conventional methods [11]. In addition, these results are in line with results of studies conducted by Suzanne [19], Walsh [22] Ely [23] Epstein [24], and Blackwood [25]. In a single-blinded prospective clinical trial, 124 adult patients underwent

mechanical ventilation for than 24 hours and they were divided into two groups of 62 people. In the mentioned study, objective criteria (temperature, hemoglobin, pressure contributes to arterial oxygen, arterial oxygen saturation, fraction of arterial oxygen, and end-expiratory positive pressure) were examined using the current methods and integrative weaning index [5]. It was shown that measuring the objective criteria such as gas exchange and hemodynamic stability are effective to determine the status of patients for weaning, along with subjective assessments (stable level of consciousness: lack of agitation, awareness of space and time, using the minimum dose of sedations, effective cough, lack of sweating, lack of breathing paradox). However, objective criteria should not be considered too strict, because 30% of the patients had never prepared for weaning, while they have been weaned from ventilator [26]. This result is consistent with the findings of the current study study. In a study conducted by Raurich et al, hypercapnia was correlated with duration of weaning from mechanical ventilator, which this finding was consistent with results of the present study [17]. However, according to the results of Monaco [27], blood gas has no predictive power for successful weaning, which this result is inconsistent with the findings of this study. According to the study criteria, the criteria that inhibit the weaning process include SPO2 <90%, breathing> 35 per minute, changes in heart rate greater than 20% at baseline, lasting changes in blood pressure of more than 20% from baseline, deteriorating consciousness level, severe arrhythmia, sweating, urinary output less than 0/5 CC / kg / h, increased chest tube drainage more than 200 cc/h, which it has also been referred in study conducted by Alexander et al [28]. This study suffers from some limitations, for example, this study has not referred to cooperation between nurse and patient in determining the ideal time for weaning, while according to results of Salmani et al [1, 2] and Blackwood [14], assessing the patient readiness for weaning from mechanical ventilator by nurse during the day was a safe method. Compared to conventional methods implemented in the intensive care units, it leads to shortened period of mechanical ventilation and determining the idea time of weaning and predicting the successful weaning.

CONCLUSION

In this case, in which the weaning process can be started after a few hours, accurate time was not found. It seems that to achieve time for weaning from mechanical ventilation, various parameters are involved depending on the clinical conditions of the patient. Some of these parameters include subjective, physical, general, and laboratory assessments that are helpful in time of weaning from mechanical ventilation. Therefore, by timely, quick, uncomplicated, and successful weaning, and shortened mechanical ventilation period according to mentioned parameters, this study hopes to take an effective step to reduce complications of mechanical ventilation, early discharge of patients, and resolving the vital needs of patients in the ICU.

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Effectiveness of Attachment – based Therapy in Sleep Quality and Aggression in Obese Elementary-School Female Students

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ABSTRACT

The aim of the present study was examining the effectiveness of Attachment-based Treatment on sleep quality and Aggression in obese Girls. The study was semi-experimental with pre-test, post-test, and control group. 34 female elementary school, obese students consisted the participants of the study. Purposeful sampling method was used in this study. Aggression Questionnaire and sleep Habits Questionnaire were the tools used in the study. Participants were assigned into experimental and control groups and pre-test was implemented on them. Mothers of participants of experimental group received 10-session attachment-based treatment program for two and a half months. After completing the intervention, post-test was implemented on both groups. Covariance analysis showed there is a significant difference between experimental and control groups in sleep quality and aggressive behaviors scores in post-test. Given the results, attachment-based treatment can be applied as an intervention to reduce disorder in sleep quality and aggression in children with Attachment Problems.

Keywords: *Sleep Quality, Aggression, Attachment-based Treatment, Obese Children*

INTRODUCTION

Not many years ago, the issues of obesity or being overweight were restricted to adults; however, in the last two decades, this phenomenon has got quite prevalent among children and adolescents[1]. Obesity is a body fat excess condition. A weight increase of more than 20 percent of ideal body weight is considered as obesity that is determined in children according to height, age, and sex[2]. Obesity and overweight have shown an increasing trend in most developing countries[3]. Currently obesity in adolescents and children is a major public health problem [4]. Obesity is not a mental disorder, but is accompanied with serious important conditions [5] and would increase the risk of mental problems [6].

Numerous studies show that children who don't get enough sleep are more likely to have behavioral problems [7]. A study found a strong link between sleep and aggression, delinquent behavior, and attention problems among 7- to 12-year-old children [8].

Sleeping are relief-providers and have protective role[9], which contribute to physical and emotional strength[10]. Obese children suffer from physiological complications and have difficulty while sleeping because, obesity plays substantial role in the emergence of respiratory problems. Obese children go to bed later and sleep less as compared to their peers with normal weight. Child with less weight sleep far more than adolescents with normal weight [9] and all the adolescents sleep less as they get older. Children who slept on average 9.6 hours per night had fewer symptoms of behavioral problems than children sleeping on average either 8.9 hours or 8 hours per night. Karimi (2011) of research shows that, sleeping disorder has higher rate among obese adolescents as compared to their counterparts[11]. Evidence also indicates that, totally Children with the most behavior problems had significantly lower sleep time and poorer sleep quality than children who did not show signs of behavioral problems. Moreover, the possibility of obesity in child who sleep late at night is

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far more than their peer[12].

Apparently, attachment-based intervention provides opportunities to develop a secure attachment in children [13]. Main focus of this intervention is on the rehabilitation of emotional attachment between child and caregiver and repairing psychological, emotional, and behavioral problems, which have grown as a result of the turmoil relationship between child and parents. The main goal of family therapy (with an approach to attachment treatment) is creating a secure base and support for the child in family. Educating families on creating a safe environment for each other helps family members to resolve their problems during the sessions and then use this method after the intervention[14]. Attachment-based therapy has been employed in different areas of children problems, including improving mental health in the elementary school girls, reducing symptoms of depression in primary school girls[15], and reducing oppositional disobedience symptoms in the girls with attachment problems[16]. The efficiency of this type of intervention in the psychological problems was approved by research. Accordingly, this research evaluated the effect of attachment-based intervention on the sleep quality and aggression as the causes and or consequences of the obesity in children.

METHOD

This study used a quasi-experimental design method with pretest, posttest, and using both the control and experimental groups. Both groups were chosen by random sampling. The independent variable was attachment-based intervention. The attachment intervention sessions were held for mothers for 10 sessions and scores of eating disorders in children were considered as the dependent variable. The study population consisted of all female elementary school students with attachment problems who had a body mass index above 98 percentile and were enrolled in the 2016 academic year in Ahvaz City. The sampling was done voluntarily and purposefully. The sample size for this study was found 34(in the 2 elementary schools) female elementary school students. Then, each of the selected elementary school was randomly considered as the experimental group (17 girls) and the control group (17 girls). In this way, among 4 school districts in Ahvaz, one school district was chosen and from that district 2 primary schools were selected randomly and from each primary school all obese female students who had a

body mass index above 98 percentile and their mothers were willing to cooperate with the investigation, were selected as the prototype. Then, the initial attachment disorder test was performed in order to discriminate children with secure attachment from children with insecure attachment and eating disorder. Next, according to the scores in the questionnaire. 34 girls with insecure attachment style (Score of above 30 in Randolph Attachment disorder) and eating disorders (Score of above 5 in Children's Binge Eating Disorder Scale) and high body mass index (above 98 percentile) was selected as the research sample. Finally, each selected elementary school was randomly considered the experimental group or the control group.

Attachment disorder questionnaire: This questionnaire was designed by Randolph (1996)to introduce attachment disorder for children aged 6 to 16 years. It has a checklist of 25 questions on various problems reported by parents who cared over children for over two years. Each item in the questionnaire was scored in Likert scale rated from 0 to 4. Total scores ranges from 0 to 100. Scores above 30 indicate attachment problems in children. Cronbach α for this scale was calculated by Abtahi et al. (1995) as 0.83, which indicates good internal consistency of the questionnaire. In this study, Cronbach α for internal consistency evaluation scale was calculated as 0.78. This test was used to assess attachment in children[17].

Sleep Habits Questionnaire (CSHQ): this 33-item tool was designed and developed by Owens et al (2001) and is used to screen sleeping disorders in children aged between 3 and 12. The higher the score, the more intense the sleeping disorders. Previous studies have confirmed this questionnaire's content validity. The reliability of this questionnaire using test-retest on 10 children aged 6-11 is equal to .97. In the present research, Cronbach alpha was used to calculate CSHQ's reliability which equaled .91 indicating its acceptable reliability [18].

Aggressive Questionnaire: AGQ was used to assess normal and obese levels of aggression. This self-report, pen and pencil scale was designed and developed by Buss and Perry (1992). The total score is obtained by summing up the scores except for the item number 18 which is reversely scored. The psychometric properties of this scale have been evaluated by Zahedi Far et al., (2000) and it has been normalized by Allahyari, as well. The obtained test-retest coefficients between the

participants' scores were equal to .64 and .79, respectively. The Cronbach alpha was obtained to be .87. Moreover, the validity of the scale was assessed on 10-year-old children and was reported to be .85. Cronbach alpha was used to calculate AGQ's reliability which equaled .87 indicating its acceptable reliability [19].

RESULTS

Descriptive findings (as mean and standard deviation) for all the variables of the research have been presented in table 1.

Table 1- Mean and standard deviation of sleep quality, aggression of experimental and control of obese girls

Variables	groups	Mean	SD	N
Disorder in sleep quality	experimental	52.81	13.83	100
	control	48.4	12.91	100
Aggression	experimental	36.23	12.80	100
	control	32.53	13.04	100

To evaluate significant differences between the experimental group and the control group, the multivariate analysis of covariance was used. Levine test, confirmed the default equality of the variances of the two groups in eating disorders of posttest scores (P<0.5).

Table 2- The results of multivariate variance (MANOVA) on the scores of disorder in sleep quality and aggression of obese girls in groups

test	Ratio	Df	Df error	F	P	Effect size
Pillai's trace	.069	3	196	3.59	.001	0.87
Wilks' lambda	.931	3	196	3.59	.001	0.87
Hotelling trace	.074	3	196	3.59	.001	0.87
Roy's largest root	.074	3	196	3.59	.001	0.87

The results in Table 2 show that the difference between the experimental group and the control group in the posttest score is significant with regard to the variable of sleep quality and aggression (F=3.59, P<0.5). This amount of difference in sleep quality and aggression variable is 0.87. This means that 87% of difference between the two groups of disorder in sleep quality and aggressionvariable is related to the experimental intervention.

 In order to further investigate this difference, the results of Ancova analysis in MANCOVA have been presented in table 3.

Table 3- The results of univariate variance analysis on the scores of disorder in sleep qualityandaggression of obese girls in groups

Variables	SS	df	MS	F	P	Effect size
Disorder in sleep quality	934. 84934	1	934.84934	12.83	.012	0.76
Aggression	784.53	1	784.53	9.09	.002	0.81

As observed in table 3, there is significant difference between experimental group and control group in disorder in sleep quality (F=12.83and p=.012). Therefore, It can be concluded that, The results of Table 3 show, the difference between scores of experimental and control groups is significant in post-test in sleep quality (P<0.05, F=12.83).and aggression variable (P<0.05, F=9.09). The amount of these difference in aggression variable is 0.81. It means that 81 percent of the difference between two groups is in aggression variable and 81 percent is related to experimental intervention. Also in sleep qualityvariable is 0.76. It means that 76 percent of the difference between two groups

is in sleep quality variable and 76 percent is related to experimental intervention.

DISCUSSION AND CONCLUSION

The aim of the present study was Examining the Effectiveness of Attachment-based Treatment on sleep quality and Aggression in elementary school Girls with Attachment Problems in Ahvaz. Based on the results of the present research, there is significant difference between experimental and control groups in disorder in sleep quality and aggression. It can be concluded that, attachment-based treatment can be effect ondisorder in sleep quality and aggression in obese girl. This finding is in line with the results of the other research [14,15,16].

The results of the present study show that sleep quality and aggression is associated with attachment problems in children. On the other hand, it shows that aggression is one of the signs implying the existence of a problem in the interaction between mother and child and with improving the interaction between mother and child and solving the fundamental problems, sleep disorder and aggression can be solved and mental health will be improved (aggression will be reduced) in children. In explaining the obtained results, it can be said that insecure attachment can result into outbreak of negative emotions in children. Inability in controlling negative emotions and decrees in sleep quality results into applying unpleasant emotional strategies such as aggression and sleep disorder. Lack of secure attachment can be effective on irregularity of emotions and can play an effective role as a factor of increasing aggressive behaviors [20], and sleep quality.

Therefore, attachment-based treatment helps emotional adjusting and then regulating unpleasant emotional strategies. Attachment-based treatment enhances the relationship between mother and child by applying techniques such as intervention of availability of the mother, providing child's physiological and mental needs, providing child's safety, physical contact especially eye contact, responsiveness, increasing the time of conversation, playing and two by two interaction with children and gradually the lack of trust due to insecure attachment changes into a relationship based on trust. Correcting the parent-child relationship reduces aggressive behaviors in children greatly. In attachment-based intervention, mother learns to trust her emotion and way of responding and control her anxiety and inner

distress about the way of encountering with child's behaviors. The therapists take benefit of the sympathetic relationship developed between themselves and the mother to increase interest and motivation to change in mother. Therefore, by identifying the strength points of the relationship between mother and child and emphasis on mother's strength points as a competent and valuable person, reduces her anxiety and sense of incompetence in relation to her child (Brish, 2002). Also, since modifying parent- child communication pattern is the most important therapeutic component of this type of treatment, when parents become aware of the problems and disadvantages of their training and communication methods, it is strongly probable, because of parents' interest about their children's mental health that parents try to modify their interactions with the child. Continuity of this new interaction and parents' stability in that will result into children's continuous progress and reducing their symptoms and problems. Also, parents are taught some techniques that by them can cope with children's problems, sleep disorder and aggressive behaviors when such problems happen again in future.

Ethical Clearance: The ethics of recording data, the right of respondents to end involvement in the research, the disclosure by respondents of sensitive material, the ethics of ethnographic fieldwork, the ethics of the research interview, and ethics in the use of questionnaires, is respected all ethics principles research.

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The Key Factors of Employer Brand an Empirical Analysis with Special Reference to IT Industry

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ABSTRACT

Introduction: Employer branding is gaining importance in India. Though the concept of Employer brand has become a routine with the organizations, this domain has recently attracted the interests of many researchers. It is a great challenge for any organization to retain the employees. This research intents to examine the different factors which influence Employer brand

Purpose: The paper aims to examine the present state of firms in branding benefits and evaluate their impact on employees. The study makes an attempt to discuss the concept of employer branding, the strategies adopted by the organization and how employees recognize and interpret their employer brand. This study will be a potential eye opener for relevant professionals and new researchers.

Methodology: The primary data was sourced from the representatives of IT employees from different companies in Chennai. The study has adopted descriptive research design. The sampling technique followed in the research is combination of both purposive and convenience sampling method. The sample size is 200.

Findings: The study found that the various values such as Economic, Functional, Psychological, Development and Social Value are the key determinants of Employer brand that the organization needs to focus while building the employer brand strategy.

Implications of the Study: This study presents implications for the companies to consider developing their branding strategies and offers implications for Talent Management of the organizations that need to be practiced

Keywords: Employer Brand, Factors, Employees.

INTRODUCTION

In the current globalized era, where employment is found to be more competitive, many companies are struggling to appeal, recruit, motivate and maintain the greatest possible human ability. Accordingly, they use employer branding applies as a relatively new tactic to distinguish their identity as employer from those of their opponents and to publicize the advantages they offer including all facilities which motivate the employees to stay in the job. It also shows a role in that organization we select to work. So the employer has to build up the brand image to acquire and retain the key talent. When the employer brand is strong it will help the company to differentiate itself in market place and acquire the best people. The brand is a signal to convey the uniqueness of an organization. It "shows" what the organization stands for.

EMPLOYER BRAND AND ITS SIGNIFICANCE

Managing the key talent is becoming more complex for the organizations. The organizations have to build their brand to survive the talent crunch. Employer branding permanently significant in indefinite economic times and mainly in a market environment where there are skill dearth, in portraying the company's popularity and strength, to enhance business growth and sustainability and capitalizing organizations compete for talent.

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The ultimate aim of employer branding is to appeal and maintain the key talent. It can meaningfully increase application rates and place the organization in the desirable status of having a wide-ranging group of abilities to choose from. When constricted employment staffing markets, the struggle for the best talent is aggressive, it can also support the organization to stand in a noticeable position in a competitive market and offer fascinating reasons to join your company instead of going elsewhere

The term Employer brand is originated on the basis of marketing theory. This helps the organizations a base on in what way they can differentiate themselves in the market as a perfect employer for existing employees and for the prospective employer (Harding, S., 2003)[20]. It is segregated in two marketing concepts as External Marketing and Internal Marketing.

Employer Brand serves as external marketing to attract best talent. Once people recognized the brand they form a set of anticipations about their job and will support the company's principles and increasing their assurance to the organization which is considered as external employer brand (Backhaus and Tikoo, 2004)[5]

Psychological contract refers to the contact between the employers and employee, who promised trustworthiness to the organization in exchange for job security. This theory forms the basis for the concept and its influence on the employee association with firm offers a grounds for employer branding. (Hendry and Jenkins, 1997)[15]

1.1 Factors Influencing Employer Brand

Dowling (1993) in his research work states that employees' image as a brand is induced by various factors like the organization's formal policies and procedures, vision, the culture, and marketing media communication activities, and justifies that in service industry the consumers' image of the brand . The opinion they obtain during meetings and through communications with customers also influence employees' image[24]

Kimpakorn, N., & Dimmitt, N. (2007) suggests a set of internal service quality dimensions, namely reliability, competence, friendliness, added value generated, reaction speed time, accessibility, the service, flexibility, customization, cost benefit rationale, transparency in services offered, and cost transparency. The author argues that it is not any one human resource management policy or any one training program that determines the employee perception of internal service quality[16]

Lievens et al. (2007) argues that representative features of the organizations employer brand will help the firms to describe the organization in relations of its individuality objectivity, physical attributes and tangible qualities of the employment offering[19].

Brun and Dugas (2008) have studied that appreciation of the organization of the employer has impact on the psychology of the worker. Employee recognition is a priority issue in the present social and organizational context and the wider community alike[9].

Arachchige, B. J., and Robertson, A. (2011) have highlighted the preferred employer attributes that influence the job seekers. The Authors presents eight dimensions of employer attractiveness such as Good Association with Superiors, Values Creativity, Innovative Products Supportive Colleagues, Exciting Environment Fun Environment, Promotes Self-Esteem, Gaining Career Experience Innovative, Develops Confidence and Offers Range of Experience, Gives Personal Respect[4].

Malati, N et.al, (2011) The authors examines the likenesses and differences between employer External and Internal Brand Images of three IT companies namely Infosys, TCS, and Wipro with the major dimensions like competitive compensation, career or growth opportunity, financial strength, proper management and leadership style etc[21].

Mukesh Biswas and Damodar Suar, (2013) presents from the perspectives of employees' gives importance to the following values such as social value, developmental value ,interest value, and economic value, in a sequence of priority affecting the employer brand[8]. Cascio, W. F. (2014) argues that the organizations with positive employer brand has an advantage over the talent management. The performance management strategies are by no means exhaustive, but they are the key elements of employee retention[2].

Leekha Chhabra, N., and Sharma, S. (2014) in their research work examines the most important branding Strategies and channels adopted by organization to attract its prospective employees.. By reviewing the previous studies and current findings the author have developed a theoretical model on employer branding process. The authors concludes that there is a association exists between strong brand image and prospect to apply[18].

OBJECTIVES OF THE STUDY

•   To find out various factors determine Employer brand

•   To empirically analyze the key factors that influences employer brand

RESEARCH METHODOLOGY

The present study attempts to test the key factors that influence Employer Brand, This research implements the descriptive research design. The required Data was collected through structured questionnaire. Purposive and Convenience Sampling Method was adopted for the study. The data was collected by surveying 200 current employees of IT companies in Chennai.

ANALYSIS AND INTERPRETATION

1 Factors determining the Employer brand

Factor analysis helps to do dimension reduction and allows to identify the new set of uncorrelated variables and further small number of common factors are extracted to study the relationship of original variables.

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.716
Bartlett's Test of Sphericity	Chi-Square	10354.866
	P value	<0.001**

Note: ** Denotes significance at 1% level

The (KMO) measure of sampling acceptability suggested that the sample value of 0.716 which is greater than 0.05 indicate that factor analysis is useful for the study.

Table 2. Factor Loading, Eigen Value and Percentage of Extraction using Principle Component Method based on Determinants of Employer brand.

Factors	Dimensions	Factor Loadings
Functional Value	Relationship with your co-workers	0.658
	Flexible working hours	0.783
	Balance between private and work	0.703
	Organization's reputation as great place to work	0.688
	Job security	0.685
	Challenging work	0.768
	Respect for people	0.682
Psychological value	Self-confident	0.687
	Belongingness	0.719
	Pride	0.628
	Exciting work environment	0.769
	Self – Image	0.770
	Enjoying work culture	0.876
Economic Value	Overall compensation	0.764
	Fringe Benefits (Paid time off – Fair amount of Vacation, Sick leave etc...)	0.886
	Rewards and Awards for performance	0.801
	Retention Bonus	0.743
	Performance Incentive	0.786
Development Value	Onsite job opportunities	0.772
	Training and Development opportunities	0.651
	Promotion opportunities	0.745
	Opportunity ability to give and receive feedback	0.717
	Attainment of career opportunities & improving experience	0.727
Social Value	Pleasant and Social work environment	0.612
	creative employer with ethical work practices and forward thinking	0.651
	Strategies to support internal reporting of legal activities	0.723
	Humanitarian organization –provides back to the society	0.629
	Organization's CSR initiatives	0.633

The Factor 1 is combination of these six variable Relationship with co-workers, Clean and safe work environment, Balance between private and work, Organization's reputation as great place to work, Transparent Communication system, Recognition/appreciation from management and Respect for people. This was labelled as "Functional Value".

The six items that load onto Factor 2 The factor is combination of Self-confident, Belongingness, Pride, Exciting work environment, Self – Image and Enjoying work culture is related to emotional bonding and the factor was labelled as "Psychological Value".

Five items loaded onto Factor 3. The variables loaded are overall compensation, Paid time off- Fair amount of vacation, Sick leave, Rewards and Awards for performance, Flexible basic salary, and Job security.

This factor was labelled as "Economic Value".

Five items load onto Factor 4 are Onsite job opportunities, Training and Development opportunities, Promotion opportunities, Opportunity ability to give and receive feedback, Gaining career-enhancing experience are related to growth opportunities. The combination of the factors termed as, "Development Value".

The five items Pleasant and Social work environment, creative employer with ethical work practices and forward thinking, Strategies to support internal reporting of legal activities, Humanitarian organization –provides back to the society and Organization's CSR initiatives that load onto Factor 4 related to social benefits, this was labelled, "Social Value".

Table 3 Multiple Regression Analysis for Factors Affecting Employer Brand

Predictor Variables	Unstandardized Coefficients		Standardized Coefficients	t value	P value
	B	Std. Error	Beta		
Constant	21.384	0.104	-	10.967	<0.001**
Economic Value X1	0.187	0.135	0.086	3.539	0.009**
Development Value X2	0.103	0.172	0.145	2.682	<0.001**
Psychological Value X3	0.135	0.083	0.156	1.689	<0.011**
Social Value X4	0.064	0.166	0.030	0.536	0.029*
Functional Value X5	0.641	0.445	0.430	6.264	<0.001**
R value - 0.853, F Value - 36.505,					
R Square - 0.683 , P value - <0.001**					

Note: *   significant at 5% level

   ** significant at 1% level

Through Table 3 The **R** value can be depicted through the simple correlation and is value 0.853, which shows a high degree of correlation. The **R**^{2} value shows how much of the total variation in the response variable i.e employer brand can be explained by the predictor variables (X1, X2, X3, X4, X5), In this case, 68.3% can be explained, which is very large. The value of Adjusted R is 0.683, this value shows that there is almost 68 percent variation in response variable (Employer brand) due to a one unit change in predictor variables. The table shows the F value is 36.505 at one percent significant level which shows that the model is good as its value is less than 0.001. The coefficient beta

value of (X_1) Economic Value indicates the positive influence on Employer brand, every unit increase in Economic value would increase the Employer brand by 0.186 times, with t value 3.539 and significant level of 0.008, which indicates significance at one percent level. The coefficient beta value of predictor variable (X_2) Development Value is 0.145 with t value 2.682 and p value less than 0.001 and is significant at 1 percent level. The beta value of predictor variable (X_3) Psychological Value is 0.135 with t value 1.689 and significant level less than 0.001 and is significant at 1 percent level. The coefficient beta value of predictor variable (X_4) Social Value is 0.064 with t value 0.536 and significant level of 0.029 and is significant at 5 percent level. The coefficient beta value of (X_5) Functional Value indicates the positive influence on Employer brand, every unit increase in

Functional value would increase the Employer brand by 0.641 times, with t value 6.264 and significant level less than 0.001, which indicates significance at one percent level. The beta value indicates the unit of change in predictor variables significantly influences the change in the response variable Y (Employer brand).

FINDINGS

Factors in multiple regression accounted for 68 percent of the total variance in overall Employer brand Value perceived, the analysis for factors affecting Employer branding revealed the same factors at work, although they accounted for less overall variance. The strongest predictor of overall employer brand value is Functional Value, (b = .54, t = 6.24). The other factors were also positively correlated with brand perception. The multiple regression reveals that all that factors have positive influence on Employer brand and the most important that has positive and strong impact on Employer brand is Functional Value, followed by psychological value and Economic Value. Hence it is concluded that if employers focus on the Functional, Psychological, Economic, Development and Social Values, the employees' perception towards the employer brand also increases. The study found that functional value is the most important factor that influence the perception of employees towards the Employer brand.

CONCLUSIONS

The research findings reported that the employer brand process needs an integrated approach where all of the factors are considered equally important when shaping the employer brand and an effort to retain talent. Employer branding act as a vital role in the recruitment to attract and retain talent. It brings high level of satisfaction and transforms the organization into a great place to work. Future researchers can extent the study of gap between employees' perception and experience of employer brand.

Ethical Clearance- Not Applicable

Source of Funding- Self

Conflict of Interest - Nil

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Knowledge, Attitude, and Practice of Nurses Concerning Hospital-Acquired Infection (HAI) Control in Iran: A Literature Review

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ABSTRACT

Studying and controlling (HIA) is now a global priority in order to minimize the infections, reduce mortality rate, shorten the length of stay in hospitals, and dramatically decrease the medical expenses. Nurses play the most important role in care and are one of the most effective elements in reducing HAI. This case study aimed to determine the knowledge, attitude, and practice of nurses concerning the HAI in Iran. This is a systematic review of knowledge, attitude, and practice of nurses in Iran. The studies conducted from 1997 to 2016 were reviewed and analyzed by the keywords namely knowledge, attitude, practice, nurses, HAI and systematic review of Pub Med, Science Direct, Scopus, and Google Scholar, Iranmedex, SID, and Magiran databases. The results indicated inadequate knowledge, attitude, and practice of nurses concerning HAI in Iran compared to world standards. Knowledge, attitude, and practice of nurses were not adequate concerning HAI. Considering the important role of nurses, it is essential to train nurses concerning HAI in order to enhance their knowledge, attitude, and practice. As a result, they would display correct HAI behaviors.

Keywords: *Knowledge; Attitude; Practice; Nurses; Hospital-Acquired Infection (HAI).*

INTRODUCTION

(Hospital-Acquired Infection)HAI[1] are acquired during hospitalization or afterwards. Either clear or hidden HAI is not found during admission. Most of HAIs emerge after 48 hours from the admission[1]. HAIs have spread to numerous patients since the start of medical procedures. After a century of attempts for controlling HAI, it is considered an important cause of diseases and mortality[2]. It leaves adverse effects on patients concerning unpleasant conditions, death, and increasing financial costs. In the USA, HAI is estimated to spread to 5-10% of admitted patients. This causes 2 million HAIs and 88000 annual deaths. Accordingly, the medical expenses increase by 4.5 billion dollars [1].

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In general, almost 1% of these infections are fatal and 4% contribute to death. HAI is reported between 3.9% and 8.5% in Iran [3], causing longer length of stay up to 24 days. This is problematic for not only patients and health officials but also the individuals and families. The patients are the main cause of spreading the infections after discharge. As a result, a vicious circle is created [4]. Therefore, studying and controlling HAI is now a global priority in order to minimize the infections, reduce mortality rate, shorten the length of stay in hospitals, and dramatically decrease the medical expenses [5]. These infections include Urinary Tract Infections (UTI), which is the most common type of acquired infection in hospitals, reach 40% in hospitals and 34% in nursery homes or care centers for certain patients. Other infections include surgical wound infection, Lower Respiratory Tract Infection (LRTI), bloodstream infection, and infections spread through the digestive tract system [6]. These infections are transferred through the direct contact (during the care procedure), indirect

contact (objects such as needles, gauze, hand-infected), and droplets (when coughing, sneezing, talking, suctioning)[7]. The sources of the infections include patients, nursing staff, visitors, animals, inanimate environment, and etc.[8] Multiple factors are associated with the high risk of HAI. Among the intervening factors, which can be minimized by treatment, are long length of stay, misuse of antibiotics, misuse of suction catheters, health official refusal to wash hands, and lack of using sterile techniques in medical procedures[3.] Hospital staff has an important role in the spread of infection and are considered a key member of controlling and managing HAI [8]. All staff working in hospitals is responsible for preventing HAI. Yet, nurses are in direct contact with patients and potentially can be one of the most effective factors for reducing HAI [9]. Since nurses play the most important role in care procedures [10], they are required to learn the infection control as a great responsibility. They need to learn essential and adequate information in this regard(11). Some studies in this regard show the weakness of nurses. For example, the study by Cong (2009) in Korea investigated the nurse knowledge and following infection control guidelines using drug-resistant micro-organisms. A total of 306 nurses were enrolled as the sample. The results showed that the mean score of knowledge of most nurses was 33.87 and they displayed poor observation and information concerning the standards[12]. Another study by Abdollahi in Mashhad showed that self-awareness of 62.3% of nurses was poor and only 9.6% of nurses had an acceptable level of knowledge [13]. Another study investigated the use of nursing standards for controlling the infections in

Iran. The results showed that essential knowledge was poor and the ground was not prepared to implement the standards in hospitals[14]. Since nurse knowledge, attitude, and practice concerning hygiene play an important role in individuals and public health[15] on the one hand, and the important role of nurses in health system, on the other hand, this article aimed to review the results of the studies concerning nurse knowledge, attitude, and practice in terms of HAI in Iran.

METHOD AND MATERIALS

This Review study surveyed nurses Knowledge, Attitude, and Practice of Nurses Concerning Hospital-Acquired Infection (HAI) Control in Iran. for data collection The English and Persian studies conducted from 1997 to 2016 were reviewed and analyzed by the keywords namely knowledge, attitude, practice, nurses, HAI and systematic review of Pub Med, Science Direct, Scopus, Google Scholar, Iran medex, SID, and Magiran databases. The studies which focused on nurse knowledge, attitude, and practice concerning HAI, were selected. Studies which focused on knowledge, attitude, and practice of other hospital staff were excluded.

RESULTS

A total of 63 articles were found between 1997 and 2016. With the help of the keywords, articles focused on nurse knowledge, attitude, and practice concerning HAI in Iran. In addition to the articles, some abstracts were reviewed. Table 1 shows the summary of the most important articles from 1997 to 2016.

Table 1: The Most Important Studies Concerning Nurse Knowledge, Attitude, and Practice in terms of HAI in Iran

ID	Author	Year	Sample size	City	Knowledge Score	Attitude Score	Practice Score
1	Sepahi(16)	1997	74	Mashhad, Iran	63.3%(Poor) 31.4% (Medium) 6.6% (Good)	73.6%(Negative) 19.1% (Medium) 7.5% (Positive)	43.6%(Poor) 42.5%(Medium) 14.4% (Good)
2	Abdullahi et al.(13)	2003	518	Golestan, Iran	26.5%Poor) 63% (Medium) 9.6% (Good	52.4%(Negative) 36.4% (Medium) 11.2% (Positive)	37.1%(Poor) 49%(Medium) 13.9% (Good)
3	Rasse Karimian et al.(17)	2003	105	Yasuj, Iran	5.7%Poor) 42.9% (Medium) 51.4% (Good	-	6.7%(Poor) 21%(Medium) 72.30% (Good)
4	Kazemi et al.(18)	2005	142	Birjand	20.2%Poor) 62.7% (Medium) 35.1% (Good	-	0.8%(Poor) 34.7%(Medium) 65% (Good)

Cont... Table 1: The Most Important Studies Concerning Nurse Knowledge, Attitude, and Practice in terms of HAI in Iran

5	Jokar et al.([19])	2007	162 Nurse	Ilam, Iran	75.9% (Medium)	-	-
6	Allah BAkhshian et al.([14])	2010	115	Tabriz, Iran	93.9% (Poor)	94.7% (Positive Attitude)	99.1% (Medium)
7	Ghadamgahi et al.([20])	2011	135	Mashhad, Iran	3.2%Poor) 67.9% (Medium) 29.9% (Good	90.4%(Positive Attitude)	-
8	Yaghubi et al.([21])	2013	60	Northern Khorasan, Iran	87.7%(Poor)	24.4%(Medium)	78% (Low)
9	Qanbari et al.([22])	2013	130	Arak, Iran	30%Poor) 63.8% (Medium) 6.2% (Good	-	8.5%(Poor) 90.8%(Medium) 8.0% (Good)
10	Kalantar Zadeh et al.([23])	2014	224	Tehran, Iran	33.03%Poor) 41.09% (Medium) 25.9% (Good	-	15.1%(Poor) 75.8%(Medium) 8.9% (Good)
11	Baluchi et al. ([8])	2016	170	Zabol, Iran	43% (Poor)	37% (Medium)	42% (Medium)

DISCUSSION

Despite the great advances in HAI control and prevention, it is still one of the most important treatment side effects. Since nurses play a key role in HAI management and control[19], it is necessary to increase their knowledge, attitude, and practice to an acceptable level concerning HAI. The review of studies showed low knowledge, attitude, and practice concerning HAI control in Iran. The results also showed that knowledge, attitude, and practice were not in accordance with international standards. The results of the same topic in some countries including the USA[13], Italy, and England[8] pointed out to low level of knowledge, attitude, and practice concerning HAI. Therefore, more training and greater focus on HAI seem essential for nurses. Nursing service providers and nursing supervisor agencies need to focus on the HAI control[7].

