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Nutritional Status of Children Coming to the OPD of Nalanda Medical College & Hospital, Patna, Bihar

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ABSTRACT

Setting- Patients coming to OPD of NMCH, 1-5 year-old children

Duration- During January 2014 to December 2014 among patients attending paediatric OPD of 410 children of 1-5-year age

Results - Among 390 children, 44% (171 /390) children were found to be underweight. IAP classification showed that 29.23% had Grade-I malnutrition, whereas 6.93%, 4.87% and 2.82% had Grade II, III and IV malnutrition. Overall 40.5% (158/390) of the children were stunted with 24.35%, 11.28% and 4.87% showing mild, moderate and severe stunting. Chances of being underweight decreased as the mother's age increased, 87.90% where mother's age was <20 years, whereas it was 47.93%, 37.25% , 38.75%,30.76% and 25% for the age groups 21-25, 26-30, 30-35,35-40 and >40 years. Similarly,prevalence of stunting also decreased with increasing mother's age, i.e. it was 74.19%, 42.97% , 40.19%,31.25%,30.76% and 25.00% in the same age group. Mother's education was inversely related to the prevalence of stunting, as it was lowest (34.5%) where schooling was more than high school as compared to prevalence of 62.25% where mother was illiterate. Mother's engagement in occupation adversely affected child's growth 58.97% were stunted (employed) as compared to prevalence of 44.8% (housewife).

Conclusion - There is a strong need for educating the mothers about benefits of breast feeding, timely weaning and weaning foods, promotion of delaying marriage of females and further delaying the birth of the first child. Better nutritional profile of under-fives of educated mothers indicates that right to have education and to achieve 100% literacy will help in promoting the nutritional status of children as educated mothers are more aware of the available health services.

Keywords- *Wasting, stunting, undernutrition.*

INTRODUCTION

WHO estimates that malnutrition accounts for 54 percent of child mortality worldwide. Malnutrition is more common in India than in Sub-Saharan Africa. One in every three malnourished children in the world lives in India. It also costs lives: about 50 per cent of all childhood deaths are attributed to malnutrition. In India, around 46 per cent of all children below the age of three are too

small for their age, 47 per cent are underweight and at least 16 per cent are wasted. Many of these children are severely malnourished ^[1,2]

The prevalence of malnutrition varies across states, with Madhya Pradesh recording the highest rate (55 per cent) and Kerala among the lowest (27 per cent). ^[3]

Malnutrition in children is not only affected by food intake alone; it is also influenced by access to health services, quality of care for the child and pregnant mother as well as good hygiene practices. Girls are more at risk of malnutrition than boys because of their lower social status. ^[4]

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Malnutrition in early childhood has serious,

long-term consequences because it impedes motor, sensory, cognitive, social and emotional development. Malnourished children are less likely to perform well in school and more likely to grow into malnourished adults, at greater risk of disease and early death. Around one-third of all adult women are underweight. Inadequate care of women and girls, especially during pregnancy, results in low- birth weight babies. Nearly 30 per cent of all newborns have a low birth weight, making them vulnerable to further malnutrition and disease. Protein energy malnutrition, which is manifested as decrease in weight for age or height for age or weight for height, is the most widely prevalent form of malnutrition among under-five children [5]

The present study was conducted among patients coming to OPD of NMCH, to assess the nutritional status of 1-5 year-old children and to study the influence of various factors on their nutritional status.

MATERIAL AND METHOD

Nutritional status of 1-5 year children was assessed by population-based cross-sectional examination conducted during January 2014 to December 2014 among patients attending paediatric OPD NMCH Patna where healthcare is mainly provided to Patna City and neighbouring villages through its Primary Health Centres.

The survey intended to include all children of 1-5 years of age coming to OPD of NMCH. The study instrument was a questionnaire with two sections. Section I obtained information about the socio-demographic variables of the child and the mother. Section II included the recording of height and weight of the child. During the study, the mother was briefed about the study and her consent was obtained for the same. The weight and height were compared with NCHS Standards. Classification given by Indian Academy of Pediatrics was used for grading of weight for age (WFA). Height for age (HFA) was graded as normal (HFA > -1SD), mild stunting (HFA < -1SD), moderate stunting (HFA < -2SD) and severe stunting (HFA < -3SD). The data was compiled and statistically analyzed.

RESULTS

There were a total of 410 children of 1-5-year age. Only 390 children could be included, since the rest 20 were not available even at the time of second visit. 210 male and 180 female children took part in the study

whose mothers were interviewed and their anthropometric measurements i.e., height and weight, were taken.

Maximum number of participants (51.76%) were in the age group of 12-23 months and the number of participants decreased as the age increased, since only 30.30% children belonged to the age group of 49-60 months. Overall 44% (171 /390) children were found to be underweight. IAP classification showed that 29.23% had Grade-I malnutrition, whereas 6.92%, 4.87% and 2.82% had Grade II, III and IV malnutrition, respectively. [Table-3]. Lower grades (I and II) were more common among males than females (38% Vs 31%), whereas severe grades (III and IV) were common in females (5.72% vs 2.94%). However, the results were statistically insignificant.

Overall 40.5% (158/390) of the children were stunted with 24.35%, 11.28% and 4.87% showing mild, moderate and severe stunting [table-4]. Maximum children who were underweight, were in the age group of 12-23 months (51.76%) and the number of underweight children decreased as the age group increases 24-35(45.90%), 36-48(41.53%) and 49-60 month (30.30%). Stunting was most commonly found in the age group of 36-47 months (49.23%) followed by 12-23-month age group (44.30%) and it was lowest in the oldest age group, i.e. 48-59 months (24.24%) [table-1]. But the difference in prevalence of both kinds of malnutrition in the various age groups when statistically analyzed was found to be insignificant.

Maximum number of mothers were in the age group 21-25 years (31.02%) followed by 26-30-year age group (26.15%), 31-35 years (20.51%), 36-40 years (13.33%) and 1.02% mother was above 40 years. Chances of being underweight decreased as the mother's age increased. Prevalence of underweight children was 87.90% where mother's age was <20 years, whereas it was 47.93%, 37.25% , 37.85%, 30.76% and 25% for the age groups 21-25, 26-30, 30-35, 35-40 and >40 years. Similarly, prevalence of stunting also decreased with increasing mother's age, i.e. it was 74.19%, 42.97% , 40.19%, 31.25%, 30.76% and 25.00% in the same age group. [Table-2]

Mother's education seemed to play a protective role against child's malnutrition. Overall 59% of the mothers were literate though up to different levels. Prevalence was the highest where mothers were illiterate (65.9%) Vs value of 28.2% where mother had education more than high school. Similarly, figures for stunting were 62.25%

where mother was illiterate and 34.5% where education level was more than high school. Differences were statistically significant for both the cases.

Only 47 (12.1%) mothers were engaged in some kind of employment and that too as daily wagger or domestic servant. Mother's occupation did seem to affect the nutritional status of the child as 46.15% were underweight and 58.97% were stunted where the mother was working as compared to 37.8% were underweight and 44.8% were stunted where the mother was a housewife. But statistical analysis showed that the difference was insignificant.

DISCUSSION

Overall 44% children were found to be underweight where 29.23% had Grade I undernutrition and 2.82 % had Grade IV undernutrition, thus revealing that there is marked decrease in the severe grades of undernutrition.