CONCLUSION

The results indicated inadequate knowledge, attitude, and practice of nurses. Therefore, authorities are required to take proper measures in order to train nurses in this regard.

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Study of Dermatoglyphics in Children Age 5-18 Years with Bronchial Asthma

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ABSTRACT

Introduction: Palmar Dermatoglyphics Is A Simple Inexpensive

and Non-Invasive Anatomical Procedure Which May Be Used As A Reliable Indicator For Screening Of High Risk Population In A Developing Country Like India.Bronchial Asthma Is Influenced By Genetic Factor And The Present Study Was Carried Out To Co-Relate The Dermatoglyphics Quantitative And Qualitative Parameter In Children (Age =5-18 Yrs) Of Bronchial Asthma

Methodolgy: Dermatoglyphics Prints Were Obtain From Both Hands Of Clinically Diagnosed Cases Of 50 Bronchial Asthma Patients In The Age Group Of 5 -18 Yrs Of Children And 50 Normal Healthy Children Of The Same Age Group Without Family History Of Bronchial Asthma (Control Group) The Study Include Both Qualitative And Quantitative Test Qualitative Study Include Finger Print Patterns (Whorls, Radial Loop, Arches And Ulnar Loop). Quantitative Study Include Total Finger Ridge Count (TFRC) And Absolute Finger Ridge Count(AFRC) And Atd Angel.

Observation and Result: In This Study Significantly Higher Number Of Ulnar Loop Were Seen In Bronchial Asthma Group And It Was Seen That The Presence Of Arches Were Significantly Lower Than That Compare To The Control Group. TFRC Was Seen To Be Significantly Higher Among The Bronchial Asthma Patient. No Significant Result Were Obtain From AFRC.

Keywords: Bronchial Asthma, Dermatoglyphics

INTRODUCTION

The Term Dermatoglyphics Is Derived From The Greek Word Derma-Skin And Glyphe – Curve. It Is The Study Of Epidermal Ridge And Their Configuration And Its Application To Diagnosis Palm Print And Finger Print Had A Fascination For Men The Study Of Dermal Ridge Pattern Of Skin Pioneered By Galton (1892) Followed By Cummins (1936) Has Aroused Considerable Interest Since The Introduction Of Chromosomal Techniques. With Markely Developed Human Cytogenics And Discovery Of Chromosomal Abnormalities In Man The Application Of Dermatoglyphics To Clinical Medicine Has Proved Helpful.

Dermatoglyphics Has Following Advantages:

1.Dermatoglyphics Analysis Can Be Applied Readily And Easily.

2.Results Of Analysis Are Available Immediately As A Clinical Diagnostic Tool.

3.Expansive And Elaborate Pieces Of Equipment Are Not Required.

4. The Procedure Is Atraumatic.

Bronchial Asthma Is Influenced By Genetic Factors And Present Study Was Carried Out To Co-Relate The Dermatoglyphics Quantitative And Qualitative Parameter In Children (Age 5-18 Yrs) With Bronchial Asthma.

Dermatoglyphics Has Been Studied In Certain Clinical Disorder Assosciated With Chromosomal And Developmental Defect Like Down Syndrome,Turner

Syndrome, Cardio Vascular Diseases, Diabetes Mellitus, Schizophrenia And Ischehemic Heart Diseases.

Bronchial Asthma Is The Commonest Chronic Illness Of Childhood And Account For School Absentism Than Any Other Chronic Illness[1,2].According To Star Field[3] 10.5% Of Children Have Suffered From One Or More Episode Of Asthma By (Age Of 17 Yrs). Western Studies Have Also Unequivocally Established Increase Prevalence Of Asthma.

Asthma Is Define As A Chronic Inflammatory Disease Of Airway That Is Characterized By Increase Responsiveness Of Tracheo-Bronchial Tree By A Multiplicity Of Stimuli Resulting In Episodic Airflow Obstruction.

Bronchial Asthma Is Influenced By Genetic Factor Many Member Of The Family Can Be Affected By The Disease As The Dermatoglyphics Pattern Are Also Genetically Determine These Two May Have A Co-Relation Which Could Be Of Help In Predicting The Occurrence Of Bronchial Asthma Among Relatives Of Children Suffering From The Disease. However The Studies On Co-Relation Between Dermatoglyphics Pattern In Bronchial Asthma Patients Are Few[4].

Therefore If A Meaningful Link Can Be Established Between Dermatoglyphic Pattern And Bronchial Asthma It Could Prove To Be Cost Effective Screening Procedure To Identify The Population At Risk Thus Helping Us To Keep A Watch For The Early Onset Symptoms In These Children

Hence This Study Was Carried Out Among Children (Age Group 5-18 Yrs) Suffering From Bronchial Asthma Who Attended The Outpatient And Inpatient Department Of Pediatrics In Sharswati Institute Of Medical Sciences, Anwarpur, Pilkhuwa, Hapur From A Period Of March 2013-JUNE 2016 To Determine A Possible Co-Relation Between The Dermatoglyphic Pattern Of Children And Bronchial Asthma.

MATERIAL AND METHOD

The Material For This Study Was Clinically Diagnose Cases Of Bronchial Asthma In The Age Group Of 5-18 Yrs Patient Were Those Attending Out Patient And In Patient Department Of Peadiatrics At Sharswati Institute Of Medical Sciences , Anwarpur, Pilkhuwa, Hapur From A Period March 2013 –June 2016

METHODOLGY-The Work Protocol Was Submitted To The Ethical Committee For Approval And The Necessary Permission Was Taken The Purpose And Procedure Of The Study Was Explained To All The Patient And Their Parents. The Fingerprint Was Taken By The Following Method :

1.The Black Ink Pad Was Used For Taking The Prints.

2.The Prints Taken Were From Both Hands ,The Right And Left On A Plain White Glossy Drawing Paper.

3. At The First The Palmer Aspect Of The Wrist Was Rested Firmly On The Paper

4.Slowly The Palm Was Placed On The Paper With Finger Abducted To Their Maximum Extend

5.Each Finger Tips Was Rolled From Side To Side

6.Finally Pressure Was Applied On Dorsum Of The Hands To Obtain Tri Radius Pattern Of The Palm .

7. The Palm And Finger Print Thus Obtain Were Studied With Naked Eye Examination Initially And Thereafter With Magnified Lense Of 10 Diopter.

Statistical Analysis: The Study Include Both Qualitative And Quantitative Tests .Qualitative Study Includes Fingerprint Pattern (Whorls, Radial Loop ,Arches And Ulnar Loop). Quantitative Study Includes Total Finger Ridge Count, Absolute Finger Ridge Count And Atd Angel, To Analysis Them The Following Statistical Method By Mean And Standard Deviation And Z Test.

Results-The Quantitative And Qualitative Data Were Calculated From The Finger Print Of 50 Bronchial Asthma Patient And 50 Controls. They Were Tabulated Compared And Analysed Statistically. It Was Seen That The Presence Of Arches Were Significantly Lower Than That Compared To The Control Group And A Significantly Higher Number Of Ulnar Loop Were Seen In The Bronchial Asthma Group.(Table 1) TFRC Was Seen To Be Significantly Higher Among The Bronchial Asthma Patient No Significant Result Were Obtain For AFRC And Atd Angle.

Table 1: Comparison Of Finger Tip Pattern In Patients And Control

Patterns	Patients		Control		Z Value	Statistical Significance
	Total	Proportion + SD	Total	Proportion + SD		
Arches	27	0.054 + 0.006	60	0.120 + 0.009	-3.70	Significant (P=0.002)
Total Loops	294	0.588 + 0.016	268	0.536 + 0.015	1.66	Not Significant
Ulnar Loops	279	0.558 + 0.014	243	0.486 + 0.008	2.28	Significant (P = 0.0227)
Radial Loops	15	0.030 + 0.004	25	0.050 + 0.004	-1.61	Not Significant
Whorls	179	0.358 + 0.011	172	0.344 + 0.010	0.46	Not Significant

Table 2: Comparison Of TFRC & AFRC In Patients And Controls

Count	Patients	Controls	Z Value	Statistical Significance
	Mean + SD			
TFRC	142.35 +/- 41.02	117.5 +/- 39.06	3.10	Significant (P=0.0019)
AFRC	189.04 +/- 82.56	166.48 +/- 84.52	1.35	Not Significant

Table 3: Comparison Of "Atd" Angle In Patients And Controls

Hands	Study Group Mean (SD)	Control Group Mean (SD)	Z Test	P Value	Inference
Right	40.34 (4.43)	40.01 (4.25)	0.380	0.7039	Not Significant
Left	40.35 (4.22)	40.13 (4.73)	0.245	0.806	Not Significant

DISCUSSION

Dermatoglyphics Which Literally Embraces The Study Of Patterned Traceries Of Fine Epidermal Ridges Of Finger, Palm And Soles, Must Have Aroused Interest Even In Ancient Time. Being Differentiated In The Final Form Early During The Gestational Period, These Dermal Configurations Seldom Show Any Change Except In Size, Either In Structural Detail Or Ridge Alignment Fro Rest Of The Intrauterine Life And Thence Forth From Birth Till Death. They, Thus Enjoy Freedom From Environmental Influence In The Later Part Of Intrauterine Life.

The Association If Dermatoglyphics And Disease Has Opened New & Vastly Interesting Diagnostic Avenues.

The Present Study Was Undertaken To Contemplate The Possible Peculiarities Of Fine Dermal Ridges And To Screen The Characteristics Unusual Dermatoglyphics Pattern Which May Prove As An Helpful Aid In Routine

Physical Examination.

Cumins & Midlo Used Dermatoglyphics As A Diagnostic Aid In Medical Disease Since Then It Has Become A Valuable Tool In Medico-Legal, Anthropological And Genetic Studies.

Various Diagnostic Criteria Are Available For Labeling Bronchial Asthma, Such As Medical History, Family History, Physical Examination, And Laboratory Studies Like Skiagrams, Spirometry And Allergy Test. Apart From Advances In Medical Diagnostic Procedure, The Diagnosis Of Bronchial Asthma In Difficult, As Children With Bronchial Asthma Are Heterogeneous And They Present A Wide Spectrum Of Signs And Symptoms Which Vary In Severity From Child To Child And From Season To Season.

Therefore, Present Study Was Undertaken As Palmar Dermatoglyphics Is A Simple, Inexpensive And Non-Invasive Anatomical Procedure Which May Be Used As A Reliable Indicator For Screening Of A High Risk Population In A Developing Country Like India.

The Quantitative And Qualitative Data Were Calculated From The Fingerprint Of 50 Bronchial Asthma Patients And 50 Controls. It Was Seen That The Presence Of Arches Were Significantly Lower Than That Compared To The Control Group (P=0.002).

A Significantly Higher Number Of Ulnar Loops Were Seen In The Bronchial Asthma Group (P=0.0227).

TFRC Were Significantly Higher Amongst The Bronchial Asthma Patient, (P = 0.0019).

No Significant Result Was Obtained For AFRC (Table 2)

No Significant Result Was Obtained For "Atd" Angle (Table 3)

CONCLUSION

This Study Was Taken Up With An Intention To Find The Relationship Of Two Genetically Related Aspects Dermatoglyphics And Bronchial Asthma. Though Many Statistically Significant Results Were Obtained, Some Result Were In Contract To Previously Conducted Study. The Present Study Indicate That There Are Some Genetic Factor Which Are Involve In The Causation Of Bronchial Asthma And It Is Possible To A Certain Extent To Predict And Individual's Chance Of Acquiring Bronchial Asthma From The Dermatoglyphics Pattern. Like Clinical History Examination And Investigation, Dermatoglyphics Will Play An Important Role Revealing The Genetic Suspectability To Bronchial Asthma.

Source of Support ⊣ NIL

Conflict of Interest ⊣ NIL

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The Effect of Reiki Energy Healing on CABG Postoperative Chest Pain Caused by Coughing and Deep Breathing

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ABSTRACT

Introduction: Many heart patients need Coronary Artery Bypass Graft (CABG) for their health and survival. CABG is known as the first and best choice in the treatment of these patients.the aim m this study was to study the effect of Reiki on chest pain of the patients undergoing CABG.

Method and materials: Forty patients after CABG were randomly assigned to Reiki and Sham Reiki groups. CABG Postoperative Chest Pain Caused by Coughing and Deep Breathing were measured before and after the interventions. The patients underwent Reiki healing energy and sham Reiki for 9 minutes. The short and modified version of the McGill pain questionnaire and the Visual Analog Scale was used for pain measurement.

Results: shows that 60% of the patients were male in both groups. No significant difference was found between two groups in terms of age, length of stay, and the outset of energy healing (P>0.05). No significant difference was found in terms of diabetes, high blood pressure, high cholesterol, and history of smoking and drug addiction (P>0.05).

Discussion: According to the findings, Reiki energy healing is advised as a non-medical method, easy, inexpensive, noninvasive, and effective method for pain relief of the CABG patients.

Conclusion: future studies recommended are recommended to study the stability of Reiki on pain severity of patients at different times after intervention and compare the Reiki with drug therapy and other methods of complementary medicine for reducing the postoperative pain in order to provide better services for patients.

Keywords: Reiki, Energy Healing, Postoperative Chest Pain

INTRODUCTION

Many heart patients need Coronary Artery Bypass Graft (CABG) for their health and survival. CABG is known as the first and best choice in the treatment of these patients. During CABG, the blocked artery is replaced by the saphenous vein or mammary artery [1, 2]. Despite advances in research, education, and treatment

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of pain, patients complain of moderate-to-severe postoperative pain in the first three days[3]. By stimulating the sympathetic system, the unrelieved pain causes an increase in blood pressure, pulse, and shallow breathing. Accordingly, it increases the body's and heart muscle's need for oxygen. These conditions are very dangerous in patients undergoing cardiac surgery[4]. Cutting pain in surgical site limits the breathing movements, ineffective breathing, and the inability to cough. This prepares the ground for pulmonary complications such as atelectasis. On the other hand, inaction and delay in getting out of bed due to pain increase the risk of blood stagnation, clots, and pulmonary embolism.

These factors increase the rate of heart failure by up to three times and postoperative infection by up to five times. Controlling pain causes a significant decline in the incidence and severity of these complications (5). Relieving and assessing the postoperative CABG pain is one of the most important responsibilities of nurses (6, 7). Although drug treatments are the most accessible and convenient methods to reduce the postoperative pain, they are not the only ones (7). In recent years, various nursing practices have been taken into account such as the use of the complementary medicines after heart surgery (8). Reiki Energy Healing is one of the complementary medicines used worldwide (9). National Center for Complementary and Alternative Medicine classified Reiki as one of the ancient, Japanese energy healing methods for reducing pain and anxiety (10-13). Martha Rogers- nursing educator, researcher, and theorist- introduced the energy field theory. It is the basis to support nurses for using energy healing methods (12, 13). Disruption in the patient's energy field is one of the nursing diagnoses, approved by the American Association of Nursing Diagnoses. Nurses must take essential practices into account for overcoming the disorder. Disruption in the energy field is defined as the disruption of energy flow around one's body, which causes imbalances in mind, body, or spirit (14-16).

Since the patient experience moderate-to-severe postoperative pain, lack of effective relief causes complications (17). On the other hand, Reiki has been accepted by the World Health Organization as a complementary therapy (10-13). Recent studies show the effect of this method on reducing the pain severity (18). The experience in dealing with issues and problems of patients undergoing open heart surgery, especially chest and leg pain and lack of studies in terms of the effect of Reiki energy healing on reducing postoperative CABG pain led the researcher to study the effect of Reiki on chest pain of the patients undergoing CABG.

MATERIALS AND METHOD

This is a clinical trial, aiming to determine the effect of Reiki Energy Healing on the average pain intensity and sensory and emotional dimensions of quality of pain caused by deep breathing and coughing of patients undergoing CABG. The study was conducted in the cardiac surgery ward of Ali Ebne Abi Talib Hospital of Zahedan, Iran. The statistical population consisted of all in-patients in the cardiac surgery ward of Ali Ebne

Abi Talib Hospital of Zahedan, Iran. They all underwent CABG. A total of 40 patients, who met the inclusion criteria, were selected as the sample.

Inclusion and Exclusion Criteria

- Lack of disease that causes chronic pain

- Lack of severe vision or hearing impairment

Data were collected using 3 researcher-administered questionnaires: The first questionnaire consisted of 13 demographic items and the history of chronic diseases (Age, gender, marital status, education (medical or non-medical), occupation, the number hospitalization day in CCU, day of energy healing after surgery, history of diabetes, high blood pressure, and high cholesterol, and the history of drug addiction and smoking). The second questionnaire, McGill Pain Index, had 11 items: 8 items for assessing the sensory quality of pain and 3 items for assessing the emotional quality of pain. Each item is scored on a zero-to-3 scale (19). The third questionnaire, Visual Analog Scale (VAS), is similar to a horizontal 0-10 scale ruler where zero shows no pain, while 10 is an indicator of severe pain. After selecting the subjects and ensuring their willingness for participation, oral and written consents were taken. They were then briefed about the research goals and method. The patients were also trained in terms of VAS. Feedback was taken to ensure the training effectiveness. Systematic random sampling was employed. The patients were assigned into control and experiment (intervention) groups. The samples were matched by sex and age. The questionnaires were completed in two stages: prior to the intervention and 10 minutes after intervention. Prior to the intervention, VAS questionnaire was completed after encouraging the patients for deep breathing and coughing. Then, the patients received remote energy healing by the therapist for 9 minutes. At the same time, a non-aligned nurse pretended the energy radiation from a distance of almost 50-60 cm to patient's heart chakra and auras. After 10 minutes from the completion of energy healing, the VAS was completed after deep breathing and coughing. The data were analyzed using SPSS22. Descriptive statistics were employed to describe the frequency of data. Chi-square was used to compare the nominal and ordinal data between the experiment and control groups. ANCOVA was used for testing the significant difference between the sensory and emotional dimensions of pain. Repeated Measure Analysis of Variance (RM-ANOVA) with

Bonferroni post hoc test was employed to investigate the pain severity. Significance level was considered 0.05 for the all tests.

RESULTS

Table 4.1 shows that 60% of the patients were male in both groups. All subjects were married. 70% in intervention group and 90% in control groups either were illiterate or had primary education. The mean age was 61.55 in intervention group, while it was 59.05 in control group. Average length of stay in CCU was 3 days in intervention group and 3.50 in control group. Average postoperative energy healing was 4 days in intervention and control groups. No significant difference was found between two groups in terms of age, length of stay, and the outset of energy healing (P>0.05). No significant

difference was found in terms of diabetes, high blood pressure, high cholesterol, and history of smoking and drug addiction (P>0.05). The results of RM-ANOVA showed that a significant difference was found between both groups in terms of chest pain severity caused by coughing and deep breathing of patients undergoing CABG after controlling the intervening variables (pretest pain score, age, gender, length of stay in CCU, the outset of energy healing after surgery, history of diabetes, history of high blood pressure, history of high cholesterol, and history of addiction and smoking) (P=0.022). The results of ANCOVA showed that a significant difference was found between control and intervention groups in terms of the scores of sensory dimension (P=0.001) and emotional dimension (P=0.009) of the quality of chest pain caused by coughing and deep breathing of the patients undergoing CABG.

Table 1: Distribution of demographic and baseline clinical characteristics of patients

Demographic characteristics and basic clinical		n (%)		*P* Value
		Sham Reiki	**Reiki**	
Gender	Female	8(40%)	8(40%)	1.00
	Man	12(60%)	12(60%)	
Education	illiterate	9 (45%)	6 (30%)	0.41
	Primary education	9 (45%)	8 (40%)	
	Diploma	2 (10%)	5 (25%)	
	Undergraduate and above	0 (0%)	1 (5%)	
History of diabetes	Yes	8(40%)	8(40%)	1.00
	NO	12(60%)	12(60%)	
History of hypertension	Yes	12(60%)	11(55%)	1.00
	NO	8(40%)	9(45%)	
History of hyperlipidemia	Yes	6(30%)	11(55%)	0.20
	NO	14(70%)	9(45%)	
Smoking	Yes	1(5%)	3(15%)	0.60
	NO	19(95%)	17(85%)	
History of addiction	Yes	7(35%)	7(35%)	1.00
	NO	13(65%)	13(65%)	

Table 2: The mean scores of intensity, sensory and affective qualities of pain in chest before and after CABG in Reiki and sham Reiki groups

Groups			Baseline Mean (SD)	Post intervention Mean (SD)	Post intervention Adjusted Mean (95%CI)
Chest pain	Sensory dimension	Reiki	4.75(2.38)	2.30(1.72)	1.80 (1.23- 2.37)
		Sham Reiki	3.25(1.48)	2.95(1.54)	3.45 (2.88- 4.02)
		P Value (t-independent)	0.023	0.215	$F_{(1, 28)}$=14.24 *P*=0.001
	Affective dimension	Reiki	2.90(1.25)	1.30(0.92)	1.09 (0.69- 1.49)
		Sham Reiki	2.15(0.49)	1.75(0.72)	1.96 (1.56- 2.36)
		P Value (t-independent)	0.017	0.093	$F_{(1, 28)}$= 7.98 *P*= 0.009
	Intensity	Reiki	8.00(2.99)	5.70(3.34)	4.97 (4.02- 5.90)
		Sham Reik	6.35(2.87)	5.95(2.78)	6.68 (5.75- 7.62)
		P Value (t-independent)	0.083	0.798	$F_{(1, 28)}$=5.85 *P* = 0.022

DISCUSSION

This article aimed to study the effect of Reiki energy healing on the severity and quality of chest pain of the patients undergoing open heart surgery, encouraged for coughing and breathing deeply. The results showed a decline in the pain severity and the mean scores of emotional and sensory dimensions of quality of pain of the patients undergoing Reiki energy healing. Pain relief in the cut site of chest surgery improves the breathing, effective breathing, the ability to cough, and the prevention of atelectasis and other complications. The findings of other studies also indicated that Reiki energy healing caused a decline in pain severity at various conditions [18, 20- 24]. According to Ki theory, Reiki facilitates the circulation and energy balance in body

systems, providing physical comfort and thus promoting health and enhancing the vitality of the body [25]; however, the results of our study were inconsistent with those of the study by Sondra VanderVaart et al. on the effect of distant Reiki on postoperative elective caesarean pain [27]. It seems that the simultaneous presence of a therapist pretending the energy transfer was an effective factor in the interaction between the therapist and patients for accepting the energy healing reception, especially when the patient received the energy for the first time. Since the patient's perception of pain severity can be influenced by environmental factors such as sound [28], lack of access to a private room and nursing and medical care interference in the morning shift were two of the limitations for Reiki energy healing. To overcome such a problem, Reiki intervention was performed in the afternoon shift after the physician and family visit and before the nursing practices such as medication. Only one session of Reiki energy healing and lack of pain intensity assessment in different stages was another limitation of our study. Another limitation was the word "fear" in the emotional dimension of McGill Pain Index. The patients used to heavily avoid the word to show the pain quality. According to the findings, Reiki energy healing is advised as a non-medical method, easy, inexpensive, noninvasive, and effective method for pain relief of the CABG patients.

CONCLUSION

Finally, future studies recommended are recommended to study the stability of Reiki on pain severity of patients at different times after intervention and compare the Reiki with drug therapy and other methods of complementary medicine for reducing the postoperative pain in order to provide better services for patients.

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Helicobacter Pylori Diagnosis in 56 Gastric Biopsies: A Cost-effectiveness Analysis of Different Techniques

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ABSTRACT

Background: *Helicobacter pylori* affects nearly half of the world's population and, thus, is one of the most frequent and persistent bacterial infections worldwide. Among the methods developed to detect *H. pylori* infection, determining the gold standard remains debatable**.**

Objectives: The aim of the present study was to compare the classical *H. pylori* diagnosis techniques with the immunohistochemical one, in terms of availability, rapidity, specificity, sensitivity and cost.

Materiel and Method: We performed a cross sectional study for 56 gastric biopsies of symptomatic Moroccan patients undergoing fibroscopy. The slides were stained with both histological stains and immunohistochemical stains, and these were assessed by the same experienced pathologist. Kappa coefficient was used to assess the agreement between the techniques.

Results: Out of 56 gastric biopsies, 25 were *H. pylori*-positive and 26 were *H. pylori*-negative, all diagnosed by the Hematoxylin eosin, the Giemsa and the immunostaining. Whereas, the five remaining cases had discordant results, they were diagnosed *H. pylori* negative by the histological examination and *H. pylori* positive using the immunohistochemical technique. A good concordance between Histology and Immunohistochemistry was revealed (*kappa-value*= 0.672, *p-value*<0.05).

Conclusion: The immunohistochemistry is highly sensitive and provides greater degree of accuracy versus the classical staining methods, especially in cases of low bacterial density or coccoid forms. However, it is costly, time-consuming and need sophisticated preparation. Therefore, it is useful when results from histological examination are equivocal.

Keywords: Helicobacter pylori, Histology, Immunohistochemistry, diagnosis, sensitivity.

INTRODUCTION

Helicobacter pylori is a microaerophilic spiral-shaped lophotrichous Gram-negative bacterium that infects over 3000 million people worldwide, making it one of the most common bacterial infections[1].

Helicobacter pylori is thought to represent a significant etiopathogenic factor in diseases of the upper gastrointestinal tract. It invades the mucosal lining of the stomach and is the cause of up to 95% of duodenal and up to 75% gastric ulcers and has also been associated with gastric cancer and lymphoma. It seems, therefore, important to elaborate effective techniques for its detection[2].

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Major progresses have been accomplished in the field of diagnosis. Different types of diagnostic tests have been developed and improved over the last ten years, they include blood antibody tests, urea breath tests, stool antigen tests, and endoscopic biopsies. Several clinical trials have been performed worldwide[3]. These have allowed to define specific treatment indications of *H. pylori* infection and to propose effective treatment regimens which now lead to long-standing and definitive cure of peptic disease in case of bacterial eradication[3].

The choice of a diagnostic test should depend on the clinical circumstances, the pre-test probability of infection, sensitivity and specificity of the test (or more correctly the likelihood ratio of a positive and negative test), the cost effectiveness of the testing strategy, and the availability of the test[4].

MATERIEL AND METHOD

We performed a cross-sectional study at the Laboratory of Anatomy Pathology in Pasteur Institute. The material consisted of 56 gastric mucosal biopsies, endoscopically sampled from symptomatic patients. Biopsies taken from the antral part of the stomach were good quality and in sufficient number. Each biopsy was examined by histology (Haematoxylin eosin and Giemsa stains) and the immunohistochemical technique (labelling) using an immunoaffinity-purified polyclonal rabbit antibody to *H pylori* antigens (DAKO, USA). A single and experienced pathologist interpreted all biopsies and graded the amounts of *H. pylori,* acute, atrophic and chronic gastritis according to the visual analogue scale of the Updated Sydney Classification System for Gastritis.

Thus, Institutional review board approval was obtained from Pasteur Institute Committee on Human Research for this analysis, they deemed that patient's informed consent was unnecessary since the results were obtained from Archived Formalin-Fixed Paraffin-Embedded (FFPE) Blocks.

All paraffin sections were used to perform the immunohistochemical staining and 2 independent histological tests in order to diagnose *Helicobacter pylori* infection: 1) staining with haematoxylin and eosin, 2) staining by the Giemsa technique.

Statistical analysis was performed using Epi-info software (version 6.04). Results were evaluated at a 95%

confidence interval, a $p < 0.05$ value was recognized as the statistical significance level and Kappa statistics were performed to assess agreement between the results of Histology and Immunohistochemistry.

FINDINGS

The 3 tests (Hematoxylin eosin, Giemsa and the antibody stain) revealed *H. pylori* in 25 cases (Fig.1, 2 and 3) and were negative for *H. pylori* in 26 cases. However, the five remaining cases had discordant results, they were diagnosed *H. pylori* negative by the histological examination and *H. pylori* positive using the immunohistochemical technique.
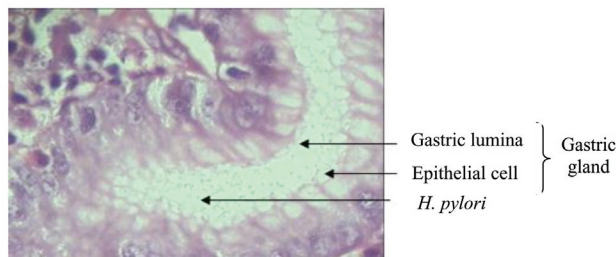

Figure 1 : Demonstration of *Helicobacter pylori* in antral biopsy by Hematoxylin & Eosin stain. H&E x1000 (High power view, immersion)
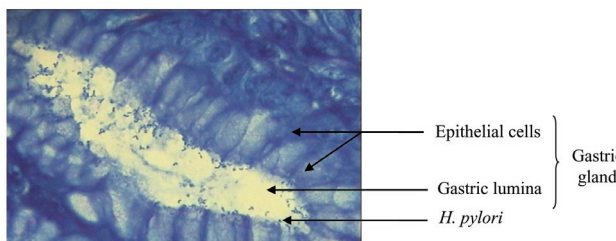

Figure 2: Demonstration of *Helicobacter pylori* in antral biopsy by modified Giemsa stain. M. Giemsa x1000 (High power view, immersion)

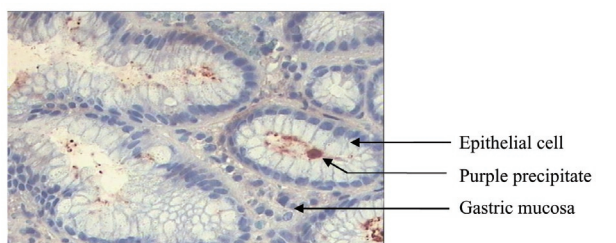**Figure 3: Immunohistochemistry : Black purple precipitate revealing the presence of *H. pylori*. Immunohistochemistry x1000 (High power view, immersion)**

The histological method gave, consequently, 5 per 56 false-negative results. This gave a concordance rate of 91.07% and a discordance rate of 8,92%. A good concordance between Histology and Immunohistochemistry was revealed (*kappa-value =* 0.672, *p-value*<0.05).

As for the comparison of costs and technicalities of the methods, the Giemsa stain is very straightforward, inexpensive, and takes about fifteen minutes to perform, excluding the time in solution, and rarely requires repeat stains (none were required in our study). This method is easily reproducible and it gives a better contrast for bacteria then Hematoxylin eosin. The major disadvantage of the histological stains is that *Helicobacter pylori* can not always be identified when its density is low.

The antibody stain gives a good result and the method is very reliable. No variations were noted and therefore no repeats were required. Negative and positive controls have always to be done. The technical time is approximately two hours and the method is expensive and needs sophisticated preparation.

DISCUSSION/CONCLUSION

Helicobacter pylori causes chronic active inflammation within the gastric mucosa. Several tests, both invasive and non-invasive, are available for the diagnosis of *H. pylori* infection[5]. The invasive methods include the demonstration of *H. pylori* in the biopsy sample of gastric mucosa during endoscopy. *H. pylori* can also be demonstrated by urease test, in vitro cultures, and molecular methods[6].

H. pylori can be seen on haematoxylin and eosin-stained biopsies as well as with special stains including modified Giemsa, Warthin Starry silver and acridine[7]. The sensitivities and specificities of histology are satisfactory, ranging from 83-93.5% and 90.4-100%, respectively [8,9].

In addition to the stain used, factors which can influence identification of the organism are its density and the experience of the pathologist. Gisbert and Abraira[10] and Anim and al[11] assessed the accuracy of *Helicobacter pylori* diagnostic tests and concluded that Histology is adequate for initial assessment but has a low sensitivity. Therefore, most laboratories use an additional staining method in the identification of the organism especially the antibody stain (immunohistchemistry).

According to some authors, one of the advantages of the immunohistochemistry is the ability to detect low numbers of organisms, often difficult to detect using traditional staining methods, and to identify the coccoid forms of *H. pylori*, which otherwise cannot be reliably identified by conventional methods[6].

In this study we compared Histology (Hematoxylin eosin and Giemsa stains) with immunohistochemistry for the ability to detect *H. pylori*.

Immunohistochemistry has been reported to detect *H. pylori* better than the conventional method [12]. In our study, both methods found 25 HP-positive cases and 26 HP-negative cases. The five remaining cases were diagnosed *H. pylori*-positive by the immunohistochemistry, but the positivity of these cases was not revealed by Hematoxylin eosin and Giemsa staining, probably, because of the low bacterial density or the atypical form of *H. pylori*.

Concordance and discordance rates were 91.07% and 8,92%, respectively. This gave a good concordance between Histology and Immunohistochemistry (kappa-value= 0.672, p-value <0.05).

Summing up, *H. pylori* were more prominent and easier to detect in the immunostained sections. We were able to conclude that it is highly sensitive and provides greater degree of accuracy versus the classical method in identifying *H. pylori*. However, it is costly, time-consuming and needs sophisticated preparation. It is more practical to use stains with lower cost, easier to perform technically and readily available. Since Histology has all those features and as a simple stain for microbiologic studies, it remains the method of choice. The immunohistochemical stain should be used in equivocal cases generally characterized by the presence of coccoid forms or a low bacterial density.