More males (38 %) were affected with lower grades than females (31 %), whereas severe grades were common in females (5.71%) than in males (2.94%). The findings were consistent with the studies conducted by Dwivedi et al. in urban slums^[6]

The 12-23 month age group had maximum number of underweight children (51.76%). These findings were similar to the study conducted in Bolivian children by Blount et al.R, whereas Reifen et al. found the peak prevalence in the age group of 24-35 months.^[7,8]

Mother's age showed highly significant effect on the prevalence of undernutrition, i.e. where mother's age was <20 years, the prevalence was 87.90% as compared to 25% where mother's age was >40 years. However, the data was not adjusted for parity.

87.9% of children were wasted where mother's age was <20 years, whereas it was 47.93%, 37.25% , 38.75%,30.76% and 25.0% for the age groups 21-25, 26-30, 30-35,35-40 and >40 years. Similarly, prevalence of stunting also decreased with increasing mother's age, i.e. it was 74.19%, 42.97% , 40.19%,31.25%,30.76% and 25% in the same age group.

Education of mother significantly influenced the nutritional status of under-fives as the prevalence of undernutrition was 65.9% where mother was illiterate and it was only 28.2% where education level was more than high school.Chances of being underweight increased if the mother was employed (46.15%) than the group

where the mother was unemployed (37.8%).

Stunting, i.e. low HFA was more common in females (56.1%) than in males (43.75%). The peak prevalence of stunting was seen in 36-47 month age group (49.5%), whereas studies conducted by Saleh and El Sherif showed that it was the commonest in 24-35 month age group^[9] . Stunting was commonest where mother's age was <20 years (77%) as compared to prevalence of 8.1% where the age was more than 40 years.

Mother's education was inversely related to the prevalence of stunting, as it was lowest (34.5%) where schooling was more than high school as compared to prevalence of 62.25% where mother was illiterate. Mother's engagement in some occupation adversely affected child's growth as shown by the results that 58.97% were stunted where mother was employed as compared to prevalence of 44.8% where mother was a housewife.

Table - 1 Showing age of child with wasting and stunting

Age	n	Wasting n	%	Stunting n	%
12-23	170	88	51.76	70	44.30
24-36	122	56	45.90	48	39.34
66-48	65	22	41.53	32	49.23
49-60	33	10	30.30	8	24.24

Table - 2 Showing maternal age with wasting and stunting

Maternal age	No. wasting	% wasting	No. stunting	% stunting
<20	31	7.94	27	87.90
20-25	121	31.02	58	47.93
25-30	102	26.15	38	37.25
30-35	80	20.51	31	38.75
35-40	52	13.33	16	30.76
>40	4	1.02	1	25

Table - 3 Showing grade of malnutrition

Grade	No	%
I	114	29.23
II	27	6.92
III	19	4.87
IV	11	2.82

Table - 4 Showing grade of stunting

Grade	No	%
Mild	95	24.35
Moderate	44	11.28
Severe	19	4.87

CONCLUSION

High prevalence of undernutrition of both kinds among under-fives highly suggests that there is a strong need for educating the mothers about breast feeding, timely weaning and weaning foods which are easily available in the local market, that too at low cost. Effect of mother's age on prevalence of undernutrition clearly favours the promotion of delaying marriage of females and further delaying the birth of the first child. Right to have education and to achieve 100% literacy will help in promoting the nutritional status of children as educated mothers are more aware of the health services available and also the acceptance to utilize the same is better among them. Poor nutritional status of children of working mothers suggests that working places should be provided with creches/playschool where kids can be taken care of while the mother is at work. In the same way, strengthening of Anganwadis and Baalwadis will also help as they help in taking care of the child, and educating the child along with providing meals which complement the child's diet, thus improving their nutritional status.

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Knowledge and Attitude of Mothers of Under Five Children with Upper Respiratory Tract Infection

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ABSTRACT

Background: One of the major causes of child mortality and morbidity rate is acute respiratory tract infection. Under five children are more vulnerable to respiratory tract infections. Lack of knowledge and awareness about the severity of the disease has been a major cause for increased mortality.

Objectives: To assess the knowledge and attitude among the mothers of under five children with URTI.

Study design: Cross sectional design was adopted for this study.

Setting: The study was carried out in pediatric outpatient departments of selected secondary care hospital of Udupi (dt). Karnataka.

Material and method: The data have been collected from 154 mothers using structured knowledge questionnaire for assessing mother's knowledge and 5 point Likert scale for assessing mother's attitude towards the Upper respiratory tract infection (URTI). Convenient sampling technique was used for sample selection.

Statistics: Descriptive and inferential statistics were used for data analysis.

Results: Majority 63 (40.9%) of the sample had average and 62 (40.2%) had good knowledge, 29 (18.8%) had poor knowledge regarding URTI. Majority of the sample 129 (83.80%) had favourable attitude and 25 (16.20%) samples had unfavourable attitude towards prevention of URTI.

Conclusion: The findings highlight that, the nurses and health care providers can play a significant role in educating the mothers regarding importance of seeking medical care and prevention of URTI in under five children.

Keywords: Upper respiratory tract infection, under five children, knowledge, attitude, mothers.

INTRODUCTION

Acute respiratory tract infection (ARTI) is considered as one of the cause of mortality and morbidity among under-five children in developed and developing countries. Every year, acute respiratory infections (ARI), (including both upper and lower) are responsible for an

estimated 3.9 million deaths worldwide It is estimated that Bangladesh, India, and Nepal together account for 40% of the global ARI mortality¹. On an average, children below 5 years of age suffer about 5 episodes of ARI per child per year, thus accounting about 238 million attacks. ARI is responsible for about 30-50% of visits to health facilities and for about 20-40% of admissions to hospitals. It is also a leading cause of deafness as squal of acute otitis media¹.

Childhood ARI is a significant public health problem in India, it is commonly seen among young infants, malnourished and non-exclusively breastfed children².

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About 13 percent of inpatient death in paediatric wards is due to ARIs. The incidence of ARI is highest in young children especially below five years of age and decreases with increasing age³. Findings of systematic review of literature in India has concluded that there is a significant gap in the utilization of existing services, provider practices as well as family practices in seeking care².

Mothers are the primary care providers for the children and they should have the ability to recognize the symptoms of respiratory tract infections, especially upper and lower respiratory tract infections. Lack of knowledge of mothers on care of children with ARTI will result in increased mortality and morbidity among children. Thus the study was undertaken to assess the knowledge and attitude of mothers of under five children with URTI and also to find the factors influencing knowledge and attitude of mothers.

MATERIALS & METHOD

A cross sectional study was carried out in paediatric outpatient department of selected tertiary care hospital of Udupi (dt), Karnataka. Study samples comprised of mothers of under five children with upper respiratory tract infection. Data was collected from 12th of January to 15th of February 2015. All the eligible sample available during this period were included as study subjects. Thus the data was collected from a total of 154 sample who were available during data collection time. Ethical clearance was obtained from Institutional ethics Committee. Administrative permission was obtained from the Medical Superintendent and Head of the Paediatric department. Informed consent was taken from mothers. The data was collected using structured knowledge questionnaire for assessing mother's knowledge and 5 point Likert scale for assessing attitude. Knowledge questionnaire and attitude scales were content validated by the experts and reliability was established. The reliability of knowledge questionnaire was = 0.8, and that of attitude scale was 0.89. The statistical software SPSS 16.0 version was used for data analysis.

RESULT

Among 154 mothers, 64.9 percent were in the age group of 20 – 29 years; 48.7 percent had educational level of pre- university degree and above. Out of 154 mothers, more than half of the mothers (56.4%) were housewives; 54.5 percent of them belonged to Hindu religion. Only 12.3 percent of them reported the family size of more than

six (table1).