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Organisational Culture and its Impact on Employee Performance
(A Study with Reference to IT Sector Chennai)

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ABSTRACT

Organisational culture is a complex phenomenon and is formed in diversity of ways, it might initiate from the challenge and obstacles that organisation features, it may perhaps be an intentional creation of the management and employees working in the organisation culture. Culture of the organization is somewhat that can predominantly ground the performance of the employees in the workplace. The main purpose of this article is to study the different types of cultures in an organisation and to study the relationship between organizational culture and organizational performance. Descriptive research design was adopted in this study. Totally 230 IT employees has respondents were selected to fill the questionnaire for this study. Findings of this study are only related to the IT employees from Chennai.

Keywords *: organizational culture, organizational performance, organization*

INTRODUCTION

The term culture is stated as the set of values, customs, beliefs and behaviors that are commonly followed by the society. (Hofstede et al., 1990) defines the same stating Organizational culture is "a collection of values, beliefs and norms shared by its members and reflected in organizational practices and goals". The relevance of this definition provides that it facilitates the progress in selection to swift the prospect for portion creative talent, testing and risk enchanting. The main aim of this article is to study the different types of cultures in an organisation and to study the relationship between organizational culture and organizational performance. Ouchi (1981)[8] examines a positive relationship between organisation culture and performance. Although the writing on organisational culture and its alliance with organizational performance is wealthy varied, there is a small amount of study really examine the concept of this connection. culture has been set up as a main factor to be considered through in organizational life along with

its positive impact on the success of the organizational performance. Another definition states that organization culture is that the "shared values, morals held by employees within an organization or the organization unit". Because it is evolved through the organization culture in array to sway the behavior and attitude of the employees. Organisational culture depends on views and characteristics of the employees working in the organization. Each organization is different from one another. If an Organizational culture is strong then its growth and performance will be high. Organizational culture highly depends on certain factors such as what kind of culture the organization follows such as clan, adhocracy, market culture of the employees working in the organisation, and performance. According to Hasan, Ali and Hamid Taghiloo(2011)[3] studied the link connecting four types of organisational cultures and how it shapes the organisation. Results of Correlation and Frid man tests reveal that there is a significant correlation between organisational cultures and learning organisations. In adding up the study has found that clan culture has a high correlation coefficient, but adhocracy culture has the maximum grade among diverse types of cultures.
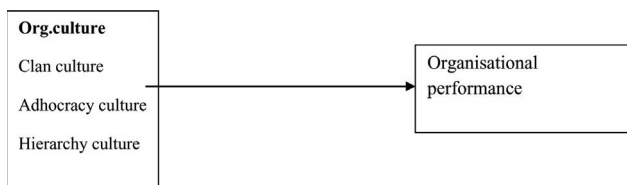
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The rational culture[4] includes external activities and focus on planning and setting of goals which is helped to achieve the output efficienctly. This form of organsitional culture is verified to as a rational culture since its highlighting on outcomes and aim fulfillment (Denison and Spreitzer, 1991). The Group culture / individual relation involves a elasticity in which instruction and the broad extension of human resources are utilized to accomplish consistency and employee spirits. The hierarchical culture course representation enforces a internal focus in series organization and announcement are utilized to categorize and achieve firmness and control. This form has also been refers to as a 'hierarchical culture' because it includes the implementation of convention, traditional values, and concentration to technological aspects. Though, there leftovers a narrow observed perceptive of organizational culture in the background of construction. The study details about the cultural outline of organizations operating in IT Industry. The findings of the study showed that the industry has been conquered by companies as clan and hierarchy type organizations. In totaling, the analysis reports specify organizational culture differences in expressions of firm sort, volume, and era. In current times organizational culture and dedication of the workforce is the major part to be considered by the organisation for its development. Employees are the asset of an Organization. Retaining the employees in today's firms are difficult than previous decade. Employees' expectation towards culture of work place and work life are high. They are demanding balanced work schedule and congenial work environment. If a suitable work environment is available, it boosts the morale, commitment and enthusiasm of the employee. The role of the employee is clearly defined in an organisation means ease for the employee to deliver his work. Proper culture planning, team support and encouragement and good training create a good and healthy organisational culture and performance among the employees.

PROPOSED RESEARCH MODEL

OBJECTIVES OF THE STUDY

• To study different types of culture in an organization.

• To study the relationship between organizational culture and organizational performance.

HYPOTHESIS

HO: There is no significant relationship between organizational culture and organizational performance.

H1 : There is a significant relationship between organizational culture and organizational performance.

RESEARCH METHODOLOGY

This present study attempts to study the types of culture in an organization and to test the significant relationship between organization culture and performance. The necessary data were collected through structured questionnaire. Analytical and descriptive type of methodology was followed. The study depends on primary and secondary data.

AREA OF STUDY

Organisational culture and its impact on performance is relevant to IT industries has the IT Sectors consists of multi culture environment in the workplace. Therefore, the research was contacted in different IT companies to achieve the precise feature features of organizational culture and its impact on employee performance. The study covered different IT companies in Chennai.

SAMPLING SIZE AND DESIGN

The primary data were collected through survey method. Survey was conducted directly and through electronic mail using well developed Questionnaire. Convenience Sampling has been done for generating data. Totally 260 Questionnaires were distributed and 250 collected out of which 230 completed questionnaires were found usable.

QUESTIONNAIRE DESIGN

The primary data were collected through questionnaire survey. The respondents were asked to give their opinion on organizational culture, commitment of the employees working in the organization and performance of the employees. The opening division of the survey comprises of employees individual

details and their perceptive on organizational culture and performance has elective questions. The next part consists of questions relating to organizational culture, and performance, with Likert's 5 point scale.

DATA ANALYSIS

PERCENTAGE ANALYSIS

Percentage analysis is useful to find percentage and frequency of the variables for the study.The percentage analysis is used for the demographic variables of organizational culture and impact of performance followed below.

Table 1 : Demographic variables of the respondents

Demographic Variable	Frequency	Percentage
Age Group		
Below 25	34	14.8
26-35	88	38.3
36-45	83	36.1
46-55	22	9.6
Above 55	3	1.3
Gender		
Male	131	57
Female	99	43
Years Of Experience		
Below 1 year	91	39.6
2-5 years	92	40.0
6-10years	33	14.5
11-15years	13	5.7
Above 15 years	1	0.4
Monthly Income		
10,000-25,000	90	39.1
26,000-35,000	77	33.5
36,000-45,000	49	21.3
46,000-55,000	13	5.7
Above 55,000	1	0.4

Inference: From the above table 1 it was found that out of 230 respondents.14.8% of them are in the age group of below 25, 38.3% of them are having age 26-35 years,36.1% of them are having age 36-45years

,9.6% are having age 46-55 years, and 1.3% are in the age group above 55 years.

The table 1 shows that out of 230 respondents, 57% of the respondents are male and 43% of the respondents are female. It is observed that most of the respondents are male.

Out of 230 respondents, 39.6% have below 1year of experience,40% of respondents have 2-5years of experience,14.5% are of 6-10 years of experience,5.7% are of 11-15years of experience and 0.4% are above 15years of experience.

As per the data collected out of 230 respondents 39.1% are having monthly income of 10k-25k, 33.5% are having monthly income of 26k-35k, 21.3% are having 36k-45k income, 46k-55k having monthly income of 5.3 % and 0.4% are having above 55k of monthly income.

MULTIPLE REGRESSION ANALYSIS

Multiple regression[1] is a dominant procedure used for predicting the unidentified value of a variable from identified value of two or more variables. Mutiple regression analysis is mostly used when there are more predictions and also when there is continuous dependent variable from more independent variables. In multiple regression there will always be one dependent variable and more independent variable. In the variable when the value is identified it is called dependent variable and the variable which is unidentified it is called independent variable. It is intended to inspect the relationship of a variable Y to a set of other variables X_1, X_2, X_3.........….X_n. the most commonly used linear equation in $Y=b_1 X_1 + b_2 X_2 +......+ b_n X_n + b_0$. Here Y is the dependent variable, which is to be found. X_1, $X_{2...}$ and X_n are the known variables with which predictions are to be made and b_1, b_2....b_n are coefficient of the variables. In this study, the dependent variable is organizational performance; Independent variables and analysis are discussed as follows:

Dependent variable : Organisational performance(Y)

Independent variables : 1. General organizational culture (X_1)

2. Clan culture (X_2)

3. Adhocracy culture (X_3)

4. Hierarchical culture (X_4)

Multiple R value : 871[a]

R Square value : 0.75

F value : 176.592

P value : .046, .000, .002, .003, .000

Table 2: Multiple Regression Dependent Variable : Org. Performance

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.871[a]	.758	.754	.45683

Independent Variable : Organisational culture in general, Clan culture, Adhocracy culture and Hierarchy culture

a. Predictors: (Constant), Gentral culture_ Total, Clan culture_Total, Adhocracy culture_Total, Hierarchy culture_Total.

b. Dependent Variable: Organisational Performance

R is the correlation, Its value is 0.871 and R square is the degree of determination, its value is 0.758. The degree of determination in table shows the extent to which factors (Organisational culture in general, Clan culture, Adhocracy culture and Hierarchy culture) impacts the performance.

Table 3: ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	147.418	4	36.855	176.592	.000[a]
	Residual	46.957	225	.209		
	Total	**194.375**	**229**			

a. Predictors: (Constant), Gentral culture_ Total, Clan culture_Total, Adhocracy culture_Total, Hierarchy culture_Total.

b. Dependent Variable : Organisational Performance

The above ANOVA table3 shows that the significant value is less than 0.01, Which means dependent variable organizational performance is significantly predicted by independent variables such as Organisational culture in general, Clan culture, Adhocracy culture and Hierarchy culture.

TABLE 4 : SHOWING VARIABLES IN THE MULTIPLE REGRESSION ANALYSIS

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.306	.152		2.008	.046
	OC_TOTAL	.576	.064	.585	9.027	.000
	CC_TOTAL	.207	.067	.230	3.113	.002
	AC_TOTAL	-.196	.064	-.159	-3.051	.003
	HC_TOTAL	.312	.067	.239	4.663	.000
a. Dependent Variable: Org.Performance_Total						

OC_total- Organisational culture, CC_Total- Clan culture, AC _culture- Adhocracy culture, HC_total- Hierarchy culture.

RESULTS AND DISCUSSION

From the above percentage analysis table it was found that out of 230 respondents the highest percentage of 36.1% comes under the age group of 36-45years. It is also found that 57% of the respondents are male and 43% of the respondents are female. It is observed that most of the respondents are male.From the 230 respondents 40% of respondents have 2-5years of experience and rest are splinted. 39.1% are having monthly income of 10k-25k, 33.5% are having monthly income of 26k-35k, and 0.4% are having above 55k of monthly income.55k monthly income are very less percent when compared to the other cadre incomes.

The above multiple regression table results shows that the test was conducted to analyze the significant relationship between organizational cultures and organizational performance. The table highlights the organizational culture (Beta=0.585 for standardized coefficients)positively impacting the performance as the P value is lesser than 0.05.Clan culture (Beta=0.230 for standardized coefficients) positively signifies the performance as the P value is lesser than 0.05.Adhocracy Culture (Beta= -0.159 for standardized coefficients) negatively signifies the organizational performance as the P value is lesser than 0.05.Hierarchy culture (Beta=0.239 for standardized coefficients) positively significant with the performance as the p value is lesser than 0.05.

The outcome of the variables Organisational culture in general, Clan culture, Adhocracy culture, Hierarchy culture on organizational performance is given by the equation of regression,

Organisational performance=0.306+0.585(org.culture in general+0.230(Clan culture) -0.159(Adhocracy culture)+ 0.239 (Hierarchy culture)

A unit increase in the Organisational Culture results in the Organisational performance by 0.585.

Similarly for the Clan Culture, Adhocracy Culture, Hierarchy Culture.

Significant constant shows that even in the absence of factors influencing Organisational performance

positive impact on the performance.

Coefficient of R^2 infers that the changes in the Organisational performance is explained by the factors to the extent of 75% i.e R^2 =0.75

Significant F-Statistics reveals the validity of the fitness of the regression model.

CONCLUSION

From the findings it was conclude those in IT Sector the organizational performances were dependent on various factors. It is also found that organizational culture in general and different types such as clan culture, hierarchy culture have a positive impact on performance and adhocracy has negative impact. Thus, according to the study results obtained from the employees working in the organization. They should have a special attention to organizational culture and thereby improve the performance of their employees.

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Effectiveness of an Awareness Programme on Knowledge of Disaster Preparedness in Low Lying Flood Prone Areas of Udupi

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ABSTRACT

An evaluative study was conducted with an objective to assess the effectiveness of an awareness programme on knowledge and practices of disaster preparedness among residents of low- lying flood prone areas of Udupi Taluk. A pre- experimental one group pre- test post-test design was used. The sample included fifty eight subjects who were selected through purposive sampling. Pre-test data was collected by using a self -administered knowledge questionnaire. An awareness programme on disaster preparedness in floods was conducted and the post- test was conducted seven days later. The study found that the awareness programme was effective in improving the knowledge and practices of disaster preparedness among the residents of flood prone areas. The residents of flood prone areas have to be educated regarding disaster preparedness so that vulnerability to the consequences of floods can be reduced. As we are witnessing dramatic climatic changes these days, it is necessary to equip the vulnerable people with knowledge that can be reduce the ill effects of disasters, particularly floods.

Keywords: *floods, disaster preparedness, knowledge, practices.*

INTRODUCTION

Disasters are unpredictable and can happen anytime and anywhere. Sometimes when disaster strikes, there could be no time for us to respond. The basic services like water, food, transport, telephone, power etc. could be disturbed severely due to disaster. The best way to cope with a hazard is to be prepared. The key to surviving any disaster situation is planning and preparation. When we participate in disaster preparedness, we contemplate the possibility of a disaster that is likely to occur. The responsibility of communities, families and individuals taking appropriate actions to reduce the effect of disasters is of utmost importance. As there is continued rise in the impact of small and medium scaled disasters, the concept of Community Based Disaster Management has emerged and it has become a fundamental part of all the local and national disaster management planning[1]. In West Virginia, a study was conducted to evaluate the effectiveness of three face- to face workshops on public health- specific personal disaster preparedness training. The study concluded that the training yielded gain in relevant preparedness behaviours and attitudes[2]. Adams and Canclini (2008) conducted a study in the community to promote the participation of baccalaureate nursing students with community members in planning, implementing and evaluating the health education programme on disaster preparedness. The study results showed that though the community members initially did not place high priority on disaster preparedness, after the study they were eager in preparing themselves to face the disaster situations[3]

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In India, on an average, about 75 hectares of land is affected by floods. Approximately 1600 people lose their lives and there is devastation of crops, houses and other facilities which accounts Rs. 1805 crores. The highest number of lives (11,316) were lost during the floods of 1977. In the recent days, there have been floods in areas which were not considered flood prone during the earlier days[1]. The coastal belt of Orissa very often faced threats from cyclone and flooding. In October 1999 a cyclone killed 10,000 people. The calamity forced the government to create an awareness on disaster preparedness in selected areas. NGO's joined hands with government in this initiative. In November 2002, cyclone struck Orissa again, but this time the lessons learnt in 1999 came in handy as the awareness at the community level was quite high and the same were put into practice resulting in minimum casualties[4]

The frequency of flooding is quite high in many taluks in Udupi. The District Disaster Management Plan of Udupi District emphasizes the need of conducting community awareness programmes in flood prone villages so that the people are sensitized about flood hazard. The need for evacuation when warnings are issued, should also be explained to the people [5]

The purpose of the study was to assess the existing knowledge on disaster preparedness and the likely actions the people would take in case of a flood. It aimed at equipping the people to face the hazard of flooding by improving their knowledge and practices of disaster preparedness through an awareness programme, which would further help them to reduce the vulnerability to the hazard.

METHOD

A pre- experimental one group pre-test post- test design was adopted for the study. The population comprised of the residents of low- lying flood prone areas of Udupi Taluk. The study was conducted in Uppuru grama of Udupi Taluk as it is low lying and is frequently affected by floods. The subjects were chosen by purposive sampling. Residents of selected low- lying flood prone areas, who know to read and write Kannada and were willing to participate in the study were included. The sample comprised of the members of two self- help groups and a youth group.

Formal administrative permission was obtained from Dean, Manipal College of Nursing Manipal,

Tahsildar of Udupi Taluk, Ethical Clearance from the Institutional Ethics Committee of Kasturba Hospital, Manipal. Informed consent from the participants were obtained for conducting the study after administering the subject information sheet. Pre-test data were collected from 58 participants using a demographic proforma and a self -administered knowledge questionnaire which consisted of 30 multiple choice items with one best response. Knowledge score was categorized as good (21- 30), moderate (11- 20) and poor (0- 10) based on the knowledge scores.

The research instruments were developed by the research. The validity and reliability of the instruments were established. The awareness programme was conducted which comprised of a teaching session and dissemination of information material. Flip chart on causes, consequences and prevention of floods, demonstration of a disaster preparedness kit and posters on communicable diseases and water, sanitation and hygiene were used to impart the education. Pamphlets on flood preparedness and family disaster preparedness plan were developed and disseminated. The post- test data were collected seven days after the intervention. Post- test data were obtained from 54 participants and post- test couldn't be administered to the remaining four subjects due to their unavailability.

The data were organized in a master sheet for analysis. Data were analyzed using both descriptive and inferential statistics with the Statistical Package for Social Sciences (SPSS) 16.0 version.

RESULTS

Most (41.4%) of the participants were in the age group of 33- 46 years. Majority (65.5%) of the participants were females and most (43.1%) of them were Billawas. Education was till high school for 48.2% of them and half (50%) of them were unemployed. Most (65.5%) of them were living in joint families, 62% of them had income between 5001- 15,000 rupees per month and 56.9% of the participants did not have an insurance of any kind. The type of insurance which covered the other participants were life insurance and health insurance. Majority (98.3%) of the participants had previous experience of floods Most (69%) of the participants did not receive any information on disaster preparedness from any source.
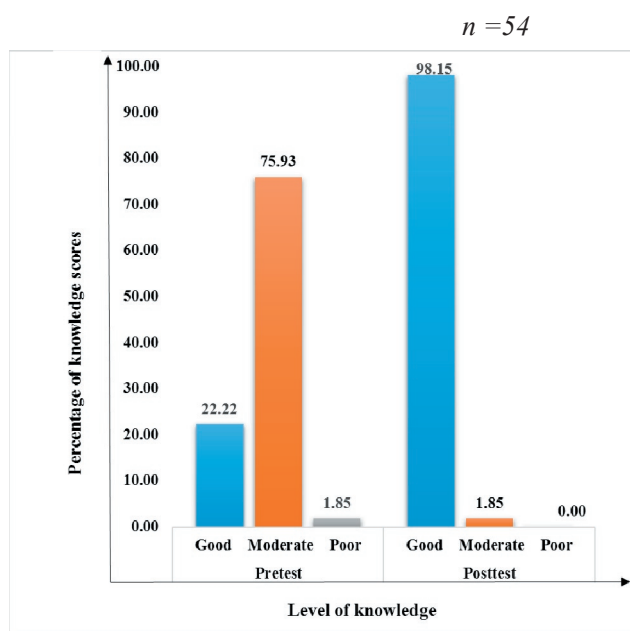
n =54

Figure 1. Bar diagram showing the percentage distribution of pre-test and post-test level of knowledge on disaster preparedness

The area wise description knowledge scores on disaster preparedness is given in table 1. The overall mean score obtained in the pre-test was 16.61 with a SD of + 5.177. The mean and standard deviation of knowledge on disaster was 2.69 & 0.843, disaster preparedness 3.19 (+1.792), response to disaster 2.94 & 1.220, Water Sanitation and Hygiene 4.57 & 1.075 and vector borne diseases 3.22 & 1.341.

The mean of the post-test knowledge scores on disaster preparedness was 25.65 with a standard deviation of 2.182. The maximum score obtained was 30 and minimum was 20. The mean and standard deviation of knowledge on disaster was 3.78 (0.420), disaster preparedness 5.87 (0.991), response to disaster 4.69 (0.948), Water Sanitation and Hygiene 6.41 (0.714) and vector borne diseases 4.91(0.714) in the post-test.

Table 1: Area wise description of pre-test and post- test scores on knowledge on practices of disaster preparedness *n = 54*

Area of knowledge	Maximum possible score	Mean		SD	
		Pre-test	Post-test	Pre-test	Post-test
Disaster	4	2.69	3.78	0.843	0.420
Disaster preparedness	7	3.19	5.87	1.792	0.991
Response	6	2.94	4.69	1.220	0.948
Water, Sanitation, Hygiene	7	4.57	6.41	1.075	0.714
Vector borne diseases	6	3.22	4.91	1.341	0.967
Overall	30	16.61	25.65	5.177	2.182

The knowledge on practices of disaster preparedness among the residents of low lying flood prone areas was assessed using structured knowledge questionnaire and was categorized as poor (0 -6), moderate (7-13) and good (14- 20) based on the knowledge scores. The percentage distribution of the knowledge score is given in Figure 2.
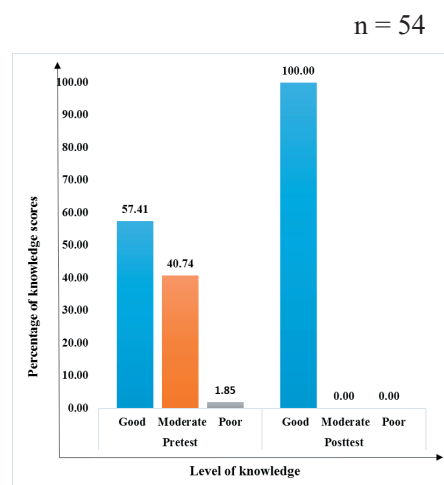
n = 54

Figure 2. Bar diagram showing the frequency distribution of pre-test and post-test knowledge level on practices of disaster preparedness.

Table 2: Description of pre-test and post-test scores of knowledge on practices of disaster preparedness

n = 54

Area of knowledge	Maximum possible score	Median		SD		IQR	
		Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Disaster preparedness	4	2	3	0.984	0.699	1-3	3-3
Disaster preparedness plan	4	2	4	0.906	0.537	2-3	3-4
Response to disaster	4	3	4	1.110	0.604	2-4	3-4
Water Sanitation and Hygiene	4	3	4	1.045	0.818	2-4	3-4
Post- disaster	4	3	3	0.899	0.659	2-4	3-4
Overall	20	14	17	3.118	1.404	11-16	16-18

The area wise description of scores of knowledge on practices of disaster preparedness is given in table 2. The overall median score obtained in the pre-test was 14 with a SD of 3.118. The median and standard deviation of knowledge on disaster was 2 (0.984), disaster preparedness plan 2 (0.906), response to disaster 3 (1.110), Water Sanitation and Hygiene 3 (1.045) and post-disaster 3 (0.899).

The median of the post-test scores of knowledge on practices of disaster preparedness was 17 with a standard deviation of 1.404. The median and standard deviation of knowledge on disaster was 3 (0.699), disaster preparedness plan 4 (0.537), response to disaster 4 (0.604), Water Sanitation and Hygiene 4 (0.818) and post-disaster 3(0.659) in the post-test.

In order to evaluate the effectiveness of the awareness programme, the null hypothesis was stated as:

$H_{01.1}$: There will be no significant difference between pre-test and post-test knowledge scores on disaster preparedness.

The normality was tested using Kolmogorov-Smirnov test and the data were found to be normally distributed. Hence paired t test was used to test the hypothesis

Table 3: Paired t test of pre-test and post-test knowledge scores on disaster preparedness.   n= 54

	Mean	Standard deviation	Mean difference	t value	Df	p value
Pre-test	16.61	4.114	9.04	18.877	53	0.001*
Post-test	25.65	2.182				

* Significant <0.05

The data presented in Table 4 shows that there was a significant difference in the mean pre-test and post-test scores on knowledge on disaster preparedness (t= -18.877, P<0.001). Hence the null hypothesis was rejected and the research hypothesis was accepted. Thus it can be inferred that the awareness programme was effective in improving the knowledge on disaster preparedness among residents of low lying flood prone areas.

In order to evaluate the effectiveness of capacity building program, the null hypothesis was stated as

$H_{01.2}$: There will be no significant difference between pre-test and post-test knowledge scores on practices of disaster preparedness

The normality was tested using Kolmogorov-Smirnov test and it was found that the data did not follow normal distribution. Hence Wilcoxon Sign Rank test was used to test the hypothesis.

Table 4: Median, inter quartile range and Z value of pre-test and post-test knowledge scores on practices of disaster preparedness. n= 54

	Maximum possible score	Standard deviation	Median	IQR	Z value	p value
Pre-test	20	3.118	14	11-16	6.372	<0.001*
Post-test	20	1.404	17	16-18		

* Significant <0.05

The data presented in Table 5 shows that the median post-test scores of knowledge on practices of disaster preparedness (17) was higher than the median pre-test scores of knowledge on practices of disaster preparedness(14). The obtained Z value is 6.372, which indicates that there is a significant difference in the pre-test and post-test scores on practices of disaster preparedness. Hence the null hypothesis was rejected and the research hypothesis was accepted. Thus it can be inferred that the awareness programme was effective in improving the knowledge on practices of disaster preparedness among residents of low lying flood prone areas.

DISCUSSION

In the pre-test, 75.93% of the participants had moderate knowledge scores, 22.22% had good knowledge score and only 1.85% had poor knowledge scores on disaster preparedness.

These findings support the results of a study which was conducted in Midwestern County with an objective to understand the community- level disaster preparedness. The data were collected using a questionnaire from 323 subjects. The results of the study showed that 76% of the subjects were not aware of residential emergency systems and 52% of the subjects responded that they did not know how to obtain information on public health emergencies such as epidemics and evacuation[6].

In the present study, there was a significant difference in the mean pre-test and post-test knowledge scores on disaster preparedness among residents of low-lying flood prone areas. This indicated that the awareness programme was effective in improving the knowledge on disaster preparedness (t= -18.877, P<0.001). tThis is supported by the findings of another study which was conducted in Iran by Ardalan, et al., (2013). The study was conducted with an objective to evaluate the

effectiveness of a capacity building programme on community disaster preparedness. The study population comprised of households of three provinces in Iran. Random sampling was done in each province and two areas were chosen as experimental and control areas. The intervention area comprised of 9200 households and the control area comprised of 10010 households. From each area 250 households were recruited for the study. Pre-test was conducted for both the groups. Intervention was administered to the interventional group which included information on hazard awareness and preparedness especially floods and earthquakes. Post-test was conducted for both the groups. The findings of this study showed that there was relative increase in the knowledge scores in the intervention group (2.94) when compared to the control group (-0.08, p<0.001). Similarly there was relative increase in the readiness scores in the intervention group (5.52) in comparison to the control group (0.56, p<.001)[7].

The current study findings also support the findings of a study conducted by Alim, Kawabata and Nakazawa (2015) among nursing students in order to evaluate the effectiveness of a disaster training program and a disaster drill. The population of the study comprised of the nursing students of Yogyakarta, Indonesia. 309 students took part in the training program and the drill was attended by 225 students. Pre-test was conducted before the intervention. Post-test was conducted to evaluate the effectiveness of the intervention. The study results showed that there was significant improvement in the knowledge on disaster preparedness. (P<. 0.01, paired t-test)[8].

The current study findings show that the awareness programme significantly improved the knowledge on practices of disaster preparedness (t= -18.877, P<0.001). These findings contradict the findings of a quasi-experimental study which was conducted by Cotanda, Martinez, Maza, and Cubells (2015) on staff nurses in the paediatric emergency department. Pre-test was

conducted using a questionnaire which had questions on both theoretical and practical aspects. Pre-test was conducted among 110 participants. The disaster training program included theoretical and practical sessions. 71.3% of the participants attended the theory sessions and the practical sessions were attended by 43.8% of the participants. Post- test was conducted ten months after the pre-test. The study concluded that the training programme significantly improved knowledge on disaster preparedness but there was no improvement in the practical questions. The participants felt more prepared to face a disaster after the training programme (15.5% vs. 41.8%, P<.001)[9].

Disaster preparedness can bring about reduction in the devastation that follows disasters. The present study concluded that the awareness programme was effective in improving the knowledge on disaster preparedness among the residents of selected low- lying flood prone areas of Udupi Taluk. The authors recommend that awareness programmes should be conducted in flood prone areas so that people are equipped with necessary knowledge to face floods.

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Cross Cultural Competences of Indian it Expatriates Influencing Social Cultural Adaptation in USA

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ABSTRACT

Objective: Indian Expatriates in global Assignments should process cross cultural competencies, this paper aim to find the relationship between cross cultural competencies and Social cultural adaptation. **Methodology:** Survey was conducted using formulated Questionnaire that was administered to 210 respondents residing in 3 parts of US (Florida, Newyork & Texas). **Findings***:* From the study the researcher has come to know that the factors such as Employees skill, Host country Languages Skill and Adaptation towards geographical factors are positively impacting the social cultural adaptation of Expatriates in USA. Novelty/Application: This study contribute importance of expatriate Cross Cultural Competency, cultural adaptation, and language training for the successful global assignment in IT industry. Implications of the **Study:** This study provides implications for the current IT Industry to offer pre departure cross cultural training program for all their IT expatriates to make them successful in the their assignments.

Keywords*: Cross cultural competencies, cultural adaptation, Employees Skill, Host country Language, Language Training, Expatriate Management.*

INTRODUCTON

Globalization is the process of Integration within and between firms, as in short it can also be defined as the whole world is nation less and border less. As the global assignments are more in numbers employees has to be effective and efficient to handle the global market. Success of the international projects completely relies on expatriate employees. In International market IT industry is consider as the top most sector. As the employees should have necessary skills like cross cultural competency, attitude towards accepting changes to survey in the international assignments. In the current scenario Effective employees not only work with their comfort zone i.e their home culture, but they must work across cultures. Expatriates employees should be capable of managing across cultures without any formal or educational training program. (Boyatzis & Kolb,1991)[2]. Global-managers as managers having capacity to understand world trends and updated knowledge on businesses, governments and other international standards of their own roots and adapt to new things (Brake et al., 1995)[1]. Through Cross-culture experiences expatriate employees develop variety of skills that facilitate success in host country assignments (Spreitzer, McCall, & Mahoney, 1997)[1]. In 1990's employees highly hesitate to move to other countries as because of cultural changes , and other problems , employer will provide so many assistances to send the employees for foreign countries but in current synario its vice versa. One of the entanglement of globalization is that employees are more likely ready to move to host country than before, especially skilled individuals (Koser, 2007)[2]. (Bartlett et al., 2003)[2] stated global-managers are open minded as they respect things that are different and imagine why they are different . Jokinen states 'Fundamental Core' consist of personality competencies ,Interpersonal Skill ,Analytical Skill , cognitive Skill , Host Country Language and Behavioral-skills as these broad competencies supported effective-action in the success of expatriate employess (Jokinen, 2005)[9].

THEORETICAL BACKGROUND

Expatriates: Expatriates are the employees chosen by the MNCS, right people to work effectively on

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right jobs. The successful and failure of the overseas business completely rely on Expatriates (Dowling & Welch, 2005)[4]. (Black *et al.*, 1992)[2] An global business experience bring expatriate ability & capability to accomplish task successfully through which expatriate can develop their own carrier and skills

Expatriates Employees:

Expatriates employees are international assignees send by a company from home country to work in host country for a specific period of time to complete certain task. Sitanath Mazumda

(2012)[13] describes expatriate employees whose career needs are likely to be satisfied by the organization are committed more towards the assignment. . Hsiu-ching ko , et.al (2011)[8] expatriate managers can taste the success only if they are properly undergone sound cross-cultural training (CCT).

Cross Cultural Competence

Cross-cultural competence refers to ability to communicate and work with people across cultures. It has been conceptualized as the ability to learn quick , understand effectively and adopt to a different culture easily Abbe, Gulick, & Herman, (2008)[14].McDonald *et al* (2008)[14]; Selmeski, (2009)[14]. Cross-cultural competence is skill , knowledge ,abilities that developed through training, experience and education as it act a key quality to work with any other culturally complex environment. According to Maude (2011)[12], broad minded quality is most important cross-cultural competencies. Velo (2012)[13] states that expatriate managers should have a ability e to cope up with uncertainty in a effective manner. Mercedes martin & Blly Vaughn(2015)[6] states that cultural competency as a awareness of cultural worldwide , cross cultural skills , Knowledge on different cultural practices , attitude towards different cultural . Cultural differences can lead to Employees low performance on their International assignments as the employees face a problems in adjusting to the host culture (Waxin, 2004)[9].

Listening is the important skill for global managers as it establish the close relationship with other nationals in the work environment Mendenhall & Oddou, (1985)[2]. Language skills are an important tool as it is viewed as means to develop interpersonal relationships. Global managers with good interpersonal skills will effectively

work in different ethnic group as they have confidence in interacting with individuals. Consequently, it will result in better understanding and connections with other employees.

Social Cultural Adaptation

Cultural adaptation refers to the process and time it takes a person to adapt to a new culture. The below are the Stages of Cultural Adaptation

Stage 1: The Honeymoon Stage is described as stage filled with full of excitement and curiosity. People usually explore new sightseeing, cultural norms and New language lessons.

Stage 2: The Culture Shock is described as the confusion stage with experiencing a new culture. In this stage people find the difference between home country culture and host country culture and thus lead to discouraging , homesickness , Job dissatisfaction and their the people cannot accept a new culture. Cultural shock is described as uncertain and it occurs when the employee fears that he lose his own orginality (Oberg, 1960)[8].

Stage 3 :The Adjustment stage where people try to fit themselves to a new cultural pattern.

Stage 4 : The Acceptance stage is the final stage of culture adaptation . Acceptance doesn't mean that host cultures or environments are completely understood, rather people have the familiarity and clear picture of new environment and are able to draw their needs and feel at ease.

Cross Cultural Training

Cross-cultural training is to develop and to increase the knowledge and skills required to adjust to new culture. Host cultural language training is important for the successful communication between Expatriates and host country employees **Brookfield** Global Relocation Services conducted survey in 2010 , 80% of companies who responded to their Survey states that expatriates with pre-departure cross-cultural training result have a decrease cultural shock and can effectively operate and manage the assignments.

OBJECTIVES

• To identify the cross cultural competences

• To find the relationship between Indian   IT Expatriates   cross cultural competences towards USA social cultural adaptation

FRAME WORK

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┌─────────────────┐                              ┌─────────────────┐
│ CrossCultural   │ ──────────────────────────►  │ Expatriate Social│
│ Competence      │                              │ Cultural         │
│                 │                              │ Adaptation       │
└─────────────────┘                              └─────────────────┘
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RESEARCH METHODOLOGY

This study was conducted using descriptive type of methodology .The study dependents on primary and secondary data

STUDY AREA

Since cultural difference is applicable in all industries, Researcher decided to do the study between Indian and United states respective to IT industry. The study located in USA limited to Florida , Texas , Newyork states.

SAMPLING SIZE AND DESIGN

The primary data were collected through survey method .survey was conducted through email, Skype, Telephonic conversation using formulated questionnaires. Purposive Judgmental Sampling has been done for generating data. Totally 300 Questioners was distributed and 210 samples were found usable. Out of which 97 from Florida , 59 from Newyork and 54 from Texas.

QUESTIONNAIRE DESIGN

The primary data was collected through questionnaire Survey. The respondents were asked to give their opinion about cultural training, cultural awareness,   Cultural adjustment, cross cultural competencies, social cultural adaption   and relationship between cross cultural competency and cultural adaptation.

The First part of the questioners comprises Demographic factors with optional questions. The second part included statements relating to cultural training, cultural awareness, cross cultural competencies, social cultural adaption   with Likert's 5 point scale .

SCALING   TECHNIQUE   IN   THE QUESTIONNAIRE

The questionnaire used Statement in Likert's 5 point scale , Which ranges as follow

5 – Strongly Agree , 4 - Agree , 3 - Neutral , 2- Disagree , 1- Strongly Disagree.

SECONDARY DATA

Journals, Magazines, Articles ,   Company Publications , Reports are referred to collect secondary data

DATA ANALYSIS & INTERPREtATION

Hypothesis:

Null hypothesis H0: There is no positive significant relationship between cross cultural competences towards social cultural adaptation

Alternate hypothesis H1: There is a positive significant relationship between cross cultural competences towards social cultural adaptation

Demographic factors of Indian IT Expatriate working in USA

Table : 1 Demographic factors of Indian IT Expatriate working in USA

Demographic Factors	Frequency	Percentage
Age		
21 – 26	7	33
27 – 32	91	43.3
33 – 38	91	43.3
39 – 44	18	8.6
Above 44	3	1.4
Gender		
Male	82	39
Female	128	61
Annual Income		
Below $ 60,000	5	2.4
$60,001 – $80,000	29	13.8
$80,001 – $1,00,000	113	53.8
$1,00,001 – $1,20,000	59	28.1
Above $1,20,001	4	1.9
Marital Status		
Married	192	91.4
Unmarried	18	8.6
Experience with home country		
0 to 3 yrs	20	9.5
4 to 6 yrs	68	32.4
7 to 9 yrs	78	37.1
Above 9 yrs	44	21.0
Experience with host country		
0 t o 3 yrs	88	41.9
4 to 6 yrs	88	41.9
7 to 9 yrs	32	15.2
Above 9 yrs	2	1

Inference

Table 1 shows that from the overall 210 respondent the majority of the respondent i.e, 86.6% of employees are between 27 to 38 years old and the least group of respondent i.e, 1.4% are above 44 years old. The respondent are mostly female as it is 61% and male is only 39%. 91.4% of respondents are married. 8.6% are unmarried. 2.4% of respondents Annual income was below $60,000 , 13.8% of respondents Annual income was between $60,001 - $ 80,000 53.8% of respondents Annual income was between $80,001 – $1,00,000 which is highest among other category , 28.1% of respondents Annual income was between $1,00,001 – $1,20,000 , 1.9% of respondents Annual income was between $80,001 – $1,00,000. Majority of respondents lies between 4 to 9 years. The following are respondents experience with home country 9.5% of respondents lie between 0 to 3 yrs , 32.5% of respondents lie between 4 to 6 yrs 37.1% of respondents lie between 7 to 9 yrs , 21% of respondents above 9 years of experience . Respondents experience with host country 41.9.% of respondents lie between 0 to 3 yrs , 41.9% of respondents lie between 4 to 6 yrs, 15.2% of respondents lie between 7 to 9 yrs, 1% of respondents above 9 years of experience.

Multiple Regression Analysis for Social cultural adaptation

Table 2 Multiple Regression Analysis for Social cultural adaptation

Predictor variables		Unstandardized Coefficients		Standardized Coefficients	t value	P value
		B	**Std. Error**	**Beta**		
	Constant	1.753	.142	-	5.228	<0.001**
	Employees skill X1	.440	.076	.400	5.806	<0.001**
	Host country Language X2	.130	.028	.027	4.061	<0.001**
	Adaptation towards Geographical Factors X3	.582	.073	.545	7.923	<0.001**
	R value - 0.929, F Value - 435.190, R Square - 0.864 , P value - <0.001**					

Note: *   significant at 5% level

** Significant at 1% level

Table 2 The **R** value is 0.929 which shows high degree of correlation. The **R**^{2} value is 86.4% which is very large. can be explained by the predictor variables (X1, X2, X3,) In this case, The value of Adjusted R is 0.864, this value shows that there is almost 86 percent of strong relationship between cross cultural competencies and Social cultural adaptation. The table shows the F value is 435.190 at one percent significant level which shows that the model is at good fit as its value is less than 0.001. The coefficient beta value of (X_1) is .400 as the Employees skill has a positive impact towards social cultural adaptation, with t value **5.806** at significant level of 0.001, which indicates significance at one percent level. The coefficient beta value of predictor variable (X_2) Host country Language Value is 0.027 with t value 4.061 and p value is less than 0.001 and it is significant at 1 percent level. The coefficient beta value of predictor variable (X_3) Adaptation towards geographical factors is 0.545 with t value **7.923** and significant level less than 0.001 and is significant at 1 percent level. The beta value indicates the positive relationship between cross cultural competences and Social cultural adaptation. Y (Social Cultural Adaptation).

The regression equation can be formulated as:

Y = A + B1X1 + B2X2 + B3X3 , i.e

social cultural adaptation = 1.753 + 0.400 (Employees Skill) + 0.027 (Cross cultural Skill) + 0.545 (Adaptation towards geographical factors)

FINDINGS & DISCUSSION

From the multiple regression analysis its found that there is 86% positive relationship exist between cross cultural competencies and social cultural adaptation , Among the 3 Predictor variable the most strongest

Predictor variable that influence social cultural adaptation is adaptation towards geographical factors, (b = .545, t = 7.923). The other predictor variable also positively correlated with social cultural adaptation. The multiple regression reveals that all that factors have positive influence on social cultural adaptation and that has positive and strong impact on Cultural adaptation is that "adaptation towards geographical factor , followed by Employees skill and Host country language". Hence it is concluded as if the employer train their expatriate employees on the predictor variables than they can very easily adopt themselves to new culture .The study found that employees skills , host country language , Adaptation towards geographical factors play an important role in making expatriates successfully adopting towards USA culture. Among which adaptation towards geographical factors play a vital role where employee has to be aware and educated about the geographical factors as it strongly influence social cultural adaptation.

CONCLUSIONS

The research findings reported that the factors such as Employees skill, Host country language and Adaptation towards geographical factors are positively impacting the social cultural adaptation of Expatriates in USA. The researcher also suggest IT companies to provide effective training on cross cultural Language and awareness about the geographical factors as all above mentioned factors plays an effective role in making expatriate successful & retain in international assignment. As expatriate are assets for the organization as they represent the whole organization in host country (client places) , organization international assignment success completely rely on expatriate employee , so it is mandatory for the organist ion to provide proper pre departure training to expatriates.

Ethical Clearance : Nil

Source of Funding: Self

Conflict of Interest : Nil

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The Effects of Health Education Toward HIV/AIDS Knowledge and Attitude on Banjarbaru Midwife Academy Students 2016

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ABSTRACT

The incidence of HIV/AIDS is a global problem. The highest cases occurred in the age group of 20-49 years indicated they are already HIV positive when adolescence (15-25 years). The cause of the high incidence of HIV/AIDS among adolescents is influenced by many things including their lack of knowledge about HIV/AIDS. This study aims to determine the effect of counseling and sexual education toward knowledge and attitude of Banjarbaru Midwife Academy Student. This study uses a quantitative method with pre-experimental research design. Data collected through questionnaire from Banjarbaru Midwife Academy Student. The results show the number of students who have good knowledge increased after being given counseling, from 35% to 70%. In addition, the number of students who have a good attitude after being given counseling increased, from 87.5% to 100%. The conclusion of this study is counseling about HIV/AIDS can affect Banjarbaru Midwife Academy Student knowledge of 4.206 times and attitudes by 4.206 times.

Keywords: HIV/AIDS, students, health education, knowledge, attitude

INTRODUCTION

The incidence of HIV / AIDS is still be a global problem. By 2015, as many as 36.7 million people worldwide infected with HIV and 1.1 million AIDS. Around 5,700 people infected with HIV every day.[1] Indonesia is the country with the incidence of HIV / AIDS is quite high. In 2015, the incidence of HIV in Indonesia as many as 30,935 people and as many as 7185 people AIDS.[2] The prevalence of HIV / AIDS in South Kalimantan also still quite high at 1,365 people. In 2015, South Kalimantan Province was ranked 21 out of 33 provinces in Indonesia, 505 AIDS cases and 509 HIV cases.[3] Banjarbaru had incidence rates above 10%, ie 178 cases.[4] Based on these data there was no indication in halting the spread of HIV / AIDS.

By age group, most HIV incidence at the age of 20-49 years (87%). Meanwhile, most AIDS at the age of 20-49 years (81%).[2] When viewed from the incubation period which takes about 5-10 years, it is predicted that the first contact with HIV have occurred in adolescence, so that the teenage years can be said of age that are vulnerable to HIV.

The incidence in school children or students as many as 1,086 people and HIV / AIDS among adolescents aged 15-29. This indicates that adolescence is a vulnerable group affected by HIV / AIDS. Some of the risk factors that cause the incidence of HIV / AIDS among adolescents ie unsafe sexual intercourse, use of illicit substances (alcohol, tobacco, drugs), and a lack of awareness of youth. In addition, the factors that cause changes outlook sexual behavior in adolescents because of supervision and attention from their parents and families are loose, the pattern of promiscuity, environment permissive, more and more things that provide sexual stimulation is very easy to find and the facilities are often provided by family unwittingly.[5]

Increasingly outbreak of HIV / AIDS cases in Indonesia, especially among the productive age population, of course, very worrying, given the productive age group is the nation's assets. Nowadays, teenagers prone to be affected drugs and promiscuity. In addition, a recent survey conducted by the National Commission for Child Protection revealed that as many as 97% of teenagers said they had watched porn and

93.7% of the teens were never perform various scenes of sex without penetration.[6]

The rise of free sex cases is caused by the development of adolescent sex instinct which increases being offset by the provision of education on sexual behavior. Teens are sexually active and they often lack basic information on reproductive health, sexual intercourse negotiating skills and access to reproductive health services, leaving them vulnerable to reproductive health problems such as HIV / AIDS. Still inadequate number of adolescents aged 15-24 years who have a comprehensive understanding of HIV / AIDS, reaching only 20.6 per cent of the target of 85 percent.[7] The level of knowledge in adolescent about HIV/AIDS is poor about 47.9%. Meanwhile, the level of attitude in adolescent about HIV/AIDS is poor about 36.5%.[8] So teens should be a goal of HIV / AIDS, one of which is education. Therefore, it is necessary to investigate the effect of education on knowledge and attitude of adolescents, especially in Banjarbaru Midwifery Academy related to HIV / AIDS.

MATERIALS AND METHOD

This research design is quasi-experimental research design using one group pre-post test. The sample used was quota sampling (n-1) 40 respondents. Data were collected using a questionnaire to determine the knowledge and attitude Banjarbaru Midwife Academy student. Filling the questionnaire by respondents was conducted before and after the extension services. The independent variables in this study is the provision of education about HIV / AIDS to Banjarbaru Midwife Academy student. While the dependent variable is the knowledge and attitudes of Banjarbaru Midwifery Academy student on the incidence of HIV / AIDS.

Data analysis was performed using univariate, bivariate and multivariate analyzes. Univariate analysis to determine the frequency distribution of the variables studied. Bivariate analyzes to determine the relationship between each independent variable and the dependent variable. While the multivariate analysis to determine the relationship of simultaneous and partial of each independent variable on the dependent variable and determine the expected value or Odds Ratio.

RESULTS AND DISCUSSION

3.1. RESULT

3.1.1. Characteristics of Respondents

Distribution of respondents by sex, all respondents were female. As for according to age groupings obtained as follows.

Table 1. The Age of Respondents

No.	Age	Amount	Percentage
1.	20	5	12.5
2.	21	21	52.5
3.	22	12	20
4.	23	2	5

3.1.2 Univariate analysis

3.1.2.1. The knowledge of respondents

Knowledge about HIV / AIDS can be known through the scoring of the questionnaire, which was filled by the respondents through a pre-test and post-test. Furthermore, from the score obtained to do the categorization of knowledge with less knowledge categories (<55%), sufficient (56% - 75%) and good (76% - 100%). Here are the results of scoring the respondents' knowledge prior to the extension.

Table 2. The Level of Knowledge of Respondents Before Counseling

Knowledge level	Number of Respondents	Percentage
Good	14	35
Enough	20	50
Less	6	15
Amount	40	100

While scoring result after counseling was given to the respondents' knowledge is as follows.

Table 3. The Level of Knowledge of Respondents After Counseling

Knowledge level	Number of Respondents	Percentage
Good	28	70
Enough	12	30
Less	0	0
Amount	40	100

Based on the above results it can be seen that at the time before being given counseling on HIV / AIDS, the number of respondents who have a good knowledge amounted to 14 (35%) and increased to 28 people (70%) after being given counseling on HIV / AIDS. The number of respondents who have sufficient knowledge of 20 people (50%) at the time before being given counseling on HIV / AIDS, and decreased to 12 (30%) after being given counseling on HIV / AIDS. While the number of respondents who have less knowledge amounted to 6 (15%) at the time before being given counseling on HIV / AIDS, and decreased to 0 (0%) after being given counseling on HIV / AIDS. It is according with Chi et al. that college students in Chongqing initially had very limited knowledge of reproductive health, contraception, condom use, STDs, and HIV/AIDS.[9]

3.1.2.2 The attitude of respondents

Attitudes of respondents to the incidence of HIV / AIDS can be known through the scoring of the questionnaire, which was filled by the respondents through a pre-test and post-test. Furthermore, from the score obtained is done categorization attitude with unfavorable attitude categories (<70%) and good (71% - 100%). Here are the results of scoring the respondents' attitudes before the extension.

Table 4. The Level of Attitude of Respondents Before Counseling

Attitude	Number of Respondents	Percentage
Good	35	87.5
Not good	5	12.5
Amount	40	100

While scoring result given counseling after the respondents' attitudes are as follows.

Table 5. The Level of Attitude of Respondents After Counseling

Attitude	Number of Respondents	Percentage
Good	40	100
Not good	0	0
Amount	40	100

Based on the above results it can be seen that at the time before being given counseling on HIV / AIDS, the number of respondents who have a good attitude amounted to 35 (87.5%) and increased to 40 (100%) after being given counseling on HIV / AIDS. While the number of respondents who have a less unfavorable attitude toward the incidence of HIV / AIDS of 5 people (12.5%) at the time before being given counseling on HIV / AIDS, and decreased to 0 (0%) after being given counseling on HIV / AIDS.

3.1.3 Bivariate Analysis

The bivariate analysis using statistical test of Wilcoxon signed rank test was as follows.

Table 6. The Results of Bivariate Analysis About Relationship Between Knowledge and Attitudes With

Variable	p-Value	Odds Ratio	Conclusion
Knowledge	0.007	4.206	There is a relationship with knowledge and Giving Counseling of HIV / AIDS
Attitude	0,000	2.208	There is a relationship with the attitude and Giving Counseling of HIV / AIDS

DISCUSSION

Knowledge is the result of observation and experience of the individual against a new thing that can be useful for such individuals. According to Bloom and Skinner, knowledge is the ability to express what he knew back in the form of evidence both oral and written answers. The article of evidence or a reaction from a stimulus in the form of the question either oral or written questions.[10]

The results showed that there was a relationship between the provision of counseling on HIV / AIDS with

Banjarbaru Midwifery Academy student knowledge on the incidence of HIV / AIDS. Students who get counseling about HIV / AIDS has a 4,406 times better knowledge than students who did not receive counseling. This is in accordance with the opinion of Wood in Shinta (2011) that the provision of health education affect favorably the knowledge relating to the health of individuals.[11] This corresponded to a research conducted by Rahayu (2013) that health education can affect the knowledge of adolescents about sex before marriage.[12] In addition, the use of audio-visual media in education could also provide counseling increase effectiveness. This is consistent with research Wirawan (2014) that the extension to the audio-visual media and conventional can influence the increase of knowledge[13]. Furthermore, in Chi et al. the present study have several implications in terms of sexual education program among college students in China. First, sexual health knowledge could be delivered to students by sexual education course in colleges/universities. It decreased the need by students to use other sources, for example, Internet, to obtain incorrect and misunderstood sexual information.[9]

Attitude is a reaction or response which was still closed from a person to a stimulus or object. Attitudes are feelings, thoughts and inclinations someone who is more or less permanent aspects tertetntu in its environment. According to Fishbein attitude is affective responses or positive-negative votes a person against an object. The attitude comes from confidence in one's behavior and evaluation of the consequences will be borne.[14] The findings that the students' attitudes toward the majority of the items related to sexual health, particularly premarital sex, tended toward neutral suggests that the students in that group may not have formed a definite opinion about what is an acceptable or unacceptable expression of sexuality.[15]

The results showed that there was a relationship between the provision of counseling on HIV / AIDS with an attitude Midwife Academy student Banjarbaru the incidence of HIV / AIDS. Students who get counseling about HIV / AIDS have the attitude of 2.208 times better than students who did not receive counseling. This is in accordance with the opinion of Notoatmodjo (2007) which states that counseling may affect a person's attitude in healthy behaviors.[16] This corresponded to a research conducted by Ayuningsih (2015) that the health education about HIV / AIDS may influence adolescent attitudes about HIV / AIDS prevention.[17].

The significant enabling factors associated with HIV knowledge were having someone encourage them to go for testing and receiving information about HIV.[18] In Shanghai, the peer educalion on HIV/AIDS prevention among senior high school students and key senior high school students is effeclive in promoting the knowledge level and increasing awareness of self-prolection.[19]

CONCLUSION

The counseling about HIV / AIDS can affect Banjarbaru Midwife Academy student knowledge of 4.206 times greater. The number of students who are knowledgeable both increased after being given counseling, from 35% to 70%. The counseling about HIV / AIDS can affect student attitudes Banjarbaru Midwifery Academy of 4.206 times greater. The number of students who have a good attitude after being given counseling increased, from 87.5% to 100%.

The counseling about HIV / AIDS should be done to improve the knowledge and attitudes of Midwifery Academy student Banjarbaru about HIV / AIDS. Midwifery Academy Banjarbaru manager is expected to continue to conduct outreach activities, either by the academia as well as in cooperation with health professionals at the City Health Office Banjarbaru or health center to support HIV / AIDS prevention in Banjarbaru. One of them by providing extracurricular activities on health education and peer education to prevent sex behavior in adolescents, especially Banjarbaru Midwife Academy student.

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Assessment of Secondary Sexual Development of Adolescent School Boys of Aligarh

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ABSTRACT

Introduction: Adolescence comprises a period in the life cycle between childhood and adulthood. It is a period between 10 to 19 years. Biological, social and environmental factors influence the definitive onset and termination of adolescence. There is wide individual variation in pubescence and the rate of acquisition of pubertal changes. The rapid changes during the adolescence include increase in body dimensions, i.e. growth and progressive attainment of adult status, i.e. maturation.

Objective: To study the secondary sexual development in adolescent school boys using Tanner staging.

Materials and Method: A cross-sectional study was done covering 500 students between 10-19 years of age from rural and urban schools of district Aligarh. Students were interviewed and sexual maturity rating (SMR) was observed using Tanner stages. The data obtained were analysed using SPSS 20 and tested statistically. P value <0.05 was considered significant.

Results: SMR-1 ranged from age 10-12 yrs, SMR-2 ranged from 11-14 yrs. SMR-3 started from age 12 yrs and ended gradually at 18 yrs. Similarly SMR-4 started from 14 yrs and SMR-5 at 15 yrs.

Conclusion: Adolescent showed different maturity stages on same age. Though it is a vulnerable age group therefore it should be given priority in national health programs.

Keywords: *Adolescent, SMR, Pubescence, Tanner staging.*

INTRODUCTION

The term adolescence meaning "to emerge" or "achieve identity" is a relatively new concept, especially in developmental thinking. The origin of the term is from Latin word; 'adolescere' meaning, "to grow, to mature". However, a universally accepted definition of the concept has not been established.[1]

World Health Organisation[2] identifies adolescence as the period in human growth and development that occurs after childhood and before adulthood, from ages 10 to 19.

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Adolescence may be divided into three developmental stages based on physical, psychological and social changes[3]

• Early adolescence- 10 to 13 years

• Middle adolescence- 14 to 16 years

• Late adolescence- 17 to 19 years.

The period of gradual transition from childhood to adulthood that normally begins with the onset of signs of puberty, Puberty is a dynamic period of development marked by rapid changes in body size, shape, and composition, all of which are sexually dimorphic. The onset of puberty corresponds to a skeletal (biological) age of 11 year in girls and 13 year in boys. One of the hallmarks of puberty is the adolescent growth spurt. As puberty approaches, growth velocity slows to a nadir

("preadolescent dip") before its sudden acceleration during mid puberty.[4]

Sexual Maturation Rating (SMR), also known as Tanner Staging, is based upon a scale of secondary sexual characteristics that permits health professionals to gauge the degree of pubertal maturation that has occurred among adolescents, regardless of chronological age. SMR is based on the appearance of pubic hair, the development of breasts, and the occurrence of menarche among females; and on the degree of testicular and penile development and the appearance of pubic hair among males. SMR stage 1 corresponds with pre-pubertal growth and development, while stages 2-5 indicate the progression of puberty. By SMR stage 5, sexual maturation has been completed. Sexual maturation correlates remarkably well with linear growth, changes in weight and body composition, and hormonal changes.[5]

MATERIALS AND METHOD

The study was undertaken in the schools located within the registered rural and urban field practice areas of the Department of Community Medicine, JNMC, Aligarh, Uttar Pradesh, India. The total population of male adolescents (10 – 19 yrs) in all the schools was 2533, out of which a sample of 512 students (256 from the rural schools and 256 from the urban schools) were selected using probability proportionate to size sampling (P.P.S.). Only 500 students cooperated in the study.

The sample size was calculated using the formula

Sample = {(1.96)2 PQ} / L2.

Where prevalence

(P) = 20%, Q = (1- P), Precision (L) = 9%.

The present cross sectional study was carried out for a period of one year from 1st of August 2013 to 31st July 2014. Male students between 10 to 19 years were included in the study. Students below 10 & above 19 years, non co-operative, chronic absentee and girl students were excluded. In the study pretested pre-framed proforma was used. Before the starting of the study approval was taken from Institutional Ethical Committee. Permission was taken from school authority in each and every school. Principal of the schools was the main authority in all schools. If a student was 18 years or old, an informed consent was also taken.

Assessment of Sexual Maturity Rating (SMR) was done by using the sexual maturity rating as described by Tanner, 1962. After taking the subject in confidence after making a rapport, question was asked regarding SMR. If the student desired the consent of his parents, then a note explaining the object of the study was sent to them and followed up in next visit. The students were shown pictorial representation of sexual maturation rate (SMR) stages and asked the question, "In which stage of SMR do you fall in?" The children were to point out from the picture. The investigator himself made all the above observations, on all occasions

Health education & adequate counseling were provided to all the students of concerned class.
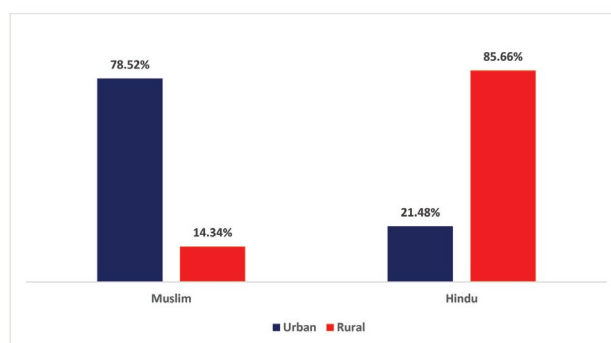
RESULTS

Figure 1. **Distribution of school children according to their religion**

Table 1 - Distribution of the study population according to age and place of residence

Age group(years)	Place				Total	
	Urban		Rural			
	No.	%	No.	%	No.	%
Early adolescent(10-13 yrs)	47	18.36	127	52.05	174	34.80
Mid adolescent(14-16 yrs)	143	55.85	69	28.28	212	42.40
Late -adolescent(17-19 yrs)	66	25.79	48	19.67	114	22.80

Table 2- Distribution of the study population according to SMR stages

Age (yrs)	SMR 1	SMR 2	SMR 3	SMR 4	SMR 5
10	100%	0	0	0	0
11	26.67%	73.33%	0	0	0
12	4.35%	73.91%	21.74%	0	0
13	0	30.51%	69.49%	0	0
14	0	0.86%	80.17%	18.96%	0
15	0	0	60%	36.25%	3.75%
16	0	0	41.67%	45.55%	12.5%
17	0	0	9.52%	42.86%	47.62%
18	0	0	7.14%	50%	42.86%
19	0	0	0	66.67%	33.67%

Table 3. Mean weight of the study population according to their age and sexual development-

Age group (yrs)	Mean weight of the students				
	SMR 1	SMR 2	SMR 3	SMR 4	SMR 5
10-13	27.40	29.33	34.33		
14-16		40.75	43.59	49.60	66.00
17-19			47.20	52.39	54.36

In the study, as shown in figure 1, 52.8% of total study population was Hindu and rest 47.2 % was Muslim. Majority of rural children were Hindus (85.66%) and the majority of urban children (78.52%) were from Muslim community. The reason being the place of schools in the rural field practice area (RHTC) is a predominantly Hindu locality and that of urban area (UHTC) is a predominantly Muslim locality.

The age of the study population ranged from 10 to 19 years. As shown in table 1, majority of the population 212 (42.4%) belonged to 14 -16 years age group (mid adolescence) followed by 174 (34.8%) in the 10 to 13 years (early adolescence) and the least population of 114 (22.8%) were in the 17 to 19 years age group (late adolescence). In urban areas, maximum population was of mid adolescents (55.85%) in compared to rural areas, where maximum population was of early adolescents (52.05%).

Table 2 shows the range in years of the SMR stages in the study population. SMR-1 count was nil at age 13 years and all i.e. 100% students aged 10 years came in SMR stage 1. 73.91% of total SMR stage 2 was present at the age of 12 years followed by age 11 years (73.33%). The SMR-3 started at the age of 12 years (21.74%), was maximum of 80.17% at the age of 14 years and ended gradually at 18 years of age. SMR-4 was started at the age of 14 years in 18.96% of students, peaked at 19 years of age with 66.67% students. Lastly SMR-5 started at age of 15 years in only 3.75%, increased with age with the maximum prevalence at age of 17 years and that was 47.62%.

It is seen from the table 3 that within each stage of sexual development (SMR) there was a proportionate increase in weight from lower to higher age group. This is evident from the observation that in SMR-3, the mean weight increment was 34.33 kgs, 43.59 kgs and 47.20 kgs respectively.

Also it is apparent that within each age group there was a proportionate increase in mean weight as one moves from lower to higher SMR stages. This is evident from the observation that in 14-16 years the mean weight being 40.33 kgs, 43.59 kgs, 49.60 kgs and 66.00 kgs in SMR-2, SMR-3, SMR-4 and SMR-5 respectively.

DISCUSSION

In a study done in Aligarh on adolescent school boys, it was reported that, Hindus were 56.4% and Muslims were 43.6%[6] which was similar to the present study. In another study in Aligarh Uttar Pradesh, Ahmad et al[7] showed the range in years of SMR stages i.e. no student was seen in SMR-1 stage at 15 yrs of age, SMR-2 stage was attained by 14.3 % students at 10 yrs of age and it ended at 16 yrs of age. SMR-3 stage was attained at 11 yrs of age by 5 % of the students only whereas majority (46.3 %) attained it at 15 yrs of age and it ended gradually at 18 yrs of age. Similar trend was seen with SMR-4 stage, which was attained by 4.9 % of 13 yrs old students of our study population, with a maximum of 47.1% at age 16 yrs tapering gradually to end at 19 yrs. Lastly SMR-5 stage was attained at age 14 yrs by only 4.2 % of the students, its prevalence increased gradually with age so that by age 19 yrs the prevalence was 100%.

The difference in the observation of our study and Ahmad et al[7] or Agarwal et al[8] studies might be because our study relied on the comparison of the genitalia with the graphic representation of the SMR stage **(**Tanner JM)[9] by the students themselves i.e. no direct observation was made by the doctor himself.

The onset of puberty corresponds to a skeletal (biological) age of 11 year in girls and 13 year in boys. One of the hallmarks of puberty is the adolescent growth spurt. As puberty approaches, growth velocity slows to a nadir ("preadolescent dip") before there is sudden acceleration during mid puberty.[4]

In another study done on Gaddi Rajput boys, it was seen genital development starts (G2) at a median age of 10.58±1.5 years. The genitalia mature fully (G5) around 15.5 years. The stages of pubic hair development are later by 2 or 3 years than respective genital maturity stages[10] Marshall & Tanner[11]   found that genitalia began to develop between the ages 9.5 years and 13.5 years in 95% of boys (mean = 11 - 6 ± 0 09) and reached maturity at ages varying between 13 and 17 (mean = 14-9 ± 1 10).

Ahmad et al[7] showed that increment in mean weight is apparent from lower age group to higher age groups among adolescents with the same stage of sexual development. They also observed that in SMR-3 the mean weight increased from 38.0 kgs, to 47.2 kgs respectively. While within the same age group the increment in mean weight is apparent according to the advancement of sexual development (SMR stages). This is evident from the observation that in age group of 14-15 yrs the mean weights are 37.0 kgs, 44.5 kgs, 45.8 kgs and 47.8 kgs in SMR- 1, SMR-2, SMR-3 and SMR-4 respectively.

CONCLUSION

The pattern and variation of the sexual development was explored in the study to conclude that there was wide variation in the timings of sexual maturation and growth spurt among the adolescents, i.e. even at the same age the children may differ in the stage of sexual development. Adolescent is a vulnerable age group as in this transition period of life an individual is neither a child nor an adult so they should be mainstreamed as a separate group and should be given priority by the policy makers.

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The Effect of Presence of Emergency Medicine Specialists on DTN Mean Time Patients with ST- Segment Elevation

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ABSTRACT

Background and Purpose: Acute Myocardial Infarction (AMI) is one of the most common diseases throughout the world and is the leading cause of death in Iran. Reperfusion therapy is the cornerstone of therapy among these patients. Early thrombolytic treatment leads to better restoration of coronary blood flow and a significant decrease in mortality and re-infarction. This article aimed to study the effect of the presence of emergency medicine specialists on time improvement of treatment of patients diagnosed with ST-Elevation Myocardial Infarction (STEMI) visiting the emergency ward of Khatam-Al-Anbia Hospital, Zahedan, Iran.

Materials and Method: This is a descriptive study with retrospective approach. A total of 1008 STEMI medical files were reviewed before and after the presence of emergency medicine specialist. The study aimed to investigate the DTN mean time of STEMI patients visiting Khatam-Al-Anbia Hospital of Zahedan in 2015 before and after the presence of emergency medicine specialist. **Findings:** A total of 1008 files were reviewed: Group I: 504 files from March 21st, 2013 to September 22nd, 2013 [First half of 1392 Iranian Year] and Group II: 504 files from September 23rd, 2014 to March 20th, 2015 [Second half of 1393 Iranian Year]. The mean age was 56.17 ± 13.81. According to Chi-square test, 373 were female and 363 were male. DNT mean time in Group II was significantly less than the time in Group I, 49.83 ± 17.82 opposed to 23.19 ± 15.60.

 Conclusion: According to the findings, the presence of emergency medicine specialist caused a decline in DNT time of STEMI patients. Accordingly, the mortality rate and complication of STEMI patients declined.

Keywords: Thrombolytic Therapy, ST-Elevation Myocardial Infarction, Streptokinase.

INTRODUCTION

Heart diseases affect almost 5 million people in the USA annually and cause the death of 285 thousand people [3]. By 2030, cardiovascular diseases are expected to cause approximately 23.6 million deaths [4]. In Iran, cardiovascular diseases are believed to be the leading cause of death: They account for 45% of death [5]. STEMI rapid diagnosis followed by rapid onset of

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treatment and coronary blood flow return is essential [6]. Undoubtedly, delay in diagnosis and life support measures increases the risk of severe complications such as heart failure, cardiogenic shock, deadly arrhythmias, pericarditis, ventricular aneurysms, pericardial tamponade, and myocardial rupture. It also causes a delay in admission and subsequent discharge. Acute blood-flow re-establishing causes the blood flow using PPCI or fibrinolytic treatment of STEMI patients, limits infarct size, and shows decreasing early mortality until a decade afterward. Streptokinase in the most widely-used medicine for dissolving blood clots. It is the most frequently-consumed thrombolytic drug in Iran due to the affordability and availability. Fibrinolytic therapy is

advised for STEMI if, in the absence of contraindications, the onset of symptoms is within 12 hours of visiting and PCI is not accessible within 90 minutes of the first physician contact. The goal is to reach less than 30 minutes for the patient entry for receiving fibrinolytic treatment associated with efforts to minimize the gap for the start of treatment. Although fibrinolytics can be beneficial if prescribed within 12 hours of the onset of symptoms, it benefit is time-sensitive concerning mortality. Shorter period to drug administration would lead to better consequences. STEMI patients, who visit later than myocardial infarction, are less likely to benefit from fibrinolytic treatment. Fibrinolytic treatment is, in fact, not advised for the patients who visit 12-14 hours from the onset of symptoms unless ischemic pain continues with ST-segment elevation. Fibrinolytic treatment must not be prescribed for STEMI patients visiting after 24 hours from the onset of symptoms [22].