Table1: Demographic characteristics of study sample (n= 154)

Demographic characteristics	Frequency (f)	Percentage (%)
Age in years		
20 - 29	100	64.9
30 and above	54	35.0
Educational status		
Graduation and above	42	27.2
Diploma	38	24.6
PUC & Below	74	48.0
Occupation		
Middle class officer and above	38	24.6
Skilled worker and semi-skilled worker	18	11.6
Unskilled worker	11	7.1
House wife	87	56.4
Religion		
Hindu	84	54.5
Muslim	31	20.1
Christian	39	25.3
Number of members in the family		
Three	30	19.4
Four	50	32.4
Five	55	35.7
Six or more than six	19	12.3

Among the 154 mothers, 40.2 percent had good knowledge, whereas 40.9 percent had average level of knowledge based on arbitrary classification of obtained scores (Fig.1). The maximum possible score was 22, whereas minimum obtained score was one and the maximum obtained score was 21. The mean and SD of obtained score was 13.32(±4.82).

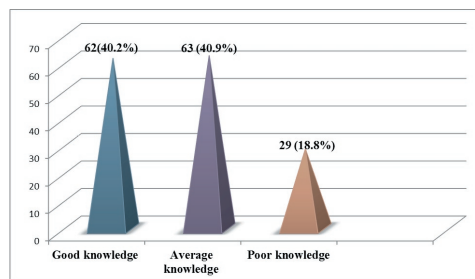


Figure 1 Distribution of mothers based on level of knowledge regarding URTI

Among the 154 mothers, 78.6 percent of them were aware that infected person need to cover mouth while coughing and sneezing to prevent spread to others. More than half, 57.8 percent of the mothers reported that sore throat is one of the sign and symptom in child with URTI; 62.3 percent were aware about the signs and symptoms of URTI. Only 13.6% were aware about HIB vaccine availability.

Out of 154 mothers, 63 percent of mothers agreed that URTI occurs very often in children; among 154 mothers, 12.3 percent strongly agreed that exposure of child to cold climate leads to URTI whereas 23.4percent believed that only consuming cold items will cause URTI. Maintaining the ventilation in the home can minimize the

URT I was agreed by only 20.7 percent of the mothers. Out of 154 mothers 78.4 percent agreed that early identification of URTI can reduce the severity in children. There was a moderate level of correlation ($r = 0.541$, $p = 0.001$) found between level of knowledge and attitude of mothers towards prevention and control of ARTI.

The Chi- square computed to assess the influence of demographic variables on knowledge of the mothers showed a significant association with mothers education ($p = 0.001$), occupation of the mother ($p = 0.001$), and Religion ($p = 0.001$) (table2). Mothers those who were with graduation and above level of education, occupation of middle class officer, and belonged to Christian religion had better knowledge level compared to other group.

Table 2. Association between mother’s knowledge and selected demographic variables

Variables	Knowledge level			p Value
	Good f(%)	Average f(%)	Poor f(%)	
Educational status				
Graduation and above	38(88.1)	5(11.9)	0	0.001
Diploma	16(42.1)	21(55.3)	1(2.6)	
PUC & Below	9(12.2)	37(50.0)	28(37.8)	
Occupation				
Middle class officer and above	33(86.8)	5(13.2)	0	0.001
Skilled worker	4(22.2)	11(61.1)	3(16.7)	
Unskilled worker	1(9.1)	6(54.5)	4(36.4)	
House wife	24(27.6)	41(47.1)	22(25.3)	
Religion				
Hindu	25(29.8)	37(44)	22(26.2)	0.001
Muslim	9(29)	15(48.4)	7(22.6)	
Christian	28(71.8)	11(28.2)	0	

DISCUSSION

In the present study, 40.2 percent of mothers had good knowledge and 40.9% of mothers had average knowledge level. The present study findings are supported by the study findings of D’Souza⁴, who reported that 84 percent of mothers had average knowledge on prevention and management of ARI in children. Findings of the study is also supported by study findings of Acharya⁵ and Devi⁶.

In the present study knowledge level was found to be high among mothers who had graduation and above level of education and middle level officer and above level of education. Similar findings are reported by Alsalem⁷

who reported that knowledge level was high among educated parents. Biradar ⁸ also reported poor knowledge level among illiterate mothers. In the present study even though knowledge was average to high, prevention of ARI by Hib Vaccination was known only to 13.6% of mothers

The mothers who had better knowledge will be in a position to provide better care for their children in terms of prevention and management of respiratory infection, thereby reducing the mortality and morbidity rates. The findings highlight that, the nurses and health care providers can play a significant role to educate

the mothers' regarding importance of seeking medical care and mode of transmission, early identification, management and prevention of URTI in under five children.

CONCLUSION

The study concludes that mothers had average knowledge regarding prevention and management of upper respiratory tract infection. Thus the nurses and health care providers can play a significant role in educating the mothers regarding importance of seeking medical care and prevention of URTI in under five children.

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Cytomorphologic Comparison of Formalin Cellblocks and Plasma-thrombin Cellblock Preparations in Cytodiagnosis of Serous Effusions

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ABSTRACT

Aim: 1) To obtain an ideal Cellblock preparation where in maximal numbers of cells are displayed within a small area.

2) To assess the efficacy of both types of Cellblock techniques in the cytodagnosis of serous effusions.

3) To identify simple and cost effective Cellblock preparation between the two Cellblock techniques.

Method: The residual fluid sample was divided into two parts and subjected for centrifugation. Part A sediment was subjected for 1 hr and 24 hr fixation in 5 ml of ethyl alcohol and 10% formalin in 1:1 proportion. To Part B sediment 2 drops of plasma and 2 drops of thrombin was added, mixed well and allowed to clot for 30 sec. The pellet and clot was then processed for paraffin embedding.

Results: Marked cellularity was observed in 80 (72.7%) samples by Plasma-Thrombin method and 28 (25.6%) samples by Formalin method. The Plasma-Thrombin Cellblocks had evenly distributed cells in a small area of the slide. The Formalin Cellblocks had artifactually crowded cells and the material scattered throughout the slide. 14 (12.4%) samples of the Formalin Cellblocks were inconclusive and they did not contain any evaluable cellular material.

Conclusion: Plasma-Thrombin method was effective in producing cellular sections with overall best preservation of architecture. It is simple, cost effective and provide unlimited source of material for further special stains and immunohistochemistry.

Keywords: Serous effusions, Conventional smear, Cellblock, Plasma-thrombin Cellblock method, Formalin Cellblock method.

INTRODUCTION

Cytological examination of fluids removed from serous body cavities to determine the presence of malignant cells has been done since 130 years in the diagnosis and eventual staging of cancers with increasing accuracy. Generally, examination of the Cellblock or a smear technique involving

centrifugation of the specimen has been used to make this evaluation¹.

The accurate identification of cells as either malignant or benign reactive mesothelial cells is a diagnostic problem in conventional cytological smears. The lower sensitivity is due to bland morphological features of cells, overlapping of cells, cell loss, and changes due to different laboratory processing methods². Various studies conducted in the past and in recent years strongly advice to process the remainder of the specimen as a Cellblock³. Since the introduction of the cell block technique by Bahrenberg in 1895,

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it has been used routinely for processing fluids⁴. Cellblocks provide the opportunity to assess tissue architecture and obtain sections for further study in cases that are not able to be definitely diagnosed by cytology alone⁵.

Current Cellblock techniques include Agar method, Plasma-Thrombin method, 10% alcohol : formalin method, Histogel method, Gelatin method, Collodion method Millipore filter method⁶. The agitation of Plasma-Thrombin facilitates the trapping of cells by the fibrin strands, which coalesce into a fibrinous clot. Thus in scanty sediment also the cells are entrapped into a clot and which cannot be lost during processing⁷.

Hence the present study was undertaken to emphasize the role of Cellblock technique in serous effusions in assessment of morphological preservation and cellularity.

MATERIALS AND METHOD

This is a observational prospective study, performed with approval from the Institutional Ethics Committee (written informed consent also obtained). Serous effusions from the body cavities comprising of pleural, peritoneal and pericardial fluids were included. All fluids other than pleural, peritoneal, pericardial fluids were excluded.

Fresh serous fluid sample received in our laboratory were first submitted for naked eye examination for physical characteristics. The residual fluid after preliminary tests was divided into two parts.

The first part was processed for Formalin Cellblock method. To this 5 ml of ethyl alcohol and 10% formalin in 1:1 proportion was added and fixed for 1 hr. The mixture was agitated often for uniform fixation of the material. After fixation, the specimen was centrifuged at 3000rpm for 5min. The supernatant was decanted and the sediment completely drained off by inverting tube over Whatman filter paper. To this sediment 1:1 mixture of ethanol and 10% eosin

tinted formalin was added and kept for fixation for 24hrs. Then after discarding the supernatant fixative, the pellet formed was removed with a pointed spatula and placed on top of the lens paper inside the tissue cassette and processed for paraffin embedding.

The other part was processed for Plasma Thrombin method (Fig.1)⁶. The fluid was centrifuged at 3000 rpm for 5min. The supernatant was decanted and the excess fluid was removed by inverting on the filter paper. To this sediment 2-3 drops of plasma and 2-3 drops of thrombin was added and mixed well and allowed to clot for 30 seconds. Then the clot was dislodged from the test tube and fixed in 1:1 mixture of ethanol and 10% eosin tinted formalin for 1hr. Further the clot was transferred to the lens paper in the tissue cassette and then processed for paraffin embedding.

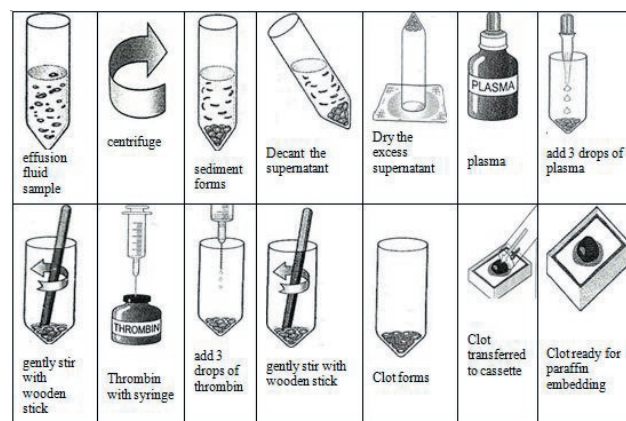


Fig.1: Protocol for preparation of Plasma-Thrombin Cellblocks⁶.

Interpretation of both Cellblocks: After studying all the available clinical data, based on morphology the sections were categorized as benign, suspicious and malignant lesions. The following morphological criteria such as cellularity, retention of appropriate architectural pattern (acini, papillae and cell balls), and volume of background using point scoring system as described by Thapar et.al² in Table.1 were used for giving the cytological diagnosis. Comparative evaluation of both cellblock technique was done and tabulation of cytomorphological characters was done.

Table 1: Criteria for the assessment of the quality of Conventional Smears and Cell block preparations.

Criterion	Quantitative description	Point score
Amount of cellular material	Minimal or Absent (Diagnosis not possible) (Mild) 5-100 nucleated cells /hpf	1
	Sufficient for diagnosis (Moderate) 100-500 nucleated cells /hpf	2
	Abundant (Marked) >500 nucleated cells /hpf	3
Retention of appropriate architectural pattern	Minimal or Absent (diagnosis not possible)	1
	Sufficient for diagnosis	2
	Abundant	3
Volume of obscuring background	Large amount, diagnosis greatly compromised	1
	Moderate amount, diagnosis possible	2
	Clear	3

RESULT

A total of 110 body cavity fluid samples were studied, of which 54 were pleural fluids, 51 were peritoneal fluids and 5 were pericardial fluids. 77 fluid samples were from male patients and 33 were from female patients. Male : Female ratio was 2.3:1. The maximum number of samples were from patients in the age group of 41-50 years.

Cellularity In Cellblocks:

Marked cellularity was observed in 80 (72.7%) samples by Plasma-Thrombin cellblock method as compared to Formalin Cellblock where moderate cellularity was observed in 59 (53.7%) samples. 14 (12.4%) of the Formalin Cellblocks were inconclusive and they did not contain any evaluable cellular material

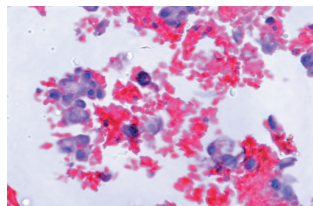


Fig.2: Formalin cellblock (H&E X40)

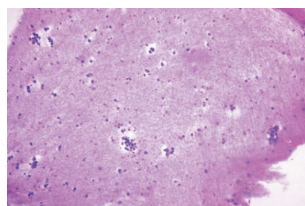


Fig.3: Plasma thrombin cellblock (H&E X40)

Volume of the Obscuring Background :

In Formalin Cellblock preparation (Fig.2) , the background was clear in all the samples. The Plasma-Thrombin Cellblocks had a pale background (Fig.3)

with evenly distributed cells (Fig.4) in a small area of the slide. The Formalin Cellblocks had artifactually crowded cells (Fig.5) and the material scattered in various parts of the slides.

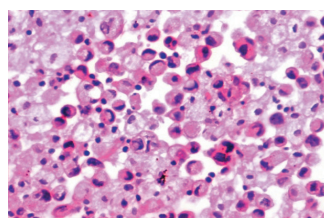


Fig.4: Plasma thrombin cellblock (H&E X40)

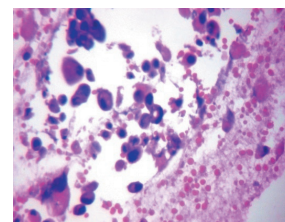


Fig.5: Formalin cellblock (H&E X40)

Malignant effusions diagnosed by cellblock method.

Total number of 27 body fluid samples were diagnosed as malignant effusions by cellblock method which included 13 pleural and 12 peritoneal and two pericardial fluids. In all 27 cases, diagnosis of metastatic malignant effusion was rendered.

DISCUSSION

110 samples of body cavity fluids were studied of which pleural fluid samples were more, comprising 49%, peritoneal fluid samples were 46% and pericardial fluids were 5%.

In the present study, we evaluated two types of Cellblock preparations for Cellularity, Volume of obscuring background and the Preservation of

morphology. Between the two Cellblock preparations, the Plasma-Thrombin Cellblock had better cellular yield as compared to the Formalin Cellblock preparation. Marked cellularity was seen in 80 (72.7%) samples by Plasma Thrombin preparation as compared to 28 (25.6%) samples by Formalin Cellblock method. Formalin Cellblock method had moderate cellularity in 59 (65.5%) samples. This discrepancy in cellularity by both the methods was seen in fluids with minimal cellular material. Plasma-Thrombin preparation was able to concentrate all the available cellular material in the fibrin clot^{1,2,6,8}. The clot was also easy to embed and process. There was no loss of material in Plasma-thrombin method and not a single plasma thrombin block was inconclusive.