Only a third of the patients undergoing fibrinolytic treatment with streptokinase experiences early blood flow return. Re-block occurs in 10% of cases in hospital and a third within the first 3 months [23]. Minutes or even seconds are important for patients visiting the emergency ward because 75%-85% of deaths occur in the first 20 minutes. Most incidents progress or are controlled within the first 10 minutes when important decisions are taken [24]. Therefore, the main mission of the emergency ward is to provide "the most appropriate" care in "the shortest" time [25]. Length of stay is a key factor in assessing the quality of care in emergency wards [26]. The growing role of emergency care and the importance of high-quality care in the shortest possible time in emergency medicine led to a new branch of medicine in emergency section [27]. Emergency medicine is the practice of medicine in acute and sub-acute conditions. Not only are trained emergency physicians capable of leading trauma, but also they can lead other most acute and non-acute imaginable issues. Since admission is performed through the emergency ward [28], emergency physicians are required to have a wide range of information in all medical fields. They must act leaders using their experiences even if regulatory agencies are present or absent [29, 30]. According to the American Heart Association guideline, the following times are important and vital for the patients with suspected acute coronary syndrome: Entry to ECG (Door-To-ECG), Entry to diagnosis and treatment (Door-To-Decision), and Entry to the start of fibrinolytic treatment (Door-To-Needle).

Until the mid-1990s, fibrinolysis used to be prescribed by only cardiologists in CCU. When the studies showed that fibrinolysis can be prescribed in far shorter time in emergency ward and it can have better consequences, emergency physicians were also entitled to prescribe it [31]. This article aimed to study DNT time in two periods: March 21st, 2013 to September 22nd, 2013 and September 23rd, 2014 to March 20th, 2015 before and after the presence of emergency medicine specialist.

MATERIALS AND METHOD

This is a descriptive, cross-sectional study with retrospective approach. STEMI medical files were reviewed before and after the presence of emergency medicine specialist in Khatam-Al-Anbia Hospital of Zahedan in 2015. The sickness was diagnosed by the emergency medicine specialists. A total of 504 patients were enrolled as the sample using the study by Bolourdi et al. [32], estimation formula, and the results of our study (P=0.16 and d=0.032). A total of 1008 medical files were investigated. The inclusion criterion was the streptokinase injection in emergency ward. The exclusion criterion was no streptokinase injection in emergency ward due to contraindications. In this study, the medical files of all STEMI patients were reviewed in two periods: 6 months before and after the appointment of emergency medicine specialist. DNT mean time was taken into account for the STEMI patients visiting the emergency ward of Khatam-Al-Anbia Hospital of Zahedan, Iran in 2015. The patients, diagnosed with STEMI by the emergency medicine specialist, were selected in this study. All of these patients had STEMI. According to ECG, ST-segment elevation was greater than 1 mm in two contiguous limb leads or greater than 2 mm in two contiguous chest leads. In case of lack of absolute and relative contradictions for streptokinase intake, the patients who had sustainable hypertension and a history of hemorrhagic stroke less than 12 hours from the start of pain underwent streptokinase treatment. Cardiac enzymes were measured three times to verify the AMI. All the information was accessible in their files. The files were selected. Then, we investigate the triage time and entry to the emergency ward, time of the first visits by emergency medicine specialist, time of the start of treatment based on the recorded time in files, nursing report, and all measures in line with the treatment. Data were collected using clinical medical history, ECG, interviews, and questionnaire. Incompletely filled files were excluded. Help was requested from

the esteemed cardiologists and patients, if accessible, in order to obtain more information. Efforts were made to avoid excluding the files. Data were analyzed using T-independent test and hi-square (for comparing frequency of some demographic characteristics) by SPSS 16.

FINDINGS

A total of 1008 STEMI medical files were investigated. 504 patients were in Group I and 504 were in Group II. The mean age of the patients was 56.17±13.81. According to Chi-square, 373 patients were female (37%) and 363 were male (63%). 43 were single (4.3%) and 95.7% were married. In terms of education, 176 patients (17.4%) were illiterate, 560 (55.5%) were under diploma, and 273 (27.1%) were above high school diploma. The results showed that 683 patients were younger than 60 (67.7%) and 326 (32.3%) were older than 60. 226 patients (22.2%) had the history of heart disease in the past and 758 (77.8%) had no history of heart diseases. According to t-independent test, DNT mean time was significantly less than the time in Group I, 49.83±17.82 opposed to 23.19±15.60. Table 1 shows the demographic characteristics.

Table 1: Distribution of Frequency

Variable		Frequency	df	P
Gender	Male	636	1	0.00
	Female	372		
Marital Status	Single	43	1	0.00
	Married	965		
Education	Illiterate	176	2	0.00
	Below Diploma	560		
	Above Diploma	273		
Age	Younger than 60	683	1	0.00
	Older than 60	326		
History of Heart Diseases in Past	Yes	226	1	0.00
	No	758		

Table 2 shows DNT mean time in two groups before and after the appointment of emergency medicine specialists.

Table 2: DNT Mean Time

Period	Mean	St. Deviation	P
Group I: March 21st, 2013 to September 22nd, 2013	49.83	17.82	0.00
Group II: September 23rd, 2014 to March 20th, 2015	223.19	15.60	

DISCUSSION

Out of all patients, 636 were male, while 372 were female. Men had the gender dominance in AMI in this study. This is consistent with findings in text books [22, 33]. On the other hand, the mean age was 56.17±13.81. It was similar in studies by Bolourdi, Ebrahim Zadeh, and Emad Zadeh and Phelan (31, 32, and 34). Data analysis showed that DNT mean time was significantly less than the time in Group I, 49.83±17.82 opposed to 23.19±15.60. In the study by Mc Lean, DNT time was 22-88 minutes prior to admission. DNT time was 14-270 minutes. It was less than 30 minutes from the entry to emergency and fibrinolytic prescription among only

6% (35). The study by *Bolourdi* showed that DNT time varies between 20 and 70. Only 5% of the patients had received fibrinolytic treatment within 30 minutes of entry to emergency ward [32].

Another study by *Palmer* showed that DNT mean time was 80 minutes (50-133 minutes). DNT time was 38 minutes among the patients triaged by emergency medicine specialist [36]. This is consistent with our study.

The data indicated that only one patient in Group I received streptokinase within the first 5 minutes. However, 85 patients in Group II received streptokinase within the first 5 minutes. No patient in Group I was prescribed by streptokinase at 7, 10, and 15 minutes after triage, while 21, 54, and 73 patients were prescribed by streptokinase at these timing, respectively. 60 patients in Group I were prescribed by streptokinase within 50 minutes from the triage, while only 28 patients in Group II received streptokinase treatment, showing the effective presence of emergency medicine specialist for assessment and start of treatment.

Streptokinase is a fibrinolytic agent, which can be ideally effective within the first 30 minutes of start of acute pain. Patients also benefit up to 3 hours. Patients would also have a relative benefit up to 12 hours. The benefits severely decline after 12 hours or might become neutral, showing the importance of early visiting to emergency centers for receiving streptokinase [37]. Our findings showed the importance of presence of emergency medicine specialists and their roles in declining DNT mean time and accordingly, the effectiveness of streptokinase treatment as a fibrinolytic drug.

Conflict of Interest: None declared

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A Review of Anticancer Herbs in Iranian Traditional Medicine

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ABSTRACT

Introduction: Many herbs and spices have anticancer properties, which can be effective in different stages of growth of cancer cells and onset of cancer. There are many studies in the field of anticancer herbs and their efficacy in treatment of cancer. Many articles have been published in this regard but no review paper was found on this topic.

Method and material: The present study aimed to review the studies on anticancer herbs. Such keywords as plants, anticancer, traditional medicine and Iran were searched for in the articles published in such databases as Pub Med, Science Direct, Scopus, Google Scholar, Iranmedex, SID and Magiran by 2000. Found articles were studied. The results were statistically analyzed.

Results: The results showed that such plants as Catharanthus roseus, ginseng, Peganum harmalal (Esfand), Hibiscus sabdariffa (Roselle), Silybum marianum (milk thistle), Camellia sinensis (green tea), Trachyspermum copticum L. (ajwain), Hypericum perforatum (St. Johns), Rosa damascene, Zingiber adans and Lagenaria siceraria (calabash) are the most useful anticancer herbs.

Conclusion: The results showed that such plants as Catharanthus roseus, ginseng, Peganum harmalal (Esfand), Hibiscus sabdariffa (Roselle), Silybum marianum (milk thistle), Camellia sinensis (green tea), Trachyspermum copticum L. (ajwain), Hypericum perforatum (St. Johns), Rosa damascene, Zingiber adans and Lagenaria siceraria (calabash)) are the most useful anticancer herbs.

Keywords: plants, anticancer, traditional medicine, Iran

INTRODUCTION

Cancer is one of the major causes of disease, mortality and disability worldwide. It is a common disease and increasing problem. Healthcare systems have greatly attempted to treat this disease [1]. It is also one of the major healthcare problems worldwide, the third leading cause of mortality and the second chronic non-communicable disease with 12% global mortality rate. Nine million new cases of cancer are diagnosed annually among which four million belonged to developed countries and 5 million accounted for developing countries. Moreover,

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98 people die of cancer in Iran in a daily manner [2]. It should be noted that prevalence of this disease is rising sharply in recent years and cancer patients are increasing day by day [3]. Common treatments for cancer include surgery, chemotherapy, radiotherapy and hormone therapy [4]. Since many chemical medications cause various complication including digestive disorders and kidney damage, scholars are searching for effective medications with less side effects than chemical medications. Thereby, medicinal plants (herbs) were considered for treating cancer. Herbs contain valuable compounds alongside therapeutic effects that contribute to less side effects [5]. Many herbs and spices have anticancer properties that may heal cancer at either the onset or different stages of growth of cancer cells [6]. It is noteworthy that more than 60% of common drugs are derived from natural resources including plants, marine

and micro-organisms [7]. Herbs were considered more than any other procedures in traditional medicine with regard to the fact that 30.1% of the articles on traditional medicine were about herbs from 2000 to May 2008 [8]. This reveals the importance of herbs in prevention of cancer. Thereby, the present study aimed to review anticancer herbs used in traditional medicine in Iran.

METHOD

The articles published in popular electronic databases (namely Pub Med, Science Direct, Scopus, Google Scholar, Iranmedex, SID and Magiran) since 200 were studied. Such keywords as herbs, anticancer, traditional medicine and Iran were searched for in these databases to find and save relevant articles for later study. Only the articles investigating the effects of one herb on cancer in humans in Iran were studied. Finally, all these results were statistically analyzed.

FINDINGS

1.   Catharanthus roseus is the first herb used in clinical trials. Vinca, vinblastine and vincristine alkaloids were isolated from this herb. Recent semisynthetic analogs were derived from vinca, vinorelbine and vindesine alkaloids. These herbs are primarily used either solely alone or in combination with other chemotherapy drugs to combat various types of cancers. Vinblastine was effective in treatment of lymphoma, leukemia, breast cancer, testicular cancer and lung cancer. Vincristine acted effectively against leukemia and particularly against acute lymphocytic leukemia in childhood [9].

2.   Ginseng or Panax Ginseng (simply known as Panax) belong to *Araliaceae* family. Several species of this plant were found in China, Korea, Siberia and America with either similar or different properties. Various studies confirmed anticancer and antistress properties of the plant. Other studies also showed that it stimulates immune system. However, further studies are required to definitely confirm and determine effective mechanism of this herb [10].

3.   Peganum harmalal (Esfand) is a perennial fluff-free plant belonging to *Zyqophyllaceae* family with antimicrobial and antitumor effects that also inhibit monoamine oxidase activity of the tumor. Alkaloid derivatives of the plant inhibit DNA synthesis and cell division, which inhibit the growth of cancer cells [5].

4.   Roselle with the scientific name of *Hibiscus sabdariffa* belongs to *Malvaceae* family. This plant is called different names in different countries but known as Roselle in In Iran. This is an annual plant with reddish green color. The herb has anticancer, antipyretic and antitussive properties. The plant is also used as an appetizer, cathartic and laxative agent [11].

5.   Silybum marianum (milk thistle) belongs to *Asteraceae* family known as milk thistle in English and as Mary Tighal, Khal Alis and Akoob in Persian and Arabic. The plant grows on Europe, Asia and America. The herb was found in Gonbad-e Qabus, Gorgan, Nodeh Kelardasht, Hezar Darreh, Moghan, Posht Kooh, Mollasani in Ahwaz, Shoosh, Hamidieh, Râmhormoz, Ize and Kazeroun in Iran. Silymarin and particularly silibinin chemically inhibit the growth of epidermal, prostate, liver and breast cancer cells [12].

6.   Camellia sinensis (green tea)   contains epigallocatechin-3-gallate (EGCG), which is the most abundant polyphenol in green tea. Some studies in the field of infectious diseases showed that EGCG can inhibit cancer cell invasion and transmission of cancer through mouth and large intestine. EGCG may also decrease production of MMP-2, MMP-9 and UPA [9].

7.   Trachyspermum copticum L. is known as ajwain in Persian and belongs to *Apiaceae* family. This is indigenous to Iran, Egypt, Afghanistan and India. Ajwain as cumin is hot and dry from the perspective of traditional medicine and contains linear and cyclic monoterpenes such as high percentage of thymol, terpinene and menthol. Monoterpenes are not orally toxic and have anticancer properties. Therefore, they can be introduced as a new family of anticancer agents [13].

8.   Hypericum perforatum is knows as St. Johns in English and as Hofarighun, Raee flower, thousand eyes wort and Shahnaz in Persian. This plant grows on dry places, meadows and sunshine pastures. This plant grows on Alborz, Karaj, Chalus, Gilan, Lahijan, Talesh, Khorasan, Borujerd, Alvand Mountain and Nahavand in Iran. Various species of Hypericum were popular since ancient times due to therapeutic effects. Scholars have mentioned that this herb has anticancer, anti-inflammatory and antimicrobial properties [14].

9.   Rosa Damascena mill L. belongs to *Rosaceae* family and is called Persia Rose in English. It is

generally known as Damask Rose. This plant is a hybrid of Rosa Gallica and Rosa Moschata Herrm. Various compounds are isolated from flowers, petals and fruits of this plant including terpenes, glycosides, flavonoids and anthocyanins. It also contains carboxylic acid, myrcene, vitamin c, kaempferol and quercetin. Its antioxidants prevent cancer and selectively kill cancer cells through different ways such as induction of apoptosis, inhibition of angiogenesis and metastatic cancer growth [7]

10. Zingiber adans is known as ginger in English and belongs to *Zingiberaceae* family. It has 50-60 tuberous aromatic species native to the Far East. Anticancer properties of this herb were considered more than any other properties. This has also anti-allergic and anti-inflammatory properties and is used for treatment of immune, digestive and cardiovascular diseases [10].

11. Saffron mainly contains carotenoids. Crocin, picrocrocin and safranal are responsible for orange color, bitter taste and aroma of the plant respectively. A growing number of articles published in scientific journals confirmed that saffron extract inhibits tumor formation and delays tumor growth under both in vitro and in vivo conditions. Crocetin as a carotenoid in saffron is an anti-tumor agent in animal models and cell culture systems. Crocetin prevents the growth of cancer cells by inhibiting the growth factor through signaling pathways. Ethanol extract of saffron largely decreases survival rate of malignant cells at a time-dependent manner. The extract has pro-apoptotic effects on lung cancer cells and can be used as a potential chemotherapeutic agent in lung cancer [9].

12. Lagenaria siceraria belongs to *Cucurbitaceae* family. This plant has 118 genus and 825 species. This genera has an annual decumbent species distributed in the tropics. This is mostly planted for ornamental purpose. This plant is known as calabash in Persian and as bottle gourd in English. The fruit contains vitamin C, beta-carotene, vitamins B, pectin, high levels of choline as a lipotropic factor, saponin, essential oils and B, D, G, H cucurbitacins. Cucurbitacins are four-ring terpenoids with significant cytotoxic and antitumor properties. In addition to the above compounds, extract of this plant also contains flavonoids, tannins, steroids such as fucosterol and campesterol, phenols and glycosides. In addition to anti-tumor effects, this herb has immunosuppressive, anti-virus, anti-HIV, anti-hyperlipidemia, anti-hyperglycemia, diuretics, anti-

inflammation properties. It also regulates the immune system [15].

CONCLUSION

The results showed that such plants as *Catharanthus roseus*, ginseng, *Peganum harmalal* (Esfand), *Hibiscus sabdariffa* (Roselle), *Silybum marianum* (milk thistle), *Camellia sinensis* (green tea), *Trachyspermum copticum L.* (ajwain), *Hypericum perforatum* (St. Johns), *Rosa damascene*, *Zingiber adans* and *Lagenaria siceraria* (calabash)) are the most useful anticancer herbs.

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A Study of Breast Feeding Practices in Rural Areas of Ballari Taluka, Karanataka

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ABSTRACT

Background: Adequate nutrition during infancy and early childhood is fundamental to the development of each child's full human potential. Breastfeeding provides the perfect nutrition for infants and lays the foundation for their healthy psychosocial development.

Objectives: To study the breast feeding practices in the rural area.

Methodology: A cross-sectional study design was done under the rural setting of Kudithini PHC, Bellary taluka. Considering the exclusive breast feeding rate of 44%(according to NFHS 3) the sample size was calculated to be 143. and a total of 150 mothers were included in the study. There are six subcentres under Kudithini PHC and within each subcentre a sample of 25 mothers were selected randomly using the registry available with the ANM. Data was collected by interviewing the mothers on a pre-designed, semi structured proforma with specific questionnaires on breast feeding practices.

Results: Mean age of the mothers was 24.5± 8.02 years, mean age of the children was 9.22±2.2 months. Optimal breast feeding practices were assessed where in 58.7% of them initiated breast feeding early, prelacteal feeding was not given in 64.7%, colostrum feeding was done in 62.7% and exclusive breast feeding for 6 months was practiced by 23.3%.

Conclusion: This study found that optimal breast feeding practices was low and prevalence of exclusive breast feeding was low. There is a need to educate the mothers during antenatal visits

Keywords: *Breast feeding practices, Community based cross-sectional study, Ballari.*

INTRODUCTION

Adequate nutrition during infancy and early childhood is fundamental to the development of each child's full human potential. It is well recognized that the period from birth to two years of age is a "critical window" for the promotion of optimal growth, health and behavioral development. [1] Breastfeeding is the best and safest way of feeding infants for the first 6 months of life. It provides the perfect nutrition for infants and lays the foundation for their healthy psychosocial development.[2]

Following the 2001 expert consultation and the 2002 publication of a WHO commissioned systematic review, the global recommendation is that, exclusive breastfeeding is now recommended for the first 6 months of life with the introduction of complementary feeds thereafter and continued breastfeeding for the first 2 years.[3]

Annually about 26 million babies are delivered in India. According to National Family Health Survey -3 (NFHS-3) data , 20 million are not able to receive exclusive breastfeeding for the first six months and

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about 13 million do not get good timely and appropriate complementary feeding after six months along with continued breastfeeding. Exclusive breastfeeding up to the age of six months is only 46.3% as per NFHS-3.[4]

On the basis of currently available evidence, the promotion of optimal breastfeeding and infant feeding practice is clearly the need of the hour. Efforts must be made that all concerned have this information and feel convinced about it, so that exclusive breastfeeding for six months is actively promoted.

This study will provide insight into the Infant Feeding practices in rural areas of Bellary taluka.

OBJECTIVES

1. To study the socio-demographic profile of the lactating mothers in rural areas.

2. To study the breast feeding practices in the study area.

METHODOLOGY

A cross-sectional study design was done under the rural setting of Kudithini PHC, Bellary taluka. The study population included mothers of infants dwelling in the study area for more than 1 year. The study was conducted from June 2015 to May 2016. Considering the exclusive breast feeding rate of 44%(according to NFHS 3) the sample size was calculated using the formula pq/L2 where(p is the prevalence of EBF =44%, q is (i-p) is 56, L is the allowable error of 20%) a sample size of 143 was calculated and a total of 150 mothers were included in the study. There are six subcentres under Kudithini PHC and within each subcentre a sample of 25 mothers were selected randomly using the registry available with the ANM. Mothers with children having developmental delay, congenital anomalies and any other systemic disorder, Mothers with IDV positive and Mothers with serious disorder (Exp; Psychosis, Lactational failure) were excluded from the study.

Data was collected by interviewing the mothers on a pre-designed, semi structured proforma with specific questionnaires on child's age ,order of birth, number of children in the family, place of the delivery and practices of initiation of breast feeding were collected. The data collected was entered in to a excel sheet and later will be analysed by using SPSS version 11.Appropriate descriptive statistics like rates, ratios, percentages will be used to describe the simple data.

The study was given ethical approval by Ethical Review Committee of Vijayanagara Institute of Medical Sciences. All ethical requirements including confidentiality of identity, responses and informed consent were stringently ensured throughout the project.

RESULTS

Table no. 01:

Socio-demographic profile of the mothers			
Variable		**Frequency**	**Percentage**
Age group			
	≤ 20 yrs	26	17.3
	21 - 25 yrs	70	46.7
	26 - 30 yrs	37	24.7
	> 30 yrs	17	11.3
	Mean ± SD	24.59 ± 8.02	
Religion			
	Hindu	110	73.3
	Muslim	28	18.7
	Christians	8	5.3
	Others	4	2.7
Type of family			
	Nuclear	86	57.3
	Joint	64	42.7
Education			
	Illiterate	28	18.7
	Primary	43	28.7
	High school	62	41.3
	PUC	12	8.0
	Degree and above	5	3.3
Occupation			
	House wife	57	38.0
	Unskilled	44	29.3
	Skilled	28	18.7
	Self employed	17	11.3
	Professional	4	2.7
Income of the family			
	APL	74	49.3
	BPL	76	50.7

In this study 46.7% of the mothers are between age group of 21-25 years, 24.7% are between 26-30 years, 17.3% were in the age group of less than 20 years and 11% were in the age group of morethan 30 years. Mean age of the mothers was 24.5± 8.02 years.73.3% belongs to Hindu community, 18.7% of them were Muslims and 5.3% belong to Christian community. 57.3% of mother live in nuclear family and 42.7% in joint family.

Majority of the mothers were literate where in 41.3% had high school education, 28.7% had primary schooling, 8% of them studied up to 12th class and 3.3% of them had completed their degree. Nearly two thirds (63.3%) of the mothers were working and remaining 38.7% of them were house wives. The socio-economic status was assessed based on the availability of APL and BPL cards. Half of them were possessing BPL cards and rest of them were APL card holders.

Table no. 02:

Profile of the child			
Variable		Frequency	Percentage
Age in months			
	7 - 9 months	74	49.3
	9 - 12 months	76	50.7
	Mean ± SD	9.22 ± 2.2	
Gender			
	Male	77	51.3
	Female	73	48.7
Birth order			
	First	36	24.0
	Second	96	64.0
	Third and above	18	12.0
No. of children in family			
	Nil	21	14
	< 2	65	43.3
	≥ 2	64	42.7

Delivery			
	Preterm	8	5.3
	Full term	139	92.7
	Post term	3	2
Place of delivery			
	Home	0	0
	Health centre	18	12
	Hospital	132	88

The profile of the children was also collected where in the mean age of the children was 9.22 months, 51.3% of them were male children and remaining 48.7% of them were female children. Nearly two thirds of the children (64%) were of second birth order and majority of the children were delivered after term (92.7%) and in hospitals (88%).

Table no. 03:

Breast feeding practices			
Practices		**Frequency**	**Percentage**
Early initiation			
	Yes	88	58.7
	No	62	41.3
Pre-lacteal feeding			
	Yes	53	35.3
	No	97	64.7
Colostrum feeding			
	Yes	94	62.7
	No	56	37.3
Exclusive BF for 6 months			
	Yes	35	23.3
	No	115	76.7

Optimal breast feeding practices were assessed where in 58.7% of them initiated breast feeding early, prelacteal feeding was not given in 64.7%, colostrum feeding was done in 62.7% and exclusive breast feeding for 6 months was practiced by 23.3%.

DISCUSSION

India is a country where breastfeeding is a cultural norm, with every mother fostering a favourable positive attitude towards it. In this study, breast feeding practices of 150 infants were assessed under the rural setting of Kudithini PHC, Bellary taluka, Karnataka.

An assessment of optimal breast feeding practices was studied where in early initiation of breast feeding (within one hour after delivery) was observed in 58.7%. In another the study done in similar setting in Karnataka revealed that only 42.8% of the mothers initiated early breast feeding which is comparatively less from our study results.[5] But the Annual Health Survey 2012-13 found that 65.9% mothers in rural areas of Karnataka started breast feeding within 1 hour of birth.[6]

Though our study finding was above the national average of 40.5% as found by District level Household survey Round 3 (DLHS 3).[7] Various Studies done in rural areas of India reported high percentage of mothers initiating breast feeding within 1st hour of birth like our study findings.[8,9]

But another study conducted in rural areas by Mahmood SE et al found that only 22% mothers initiated breast feeding within 1 hour.[10]

Prelacteal feeds is the main source of infection to the newborn which was given in 35.3% of newborns in this study which is comparable to studies done in Bangalore (19%)[9] and Western Nepal (23.3%)[11] but low compared to study done in a rural area of North Karnataka (66%),[5] rural of South India (71.8%)[12] and Uttar Pradesh (68%).[13]

The practice of colostrum feeding was observed in 62.7% of the newborns which is lower compared to study done in similar rural setting of north Karnataka (72%)[5] and studies done in Uttar Pradesh (86.1%),[13] Western Nepal (84.6%)[11] and Bangalore(81%).[9]

The National Guidelines on Infant and Young Child Feeding recommend exclusive breastfeeding for the first six months of life and then supplemented breastfeeding up to the age of two years or beyond.[14] The exclusive breast feeding was assessed based on the definition mentioned above, where in it was observed that only 23.3% of the mothers breastfed their new-borns exclusively for 6 months which is comparable to study done in a rural area of North Karnataka (27%),and lower compared to studies done in Bangalore (40%)[9] and Kanpur (51%).[15]

Exclusive breast feeding rates in our study was lower compared to National levels of exclusive breast feeding (46%) according to NFHS 3 and DLHS 3.[4,7] The practice of exclusive breast feeding for six months is high in north eastern state of Assam as revealed by Kalita D et al (70.3%)[16] and Medhi GK et al (69%)[17]

The differences in various rates of breast feeding practices are determined and governed by socio-cultural factors prevailing in their respective geographical areas, medical determinants which prevent them from practicing from optimal breast feeding practices, awareness and perceptions of the community and the methodologies used to assess the breast feeding practices.

CONCLUSION

This study found that optimal breast feeding practices was low and prevalence of exclusive breast feeding was low. There is a need to educate the mothers during antenatal visits itself regarding breast feeding and weaning practices. Behavioural Change Communication (BCC) is essential for appropriate breast feeding practices. Counselling sessions should be directed towards women especially in rural areas so as to improve the breast feeding practices as well as infant and young child feeding practices.

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Assessment of Thermal Comfort in Hospital Wards of Kermanshah, Iran, based on the Standards

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ABSTRACT

Thermal comfort is a function of temperature, humidity, and air flow. It is a key factor in preservation of individual's health. Taking into account the technological advances and increase in the number of equipment used in the work environment, managers of organizations, and hospitals in particular, need to pay more attention to thermal comfort of their employees. The present study is an attempt to assess thermal comfort in different hospital wards based on the standards in one of the hospitals located in Kermanshah, Iran. This descriptive and cross-sectional study was carried out in 2015. The atmosphere of different wards was assessed using discomfort index (DI), while relative temperature and humidity of the environment were measured using LUTRON PHB-318 at a 1m height from the ground. Measurements were taken between 9 am and 3 pm in the Spring, and DI was obtained for every point of measurement. The results showed that the mean score and standard deviation of temperature, humidity, and DI were 29.9±4.4, 22.3±3, and 23.33±2.3, respectively. Less than 50% of the individuals felt discomfort in 87.1% of the wards; more than 50% of the individuals felt discomfort in 9.7% of the wards; and 3.2% of the wards were in a health emergency situation. Given the results, none of the assessed spots met the standards of temperature and humidity, indicating the necessity for improvement using different technical and executive-managerial measures and personal temperature/humidity protection equipment. In addition, improving the architectural design of the building to facilitate air flow between indoor and outdoor spaces can improve thermal comfort according to the international standards.

Keywords: *Thermal, Standards, Comfort, Hospital, Kermanshah, Iran.*

INTRODUCTION

Occupational satisfaction with the atmosphere of the work environment is a key factor in the improving the performance of the employees. In the absence of decent atmospheric factors.[1] the employees become more susceptible to pressure, stress, early fatigue, and loss of performance According to the standards, thermal comfort refers to the condition in which people are mentally satisfied with temperature.[2] According to ASHRAE's definition, thermal comfort region is the temperature range within which 80% of the individuals without heavy physical activity or with mild physical activity find the temperature comfortable.[3] Ahermal comfort is a function of temperature, humidity, air flow, and quality/quantity of one's performance. The best thermal comfort in the absence of air flow is achieved within the temperature range of 22-28 °C and relative humidity of 30-50%.[4] In its optimum condition, human body temperature ranges from 36 to 38 °C; physical reactions will be disrupted when temperature exits this range. [5] If the temperature range of work environment disrupts the thermal balance of human body and the central temperature of the body reaches 38.5 °C, the individual would feel thermal pressures (thermal stress). The body's physiological responses to thermal pressure include the increase of body temperature, increase of heartbeat rate, and the like. These responses are known as thermal strain which, along with other factors (e.g. fatigue and dehydration), can lead to thermal-caused disorders such

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as muscle cramp, thermal syncope, thermal fatigue, and even death.[6] Temperature and relative humidity are the physical factors of the environment, and any change in them affects the comfort felt by individuals.[7] The direct effect of humidity levels below 20% is eye irritation, while high humidity levels cause respiratory problems and decrease of oxygen exchange.[8] Indoor relative humidity directly affects not only the comfort and well-being of the individual, but also the development of microorganisms and pace of chemical reactions that yield pathogenic chemical compounds (e.g. ozone and formaldehyde).[9] In addition, there is evidence that temperature and humidity are effective factors in sick building syndrome in administrative wards.[10] Studies have shown that temperature and humidity are strongly related to one's perception of the temperature and quality of weather. In fact, increase of temperature and humidity in indoor spaces increases air enthalpy and decreases thermal and atmospheric comfort.[11] Several studies have examined thermal comfort in health centers and hospitals as work environments.[12] Surveys of thermal comfort in hospital environments in Taiwan showed that the patients were satisfied with the temperature in more than 80% of spaces regardless of outdoor weather conditions.[13] In addition, a study by Taheri et al. in Iranian hospitals showed that the PMV values of kitchen, laundry, and sterilization wards were 2.2, 2.5, and 2.5, respectively, and the PPD values of the same wards were 93, 93, and 85, respectively, higher than those of other wards. In general, except for ward offices and classrooms, temperature in the rest of the wards was above the thermal comfort level.[14] The side effects of thermal pressures are among the main issues in many work environments. Therefore, it is essential to adopt a clear approach towards this issue. Controlling and monitoring thermal stresses are two of the main steps toward improving work force health. Paying more attention to such matters in developing countries such as Iran is essential to ensure the health and safety of the workers.[6] Conducting studies on thermal comfort in hospitals can lead to new solutions to improve thermal condition in different wards, which should be a main concern in performance-oriented approaches.[12] Given the above introduction, the present study is aimed at assessing thermal comfort in a hospital in Kermanshah, Iran, and comparing the findings with the standards.

MATERIALS AND METHOD

The present cross-sectional and descriptive study was carried out in 2015 in different wards of a Kermanshah-based hospital. The study population included the

employees of the hospital working in different wards. A total of 31 wards were studied after primary examination. To measure temperature and relative humidity, a few spots were selected in each ward and measurements were taken using LUTRON PHB-318 and HOT Wire Lutron-318; mean values of the measurements were considered as the temperature and humidity of each ward. To ensure the accuracy of the reading, the calibration certificate of the equipment was checked. All the measurements were taken at a 1m height from the ground and between 9 am and 3 pm in the Spring, given that the purpose of the study was examining thermal comfort. Having the temperature and relative humidity of each ward, DI was obtained as follows:

$$DI=T-(0.55-0.0055RH)(T-14.5)$$

where T stands for ambient temperature (°C) and RH for relative humidity (%). Discomfort index (DI) was introduced by THOM in 1957.[15] and soon became one of the main direct indices for measuring thermal comfort based on relative humidity and temperature.[16,17] The simultaneous effect of dry and wet temperature on thermal comfort is determined by this index, making it a reliable index to measure comprehensive thermal stress. The value of DI was interpreted based on Table1.[11] and the collected data were analyzed in SPSS.[16]

Table 1- DI interpretation

Thermal comfort	DI value
No one feels thermal comfort	<21
Less than 50% of individuals feel thermal discomfort	$21 \leq DI < 24$
More than 50% of individuals fee thermal discomfort	$24 \leq DI < 27$
Most of the people feel thermal discomfort	$27 \leq DI < 29$
All the individuals feel thermal discomfort	$29 \leq DI < 32$
Health emergency situation	$32 \leq$

RESULTS

Mean score and SD of temperature, humidity, and DI were 29.97±44, 22.34±3, and 23.33±2.3, respectively. The results of measurements for temperature, humidity, and DI are listed in Table 1. According to the data, the highest thermal discomfort index was obtained for the kitchen at the cooking time. Moreover, less than 50% of the individuals felt discomfort in 87.1% of the measurement spots (Table 4).