Cellblocks by Formalin preparation had scattered cellularity throughout the slide and cell also appeared artifactually crowded⁹. The cellular material was lost during transfer of the sediment from the test tube on the filter paper into the tissue cassette and also during embedding as the sediment was granular and not a hard solid mass most of the time.

Formalin Cellblock method is not useful when the fluids contain minimal cellular material. In a study by Nathan et.al;¹⁰ Cellblocks were possible only when some material or blood was visible to the naked eye. If the fluid is too acellular to yield a good block the principle of precipitation of a protein by adding 10% formalin or Zenker's fluid to form coagulum which encloses the cells suspended in the fluid was employed in a study by Chapman et.al¹¹. In the present study, Formalin Cellblock did not yield any cellular material in 14 (12.7%) cases. We used 10% alcohol-formalin in 1:1 proportion as a fixative for Formalin Cellblock preparation^{2,12}.

The Plasma-Thrombin Cellblocks were of highest quality in terms of cell distribution and architectural patterns and preservation of morphology. We also found that these blocks had a pale clear background which does not hinder with the identification of architectural pattern^{13,14,15}. The Plasma-Thrombin Cell block demonstrates appropriate immunohistochemical staining and are also suitable for electron microscopy^{6,12,16,17,18}.

Pseudoacinar or acinar structures and nucleoli were better appreciated in Cellblock preparation in our study. The reactive or mesothelial cells which simulate

malignancy in smears were identified as reactive or mesothelial cells by cellblock method¹¹. In the present study diagnostic yield for malignancy was significantly increased by both cellblock method. The present study identified additional 15.5% (17 cases) malignant lesions by cellblock method.

The Formalin cellblock preparation is cheap¹⁹ when compared with the cost of Plasma Thrombin Cellblock preparation. But when the cellular yield and the uniform distribution of the cells in small area of the slide is considered the Plasma-thrombin block are superior. Similar observations are also given in the study by Nigro et.al:^{14,20}.

The advantages of the cellblock preparation are, - recognition of histologic patterns of diseases that sometimes cannot be identified reliably in smears²¹ - possible processing of the multiple sections of the same material for routine staining, special staining and immunocytologic procedures, - less cellular dispersion²², which permits easier microscopic observation than do the conventional smears, - no difficulty due to excess blood on microscopic observation, - low cost than the biopsies.

A major disadvantage of the cellblock is time, the delay in diagnosis when compared to conventional smears. Another disadvantage is the loss of the cellular material and cytologic detail during processing.

CONCLUSION

Cellblock study is valuable in cytopathology because it provides histopathologic correlation and additional material for immunohistochemical studies. Although the Cellblock method is not new, handling of the specimens in a conventional manner results in considerable loss of material. The examination of serous fluids for evidence of malignant neoplasm by the cellblock technique is an eminently worthwhile and dependable procedure, composed of cells showing definite evidence of anaplasia.

The present study concludes that using the combined technique on the same specimen leads to a more accurate diagnosis. The Plasma-Thrombin Cellblock preparations are most useful in cellblock preparation particularly in effusions with minimal cellularity. The Formalin Cellblock preparation take a

little more time than the Plasma-Thrombin Cellblock preparation and the loss of cellular material is more in Formalin Cellblock preparation. Even though the cost of Plasma-Thrombin Cellblock preparation is more than the Formalin Cellblock, Plasma-Thrombin Cellblock preparation is cost effective.

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A Study to Assess the Knowledge Regarding Intravenous Fluids and Drug Administration among Staff Nurses Working in Narayana General Hospitals at Nellore

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ABSTRACT

Introduction: Medication administration is a critical skill of the professional nurse, who must understand and follow various steps in the drug administration process to assure patient safety. The nurse needs knowledge base about drugs including drug name, preparation, classification, adverse effect and physiologic factors that affect the drug action. Among all method of drug administration, intravenous administration of fluids, drugs and nutrition is very common in the hospitals. Intravenous infusion therapy is process of introducing drugs or liquids in to the body through veins. Knowledge of the anatomy and physiology of the veins and venous system is essential for the proficiency and to ensure positive patient outcomes. The present study to assess the knowledge regarding intravenous fluids and drug administration among staff nurses working in Narayana general Hospitals at Nellore.

Methodology: Research approach - quantitative research approach, **design** - descriptive design, the study was conducted among staff nurses working at all wards of NMCH with 450 bedded General hospital, 30 samples are taken for this study, **sampling technique** - Non probability- convenience sampling technique.

Data collection Procedure - The investigator will use the structured questionnaire to assess the knowledge. The data collection procedure planned for 1 week period.

Results: The frequency and percentage distribution of level of knowledge among staff nurses 4(13%) inadequate, 16(55%) moderate, 10(32%) adequate.

Conclusion: A study was undertaken to identify the assessment of level of knowledge among staff nurses at NMCH, result revealed that majority of the nurses are have moderate knowledge.

Keywords: NMCH, Drug, Medication, Knowledge.

INTRODUCTION

Medication administration is a basic nursing function that involves skillful techniques and consideration of patient's development, health status and safety. She should

see that all medicines are administered so as to obtain best results. Medication administration is a critical skill of the professional nurse, who must understand and follow various steps in the drug administration process to assure patient safety. The nurse must be proficient in medication dosage calculation to safely administer drugs .The nurse needs knowledge base about drugs including drug name, preparation, classification, adverse effect and physiologic factors that affect the drug action. Among all method of drug administration, intravenous administration of fluids, drugs and nutrition is very common in the hospitals.¹

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Intravenous infusion therapy is process of introducing drugs or liquids in to the body through veins. Both central veins and peripheral veins can be used for this purpose. It delivers the drug into the blood stream in order to have immediate effect.

Medications can be administered through three methods of insertion namely a syringe and needle, a peripheral intravenous line or a central intravenous line. The central intravenous lines are larger than peripheral intravenous lines and access the heart directly. Fluid administration via intravenous therapy, travel throughout the body more quickly than those delivered by other method. It is very common and effective and can supply nutrition to a patient who is unconscious².

Nurses are accountable and responsible to ensure that their skills and competence are maintained and must continue to update their knowledge. Knowledge of the anatomy and physiology of the veins and venous system is essential for the proficiency and to ensure positive patient outcomes. A high standard of performance contributes to non-traumatic vein puncture, conservation of veins for future use and the reduction of routine complications. Appropriate training, continued support and maintenance of skills are vital to practice the techniques of venipuncture, cannulation safe administration and prevention of complications of intravenous therapy³.

NEED FOR THE STUDY

Nursing care is a key factor in the outcome of hospitalized patients and the nurse's plays a key role in the intravenous drug administration. Compared with other routes of administration, the intravenous route is the fastest way to deliver fluids and medications throughout the body. The intravenous route carries the greatest risk of any route of drug administration. By administering directly to the systemic circulation, either by direct injection or infusion, the drug is instantaneously distributed to its sites of action. This route of administration can be complex and confusing. To minimize the risk of errors, it is imperative that practitioners can demonstrate competence to practice safely, and have access to expert advice and information⁴.

A study conducted by infusion nursing society [2006] regarding nurses knowledge national standards of practice require that a nurse who administers IV medication or fluid should know its adverse effects and

appropriate interventions should take before starting the infusion. The results reported that 32% have adequate knowledge 57% nurses had moderate knowledge and 11% in inadequate knowledge. So the investigator felt there is a need to conduct a study.

STATEMENT OF THE PROBLEM

“A Study to Assess the Knowledge Regarding Intravenous fluids and drug administration Among Staff nurses Working in Narayana general Hospitals at Nellore.”