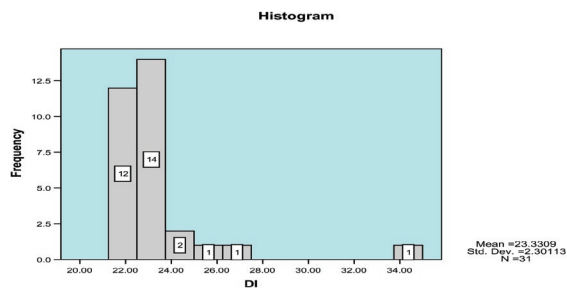**Table 2- Temperature and relative humidity at different wards**

Ward	DI	Desired relative humidity (%)	Humidity	Desired dry temperature (C)	Temperature
Hospitalization	22.36	30-70	15.4	21-27	29.2
Hospitalization	22.74	30-70	20.9	21-27	29.1
Hospitalization	22.38	30-70	22.8	21-27	28.2
Hospitalization	22.12	30-70	24.8	21-27	27.5
Hospitalization	22.56	30-70	16.6	21-27	29.4
Hospitalization	23.58	30-70	20.1	21-27	30.7
Hospitalization	23.92	30-70	22	21-27	31
Hospitalization	22.28	30-70	23	21-27	28
Hospitalization	23.33	30-70	22.3	21-27	30
Hospitalization	22.92	30-70	23.8	21-27	29
Nurse station	22.76	30-70	24	21-27	28.7
Nurse station	22.03	30-70	23.5	21-27	27.5
Nurse station	22.47	30-70	21.8	21-27	28.5
Nurse station	22.76	30-70	24.8	21-27	28.6
Nurse station	23.02	30-70	22.9	21-27	29.3
Clinic	23.36	30-70	20.9	21-27	30.2
Women clinic	23.48	30-70	19.6	21-27	30.6
Telecommunication room	23.13	30-70	25	21-27	29.2
Installations and garment storeroom	22.91	30-70	27.5	21-27	28.5
Cleaning liquids and stationary store room	22.75	30-70	27	21-27	28.3
Dialysis storeroom	24.37	30-70	23.8	21-27	31.5
Pathology storeroom	22.39	30-70	25.3	21-27	27.9
Medical equipment and tools	22.99	30-70	25.4	21-27	28.9
Pathology disinfection store room	22.02	30-70	25	21-27	27.3
Oncology cleaning liquid store room	21.86	30-70	21.2	21-27	27.5
Kitchen, public area	26.9	30-70	19.3	21-27	36.8
Kitchen, oven	34.35	30-70	16.3	21-27	51.3
Public hall waste disposal	21.65	30-70	21.5	21-27	27.1
Waste disposal area next to grinding machine	21.92	30-70	22.9	21-27	27.4
Laundry	25.16	30-70	23.6	21-27	32.9
Emergency hospitalization Nurse station	23.51	30-70	23.9	21-27	30

Table 3- Temperature and humidity at different wards

Maximum	Minimum	Range	Std. Deviation	Median	Mean	Variable
51.3	27.1	24.2	4.4	29	29.97	Temperature (Cº)
27.5	15.4	12.1	3	22.9	22.34	Relative humidity (%)
34.36	21.66	12.7	2.3	22.76	23.33	DI

Table 4- Frequency of different wards based on different DI level

%	Frequency	Thermal comfort	DI
0	0	No one feels thermal comfort	DI<21
87.1	27	Less than 50% feel thermal discomfort	$21 \leq DI < 24$
9.7	3	More than 50% of individuals fee thermal discomfort	$24 \leq DI < 27$
0	0	Most of the people feel thermal discomfort	$27 \leq DI < 29$
0	0	All the individuals feel thermal discomfort	$29 \leq DI < 32$
3.2	1	Health emergency situation	$32 \leq$

Figure 1. Frequency distribution of thermal DI within different ranges

DISCUSSION

From a thermal comfort viewpoint, the atmosphere of the work environment is an issue for most managers of hospitals and other public and private organizations. There are several factors affecting thermal comfort, including climate, type of work, cultural condition, personal factors, type of ventilation system, and the like.[12,18] Hospitals, among other organizations, are of more important as the employees are supposed to ensure the satisfaction of patients and their families.[12] In addition, given that the hospital environment is exposed to different diseases and prone to growth of different microorganisms, the temperature of the environment must meet specific standards.[19] Surveys of thermal comfort of employees in different countries and different areas of a country provide valuable results that would help reaching the objectives of the standards. Thermal comfort was examined in different wards of a Kermanshah-based hospital. Results in Table 4 indicate that less than 50% of the personnel felt thermal discomfort in 87.1% of the wards under study; more than 50% of the personnel felt thermal discomfort in 9.7% of the wards, and 3.2% of the wards were in a health emergency situation. Taheri et al. conducted a study in an Isfahan-based hospital and found that about 62.7% of the individuals were dissatisfied with the thermal comfort of their environment.Our results showed that the highest DI values were found in the kitchen and laundry, equal to 34.35 and 25.16, respectively. Taheri et al. also reported that the dissatisfaction rates at the kitchen, laundry, and sterilization wards were 93, 93, and 85, respectively.[14] This might be due to the specific work condition and type of work that is done in these wards. It is clear that the improper layout of wards and ineffective ventilation system can be influential factors in thermal discomfort felt by the employees, leading to a decrease of performance and loss of effectiveness of the work force.[20] Based on our results, mean temperature and humidity were 29.97 °C and 22.34, respectively. In addition, none of the spots under study were within the acceptable range of temperature and humidity. In their study on thermal comfort in classrooms, Mehdinia et al. reported that mean temperature and relative humidity were 27.42 °C and 30.4%, respectively. In addition, only 7% of the classrooms were standard in terms of temperature (18-24 °C) and humidity (30-50%) According to our results, mean DI value was 23.33. However, Mehdinia et al. reported mean DI to be 22.46.[11] A study on the educational space of a university in Nigeria showed that DI values were 24.5, 26.5, and 28.5 in hot and dry (April), hot and humid (August), and cold and dry (October) months, respectively.[4]

CONCLUSION

The results of this study showed that none of the spots were within an acceptable range in terms of temperature and humidity. Therefore, to control thermal strain and preserve the health of the employees against the risks of working in a hot environment, different technical and executive-managerial measures must be taken, and personal safety tools should be used. The main method to control temperature at work is the use of technical methods. Engineering interventions such

as devising rest areas, providing cold water dispensers, increasing air flow (fans), ventilation system (chiller), general ventilation, and reducing radiation heat (shields) are also recommended. Part of temperature control can be carried out through effective programming and wining the support of the employees. Among the executive and managerial control measures, promoting shared goals, monitoring the employees' performance, and providing access to water and minerals are noteworthy.

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Studying the Frequency of Needle Stick Injuries Suffered While Providing Medical Services in a Hospital in Kermanshah, Iran

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ABSTRACT

Needle stick injury is one of the causes of hospital infections. It is worthy of attention taking into account the high risk of transfer of infectious diseases via blood and other secretions. The present study is an attempt to survey the frequency of needle stick injuries suffered during medical activities in a Kermanshah-based hospital in 2014. This cross sectional study was carried out in 2014 in a medical-educational center in Kermanshah. The findings showed that out of 1064 personnel, 105 (41 men and 64 women) had reported needle stick injuries (9.8%). In addition, 84 cases were injuried on the hands, 19 cases on the eyes, 1 case on the legs, and 1 case in the mouth. Sixty-four cases were at the morning-shift, 23 at the afternoon-shift, and 18 were at the overnight shift. The main causes of needle stick injuries were needle point (58 cases) and angiocatheter (23 cases). Moreover, 17 cases suffered the injury while disposing of the syringe, 12 cases while recapping the syringe, 12 cases when they were not prepared to handle the needle, six cases while administering injections, six cases while handling the wastes, and five cases while using angiocatherters. Hospital managers are recommended to provide safety equipment in the work environment and also offer preventive education about needle stick injuries and how to handle a case, require mandatory vaccination, hold seminars and workshops, and distribute informing posters and pamphlets to the nurses.

Keywords: *Epidemiology, Needle stick, injuries, Services, Hospital, Kermanshah.*

INTRODUCTION

Needle stick injury is defined by the personnel of health service sector as the accidental penetration of sharp and pointy objects into one's skin while providing medical or nursing interventions.[1] Needle stick injury is one of the most hazardous job injuries, mostly threatening medical service providers.[2] It mainly happens during the transfusion of blood and blood products, sampling, disposing of needles, and handling wastes, blood samples, and secretions.[3] The injuries result in infectious diseases in 80-90% of the cases.[4] The large number of injections increases the risk of job injuries and transfer of infectious diseases to the staff via blood.[5] such that the rate of these injuries is about 50% in the Middle East (45% in Pakistan and Turkey and 46.8% in Saudi Arabia). In the case of Iran, this rate is 67% in Astara and 58% in Kurdistan Province, mainly due to repetitious overnight shift and lack of education.[6,7] Prospective studies have shown that the actual rate of needle stick injuries is higher than what is reported by retrospective studies.[8] At least, 20 types of pathogens may enter one's blood after needle stick injuries among which viral diseases such as hepatitis C and B and HIV are the most serious.[3,4] risk of HIV transfer with each contact with contaminated blood is 0.3% and 0.9% after contact with mucus.[9,10] In general, the risk of transferable infections among health staff depends on the three factors of probability of exposure, probability of infectiousness of the source.[11] Along with the risk of disease and death, mental damages, long-term disabilities, phobia, stress, and anxiety are among

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the main concerns.[12,13] Taking into account the above introduction and the importance of well-being of health personnel in providing health services to the patients, the present study was an attempt to survey the epidemiology of needle stick injuries suffered while providing health services in a Kermanshah-based hospital in 2014.

MATERIALS AND METHOD

This cross-sectional study was carried out in a Kermanshah-based hospital in 2014. The frequency of needle stick injuries, demographical/job specifications, and medical information of those suffered the injuries were recorded in a specific form. The 2014 medical files of the injured were examined. The collected data were analyzed via SPSS 16. The collected information remained confidential and the results were published anonymously.

RESULTS

The results showed that 105 needle stick injuries (in 41 men and 64 women) had been recorded in the hospital. Sixty-five cases had less than 5 years of experience, 28 had 5-15 years of experience, and 12 had more than 15

years of experience. Moreover, 64 cases suffered the injury at the morning shift, 23 at the afternoon shift, and 18 at the overnight shift. Eighty-four cases had injured their hands, 19 cases injured their eyes, one case injured his/her leg, and one case his/her mouth.
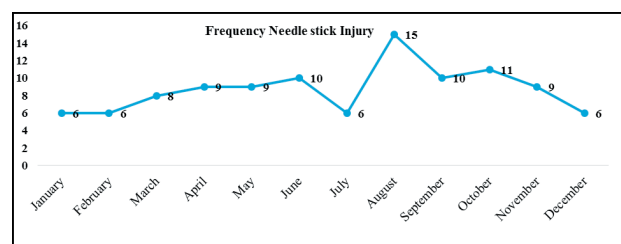

Figure 1. Frequency distribution of needle stick injury in 2014 based on months

As shown in Figure 1.the highest frequencies of injuries are reported for October and November and the lowest reported for March, April, December, and February.

The results of needle stick frequency distribution in terms of jobs showed that the highest amount of being needle stick was related to nurses and the lowest amount was related to stager.

Table 1. Frequency distribution of needle stick injuries based on job

Job	Nurse	Resident	Intern	Nurse assistant	Cleaning service	Lab nurse	Midwife	Surgeon	Stager	Student
Frequency	32	6	12	11	12	6	3	2	1	20

The frequency of some of the characteristics of needle stick injuries is provided in Table 2 below.

Table 2. Specifications and frequency distribution of needle stick injuries (n = 105)

Variable	Positive	Negative	Unspecified
Provision of first-aid services for the needle stick injured	81	15	9
Provision of educations for the needle stick injured	80	20	5
Taking blood samples from the needle stick injured	68	31	6
Immunity to HB in the needle stick injured	76	15	14
Immunity to DT in the needle stick injured	57	23	23
Observing the safety mechanism by the needle stick injured	81	24	0

According to the results of Table 3. Needle point has the highest frequency among the causes of needles stick in people.

Table 3. Frequency of the causes of needle stick injuries (N = 105)

Causes	Needle point	Angiocatheter intervention	Lancet	Stick needle	Blood tube	Scalpel	Secretions	Bistoury blade	Syringe	Other
Frequency	58	23	2	2	1	1	3	2	1	8

In Table 4, According to the results obtained from frequency distribution injury nature of needle stick, the injuries related to the surface area had the highest frequency.

Table 4. Frequency distribution of the nature of needle stick injuries (N = 105)

Nature of injury	Surface	Average	Deep	Causing bleeding	Penetration to gloves	Secretion in the eyes	Secretion in the mouth
Frequency	34	13	8	23	10	16	1

Figure 2. Frequency distribution of needle stick in a needle sticked person (N = 105)

Figure 3. Frequency distribution of the place of needle stick injuries (N= 105)

DISCUSSION

The number of personnel in the hospital under study was 1064, and 105 of them had suffered needle stick injury; therefore, the prevalence of injury was 9.8%. Other studies have reported different rates of prevalence of needle stick injuries. Smith (2004).[14] reported that 95% of the nurses had experienced needle stick injuries least once.[15] Greshon (2009) reported that 14% of the nurses had experienced needle stick over three years.[16] Azadi and Anoushed in Tehran and Moradi in Bahar, Iran, reported the frequency of needle stick injury to be 45% and 43.8%, respectively.[17] According to our results, 64 cases were at the morning shift, 23 at the afternoon shift, and 18 at the overnight shift. The study of Ghasemi et al. in Ardabil, Iran, showed that the prevalence of needle stick injuries was higher at the morning shift than other work shifts, indicating the higher work load in the morning and the necessity of revising workload and work force distribution to ensure the well-being of the employees.[18] Higher work load, crowded and noisy environment, drowsiness, and lack of concentration contribute to half of needle stick injuries among nurses. This indicates the necessity of observing the standards of minimum number of nurses, distribution of work force, and provision of a calm and proper work environment to preserve the well-being of the health personnel. The needle stick injured were comprised of 64 women and 41 men, consistent with other studies that reported a higher prevalence of injuries among women.[19,20,21] However, Joneidi reported that the number of men injured by needle sticks was higher than women.[22] Sixty-five cases were staff with less than 5 years of experience. Consistently, Gholami et al. indicated that needle stick injuries were most common among young employees

with little work experience. The highest rate of needle stick injuries was observed among nurses (55%).[23] Mohammadnejad et al. found relationships between little work experience and job injuries.[24] Based on the results, 58 cases of needed stick injuries were caused by needles and 23 cases were due to angiocatheters. Other studies have also demonstrates needles as the most common cause of needle stick injuries.[7,13] Vahedi studied 847 medical personnel who suffered needle stick injuries due to contact with needles and angiocatheters which constituted 43.57% and 35.3% of the incidents, respectively. Ghanei Gheshlaghi reported that the needle tip was the main cause of needle stick injuries.[25] According to the findings, 17 cases of injuries were suffered during the disposal of syringe, 12 were because of failure in recapping the syringe, 12 due to unexpected contact, 6 happened during injection, 6 ocurred while cleaning, and 5 happened while attaching angiocatheters. Studies have shown that recapping the syringe was the main activity that caused needle stick injuries. Taking specimen from restless patients.[3, 26] injection.[26] finding the vein.[27] stitching.[28] and preparing the syringe and vial.[29,30] were other risky activities. Nagao and Kobin reported that more than half of the injuries had been suffered after the operation and while disposing of the needles.[31] As the results showed, the highest frequency of needle stick was observed in surgery, emergency, and special care wards. Other studies have reported that emergency.[2] ICU.[32] and surgery room.[26] faced a high risk of contact with sharp and pointy objects. In addition, Ghasemi et al. reported that the highest rate of needle stick injuries among nurses was in burn, children, hematology, heart, ICU, and emergency wards, and the lowest rate of injuries was in the infection ward.[17]

CONCLUSION

Taking into account that the nurses constitute a large part of medical service provider community and the fact that they are in charge of a wide range of health care services in hospitals, and given the findings about the high prevalence and risk of needle stick injuries in nurses, the managers and supervisors of nursing services are required to ensure preventive measures. Providing safety equipment in medical wards, Needles breaker machine and..., training courses and seminars, and training posters and pamphlets, holding workshops, mandatory vaccination for nurses, issuing safety ID cards, cultural activities (promoting the reporting behavior and a support culture), supervising sharp and pointy waste disposal, providing a calm and stress-free environment for the personnel, distributing work forces in an optimum way, holding periodical training courses to improve job skills and promote general safety measures at work are some of the measures to minimize needle stick injuries.

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Effect of Caffeine on Prenatal Malformation Skeletal System

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ABSTRACT

Caffeine as a widely used psychoactive compound is an ingredient of most beverage (coffee, tea, and cola), foods (chocolates) and sedative drugs. Many studies revealed teratogenic effect of high doses of caffeine on bone mineralization leading to skeletal deformities. Present study was aimed to investigate the histological alteration caused by consumption of caffeine during neonatal age. In this regard, pregnant NMARI rats at the day 8of pregnancy divided into two groups of experimental (E) and control (C). In experimental group, caffeine (2mg/100gr) was orally administrated from day 8 to day 22 of pregnancy while no treatment was for control group. The newborns were assessed for skeletal growth and mineralization by Alcian blue-Alizarin R/S of the femur bones. In caffeine treated group, there were significant reduction in the weight, total length of femur, length of ossificated part of the bone, amount of calcium, magnesium and phosphor in ossificated part ($p \leq 0.05$). Also, outbreaks of hematoma and tailless were observed in offspring's rats of caffeine treated group. In conclusion, maternal caffeine consumption leads to induction of prenatal malformation on skeletal system and also decrease the body weight of infant as universal adverse impact of caffeine on developing whole body systems.

Keywords: *Caffeine, Prenatal Malformation, Skeletal System*

INTRODUCTION

Caffeine is one of the most widely used psychoactives in the world with a formula of 1,3,7-Trimethyl Xanthine, is a methylxanthine which exists in many drinks and foods. This compound generally exists in tea, coffee, soft drinks, chocolate, preservatives, sedatives and other pharmaceutical products. [1, 2] Among these, tea leaves consists of about 2.1 to 5.4 percents, coffee beans between 3.0 to 5.2 percents and cocoa beans about 3.0 percent caffeine [3, 4]

Caffeine is the common ingredient in drinks consuming by the public. Also can be used as an effective drug in the common cold or allergies or to increase the effect of analgesics.[5] Influences of caffeine on the person depend on his age so that the mature age is one of the most vulnerable stages with a high speed of physical growth .[6] There are concerns whether using caffeine during pregnancy causes side effects or not.[7] Formerly, studies on the effects of caffeine on the fetus have been done and teratogenic and embryogenic effects of high doses of caffeine consumption has reported .[8] For the first time in 1960, Nakai and Nishimura found that caffeine consumption in pregnant mice resulted cleft palate and defects in the fingers of their embryos .[9]

Half-life of caffeine in women is 5.2 to 5.4 hourswhich this time is longer in pregnant women. Caffeine is quickly absorbed through mother'sdigestive system and freely passes the secundine. can be reduced fetal growth. Caffeine also increases adenosine monophosphate cell cycle and might affect the growth of cells.[10-12]

Due to lack of sufficient enzymes, the fetus can't complete caffeine metabolism,so, caffeine increases catecholamine's levels which causes contractions of uteroplacental blood vessels resulting a lack of oxygen in the fetus that all above can cause reduction in fetal growth.Caffeine also affects the growth of cells by increasing adenosine monophosphate cell cycle.[10-12]

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Several studies on the effect of caffeine on the fetus and pregnancy complications indicate different results, so some believe that taking this substance is harmful and causes of stillbirth and fetal death.[1] Some believe that it is ineffective[13] and also some believe that caffeine can be useful to reduce the risk of gestational diabetes .[14] Clinical and epidemiological observations about caffeine made America's Food and Drug Administration (FDA) to limit caffeine consumption in pregnant women (less than 400 mg per day).[15]

It's reported in 2010 that consuming 6units of caffeine during pregnancy period are related to fetal weight problems and longitudinal growth,as characters longitudinal growth or fetal skeletal growth consistently is affected in the first trimester of pregnancy.[16]

Several factors are involved on bone mineralization, such as genetic polymorphisms, consuming drugs such as diuretics, caffeine and steroids that can prevent minerals absorption or maintenance.[17] Considering reports on the influences of caffeine on fetal growth during pregnancy, seems to be more structural and functional studies are needed to be evaluated its effects on specific organs. The femur is the longest bone in the body which the primary ossification centers appear at 7-8 weeks and secondary ossification centers in 36-40weeks.[18]

MATERIAL AND METHOD

Studies on N-MRI rats prepared from Razi Institute of Iran was done. Maintained conditions were the same for all rats with free access to food and water. After one to two weeks, virgin female rats with weights of 180-250g were mated with males at a ratio of 2 to 1on the night (8 pm to 8 am).To prove out the mating, female mice were examined sperm traces by smear check at 8 am. The time that sperm saw was considered as day zero of pregnancy.

Pregnant rats were divided into two groups randomly on the eighth day, the experimental group (E) and control group (C).Pure caffeine solution (Merck, Art.co. 2584) was gavaged topregnant rats by from days 8 to 22 of pregnancy, at a rate of 2 mg per100 grams once a dayin the experimental group.

In the control group, saline solution was gavaged to pregnant rats with an equal volume of caffeine, once a day from day 8 to 22 of pregnancy. At the day 22 of pregnancy, both groups were anesthetized by chloroform

and embryos were excluded from the uterus of pregnant rats by cesarean section. Immediately after removing the fetus and counting, the weights were measured and after check for abnormal appearances, one fetus was chosen from each mother rats randomly for Alcian blue-Alizarin R/S all skeletal staining to survey skeletal deformities and one fetuschoose to study femur by staining in the same way, separately.

For biochemical analysis of left femur and histological studies, have also separate embryos were selected randomly. Embryos were compared with the control group after staining under the stereomicroscope for ossification centers of the sternum, the occipital ossification, rib and vertebral malformations, femur length, fingers abnormalities (more or less fingers), limbs ossification and tail ossification and malformations. Left femur length of the fetus after staining of the greater trochanter to the medial epicondyle and diameter of the mid shaft part and the length of the bone was measured.

Obtained left femur were combined with 1 ml of pure nitric acid after drying and weighing. The suspension was set in 80 °C temperature for 2 hours and then brought to 10 ml with distilled water. The phosphorus concentration was measured by Compact Ion chromatograph (Metrohm) 761. The concentration of zinc, magnesium and calcium were measured by Atomic Absorption Spectrophotometer AA-6300 (Shimadzu) due to the instructions of the devices.

The tissue samples were stained by the usual method of hematoxylineosin.[19] For morphometric analysises, after the left femur bone midshaft sections were prepared, 8 microns cuts of the entire length of the femur were prepared, 10 middle cuts were selected and stained by Alizarin Red/S, H method. After photography, the area calculated by smart sketch software and the results were statistically analyzed.

Data obtained from each group was evaluated via ANOVA test with post hoc method of Tukey.

RESULTS

Macroscopic examination of the embryos in experimental and control groups showed that 78 percent of the group receiving caffeine were normal embryos while the embryos in the control group were all normal (Fig. 1).8% of the embryos were dead and wrinkled, 6% of them had suffered a hematoma and in 8% of them the tail was cut off.
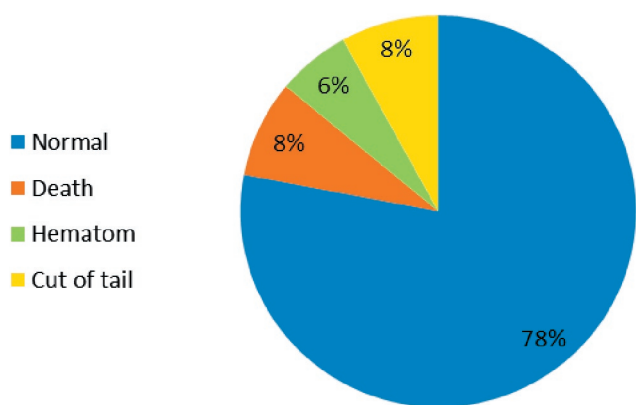
Figure 1- Effect of Caffeine on macroscopic abnormalities.

The results of the measurements of fetal weight showed that fetus weight in the experimental group was significantly lower than the control group (Fig.2).
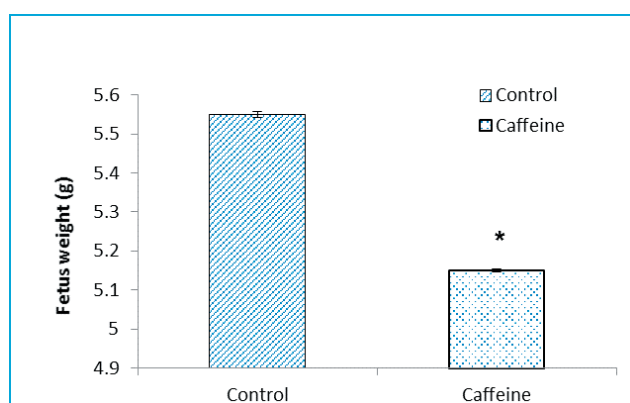

Figure 2- The effect of caffeine on fetus weight (p≤0.05),

* significant changes compared to controls at 0.05

The results of the study showed that the total area of the femur in cross-section, length of bone and the length of the femur bone impressed by caffeine has decreased significantly in the control group (p≤0.05).The area of the periosteum in the control and experimental groups were not significantly different. Also the outlook of the bone marrow cavity appeared with clumps of blood cells and small bone blades which observed in identical appearance in both experimental and control group (Table 1).

Table 1- measuring bone parameters

control group	Experimental group	Measured parameters
(mm) *55.22	5.65	Femur Bone Length
(mm) 0.839	0.872	Femur Bone Diameter
(mm²) *0.74	0.9	Total Area Of Femur Cross Section
(mm) * 3.18	3.457	Bone Length
(mm²) 0.1226	0.1241	Area Of The Periosteum
0.1502	0.1376	Periosteum Area Ratio To The Total Area

* Significant changes compared to controls

Also investigation on minerals like calcium, magnesium, phosphorus and zinc in the femur showed that thesemineralshad significant reductionsin experimental group than the control group (Table2)

Table 2- minerals measured in femur

control group	Experimental group (mg)	minerals measured in femur
0.024**	0.033	Calcium
0.004**	0.0053	Magnesium
0.0125*	0.024	Phosphorus
0.73*	1.52	Zinc

* Significant change compared to the control group at 0.05

** Significant change compared to the control group at 0.01

DISCUSSION

In numerous epidemiological studies have reported that consuming too much caffeine caneventuate serious side effects that could be a potential risk factor in fetus death and growth disorders.[20,21] The results clearly indicated that caffeine had a significant effect on fetus weight loss in the experimental group than the control group (p≤0.05). Data obtained from animal and human studies also confirmed the possible effect of caffeine on the body size. The present results indicate that caffeine reduces the body mass so that the inhibitory effect appears just after the first week of exposure to caffeine and its effects increases over time (8).The negative effects of caffeine on fetal growth before birth have been studied in humans and rodentsand has been shown that dose-dependent caffeine treatment causes a reduction in placental weight, decreased fetal body weight and increased intra-uterine growth retardation (IUGR).[22]

In this study it was found that growth in fetal femur length of the experimental group was significantly reduced compared to the control group, the total area in cross sections and length of the femur bone in comparison to control group showed a significant decreased because of caffeine, too (p≤0.05). Confirming our results, in 2015 Jiwon Shin et al also found that caffeine has interrupted the development of bone tissue

during pregnancy and shortens the long bones and also, a significant reduction in bone density in rats treated with caffeine which can occur because of bone activity decrement following chondrocytes or osteoblasts.[23] Examining the minerals calcium, magnesium, phosphorus and zinc on femur showed that the minerals had a significantly reduction in experimental group compared to the control group (P≤0.05). The negative effects of caffeine on the composition of development bone tissues have examined in many studies. Nakamoto et al. (1989) obtained similar results of our observations so that the amount of calcium, phosphorus, magnesium and zinc in rats fed with caffeine significantly decreased than the control group.[23] Jiwon Shin et al (2015) found that body weight loss through caffeine consumption may have negative effects on calcium deposition in bones during maturity period. Considering that maturity is a critical period of maximum calcium in the bones, concluded that caffeine can cause more side effects than adults [8]. Indeed, caffeine reduces the body mass and increased poverty of minerals in young and adult rats .[24] The main supplier of mineral resources in embryos are not kidney, intestine and skeleton, but also that will be provided through active transport of calcium, phosphorus and magnesium in the blood circulation. The concentrations of these substances in fetal circulation maintained at a maximum rate to the mother and adults which the top level of the components is needed for skelet on development. On the other hand, parathyroid hormones and calcitriol concentrations in fetal circulation has minimized.[25] Bone development begins with the synthesis of bone matrix by osteoblasts and complete by the end of the embryonic development at seventh and eighth week and the structure of all the bones are formed in this period. In the second phase, calcium and phosphate mainly deposit in bone and result the growth.[26] Considering the importance of minerals in development of fetal bones and negative effect of caffeine on the amount of mineral on fetus, caffeine intake during pregnancy needs more control. In addition to above mentioned, the negative effects of caffeine on growth and bone development in this study, a hematoma and amputation of the tail in some embryos in experimental group was seen so that 8 percent of the embryos of this group suffered amputation of the tail and 6% of the them suffered hematoma while the fetuses were all healthy in the control group. In many experiments have done on animals teratogenic and embryogenic effects of high doses consumption of caffeine have been reported.[15]

Tomaszewski et al (2014) examined the effects of caffeine on fetal bone development in rats and facedno stain alizarin pubic and ischium, as well as short femur length, tibia, delay in mineralization and abnormalities in upper head bones observed.[15] Some researchers believe that caffeine is a serious danger to the fetusso that causes growth restriction, birth weight decrement, premature birth stillbirth.[7] The above data indicate that caffeine consumption during pregnancy can result in fetal growth, development and bone formation as well as disorders in the length of the long bones such as the fetal femur and embryo teratogenic effects or even cause death.

CONCLUSION

In summary, it's concluded that caffeine intake during pregnancy in addition to possible defects for fetus, might have negative and harmful effects on fetal growth, weight, and amount of important components affecting ossification and bones development. More restriction to food, drinks and drugs containing this ingredient during pregnancy as well as survey the molecular mechanisms affecting bone formation by caffeine are important.

Conflict of Interest - The authors declare no conflict of interest.

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Maxillofacial Fractures in Patients Treated at Two Hospitals of Kermanshah City, Iran

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ABSTRACT

This study purposed to assess characteristics of maxillofacial fractures in Kermanshah, Iran over a 3.5-year time. This retrospective study evaluated files of patients with maxillofacial fracture treated at two hospitals (Bisotun and Imam Khomeini) in Kermanshah city between April 2009 and September 2012. The patients' information was collected including gender, age, fracture causes, bone fractured, fracture site in mandible, facial concomitant symptoms/signs, requested radiography, treatment modality, and seasonal occurrence. Data were analyzed by SPSS 16. Descriptive statistics were employed. A total of 286 patients were enrolled with a male to female ratio of 4.1:1 and age range of 1-81 years. High-risk age group for the fracture was 21-30 years. Road traffic accident comprised the major cause of the fractures in both genders and all age groups apart from patients aged 1-10 and 60+ in which falling presented the main cause. The mandible (31.9%) was found to be the most common fractured bone, mainly in body (24.7%) and condyle (22.9%). Swelling (71.1%) and pain (62.2%) presented as uppermost facial related manifestations. Panoramic imaging (36.4%) and open surgery (70.3%) were major requested radiography and treatment modality, respectively. Average seasonal occurrence was observed in winter (10.7) lower than spring (25.25), summer (20.25), and autumn (24). Our findings showed that higher occurrence of maxillofacial fracture associated to male gender and third decade of life. The main cause varied according to age.

Keywords: fracture, maxillofacial, mandible.

INTRODUCTION

Maxillofacial injuries remain a large proportion of cases in emergency departments. The injuries are often associated to damage in important and vital organs such as eyeball, facial and trigeminal nerves, larynx, and brain; or resulting in fracture of maxillofacial skeleton in more than 30% of cases.[1] The most common bone fractures are reported mandible, zygoma, maxilla or nasal bone in different studies.[1-3] The fractures commonly occur in young adults with male preponderance.[4, 5]

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The main causes of maxillofacial fractures are road traffic accidents (RTA), assault, falling and sport injuries. Frequency distribution of the causes differ from one country to another because of social, cultural and environmental factors.[6-9]

Studies in some provinces of Iran have reported that maxillofacial fractures were more common among males and 20-30 year-old individuals, with RTA as the major cause.[10-15] However, there is little information about maxillofacial fractures in Kermanshah, a city in west of Iran.

This study aimed to evaluate the characteristics of maxillofacial fractures including age and gender distribution, etiologic causes, clinical features, and seasonal occurrences among patients in Kermanshah over 3.5 years.

METHOD

This retrospective cross-sectional study investigated the clinical records and radiographs of 286 patients with maxillofacial fractures referred to the surgery department of two hospitals (Bisotun and Imam Khomeini) in Kermanshah city, Iran, during a 3.5-years period from the beginning of spring 2009 to the end of summer 2012.

The patients' information, including demographic variables (age, gender), fracture causes, bone fractured, fracture site in mandible, facial concomitant symptoms/ signs, requested radiography, treatment modality, and seasonal occurrence were collected. In addition, the radiographs of the patients were inspected by a maxillofacial radiologist.