OBJECTIVES

1. To asses the distribution of demographic variables among staff nurses working in Narayana general hospital.
2. To assess the level of knowledge regarding intravenous fluids and drug administration among staff nurses working in Narayana general hospital
3. To find out the association between level of knowledge regarding intravenous fluids and drug administration among staff nurses with there selected socio demographical variables

OPERATIONAL DEFINITIONS

Knowledge:

Information and skills in intravenous fluids and drug administration among staff nurses and is assessed by knowledge questionnaire.

Intravenous fluids:

Intravenous fluids refers to infusion of liquid substances such as medications, nutrition directly into the vein.

Staff nurses:

Nurse who has basic education in nursing either a graduation or diploma from a recognized institution the registered nurses who are working in hospitals

ASSUMPTIONS OF THE STUDY

It is assumed that the staff nurses may have some knowledge regarding intravenous fluids and drug administration

NULL HYPOTHESES

There will be a significant association of the level of knowledge scores regarding intravenous fluids and drug administration among staff nurses.

METHODOLOGY

RESEARCH APPROACH: Quantitative research approach

RESEARCH DESIGN: Descriptive design.

SETTING OF THE STUDY: The study was conducted among staff nurses working at all wards of NMCH with 450 bedded General hospitals, 30 samples are taken for this study

TARGET POPULATION: the staff nurses who are working in the Narayana medical college hospital.

ACCESSIBLE POPULATION: staff nurses who are working Narayana Medical College hospital, Nellore.

SAMPLE: Staff nurses who fulfil the inclusion criteria.

SAMPLING TECHNIQUE: Non probability-convenience sampling technique

SAMPLE SIZE: 30

INCLUSION CRITERIA:

- All the staff nurses working in ward
- Who are willing to participate in the study
- Who can speak and understand Telugu or English

EXCLUSION CRITERIA: The staffs nurses those who were not willing to participate

DATA COLLECTION PROCEDURE

The investigator will use the structured questionnaire to assess the knowledge. The data collection procedure will be planned for 1 week period. The study will be carried out with 30 sample size who fulfil the inclusion criteria.

DESCRIPTION OF TOOL

Part –I Socio demo graphic variables such as age in years, Gender, Marital status, languages known,

educational status, institution where studied previous experience in institution and hospital and years of experience

Part-II deals with structured questionnaire related to intravenous fluids and drug administration

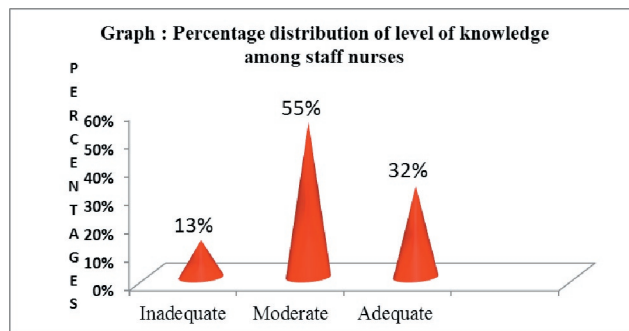
PLAN FOR DATA ANALYSIS

Descriptive Statistics: Frequency, percentage distribution, mean and standard deviation.

Inferential statistics: Chi square test will be used to find association between the level of knowledge regarding intravenous fluids and drug administration with their selected socio demographic variables of staff nurses.

MAJOR FINDINGS OF THE STUDY

In the present study among 30 samples the majority were



Based on questioner, the frequency and percentage distribution of level of knowledge among staff nurses 4(13%) inadequate knowledge, 16(55%) moderate knowledge, 10(32%) adequate knowledge.

In intravenous therapy veins which are observable and palpable and where blood can flow easily are used. The most commonly used veins in intravenous therapy are the dorsal vein, metacarpal vein, cephalic vein, basilic vein and subclavian vein^{5,6}

The present study was in accordance with the previous studies done by Ayşe Kacarolu Vicdan⁷ study showed that 45.2% of the nurses do not know the names of the veins used in intravenous therapy. The reason for this might be that the names of the veins are in Latin and are not pronounced during practice. 92.4% of the nurses answered the question related to the most common complication occurring during the implementation of intravenous fluid correctly by stating “Infiltration,

embolism, thrombophlebitis". As it can be seen in the results, most of the nurses had sufficient knowledge about complications during intravenous fluid therapy.

Karadeniz and his colleagues⁸ study showed that 55% of nurses have known phlebitis which is a complication of intravenous fluid therapy.

RECOMMENDATIONS

On the basis of findings of the study the following recommendations have been made:-

A similar study can be replicated on large sample size, in different settings with in different population as longitudinal study.

A similar study can be conducted for large number of sample by using Modified structured questions

CONCLUSION

A study was undertaken to identify the assessment of level of knowledge among staff nurses at NMCH, Nellore result revealed that majority of the nurses are have moderate knowledge.

Ethical Consideration: Permission was taken from the Principal of Narayana college of Nursing, ethical committee and concerned authorities from Narayana Nursing Institution, Nellore.

Source of Funding – Self

Conflict of Interest - Nil

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A Study of Cervical Cancer Screening by Acetic Acid in Visual Inspection in District Hapur U.P. India

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ABSTRACT

The objective of our study was to establish VIA as an effective screening method for diagnosing pre-malignant and malignant cervical lesions in low economic setups. A total no. of 300 patients with cervical lesions were recruited in the study. All the patients had Pap smear, followed by VIA (using 2% acetic acid). Cervical biopsies were taken from all VIA positive lesions. In our study Pap smear sensitivity was 54.68% and false positive cases were 3.30%. The sensitivity of VIA was found 90.62% and falls positive cases were 00.0%. Our study proves that VIA is a more sensitive and economic test than Pap smear or cervical biopsy for screening cervical cancer.

Keywords: VIA, Cervical cancer, PAP, Cervical biopsy, Acetic acid

INTRODUCTION

Visual inspection with acetic acid (VIA) is an attractive screening method for early-phase cervical cancer in underdeveloped countries. Cervical cancer is the leading cause of morbidity and mortality among woman worldwide. There are over 500,000 cases of cervical cancer found worldwide, and more than 280,000 woman die of it every year. 85% live in developing countries^{1,2}. Nearly two thirds of healthy years lost by woman in developing countries are lost because of cervical cancer and not, as is often supposed, because of problems related to reproductive health³. Cervical cancer is the leading cause of years-of-life lost in women in South Central Asia, Latin America and Sub-Saharan Africa, resulting in a greater reduction in a women's life expectancy even when compared with AID's, TB, or maternal conditions in Latin America and Europe⁴. India's cervical cancer age- standardized mortality rate of 30.7 per 100000 and age-standardized mortality rate of 17.4 per 100000 are the highest in South Central Asia⁵.

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From the poor results from Papanicolaou (PAP)-based screening programs, alternative methods for cervical cancer screening have been sought. One method, direct visualization with acetic acid has gained popularity and proven itself in many clinical trials as an adequate alternative to PAP smears in developing countries. Pre-cancerous lesions, with a higher ratio of intracellular proteins, turn white when combined with acetic acid. On application of acetic acid cervical epithelial neoplasia (CIN) lesion take on white color due to increased nuclear protein and cytokeratins in the cervical epithelial⁶. Normal cervixes without any precancerous lesions, do not change color. VIA is an attractive alternative to PAP smears for its ease of use, low-cost, non cytology based sea and treat alternative for economically underprivileged geographic region and it requires fewer physician visits⁷. In rural areas where people travel hours for a doctor's visit, a screening method requiring fewer visits will have a much higher success rate. A National work shop on control of cervical cancer, considered conventional PAP cytology and VIA as a suitable test for early diagnosis of cancer cervix⁸.

Visual methods like visual inspection of cervix with Lugol's iodine (VILI) are alternative screening modalities with the advantage that the results are immediately available and one can apply "see and treat" policy in suitable cases⁹. Squamous epithelium contains glycogen,

whereas precancerous lesions and invasive cancer contain little or no glycogen. Iodine is glycophilic and is taken up by the squamous epithelium, staining it mahogany brown or black. Columnar epithelium does not change color, as it has no glycogen. Immature metaplasia and inflammatory lesions are at most only partially glycogenated and, when stained, appear as scattered, ill-defined uptake areas. Precancerous lesions and invasive cancer do not take up iodine (as they lack glycogen) and appear as well-defined, thick, mustard or saffron yellow areas^{10,11}.

MATERIALS AND METHOD

The present study was carried out in the Department of Obstetrics and Gynecology in collaboration with department of Pathology, Rama Medical College, Hapur, U.P India. The present study was started from August 2014 to March 2016. A total of 300 patients were selected on the basis of complaints of per vaginal discharge, pain lower abdomen, post coital bleeding. Selected the patients between the age of 20-50 years were included in the study. After a thorough history and examination PAP smear was taken from all the patients. VIA was performed by application of 2% acetic acid to cervix with a cotton swab, left for 30-60 seconds and then examined for acetowhite patches and then examined with naked eye and lamp.

Cervical biopsy was taken for all VIA positive patients having chronic systemic illness like diabetes, hypertension, liver disease, chronic infection and other co existing lesions of genital organs were excluded.

RESULTS

In present study showed that when Pap smear was compared with cervical biopsies in all the 300 patients, sensitivity was found to be 54.68% specificity 96.69% positive predictive value of 81.93% false positive 3.30% and false negative 45.31% respectively. (Table II)

Similarly when VIA was compared with cervical biopsies, sensitivity was 90.62% specificity 91.54% positive predictive value 83.45% negative predictive value 95.4% false positive 0.0% and false negative 9.37% respectively. (Table III)

Results of Pap smear and biopsies for all 300 patients are shown in Table I. Sensitivity of VIA was found to be higher that is 90.62% and false positive cases were zero percent as compared to Pap smear. In our study VIA was found to be a superior, cheap and reliable test as compared to cervical biopsies or Pap smear as tool of screening in premalignant and malignant cervical lesions in rural areas.

Table I – Results of pap smear and cervical biopsy (n= 300)

PAP SMEAR	BIOPSY					
	Metaplasia	Cervicitis	CIN I	CIN II	CIN III	Invasive carcinoma
Normal	0	30	5	0	0	0
Inflammatory	5	148	21	10	0	0
LSIL	1	15	39	0	0	0
HSIL	0	6	4	8	6	0
Malignant	0	0	0	0	0	2
Total	6	199	69	18	6	2

LSIL, HSIL – Low grade and high grade squamous intraepithelial lesion,

Table II – Comparison of Pap smear with cervical biopsy (n=300)

PAP SMEAR	BIOPSY		
	Positive	Negative	Total
Positive	52	7	59
Negative	44	197	241
Total	96	204	300

Sensitivity 54.68% Specificity 96.69%, Positive predictive value 88.6, Negative predictive value 81.93, False Positive 3.30% False negative 45.31%

Table III – Comparison of VIA with cervical biopsy (n=300)

VIA	BIOPSY		
	Positive	Negative	Total
Positive	87	17	104
Negative	9	187	196
Total	96	204	300

Sensitivity 90.62%, Specificity 91.54%, Positive predictive value 83.45, Negative predictive value 95.4, False positive 0.0% False negative 9.37%

DISCUSSION

Cervical cancer, the second most commonly diagnosed cancer among women worldwide, can be a preventable disease. Although the Pap smear remains the most common screening test for cervical cancer, many less developed countries do not have adequate resources to implement cytology-based prevention programs. An alternative, low-cost test, visual inspection using acetic acid (VIA), has emerged for use in low-resource settings where it can be performed by auxiliary health professionals. VIA is similar to colposcopy in that acetic acid is applied and any acetowhite lesion is visualized, although with VIA there is no magnification.

The rates of cervical cancer in developed countries are 5 per 100,000 women compared with 25 per 100,000 in low-resource countries. The high mortality rates are due to the advanced stage at presentation, affected women being unable to complete therapy, lack of available treatment, and unaffordable therapy¹². Bellinson examined 1,997 women they compared visual inspection with acetic acid to colposcopy with biopsy and concluded that the sensitivity of VIA equaled or exceeded reported rates for conventional cervical cytology and encouraged continued research into the possibility of a see and treat method for cervical cancer screening¹³. Gaffkin in 2003 published a mini-meta-analysis although a lower specificity was noted in various publications; the authors nonetheless unanimously concluded that VIA was useful as an adjuvant or alternate to cytology¹⁴. Ngelangel conducted four different screening exams: visual inspection with acetic acid (VIAM), spatula+cotton swab PAP smear and cervical brush PAP smear. Sensitivities for the four tests were found to be 37% for VIA, 34.1% for VIAM, 14.3% for spatula PAP, and 19.1% for cervical brush PAP. The specificity rates were 90.7%, 90.7%, 97.5% and 97.9% respectively. VIA had the highest sensitivity of the four tests recommended for initial cervical screening in the Phillipines¹⁵.

Ghaemmaghami¹⁶ tested the VIA method of cervical

cancer screening in Iran found sensitivity of VIA to be 74.3% compared with 72% for PAP smear. The specificity of VIA was 94% compared to 90.2% for PAP. Doh¹⁷ examined VIA as a screening method (Doh, International journal of OB/ Gyn 1994). Sensitivity of VIA was 70.4% vs 47.7% for PAP. VIA specificity was 77.6% vs 94.2% PAP PPV of VIA was 44% and NPV 91.3% Doh concluded that, although PAP has slightly better testing qualities, VIA has acceptable test qualities and may in low resource settings be implemented as a large scale screening method.

In India, Goel¹⁸ found VIA to have a sensitivity of 96.7% much higher than that of a PAP smear, which they found to be a mere 50%. The specificity of VIA, however was much lower than the PAP smear, 36.4% vs 97%. Goel concluded that VIA with acetic acid is very sensitive for a primary screening method in developing countries.

Bomfim¹⁹ did a similar study and found sensitivity of VIA was found to be 100% vs 18% for PAP smear and specificity was 78% for VIA vs 100% for PAP smear in detecting. The negative predictive value (NPV) of VIA was much better found to be 100% for both. PAP smear NPV was 97% and 99%. De Vuyst²⁰ studies VIA comparing it to three other screening methods, including HPV DNA typing. Sensitivity and specificity were 83.3% and 94.6% for Pap smear, 73.3% and 80.0% for VIA, 94.4% and 73.9% for HR HPV PCR, and 72.3% and 93.2% for cervicography. Although pap smear had the highest sensitivity and HPV PCR the highest specificity, the visual inspections showed as accuracy between the two. De Vuyst concluded that in poor resource countries VIA is effective as a primary screening tool. Lawrence and colleagues²¹ offered cervical cancer screening to 1,052 Guatemalan women using VIA. 9.3% of patients deferred screening at all and refused examination. Among the 954 women screened, 13% were found to have findings consistent with CIN I or higher 99% of the women with positive findings agreed to undergo immediate treatment with cryotherapy.