The data were analyzed by SPSS (version 16) software using descriptive statistics (frequency, percent).

RESULTS

According the results of this study the most common overall cause of maxillofacial fractures was RTA (53.5%) followed by assault (21.3%), falling (17.8%), sport-related trauma (1.7%), and occupational injuries (1%). The first and second most common causes varied regarding gender (males: RTA/assault; females: RTA /falling, respectively) and age group (aged 11-60: RTA/ assault; aged <10 or >60: falling/RTA, respectively) (Table 1).

The fractures most commonly occurred in third decades (37.1%; 106/286) and then declined toward both age extremities (Table 1).

Figure 1 displays the frequency of maxillofacial fractures observed in this study. A total of 464 fractured bones among 286 patients were detected in mandibular (n=148, 31.9%), zygomatic (n=93, 20%) orbital (n=84, 18.1%), maxillary (n=80, 17.3%), and nasal (n=59, 12.7%) bones (Figure 1).

Of 148 patients with mandibular fracture, 223 fracture sites were found in body (n=55, 24.7%), condyle (n=51, 22.9%), symphysis (n=45, 20.2%), angle (n=39, 17.5%), dentoalveolar (n=23, 10.3%), ramus (n=6, 2.7%), and coronoid (n=4, 1.8%); (Table 2).

Table 3 shows facial concomitant symptoms/signs. Swelling (71.7%, 205/286) and pain in different parts of the face (62.2%, 178/286) were the first and second most common manifestations, respectively.

There were 404 requested radiographies including 160 (39.6%) panoramic, 147 (36.4%) CT-scan, 51 (12.6%) reverse Towne, 33 (8.2%) periapical, and 13 (3.2%) Waters imagines for 286 patients (Figure 2).

Over the 3.5-year study period, seasonal average numbers of patients with maxillofacial fractures were as follows: 25.25/spring, 20.25/summer, 24/autumn, and 10.7/winter; (Table 4).

Table 1- Frequency distribution of maxillofacial fractures according to gender, age and cause

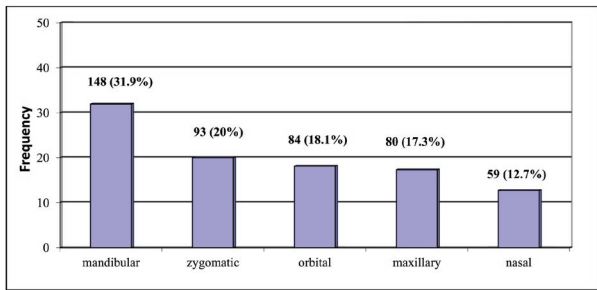|	RTA	Assault	Falling	Sports	Occupational	Unknown	Total
	153 (53.5%)	**61 (21.3%)**	**51 (17.8%)**	**5 (1.7%)**	**3 (1%)**	**13 (4.5%)**	286 (100%)
Gender							
Male	117 (50.9%)	56 (24.3%)	38 (16.5%)	5 (2.2%)	2 (0.9%)	12 (5.2%)	230 (100%)
Female	36 (64.3%)	5 (8.9%)	13 (23.2%)	0 (0%)	1 (1.8%)	1 (1.8%)	56 (100%)
Age							
1-10	8 (23.5%)	3 (8.8%)	21 (61.8%)	0 (0%)	0 (0 %)	2 (5.9%)	34 (100%)
11-20	34 (49.3%)	16 (23.2%)	9 (13%)	3 (4.3%)	1 (1.4%)	6 (8.7%)	69 (100%)
21-30	69 (65.1%)	24 (22.4%)	5 (4.7%)	2 (1.9%)	2 (1.9%)	4 (3.8%)	106 (100%)
31-40	20 (57.1%)	6 (17.1%)	8 (22.9%)	0 (0%)	0 (0%)	1 (2.9%)	35 (100%)
41-50	11 (55%)	8 (40%)	1 (5%)	0 (0%)	0 (0%)	0 (0%)	20 (100%)
51-60	10 (66.7%)	3 (20%)	2 (13.3%)	0 (0%)	0 (0%)	0 (0%)	15 (100%)
60+	1 (14.3%)	1 (14.3%)	5 (71.4%)	0 (0%)	0 (0%)	0 (0%)	7 (100%)

Figure 1- Frequency of fracture bones (n=464) in maxillofacial skeleton of 286 patients

Table 2- Frequency of mandibular fracture sites (n=223) in 148 patients

Mandibular fracture sites	Frequency	
	Number	%
Body	55	24.7%
Condyle	51	22.9%
Symphysis	45	20.2%
Angle	39	17.5%
Dentoalveolar	23	10.3%
Ramus	6	2.7%
Coronoid	4	1.8%
Total	**223**	**100%**

Table 3- Frequency of facial concomitant symptoms/signs in 286 patients

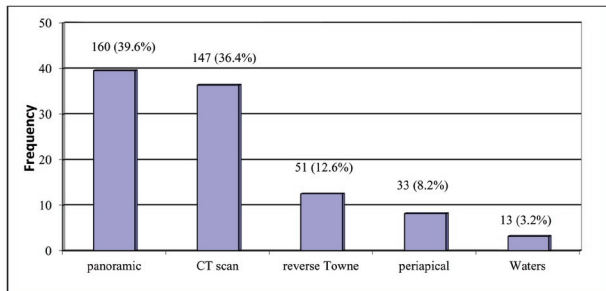| Sign or symptom	frequency	%
Swelling	205	71.7%
Pain	178	62.2%
Wound	143	50%
Limited mouth opening	117	40.9%
Facial asymmetry	108	37.7%
Bruising around the eyes and eyelids	101	35.3%
Occlusal changes	82	28.7%
Dental loosening, fracture or removal	68	23.7%
Paresthesia	45	15.7%
Jaw deviation during mouth opening	35	12.2%
Anterior open bite	22	7.7%

Figure 2- Frequency of requested radiographies (n=404) for 286 patients
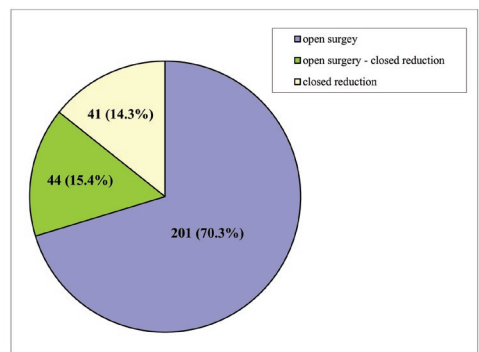

Figure 3- Frequency of treatment modalities for 286 patients

Table 4. Seasonal occurrences of maxillofacial fractures in 286 patients over 3.5 years (Apr 2009- Sep 2012)

Time period	Spring	Summer	Autumn	Winter	Total
Apr 2009 – Mar 2010	16 (22.2%)	19 (26.4%)	22 (30.6%)	15 (20.8%)	72 (100%)
Apr 2010 – Mar 2011	36 (33%)	25 (22.9%)	34 (31.2%)	14 (12.8%)	109 (100%)
Apr 2011 – Mar 2012	20 (33.3%)	21 (35%)	16 (26.7%)	3 (5%)	60 (100%)
Apr - Sep 2012	29 (64.6%)	16 (35.6%)	-	-	45 (100%)
Seasonal average	**25.25**	**20.25**	**24**	**10.7**	**-**

DISCUSSION

In the present study, the most common cause of maxillofacial fractures was RTA in 53.5% overall. The finding was consistent with the results of the studies in Egypt [7], Brazil [9],India [16], Japan [17], and Ugandan.[18] However, some authors reported falling as the main cause of maxillofacial fractures. [3,8] More recent studies have shown assault as the most common cause of maxillofacial fractures in many developed countries e.g. New Zealand [5], Lithuania [19], Bulgaria [20], and USA [21], whereas RTA has remained the most frequent cause in developing countries. This difference is due to recent improvement of road safety in developed countries, decreasing RTA-associated injuries [8, 22.]

According to our study, falling was the most common etiology of the fracture among younger (aged 1-10) and older patients (aged 60+). Likewise, falling has been reported as the most frequent cause of facial trauma during the first years of life [23-25] and among elderly patients [26, 27]. Maliska et al. found the age as an effective factor could change the etiological pattern of maxillofacial fractures. In their study, the most frequent cause was RTA in the age group 18-39, but interpersonal violence in the age group 40-59 years. [13]The study by Toivari et al revealed that falling was main cause of facial fractures among geriatric patients, whereas assault constituted the major cause in patients aged 20 to 50 years.[28] According to another study, sports-related facial fractures were more common in patients under 39 years than those over 40 years [3].

The present study showed the most common fracture occurred in mandible (31.9%) as similar as reported in some studies. [6,9,13, 17] However, some studies reported zygomatic and maxillary [2], and nasal [3] bones as the most common sites of facial fractures. This controversy may be due to difference in the causes of fractures. The high involvement of mandible as common fractured facial bone during trauma may be attributed to its exposed anatomical position in face [29] its movability so a greater chance of being fractured than the articulated facial bones [18], and also to its mechanically weak components including angle, condylar process, and parasymphysis.[30]

In our study, the most common mandibular fracture site was the body followed by the condyle. This pattern is comparable with findings in some other studies [13,31], but different from the studies that reported first and second common fracture locations at condyle and angle [6], condyle and body [17], angle and subcondyle [29], and parasymphysis and angle [32], respectively. Some authors reported subcondylar [8] and parasymphyseal [14] areas as most common fracture site in mandible. Location of mandible fractures depends on external (site of impact, direction, and magnitude of force) and internal (mouth opening, dental states, bone health condition) factors. [30] It has been also indicated that the fracture sites in mandible are more often associated to a particular etiologic cause: assaults (body, angle), automobile accidents (condyle, body) motorcycles accidents (body, symphysis, parasymphysis, and condyle) [6] that could explain the variation in fracture patterns of mandible among patients.

In this study, averagely 1.4 imagine for each patient (404/286) was requested, mainly panoramic radiography (39.6%) and CT-scan (36.4%). The diagnosis of maxillofacial fractures is based on clinical and radiographic examinations. A study showed that panoramic radiography is superior to conventional radiography and it is adequate in evaluating mandibular fractures [33], but studies by Roth et al [34] and Wilson et al.[35] indicated that CT is more sensitive than panoramic tomography, particularly for fractures of the angle, ramus, or condyle.

The selection of treatment modalities for maxillofacial fractures depends on various factors such as location and pattern of fracture, patient characteristics, surgeon's experience, and available equipment. Open surgery (70.2%) was the most frequent treatment performed for our sample, as reported in India [6], Australia [29], USA [35], and Brazil [37]. However, closed method of fracture reduction was often employed for patients in some countries such as Uganda [18], Libya [38], and Sudan [39]. This difference seems to be related to the nature of injury. In addition, financial issues may influence on selection of treatment methods so that cheap closed method is preferred in low-income countries.

CONCLUSION

This study found that maxillofacial fracture occurred predominately in male gender and in individuals at third decade of life. The main cause was RTA overall, but falling for children and old people. Therefore, it is necessary to improve road traffic conditions and provide special care to elderly individuals.

Ethical Clearance- Taken from ethical committee

of Kermanshah University of Medical Sciences

Conflict of Interest - The authors declare no conflict of interest.

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Evaluating the Relationship between Clinical Competence and Clinical Self-efficacy of Nursing Students in Kermanshah University of Medical Sciences

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ABSTRACT

The aim of study was determining the rate of relationship between clinical competence and clinical self-efficacy of nursing students in Kermanshah University of medical sciences in 2016. The study has done with descriptive-analytical method of correlation. 80 people have selected by the simple random sampling. The data collection tool was standard questionnaire of clinical competence evaluation and Sherer self-efficacy. The data have analyzed by the Pearson (r) correlation coefficient test. The results have showed that there was a positive and significant relation between the patients assisting competency (p=0.03, r=0.15), the care self-efficacy (p=0.04, r=0.13), the legal and moral performance self-efficacy (p=0.003, r=0.21) and the students competence. In addition, there was a positive and significant relation between the professional development self-efficacy (p=0.004, r=0.19), the patients safety, security and comfort (p=0.00, r=0.22) and the leadership and managing self-efficacy (p=0.00, r=0.26), the cooperation with the treatment teams members competence (p=0.02, r=0.12) and the students efficiency. According to the relation between evaluated variables the self-efficacy have suggested for improving the clinical competence and as a results improvement of the students clinical performance.

Keywords: *Clinical competence, Clinical Efficiency, Medical sciences, university's students.*

INTRODUCTION

Nurses are the largest section, which present the health, treatment services and have an important role in cognition of care, and services fulfilling, which these, have require their self-efficacy.[1] The working self-efficacy in order to maintaining the power and authority for nursing activities have a significant importance.[2] Self-efficacy have complicated and ambiguous concepts. Despite of this, there are many ambiguous and confusions for understanding this concept.[3]

Increasing the expectation for receiving services with appropriate quality with the health services presenting organization trend in employing skilled employment have caused the above facts too.[4, 5] The clinical competence is a combination of moral and values and their reflex in knowledge and skill. Also honesty and caring, communications skill and compatibility have recognized as the individuals self-efficacy signs.[6] Of the most problems is the deficiency of student's clinical competence, which caused the incidence of issues in their mental and endangered the society's health.[7] Therefore, applying the self-efficacy evaluation criterion determine the cognition and skills deficiencies of them.[8]

One of the theories, which have used for evaluating the assurance degree in doing the clinical skills by the students, is the Bandura self-efficacy theory.[9] The results of many studies have showed that the self-efficacy for acquiring knowledge and skills, particularly in applying the scientific and professional skills have a significant role.[10] The present world needs the self-regulators learners. A self-regulator student is a person who finds and present a particular way of learning which is based on the scientific goals of his/her self-efficacy

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understanding.[12]

Abedi et al. have noted the knowledge self-efficacy of clinical role, lack of professional efficiency, the confidence of disability for meeting the colleague's expectation and emotional reaction as a major problems of educators.[13, 14] In addition, a few studies have evaluated the self-efficacy role in clinical and educational performances separately.[15, 16]

Harvey and McMurray have showed that the possibility of getting less than pass score of lessons unit among nursing students with less self-efficacy is more than the students with high self-efficacy.[17] Performance failing necessarily is not because of the deficiency but the low self-efficacy of the individuals is a factor for ineffective use of educational skills.[18] Therefore, paying attention to the weak points and improving the clinical education seems necessary. Especially this fact is always have considered by teachers and clinical nurses for medical science apprentices and students.[19] Based on the researches, a positive and significant relation have observed between clinical performance self-efficacy and nursing clinical performance.[20] The results of research have showed that self evaluation of the students in comparison with clinical self-efficacy which could have provide a valuable and complete data for medical science students evaluationg.[21, 22]

The results of the Opacic's study have showed that the final terms students self-efficacy have related with their clinical performance.[23] Wahtera showed that there was a positive relation between self-efficacy and nurses performance and the self-efficacy was the only variable which have a statistically significant relation with the performance process of nursing students.[24] The results of Choi's study have not showed a relation between self-efficacy and academic performances.[25] Lent et all. have found that high self-efficacy could cause the improvement of the students learning and predict the consequences development.[26]

The present study has designed with the aim of evaluating the relation between clinical competence and clinical self-efficacy of nursing students in Kermanshah University of medical sciences.

MATERIAL AND METHOD

The present study is a descriptive-analytical study of correlation type. The statistical population includes all the nursing students of apprentice level in Kermanshah's medical science university in 2016, which were 80 people. The sampling has done by census method. For collecting data the standard questionnaires of clinical competence evaluation and Sherer self-efficacy have used. This questionnaire which include 73 related questions with clinical skills have 100 score. If the score was closer to zero it, represent its low self-efficacy and if it was closer to 100 it represent its high clinical efficiency. In addition, the used rate of each skill in clinical section has determined by four range Likert scale. In this scale the zero range means not applying the skills and the first range means less applying, range two means some times applying and range three means repeated applying of the skills.[27, 28] In addition, the Sherer self-efficacy questionnaire have designed by Sherer et al. (1982) which include 17 components.[29] The results of the evaluations showed the existence of three latent correlation factor which one higher factor is public self-self-efficacy in this scale.[30] The Cronbachs alpha method 0.70 and internal coefficient of these scale with the Rater locus control as a criterion validity have calculated 0.52 [31] For observing the moral rules of the research the samples participation in the project was in the form of Voluntary and the necessary expectations about the project, the data evaluation, and presentation, confidential personal data, not recording the name and family name and other moral points have presented for volunteers. For analyzing data, the descriptive statistical have used and statistical inference the Pearson correlation coefficient, After all the data have analyzed by SPSS-21 software.

RESULTS

The results have showed that the student's average score of clinical competence was 87.16±22.82. In addition, the results have showed that the average of the students clinical self-efficacy score was 69.16±13.57. Therefore, there was a positive and significant relation between clinical competence and self-efficacy (table 1).

Table 1. The Pearson correlation coefficient for the relation between clinical competence and self-efficacy of the students

Variables	N	Mean	S.D	Correlation coefficient	P
Clinical competence	80	87.16	22.82	0.15	<0.004
Clinical self-efficacy	80	69.16	13.57		

The results have showed that the patient assisting competency average of the students was 61.8±1.84, and student's self-efficacy was 69.16±13.57. There was a positive and significant relation between patients assisting competency and self-efficacy (table 2).

Table 2. The Pearson correlation for the relation between patients' assisting competency and self-efficacy

Variables	N	Mean	S.D	Correlation coefficient	P
Patients' assisting competency	80	61.8	1.84	0.15	<0.03
Clinical self-efficacy	80	69.16	13.57		

The results have showed that the students care competency average was 61.59±2.01, and the the student's self-efficacy score average was 69.16±13.57. There was a positive and significant relation between students care competency and self-efficacy (table 3).

Table 3. The Pearson correlation for the relation between care competency and self-efficacy

Variables	N	Mean	S.D	Correlation coefficient	P
Care competency	80	61.59	2.01	0.13	<0.04
Clinical self-efficacy	80	69.16	13.57		

The results have showed that the moral and legal performance competency of the students was 59.93±1.74, and student's self-efficacy score average was 69.16±13.57. There was a positive and significant relation between legal and moral performance competency with the self-efficacy of the students (table 4).

Table 4. The Pearson correlation of the relation between moral and legal performance competency and self-efficacy of the students

Variables	N	Mean	S.D	Correlation coefficient	P
Moral and legal performance competency	80	59.53	1.74	0.21	<0.003
Clinical self-efficacy	80	69.16	13.57		

The results have showed that the professional development competency average in the students was 65.94±1.59. In addition, the results have showed that the student's self-efficacy score average was 69.16±13.57. There was a positive and significant relation between professional development and the self-efficacy of the students (table 5).

Table 5. The Pearson correlation for the relation between professional development competence and self-efficacy of the students

Variables	N	Mean	S.D	Correlation coefficient	P
Professional development competence	80	69.94	1.59	0.19	<0.004
Clinical self-efficacy	80	69.16	13.57		

The results have showed that the patient's safety, security, and comfort competency of students was 69.80±2.78. In addition, the results have showed that the student's self-efficacy score was 69.16±13.57. There was a positive and significant relation between patients safety, security, and comfort competency and self-efficacy of the students (table 6).

Table 6. The Pearson correlation for the relation between patient's safety, security, and comfort competency and self-efficacy of the students

Variables	N	Mean	S.D	Correlation coefficient	P
Patient's safety, security, and comfort competency	80	69.80	2.78	0.22	<0.0001
Clinical self-efficacy	80	69.16	13.57		

The results of table7 have showed that the student's leadership and management self-efficacy average was 63.39±3.52. In addition, the results have showed that the student's self-efficacy score average was 69.6±13.57. There was a significant and positive relation between leadership and management competency and self-efficacy of the students (table 7).

Table 7. The Pearson correlation for the relation between leadership and management competency and self-efficacy of the students

Variables	N	Mean	S.D	Correlation coefficient	P
Leadership and management competency	80	63.39	3.52	0.26	<0.0001
Clinical self-efficacy	80	69.16	13.57		

Member competency of the students was 78.43±2.12. In addition, the result shave showed that the student's self-efficacy score average was 69.16±13.57. There was a significant and positive relation between assisting with treatment team's member's competency and self-efficacy of the students (table 8).

Table 8. The Pearson correlation for the relation between assisting with the treatment teams and self-efficacy of the students

Variables	N	Mean	S.D	Correlation coefficient	P
Assisting with the treatment teams and self-efficacy of the students	80	78.43	2.12	0.12	<0.02
Clinical self-efficacy	80	69.16	13.57		

DISCUSSION

The obtained results of this study have represented that there was a significant relation between clinical competences and clinical self-efficacy of the students. The results of this study is consistent with some study's results. [20, 21, 24, 25, 26, 27] The results of Opacic have showed that the final term student's self-efficacy has relation with their clinical performance in the clinical apprenticing field.[24] Wahtera showed a positive relation between self-efficacy and nursing performance process.[25] In addition,

Lent et al. in study have found that high self-efficacy could help the students learning development and predict the consequences development.[27] In addition, the results of this research are not consistent with Choi (2005) study. [26] Mohammadi et al. have showed that the student's evaluation in comparison with clinical self-efficacy could provide valuable and complement data in student's evaluation. [22]

Applying self-efficacy evaluation criteria not only caused more knowledge and cognition in students but

also revealed the skilled and cognitive deficiencies in them.[8] As a result, it have expected that the students reach the highest level of learning and self-efficacy during their academic period.

Therefore, if the basis of the major is rich, the science independency is richer.[21] According to the present study's results and similar results of other studies; the self-efficacy relation is effective in care ability and nursing active role. Therefore, the teacher should create effective and motivate environment in order to students could improve the planning ability and metacognition skills.[32, 33] Lack of attention to the self-efficacy promotion of students, undoubtedly caused the educated human sources quality reduction in nursing professions.[16]

In addition, this study has faced with so many limits during the project implementation. These limits are as nursing students personal differences like the way of connection, the motivation and interest level in nursing major, personal judgment in questionnaires filling, different of personal style and management in each students, motivation and interest for education and clinical in comparison with education. These variables in this research effect the nursing student's concept and consideration for their opinion and they were uncontrollable.

CONCLUSION

The present study's results have supported the hypothesis of "there was a significant relation between clinical and self-efficacy of the students "therefore, promotion and paying attention to non-school factors such as self-efficacy have caused the nursing students performance evaluation.

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Learning Styles in University Education (Systematic Review)

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ABSTRACT

Identifying affecting factors contributing to the attainment of learning is one of the important matters of researchers and styles of learning is one of the affecting factors in learning. In this study all the present articles were searched in internal databases including Iran medex, Irandoc and SID and external databases such as, Google, Google Scholar, Scopus, Science Direct, scientific database of World Health Organization (Medicos / WHO / EMR), free journal access guide (Open Access Journal Directory of), Elsiver, PubMed articles' teaching methods from 1990 to 2014 and of 268 extracted articles, 40 articles that were associated with the topic has assessed.The results of studies have shown that the person prefers both one way of style and two-way in learning.More supportive studies are perspective that if student's learning fit with way teachers teach, reinforce learning motivation and academic achievement will be better.

Keywords: *learning styles, teaching method, personality traits, academic, achievement*

INTRODUCTION

Learning is a complex variable that many factors effect such as intelligence, motivation, environment, family matters, community, quality of schools, quality of the trainer and etc. So, aware of the nature and types of learning styles and learning styles kind used by learners on one hand helps the trainer to help learners in optimal using of different learning styles and on the other hand, the trainer can change his/her teaching method according to his/her learners style to achieve their highest educational outcome.[1] Identifying the affecting factors contributing in attainment of learning is one of the important matters and under assessment of researchers and learning styles is one of the affecting factors in learning.[2] Also in another definition, learning styles is the individual ways used by learners to process information and new concepts or methods that organize information using them.[3] Today it is recommended that

teachers while teaching, pay attention to the differences between learners and their learning styles to provide a background to reach a desired level of learning in all learners with the best teaching methods.[4] In the view of the Kolb, learning styles refer to procedures in which the individual organize the concepts, rules and principles which addressing them in dealing with new situationsIn fact, one of the most effective approach in the individual's study of learning is Kolb's learning style theory. According to Kolb's theory, learning is a four-stage process and contains concrete experience, reflective observation, abstract conceptualization and active experimentation.[5]

Hohen knows the learning styles as a set of beliefs, preferences, and behaviors that people by using it try to learn in a specific situation.[6] Payne and Whittaker described the subject in another way: learner first performs an operation (concrete experience) then tries to think about it (reflective observation) then makes the theory (abstract conceptualization) and at the end trying to exempt it (active experimentation).[7] According to Warek, students divide into subgroups according to their abilities include: people with strong visual function (visual style), which prefer to use diagrams and symbolic

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items, such as images, circling diagrams and patterns in learning.People with strong reading and writing performance (reading and writing style) chose the vocabulary and texts as a tool to get and institutionalize the information. They also prefer lists, summaries, textbooks, lecture notes and notifications over other learning methods.People with strong auditory function (auditory style) which prefer auditory information enjoy from discussions and presentations, people with strong skill (movement style) which prefer live experiences assessment in learning.[6, 8, 9]

MATERIALS AND METHOD

In this study all the present articles were searched in internal databases including Iran medex, Irandoc and SID and external databases such as, Google, Google Scholar, Scopus, Science Direct, scientific database of World Health Organization (Medicos / WHO / EMR), free journal access guide (Open Access Journal Directory of), Elsevier, PubMed using the key words of learning styles such as personality traits, learning, Wark, clubs, articles' teaching methods from 1990 to 2014 which totally 268 articles were extracted after monitoring, considering relevance and communication with objective and title of article (40) articles which were completely related to the subject were selected and examined.

Results and Discussion

Author	Year	Sample	Method	Location	Results
Furnham.[10]	1992	752	Analytical	Turkey	**1.**There found positive relationship between active learning styles and pragmatic personality trait and was found negative relationship between this personality trait with this learning style reflection **2.** It was found positive relationship between pragmatic cognitive style and extraversion and found negative relationship between extraversion with reflective cognitive style. It was found positive relationship between extraversion and divergent learning styles **3.** Sickly spirit had negative relationship with assimilating and accommodating learning styles. Sickly spirit also had negative relationship with divergent learning style.
Crown well & Manferd.[11]	1994	74	Cross-sectional	India	**4.** They found significant difference between learning styles and academic performance. **5.** Using follow up tests revealed that people with abstract thinking learning style benefit from the highest scores in academic achievement.
Gundogan and Isman.[12]	2009	183	Descriptive cross-sectional	Turkey	**6.** In this study it was found that the most preferred learning style was mixture style.
Kumar and colleagues.[13]	2009	214	Sectional	Malaysia	**7.** In this study, 51.4% of the sample preferred single style (9% visual style, 28%, auditory style, 38% reading-writing style, 35% motor movement style) and 48.6% preferred mixture style.
Meehan-Andrews.[14]	2009	313	descriptive	Australia	**8.** In this study, 54% of the sample preferred single style (11% visual style, 4%, auditory style, 17% reading-writing style, 18% motor-movement style) and 46% preferred mixture style.

Bosato, Prins, Elshot, Hamaker.[15]	1998	900	Cross-sectional	Netherlands	**9.** Extraversion personality trait has positive relationship with meaning orientation, recreation-oriented and application-oriented learning styles and with undirected learning style had negative relationship. **10.** Sickly spirit personality trait had positive relationship with without direction learning style and had negative relationship with meaning orientation, recreation-oriented and application-oriented learning styles **11.** Being conscientiousness personality trait had direct and positive relationship with recreational-oriented and application-oriented learning styles.
Alfred.[16]	2003	324	Analytical	Germany	**12.** There was a significant difference between feeling-touch learning style with friendly-communication learning style and between sensory thinking learning style with imprinting, being cheerful and mastering communication style. **13.** There was significant difference between intuitive feeling learning styles with illustration and being freedom communication styles and learning styles and intuitive thinking learning style with decisive and compassionate communication styles. **14.** The results also showed that there was no significant difference between learning styles and class atmosphere.
Linares.[17]	1999	629	Cross-Sectional	Turkey	**15.** There were significant difference in learning style between students and professor. **16.** The convergent style was the dominant learning style for everyone
Azizi and colleagues.[18]	2001	All medical students	Cross-sectional	Qazvin	**17.** Distribution of learning styles among students include: assimilating (41.3%), convergent (38.1%), divergent (9.6%) and accommodation (9.2%). **18.** there is a significant relationship between type of learning style and students' educational grade so the most learning styles between fundamental science students was assimilating, while at the clinical grade students the converging, style overcame to other styles.
Ranjbar and Ismaili.[19]	2007	All students of Nursing and Midwifery faculty	Cross-Sectional	Torbat heidarie	**19.** Among the tested samples 11.8% had convergent styles, 17.6% had divergent styles, 3.5% had assimilating style and 67.1% had accommodative style. **20.** The prevailing style among students was accommodative style (86%) and between midwifery students was converged style (40%).
Najafi Koliani et al.[20]	2009	All Fasa students University of Medical Sciences	Cross-sectional	Fasa	**21.** Most students learning style was convergent style (38.3%) and then assimilating learning style was the second (29.9%). **22.** also 18.6% had divergent learning style and 13.2% had accommodative learning styles **23.** The most frequent favorite teaching method was group discussion.

Peyman and colleagues.[21]	2011	50 students of nursing and midwifery course	Descriptive - analytical	Ilam	**24**. 44% of student's preferred just one learning style and 56% preferred multi-learning style.
Azadmanesh and colleagues.[22]	2013	242 nursing and midwifery students	Descriptive and correlational	Qazvin	**25.** The average raw score of movement, auditory, reading and writing and visual style is 2.63±5.16, 2.55±5.76, 2.67±6.15 and 2.34±4.36 respectively. There was significant relationship between gender and educational grade with all learning styles. Marital status had significant relationship with reading-writing style. Educational grade had a significant relationship with visual-motor and movement style.
Sarchami and Hussain.[23]	2004	All nursing students	Sectional	Qazvin	**26.** 53.8% of students had assimilating learning style, 28.9% had converging style, and 11.2% had divergent style and 6.1% accommodating style.
Rashidi jahan et al.[24]		180 students of University of baghiatollah Medical Sciences	Sectional	Tehran	**27.** Dominant learning styles were divergent (76.6 %), consistent (12.8%), assimilation (7.8%) and convergent (2.8%). **28.** Some factors such as age, sex, location of living, parents' education, grade and educational grade can be effective in determining the learning styles dimension of students.
Kalbasi and colleagues.[25]	2009	All medical students	Descriptive	Birjand	**29.** Students learning styles, 52% was converge, 28.6% was assimilating, 9.7% was divergent% and 9.7% was accommodative.
shafiean and colleagues.[26]	2012-2013	33	Descriptive cross-sectional study	Kerman	**30.** Most students (44.3%) had assimilate learning style. The results of the predicting learning styles showed that only prediction factor in determining the learning styles.
Popzan and colleagues.[27]	2010	324 students of Razi University	case	Kermanshah	**31.** Students in terms of learning steps and styles didn't have statistically significantly different, but the superior learning style was convergent.
Panahi and colleagues.[28]	2010	500 high school students	Correlation	Eghlid	**32.** Qualified participants of divergent and assimilating learning style had better academic performance than the participants with converging and accommodating styles. Boys benefit more from divergent learning style while girls' preferred learning style is assimilating. There was no significant relationship between learning styles and academic disciplines.

CONCLUSION

People fit to their individual differences use from different styles to learn to.[29,30] Identifying affecting factors contributing to the attainment of learning is one of the important matters of researchers and learning styles is one of the affecting factors in data processing habits.[31] Learning styles, cognitive and emotional characteristics and physiological behaviors that relatively stable indicate how to understand, react and respond to the learning environment.[32] More supportive studies are perspective that if student's learning fit with way teachers teach, reinforce learning motivation and academic achievement will be better.[33] Also according to the results of research, there was relationship between different students' learning styles and group discussion teaching methods, and demonstration method and tend teaching and group discussion was getting more and more.[34, 35,36] Since learning requires a lot of communication and information, professors need to regard such matter using a variety of teaching methods to strengthen and increase learner's ability.

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Effect of Drying and Cooking Processing on Heavy Metals (Lead, Zinc and Cadmium) Levels of Vegetables

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ABSTRACT

High concentration of nitrogen, lead, cadmium and copper has been seen in leafy vegetables because of Municipal and industrial waste water and outstanding use of chemical fertilizers and manure and it can be dangerous for human health. Leafy vegetables have the ability to absorb and reserve these elements. The aim of the present study is to determine the amount of lead, zinc and cadmium in samples of raw vegetables, basil, parsley and mint in Tehran (2013). This is a cross-sectional study. Vegetables were produced in center of Tehran. To prepare the vegetables, wash them first and then encoded them and the concentration of their heavy metals were measured by atomic absorption spectrophotometer model young lin AAS8020. Data Analysis was performed by using SPSS.Ver.14 software and charting at 5% level and Excel 2003 and 2007.The Average values for heavy metals in vegetables in Tehran were as follows:Pb (0.4) Zn (4.09) and Cd (0.00067). Contamination of crops in industrial areas was more in comparison with away areas. Lead and cadmium are heavy metals elements that caused contamination. And their Damage to agriculture products was much higher than the zinc. Zincs average in vegetables was higher than the international standard of FAO.

***Keywords**: Heavy Metals, Vegetables, Cooking, Drying*

INTRODUCTION

One of the effective factors of human health is consuming safety food with good quality and quantity.[1-8] Vegetables are high value foods which contain various vitamins and nutrient.[9] Many people consumed them. Therefore theirs safety is very important due to their high consumption. Vegetables are important part of safety and proper diet and different studies during past years showed that safety vegetables consumption could prevent cardiovascular and some gastrointestinal tract cancer.[10-12] Wide dispersion of chemical in the environment, provide a chance for them to enter the food chain. Most of them are toxic, accumulative, carcinogenic, and mutagenic and some of them have dejected formation property. Among the chemical which mentioned above, we can refer to the heavy metals. Metals such as Cadmium(Cd), Chromium(Cr), Zinc(Zn), Lead(Pb), Mercury(Hg) and Nickel(Ni) are consider as material which enter the environment in various ways and could enter the human body in different form.[11] One of the adverse effect of industrialization is human's consumption of various chemicals deliberately or accidentally which causes deadly and dangerous poisoning. Many researchers

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consider Lead and Cadmium as heavy metals which their existence in environment is very dangerous and catastrophic. Recently various studies have been done about acute and chronic poisoning which caused by food and water contamination and identifying these factors which are increasing regularly is very important. [13] Heavy metals are the main dangerous pollutants which exist in earth's crust and sediments. Some of the heavy metals such as Zinc, Nickel and Cooper are consider as an essential elements because they make some part of pigments and enzyme compound and they are toxic only at higher concentration of plants physiological needs.[14] But some other heavy metals such as tin and lead which are not consider as essential metals, even at low concentration have toxic effect on plants. Because of this heavy metals are consider dangerous for plans.[15-17] Cadmium elements have an atomic weight of 112.4, melting point of 321° C and its boiling point is 767°C. This metal enter the environment through activities such as metal mining, metal industry, chemical industry, super phosphate fertilizers, pesticides containing cadmium and production of metal alloys, batteries. Cadmium used have increased in the twentieth century and in recent 20-30 years, it have reached its peak. Cadmium changed the Relative distribution of zinc in the body.[18] The acute toxicity of these metal have symptoms such as nausea, diarrhea, severe headache, muscle and abdominal pain, increased salivation, shock, liver damage and kidney failure.[19] In workers who exposed to dust which contain cadmium have complications such as bronchitis, emphysema, anemia and kidney stones.[19] FAO has announced allowable amount of cadmium in put for body, weekly 0.4-0.6mg for each person.[20] The raw waters typically have less than 1 μg/l cadmium.[21] Lead is another heavy metal that enters the environment by humans in different ways. Activities such as munitions, casting, paint, leaded gasoline, sealing seams of pipes, cables supplying coating, melting and fusion agriculture as lead arsenate, lead battery manufacturing, production of brass alloys, combustion of gasoline lead bearing in motor vehicles, etc. The half-life of lead in blood, soft tissue and bone is respectively 2-4 weeks, 4 weeks and 27.5 years.[21] This matter is known as a metabolic poison. Lead poisoning symptoms include fatigue, lethargy, abdominal discomfort and anemia is mild. Higher than 400 μg/l of lead in children's blood can cause mental retardation. Leads acute poisoning symptoms is gastro intestinal system inflammation, kidneys and brain swelling degeneration.[6] FAO and WHO (1972) overview

stated 4 mg of lead absorption for each individual. Lead threshold for food is 2.56 mg/kg .[15, 22] Lead average in surface water and ground water has been reported 0.1 ml/l.[23, 24] Atomic number of zinc is 30. Due to its effective enzyme activity and protein production, it considers an essential element for human survival.[25] This study aimed to assess the amount of heavy metals in vegetables in Tehran.

MATERIAL & METHOD

This is descriptive – analytical study. The Experiments have done based on the factorial in the form of randomized complete block with 9 treatments in 3 replicates. In this experiment, three kinds of vegetables are used mint, parsley and basil. Regarding to the research and studies which have done in the west and center of Tehran from stores and trade people and department stores, the consuming vegetables in downtown of Tehran was prepared from the surrounding farms of cemetery in Galeh Gabryregion. By referring to these farms, 30kg of each vegetable were prepared and all the Vegetables were cleaned in a way that is suitable for human consumption. Vegetables were washed with water several times in order to cleaned its dusts. The vegetables are rinsed with distilled water.Then9repsofeachtype of vegetable (3 to 3) has been prepared.From these 9 rep, 3 number were used as the average. In this study, the effect of the cooking process and drying have been investigated in the amount of Pb, Zn and Cd.Therefore, Test conditions in each process inanition to the normal condition are as follows: in this process each type of vegetables were prepared and the amount of 500 gram of them were measured by scale and also Amounts of Pb, Zn and Cd were measured by atomic absorption spectrophotometer.In the process of preparing vegetables the amount of 1000 g have measured on scale and has been cooked at a temperature of 74°C and the amount of Zn, Pb and cd were measured by atomic absorption spectrophotometer.1000 g of the prepared vegetables dry in a home dryer and the amounts of Pb, Zn and Cd were measured by atomic absorption spectrophotometer. In this process from each type of prepared vegetable500 gram were analyzed by scale in the -18°c and surveyed at the period time of 1, 14, 30, 60, 90 days and the amounts of Pb, Zn and Cd were measured by atomic absorption spectrophotometer. The Data analyzed by using SPSS software model14 at the 5% level. Graphing was performed with excel 2003 and 2007.

RESULTS

The results analysis of variance showed significant differences at the 5% level between the different methods of the metals and parsley (Table 1). The method of cooking showed the lowest amount of lead in parsley. The highest rate was found in parsley at the drying method. Due to the lack of results obtained in the method of cooking, the maximum amount of cadmium was in drying method. The results of drying method on all three elements (lead, zinc and cadmium) have the greatest impact on the amount of these elements in parsley which collected from the central part of Tehran's (Figure1).

Table1: Comparison of various treatment means (normal, cooking and drying) them out of the parsley, mint and basil (capital Tehran).

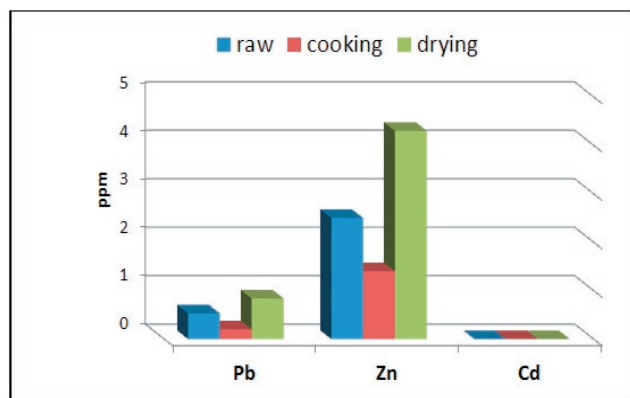| Raw vegetables	Method	Cd (ppm)	Pb (ppm)	Zn (ppm)
	Raw sample	0	3.5	0.53
parsley	Cooking	0	1.4	0.2
	drying	0	4.3	0.84
	significant	-	71.056	371.078
	Raw sample	0	6.3	0.6
mint	Cooking	0	3.4	0.4
	drying	0	6.9	2
	significant	-	37.625	43.212
	Raw sample	0	4	0.4
Basil	Cooking	0	3.1	0.2
	drying	0	4.5	2
	significant	-	31.75	222.712

Figure 1: Effect of different methods on the metals in parsley

The results analysis of variance showed significant difference sat the 5% level of engagement metals in mint. Most of the dry method is obtained from cadmium is used in samples (Figure 2).
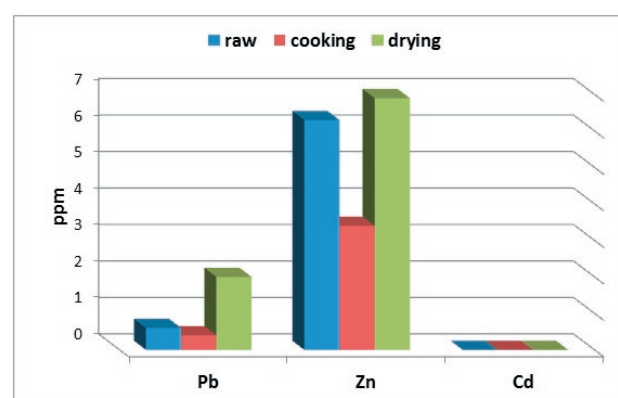

Figure 2: Effect of different methods on the metal mint plant

In this experiment, the analysis results of variance between the methods used at the 5% level is significant. Highest of the lead was in the drying method (2.083 ppm) and the lowest amount of lead was in the cooking method (0.133 ppm) (Figure 3).
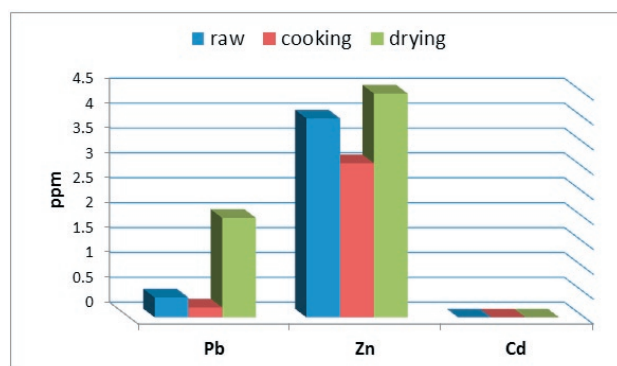
Figure 3: Effect of different methods on the metal basil

DISCUSSION

According to the results the highest level of lead was in the drying method. The lowest level of Pb in parsley had seen in the cooking method. The highest and lowest level of Zn was obtained from drying method. According to the lack of results in cooking method, the highest level of Cd was obtained from drying method. In all cases Pb, Zn and Cd have been reduced by cooking in each of parsley, basil and mint in downtown of Tehran. In all cases, Pb, Zn and Cd have been increased by drying in each of parsley, basil and mint in downtown of Tehran. In most cases through three months the heavy metals have been increased. The results of this study are consistent with other studies for different measuring method of element in plants. Shia et al(2009), in evaluating the amount of heavy elements in cannabis by drying methods found that drying method caused the reduction of Cd in the cannabis plant.[26] In experiments which have done by Ghaderian et al (2007) and using cooking and drying method on plants in Iran kooh region, it have been revealed that the plants accumulated, relatively high amounts of Pb and Zn in themselves.[27] Many researchers in 1977 Imbamba reported that the best way of measurement for fresh and ripe vegetables and fruits is cooking .[28] Sreeramulua et al (1983) reported that in cooking method the vitamin C has been reduced; therefore this method is very accurate for measuring the level of heavy metals .[29]

CONCLUSIONS

Medicinal plants (MPs) continue to play a central role in the healthcare system of large proportions of the world's population. Trace element plays an important role in chemical, biological, metabolic, and enzymatic reactions in the living cells of plants, animals and human beings.

Conflict of Interest - The authors declare no conflict of interest.

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The Feasibility of Hospital Information System for the Establishment of Evidence based Medicine in the Affiliated Hospitals in Kermanshah University of Medical Sciences

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ABSTRACT

The aim of study is the feasibility of hospital information system for establishment of evidence-based medicine in affiliated hospital to Kermanshah University of Medical Sciences in 2016. The statistical population was all the specialist and head nurses (46 head nurses and 34 specialists) of Kermanshah University of Medical Sciences. The sampling has done with parabolic random method. Data collection has done with a questionnaire, which its validity have estimated, by the specialist. The data have analyzed descriptive statistical test and t-test by using SPSS ver.20 software. The result sowed that no significant difference between the average score acquisition of accessing to EBM database with hypothetical average (P>0.05). In addition, there was a statistically significant difference between the hospitals data system condition average score (P=0.02). Based on the results of this study there was statistically significant difference between the applicability of providing cultural field of using the EBM average score and hypothetical average and the average score of the applicability for providing cultural use of the EBM was more than the hypothetical average (P<0.001). The affiliated hospitals to Kermanshah University of Medical Sciences have proper condition in terms of accessing to the reference data bank, hospital information system and the existence of EBM cultural infrastructure. However, the condition of accessing to the database was not desirable, therefore, providing possibility for accessing the EBM database have suggested.

Keywords: Hospital information system, Evidence based medicine, Kermanshah.

INTRODUCTION

Most of the clinical questions do not have a certain answer, while the doctors have prepared the treatment scenario from their experiences. However, the patients have expected the best treatment from their doctors.[1] Evidence based medicine (EBM) is a wise and correct way of using the existence evidence for clinical decisions[2] in a way that it have define as judgment based on the patients' needs and validated scientific results.[3] Nowadays the EBM is reliable as an approach that improves the patient's care.[4, 5, 6] Despite the fact, that knowledge and the related skills with EBM are the important factors of using it [7] the study have showed that the doctors have a little cognition of EBM and do not interested in it. [2, 8] The knowledge and skills of using the EBM approach is in a low level and half of the intervention in selected educational hospitals have not based on the validated scientific evidence. [9, 10] Some older studies have represent that only 20% of the medical interventions were consistent with validated scientific evidences [11] while the studies have showed that the medical interventions have based on the validated scientific evidence and have increased the patients recovery rate. [6, 12, 13] Lack of knowledge and insufficient skill for using the EBM [14, 15], time limitation.[16] For overcoming it, implementation of short-term educational plan based on the evidences have suggested. [17] Some others consider the applicable

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knowledge, clinical experiences, and proper clinical educational environment as an effective factor in clinical decisions.[18] Someone, also, have represent that the scientific data evidences have edited by researchers which was not the results of the specialists clinical experiences and implementing it in performing stage have faced with many problems.[19]

There was not enough and valid evidence for decisions.[20, 21] For implementing EBM, necessary to asking the questions, which have obvious answers, searching for the best evidence, critically evaluation of evidence, and implementing the evidence for the person with particular disease. [22] These four steps have presented by six operational region including the references data books, particular case information and conceptions, clinical and executive data storage, supportive clinical and hygienic information based on the internet. [23, 24]

The EBM is an important part of the recent efforts for reforming the medical system, [25] but for the establishment, its infrastructures evaluation is necessary.[23, 25] Some doctors do not use EBM, because they believe that it would hinder the creativity in treatment. [26] The Safari Study's results include three main themes: lack of knowledge and use, conscious and unconscious use and believe. [27] The EBM performance, the time and facilities deficiency and lack of mastering on researching method.[28] Some study have found that some infrastructural and performance failure for using the EBM. [29] The effective factors in nursing student's clinical decisions as, the efficient clinical trainer, applicable knowledge acquisition, clinical experiences, proper clinical educational environment and having professional self-confidence.[30] Hung et al. (2013) have found that when the systematic data have provided, the EBC could have considered as a process for promotion of patients clinical and safety services quality.[31]

The results of a study have showed that the cultural field for accepting the management implementation based on the evidence was approximately ready but some executive infrastructures have not existed.[32] The doctors with high knowledge of EBM have higher care quality.[33] According to the previous studies EBM have identified as a necessity. The aim of this study is feasibility of hospital information system for establishment of EBM in affiliated hospitals to Kermanshah University of Medical Sciences.

MATERIALS AND METHOD

The statistical population of the study includes all the specialist and head nurses of various awards in affiliated hospitals to Kermanshah University of Medical Sciences. The sampling has done by parabolic random method. First, the numbers of specialist and head nurses of various awards of hospitals in the city have calculated. Then with the proportional of statistical population and statistical samples, a parabolic has given to each hospital randomly.

In this research the data collection, have done with the use of questionnaires. The content validity of this questionnaire have validated by the expert of medical and hygienic data management and medical society majors which have expertise in EBM field and some of the related experts with EBM executive in Imam Ali educational hospital of Kermanshah. The reliability of the questionnaire have calculated by internal consistency coefficient and Cronbachs alpha of 0.81. The first part of the questionnaire have related to the demographic information of participants. The second part includes 45 questions in Likert scale (totally agree= 5, totally disagree=1).

Finally, the obtained data from the questionnaire have entered the SPSS ver.20 software and by the use of descriptive statistics (frequency, mean, and standard deviation) have presented in descriptive tables. In addition after evaluating the normality, the test have used for the comparison of the averages with the hypothetical averages.

RESULTS

The results have showed that among 80 person participant in the study 49 person (55%) were woman and 36 person (45%) were man. 46 person (57.5%) were head nurses and 31 person were specialist and 3 person were post specialist. Among the doctors, the highest number was related to anesthesia specialist (Table1).

Table1. The doctors and accessibility rate to the references data banks

Databases	Rate of access						
	Always	Mostly	Sometimes	Rarely	Never	Mean	S.D
Digital library	18(22.5%)	33(41.2%)	16(20%)	9(11.2%)	4(5%)	3.65	1.1
Prestigious databases information	15(18.8%)	40(50%)	13(16.2%)	10(12.5%)	2(2.5%)	3.7	0.998
Portal of references electronic of the Ministry of Health	16(20%)	22(27.5%)	32(40%)	5(6.2%)	5(6.2%)	3.48	1.07
Website of the Universities of Medical Sciences	19(23.8%)	38(47.5%)	16(20%)	6(7.5%)	1(1.2%)	3.85	0.915
Medline	15(18.8%)	33(41.2%)	18(22.5%)	11(13.8%)	3(3.8%)	3.57	1.06
Prestigious medical journals	14(17.5%)	29(36.2%)	24(30%)	10(12.5%)	3(3.8%)	3.51	1.04
Support system of clinical decision	13(16.2%)	28(35%)	17(21.2%)	13(16.2%)	9(11.2%)	3.28	1.24

Based on the related results with infrastructure criterion of EBM needs, in terms of hospital information system, the highest score was for the existence of hospital information system in clinical awards and the lowest score have related to the possibility of the validity for virtue educational system (table 2).

Table 2. The providing rate of public culture for using the EBM from the nurses and doctors point of view

Cultural aspects	The availability of public culture of EBM						
	Quite agree	Agree	No idea	Disagree	Quite disagree	Mean	S.D
Difficulty in meeting patient expectations	24(30%)	44(55%)	7(8.8%)	4(5%)	1(1.3%)	4.07	0.83
The time limit in execution	20(25%)	41(51.3%)	13(16.3%)	5(6.3%)	1(1.3%)	3.92	0.86
Lack of belief in the existence reliable evidence	14(17.5%)	28(35%)	25(31.3%)	11(13.8%)	2 (2.5%)	3.51	1.01
Lack of belief in the accessibility of reliable evidence	17(21.3%)	32(40%)	27(33.8%)	3(3.8%)	1(1.3%)	3.76	0.87

As it have noted in table 3 there was significant difference between the average score of Access to reference database, situation Hospital Information System, availability of the cultural field of EMB, but about Access to medical databases based medicine no significant observed.

Table 3. Comparison of the doctors and nurses respond to the study's variables average and hypothetical average

Investigated variables	Mean difference	t	P
Access to reference database	4.06	5.64	0.001
Access to medical databases based medicine	1.27	1.27	0.2
The situation Hospital Information System	2.67	2.29	0.02
The availability of the cultural field of EMB	4.26	10.72	0.001

DISCUSSION

As it have showed in descriptive results, Among the retail criteria, which was related to accessibility rate to related database with EBM, the highest score was related to accessibility to Ovid database and the least score was related to accessibility to Bandolier database. This result is consistent with Mostfaie and Safari study [32] and not consistent with a study, which represent that the references books are the most important source of data.[30]

Based on the results that have related to criterion, which is need for EBM. This result is consistent with Rangraz-jedi et al. showed that accessibility to the clinical decision supportive system.[17]

In addition to it, the results which are related to the criteria of EBM from cultural dimension have represent that, the difficulty of meeting the patients expectation with the average score was the highest average score and believing to the lack of valid evidence in many medical field have the least average score. These findings are consistent with study, which showed that there are many obstacles including lack of master, and time deficiency for the evidence based medicin.[29] In addition; the results are consistent study's results, which considered the five efficient clinical experience proper, clinical educational environment and having professional self-confidence variables as the effective factors for clinical decisions of nursing students. [30] In addition, the study is consistent with Hung et al. (2013) study, which the clinical judgments have related to three factors of attitude, mental criterion and conscious behavior control. These three factors have affected by evidence, interpersonal effects, individuals creativity in using information technology and self-efficiency. [31]

In relation of accessing to the references database, there was a statistically significant difference between the average score of accessibility to reference data book and 31 hypothetical average score and the average score of accessibility to the reference data book. This result is consistent with Rangraz-jedi et al. (2013) ,[17] Safari and Mostfaie studies. [32] In addition, it is not consistent with Ghojazadeh et al. (2012) which represent the references books as the most important source of data acquisition.[28]

In conjunction with, accessibility to the EBM database condition, based on the t-test results, there was not any significant difference between the average of the accessing to EBM database with 27 hypothetical average (P>0.05). This result is consistent with Safari, AliKhani, and Safari (2016) study's result.[29]

In relation with condition of hospital information system (HIS), there was a significant difference between the infrastructural conditions. This result is consistent with Safari, Alikhani and Safari (2016), Rangrazjedi et al. (2013) and Hung et al (2012) studies, which showed that, when the systematic data have presented, the EBM could have consider as a process for the hospitals clinics services and patients safety quality promotion.[29, 17, 31]

In addition, the results are consistent with the clinical judgment, which have related to three factors of attitude, mental criterion and conscious behavior control. These three factors have affected by ease of using evidences, interpersonal effects, individual's creativity in using information technology and self-efficiency. [31]

In conjunction with providing cultural field, there was statistically a significant difference between the applicability of providing cultural infrastructure. This result is consistent with Safari (2015) study.[27] In addition, it is consistent with Ghojazadeh et al. [28], Alikhani and Safari,[29] Sharif et al. (2010),[30] Hung et al. (2013),[31] Safari and Mostfaie (2016), [32] and Shuval et al. (2008) study's results which showed that the doctors who have high knowledge level of EBM have higher care quality.[33]

CONCLUSIONS

According to the results of this study, the accessibility to the EBM database condition is not proper in the hospitals of Kermanshah, which this fact according to the importance of EBM establishment in helping the diagnosing and treatment process needs the authorities for buying and accessing to the EBM database. In order to providing the facilities and removing the obstacles, the condition of the proper infrastructure for using EBM and its establishment have created.

Conflict of Interest - The authors declare no conflict of interest.

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Management of Drinking Water Consumption at Home: A Case Study of Knowledge and Attitude Evaluation -Kermanshah, Iran (2015)

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ABSTRACT

This study aimed to assess the knowledge and attitudes of people in relation to the proper management of water consumption at home and offer solutions to possible problems in the city of Kermanshah in 2015. For this cross-sectional study, we initially developed a questionnaire and then selected people in Kermanshah as the target population. We determined a region of Kermanshah using cluster sampling selected 120 people (60 males and 60 females) from the area randomly. The results were analyzed by SPSS software and using two group independent samples T-test and one-way ANOVA at a significance level. The knowledge of the studied population, depending on the residence type, occupation and education level was significantly different ($P<0.05$), but no significant difference was observed among the gender and age groups ($Pl>0.05$). The attitudes of the participants based on the residence type, occupation, education level and age group had a significant difference ($P<0.05$) but no significant difference was reported for the variable occupation ($P>0.05$). According to the results, we conclude that the studied population despite the good level of knowledge and attitude failed to implement them in practice. To solve this problem, we recommend designing and implementing a training program particularly through the media and responsible organizations considering the influence of parameters such as the residence type, gender and age group.

Keywords: *Knowledge, Attitude, Consumption Management, Drinking Water, residence, Kermanshah*

INTRODUCTION

Water shortage in Iran is one of the main limiting factors of economic development in the coming decades.[1-4] Unfortunately, the culture of drinking water consumption has not established so far in Iran.[5-7] Therefore, we regard the favorable balance between the water supply and demand as an essential principle for the country. Establishment of a comprehensive water management system is the only way to achieve the desired balance.[8] So far, the measures taken in relation to agricultural, urban and industrial water supply have been remained over focused on production management, while water supply and demand management has attracted much less attention.[9] Water is considered a socio-economic good and a basic human need in the new world. It is a renewable resource, but also limited. Due to population growth, industrial development and health and welfare optimization, the total renewable water resources per capita are decreasing.[10]Iran with the average precipitation of 260 mm per year and limited water resources lies in arid and semi-arid zones. Factors such as population growth, growing need for food, improving health and social welfare, developing industries and protecting ecosystems escalate water demand day by day.[11] In dry years, the country faces water shortages and crisis which may result in not only economic losses, but also socio-political tensions and public health issues.[12,13] Experiences showed that

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developing educational and motivational strategies and policies in residential, public, commercial and industrial sectors of cities and villages may be regarded as a viable solution to promote management of water resources in communities.[13] Since the society lacks incentives to reduce water use, launching awareness, sensitization and training programs for people to improve their knowledge and attitudes may provide support in enforcing proper policies and rationalizing the use of water resources in the country.[14] The implementation of a training program for each specific community requires an initial assessment of its knowledge. Therefore, our study's goal was to evaluate the knowledge and attitudes of people in relation to the proper management of water consumption at home and suggest solutions to possible problems in the city of Kermanshah in 2015.

MATERIALS & METHOD

The first step to conduct this cross-sectional study was survey questionnaire development. We determined citizens of Kermanshah as our target population and specified an area of the city using cluster sampling method, considering earlier studies and the target population. Then we randomized 120 people (60 men and 60 women) from the area. Fifty percent of respondents had administrative jobs and the rest of them were self-employed. Each designated education group comprised 25% of the individuals. We evaluated the validity of the questionnaire by using content assessment and presenting the questionnaire to 10 faculty members of

the School of Public Health to examine the conformity of questions related to knowledge and attitude with the study's objectives. To assess the reliability of the questionnaire we used test-retest reliability method and Pearson's correlation coefficient. Pearson correlation coefficients for questions of knowledge and attitude were 8.0 and 7.0, respectively. The questionnaire comprised of three sections: 1) the demographic data; 2) twenty five questions concerning the respondents' knowledge with 1 point value assigned to each; 3) twenty five questions concerning the respondents' attitudes, the answers of which categorized into 4 groups of "no", "low", "average" and "high" with 0, 1, 2 and 3 point values for each. The raw results was analyzed by SPSS software version 16.

RESULTS

The demographic data of the respondents are presented in Table 1. Table 2 shows the maximum scores for knowledge in each component regarding to optimal management of drinking water consumption at home. Table 3 present the relationship between the average scores for general knowledge and gender, residence, occupation, education level and age. Table 4 contains the maximum scores for attitudes towards optimal management of drinking water consumption at home in the corresponding components. Table 5 present the relationship between the average scores of general attitudes and gender, residence, occupation, education level and age.

Tables 1. Demographicinformationrelated to the respondent

Frequency		Variables	
Percent	**Number**		
50	60	Man	Sex
50	60	Women	
52.5	63	Single-family house	Type of house
47.5	57	Apartment house	
52.5	63	Office employees	Job
47.5	57	Self-employed and housewives	
25	30	Primary and secondary	Education
25	30	High school and diploma	
25	30	Associate Degree and Bachelor's Degree	
25	30	Masters and Ph.D	
5.8	7	1-20	Age groups (years)
60.8	73	21-40	
27.5	33	41-60	
5.8	7	>60	

Table 2.Achieved maximum score and knowledge level for each items

| knowledge level | Knowledge | | No. Item |
	Achieved score (Achieved maximum)	Items	
Good	3.35 (5)	Knowledge about drought and low water and other concepts related to water crisis	1
Good	1.4(2)	Knowledge about practical solutions to reduce water consumption at home with proper maintenance of valves, connectors, water storage tanks and the water meter	2
Good	1.26(2)	Knowledge about organization responsible for supplying drinking water and related problems	3
Good	3.53(5)	Knowledge about practical ways of reducing water consumption in homes while doing individual tasks such as bathing, ablution, toilets, brush, etc.	4
Good	1.6(3)	Knowledge about practical ways of reducing water consumption in homes in they are washing, garden irrigation, car washing, washing of carpets and blankets	5
Good	3.58(6)	Knowledge about practical solutions for reducing water consumption in the home by washing machines, dishwashers, air conditioners	6
Good	1.43(2)	Other ways to reduce water consumption in the home, including education through the media and increase the price of water	7

Table 3. The overall knowledge of responders in relation to management of drinking water consumption at home based on the investigated variables

Overall Attitude			
P	Mean±S.D	Variables	
0.365	15.85±4.31	Man	Sex
	16.50±3.49	Women	
0.0481	18.84±3.32	Single-family house	Type of house
	15.43±4.4	Apartment house	
0.0395	19.66±4.06	Office employees	Job
	15.63±3.72	Self-employed and housewives	
0.001>	12.90±3.71	Primary and secondary	Education
	16.61±4.34	High school and diploma	
	18.16±2.34	Associate Degree and Bachelor's Degree	
	17.46±2.84	Masters and Ph.D	
0.766	16.85±3.67	1-20	Age groups (years)
	16.39±3.95	21-40	
	15.66±4.13	41-60	
	15.57±3.10	>60	

Table 4. Achieved maximum score and Attitude level for each items

| Attitude level | Attitude | | |
	Achieved score (Achieved maximum)	Items	No. Item
Very Good	14.14(18)	Attitude about practical solutions to reduce water consumption at home with proper maintenance of valves, connectors, water storage tanks and the water meter and also ,installation of valves for reducing of water consumption	1
Good	10.75(15)	Attitude about practical ways of reducing water consumption in homes while doing individual tasks such as bathing, ablution, toilets, brush, etc.	2
Very Good	13.5(18)	Attitude about practical ways of reducing water consumption in homes in they are washing, garden irrigation, car washing, washing of carpets and blankets	3
Very Good	9.34(12)	Attitude about practical solutions for reducing water consumption in the home by washing machines, dishwashers, air conditioners	4
Good	8.87(12)	Other ways to reduce water consumption in the home, including education through the media and increase the price of water	5

Table 5. Theoverall Attitude of responders in relation to management of drinking water consumption at home based on the investigated variables

Overall Knowledge			
P	Mean±S.D	variables	
0.251	56.06±5.44	Man	Sex
	57.15±4.83	Women	
0.041	59.44±4.72	Single-family house	Type of house
	55.74±5.47	Apartment house	
0.046	60.96±4.8	Office employees	Job
	55.25±5.45	Self-employed and housewives	
0.007	51.8±4.42	Primary and secondary	Education
	52.66±5.67	High school and diploma	
	64.52±5.92	Associate Degree and Bachelor's Degree	
	63.11±7.18	Masters and Ph.D	
0.026	53.71±8.19	1-20	Age groups (years)
	54.93±4.96	21-40	
	63.42±5.54	41-60	
	56.1±2.29	>60	

DISCUSSION

Considering the results of the study, we may conclude that the average knowledge of people in Kermanshah on optimal management of drinking water consumption at home in terms of parameters such as type of residence, occupation and education level shows a significant difference. People who lived in houses were more aware than those who inhabited in apartments. The knowledge of people with administrative jobs was more compared to the self-employed people and housewives. In addition, the knowledge of people with associate or bachelor's degrees exceeded that of those with primary and

secondary, high school, master's or doctoral degrees. No significant relationship was revealed between knowledge levels and gender or age. The knowledge of the studied population in all corresponding components was at a good level. The average attitudes of the participants differed in terms of parameters such as type of residence, occupation, education level and age groups. People who lived in houses has a different attitudes compared to the inhabitants of apartments. This might be resulted from the increased tariff prices for residents of houses with a single water meter, which makes them more sensitive to optimal management of drinking water consumption at home and improving their knowledge and attitudes towards it (e.g. by searching for practical ways to reduce water use at home with proper maintenance of valves, fittings, water storage tanks and water meters and installing water pressure reducing valves.[15, 16] The higher levels of attitudes in employees compared to the self-employed people or housewives might be because of the educational and awareness programs on saving energy resources such as water provided for them at their work places.[15] The higher levels of attitudes in people with associate or bachelor's degrees compared to those with primary and secondary, high school, master's or doctoral degrees might be rooted in the fact that the latter has less time to follow educational and awareness programs on this field or does not care about water use management due to financial prosperity unlike the former.[15, 17] People in the 41-60 age group had higher attitudes towards optimal management of drinking water consumption at home. It might be justified by less educational and awareness programs for youth on water use management and low sensitivity of them to it.[18] The attitudes of people in Kermanshah towards optimal management of drinking water consumption at home had no significant difference in terms of gender, which emphasizes its identical importance for both men and women in this city.[15, 18] The results showed that the studied individuals benefited from "good" attitudes for some components (e.g. searching for practical ways to reduce water consumption in home when bathing, ablating, using bathroom, brushing teeth and by learning through media) and "very good" attitudes for some others (e.g. searching for practical ways to reduce water consumption in home with proper maintenance of valves, fittings, water storage tanks, water meter and installing water pressure reducing valves, when washing the yard, cars, carpets and blankets, watering the garden and using washing machines, dishwashers and air

conditioners). Olsen (1984) conducted a similar study to assess the acceptability of water conservation program among the residents of the city of San Antonio.[19] Lant (1994) in his study on acceptability of 12 possible water conservation programs for the city of Springfield among 2,700 water consumers and the relationship between demographic and attitudinal factors and accepting the principle of water conservation (the self-defined acceptability index of water conservation plans for each person) showed that the aforementioned index correlates with people's attitudes towards the importance of water conservation. It also depends on other factors such as age and income.[20] Badii (2001) conducted a research on the association between knowledge, attitudes and behavior of citizens of Tehran in relation to water shortage and water conservation aimed to examine the successfulness of encouraging people to conserve water and changing knowledge and attitudes towards water consumption. He examined the impact of economic, social and cultural knowledge of water shortage and attitudes of citizens on water conservation and concluded that Tehran province water and Wastewater Company failed to change people's attitudes towards water conservation. In addition, the results of this study revealed that water conservation is affected by age, gender and educational messages on TV, while other components such as education, marital status and spending time on watching TV or reading the newspaper don't have any impact on it. Badei regarded water conservation practices dependent on different attitudes and recommended that educational messages on TV should create positive attitudes in audience.[21] The results of his research resembled the results of the present study in relation to some components and differed from them in relation to some others.

CONCLUSION

According to the findings, we conclude that the studied population despite the good level of knowledge and attitude failed to implement them in practice. To solve this problem, we recommend designing and implementing a training program particularly through the media and responsible organizations considering the influence of parameters such as the residence type, gender and age group.

Conflict of Interest - The authors declare no conflict of interest.

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