CONCLUSION

The studies have shown VIA is an adequate and acceptable screening method for cervical cancer. VIA can be better than PAP smear for its ease of use and low cost.

VIA confers a very high NPV, which means that when a test is negative, the women can go home reassured that she is not likely to have a neoplastic cervical lesion; eliminating the need for follow-up visits. However, the low PPV of VIA does present the problem of many false positives, discouraging the see-and-treat method were implemented in a high-risk population with a high incidence of cervical cancer, the qualities of the VIA test may improve. Ethical approval for the study was obtained from the ethical committee at the Rama Medical College Hapur, U.P India.

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Conflict of Interest - None

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Transaminitis in Dengue Fever: An Observational Study

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ABSTRACT

Introduction: Dengue fever is the most important vector borne disease worldwide. Though dengue virus is not a hepatotropic virus, isolated raised serum aminotransferases levels or transaminitis is a common feature of liver dysfunction in dengue fever.

Method: Data of 114 IgM antibody confirmed cases of dengue fever was analysed with special attention to serum aminotransferase levels.

Result: During 2013 outbreak dengue fever primarily affected younger age people. Apart from the typical manifestations of fever, headache, bodyache, pain abdomen, and vomiting; high levels of serum aminotransferases were present in most of the cases along with normal serum bilirubin levels.

Conclusion: All patients of dengue fever should be evaluated for liver functions as transaminitis is common finding in dengue. Further larger studies are needed to assess the possible correlation of aminotransferase enzymes levels with the duration of illness and outcome of the disease.

Keywords: Dengue fever, thrombocytopenia, aminotransferases, transaminitis.

INTRODUCTION

Dengue fever has emerged as the most common arthropod borne disease in tropical and subtropical countries of world today. It is caused by an arbovirus of the flaviviridae group. Large areas of the world have become vulnerable to the dengue virus infection particularly through air travel by infected humans. Dengue virus infection presents with a wide range of clinical symptoms with unpredictable clinical evolution. It may be asymptomatic or may lead to classical dengue fever, dengue hemorrhagic fever or dengue shock syndrome. Fever, headache, body pain, vomiting and pain abdomen are the most common symptoms of dengue fever^{1,2,3}. Though dengue virus is a non-hepatotropic virus, liver is one of the target organs of dengue; and a wide spectrum of liver dysfunction is a well recognized feature of dengue virus infection demonstrated by mild to moderate increase in serum aminotransferases levels although jaundice and acute liver failure are generally uncommon. The mechanism of liver injury in dengue fever remains unclear. Hepatic cells may get damaged by direct cytopathic effect of dengue virus, exaggerated host immune reaction, circulatory compromise, metabolic

acidosis and/or hypoxia caused by hypotension or localized vascular leakage inside the liver. Anicteric hepatic involvement prolongs the clinical course of this self-limiting viral infection^{4,7}. Jaundice in dengue infection is a poor prognostic factor and has been associated with fulminant liver failure. Elevated transaminase levels have been suggested as a potential marker to help differentiate dengue from other viral infections during the early febrile phase⁸⁻¹¹. Aim of this study was to assess levels of serum aminotransferases in serologically confirmed dengue fever patients in a teaching hospital during an epidemic of dengue.

METHOD

This study was conducted at Sharda Hospital, School of Medical Sciences and Research, Greater Noida (UP) during an outbreak of dengue fever in the year 2013. The study was approved by ethical and research committee of the institute. Clinically and serologically confirmed cases of dengue fever admitted in the medicine wards of the hospital were included in the study. The presence of IgM antibodies by ELISA at 5 days or more after the onset of fever with or without presence of IgG antibodies was

taken as serologically confirmed case of dengue. Presence of IgG antibodies alone was not considered positive as it could persist in blood for longer period. Patients with serological evidence of hepatitis A, E, B and C virus infection were excluded from the study. Patients with malaria, alcohol abuse, patients on anti tubercular drugs or methotrexate, a disease modifying antirheumatic drug were also excluded from the study as these conditions may affect serum aminotransferase levels independently. A proforma with detailed clinical, hematological and laboratory parameters was used for data collection. On the basis of clinical presentation study subjects were classified according to WHO 2009 classification as dengue without warning sign, dengue with warning sign, and severe dengue. The patients were treated as per standard WHO guidelines. Features included as warning sign were persistent vomiting, restlessness, abdominal pain or tenderness, clinical fluid accumulation, liver enlargement, mucosal bleed, hepatomegaly, rise in haematocrit with concomitant fall in platelet count. Severe dengue cases were defined as patients with features like severe plasma leak leading to dengue shock syndrome or fluid accumulation with respiratory distress, severe hemorrhage, serum AST/ALT levels > 1000 IU/L, impairment of central nervous system, heart, and other organs. Hepatic involvement was characterised by manifestations of acute hepatitis, with pain in the right upper quadrant of abdomen, hepatomegaly, jaundice, and raised aminotransferase levels.

RESULTS

Out of all the patients admitted to the hospital with a clinical diagnosis of dengue fever, only 114 patients fulfilling the standard serological criteria for diagnosis of dengue were included in this study. Mean age of the patients affected by dengue fever was 27.13 ± 8.62 years. The mean platelet count and haematocrit were 68.34 ± 43.17 x 1,000 / cu mm and 39.34 ± 5.40 respectively (table I). Only 5 out of 114 patients had severe thrombocytopenia (< 20,000/ cu mm) and 20 patients had platelet count more than 100,000/cu mm. 42 patients had platelet count between 20,001-50,000/cu/mm and 47 patients had platelet count between 50,001-100,000/cu mm (table II). Deranged liver enzymes (aminotransferases) were noted in majority of the dengue cases. The mean levels of serum AST and serum ALT were 172.33 ± 300.78 IU/L and 107.45 ± 104.69 IU/L respectively (table I). The rise in serum AST and ALT levels was usually mild

to moderate (41-400 IU/L) in 96/114 and 101/114 cases respectively. 10 patients had normal serum AST and ALT levels (≤40 IU/L). Only 8 out of 114 patients had serum AST levels more than 400 IU/L and 3 out of 114 patients had serum ALT levels more than 400 IU/L. Only one patient in this study had serum AST levels 2977 IU/L (> 1000 IU/L) whereas none of the patients had serum ALT levels more than 1000 IU/L (table III, IV) . There was no correlation of rise in levels of serum aminotransferases with degree of thrombocytopenia. Kidney function tests were found to be normal in most patients. Mean levels of blood urea and serum creatinine were 24.92 ± 9.22 mg/dl and 0.83 ± 0.22 mg/dl respectively (table I). Only 3 out of 114 patients had serum creatinine > 1.2 mg/dl. However mean of serum bilirubin level was 0.79 ± 0.37 mg/dl which was within normal limits (table I). Normal serum bilirubin (≤ 1 mg/dl) was seen in 100 out of 114 (87.72 %) cases of dengue fever while subclinical rise in serum bilirubin levels (< 2.5 mg/dl) was observed in 13 (11.40 %) patients. Clinical jaundice with a serum bilirubin 2.9 mg/dl was observed in one case only (table V). Although elevated levels of both serum AST and ALT were observed in 91.23 % patients, serum AST levels were higher as compared to serum ALT levels. This pattern of rise in serum aminotransferases levels is different from one seen in viral hepatitis where find more rise in serum ALT levels than serum AST.

Table I: Mean±SD of clinical / laboratory parameters of dengue patients

Parameter	Mean ± SD
Age of patient	27.13 ± 8.62 years
Hematocrit	39.34 ± 5.40
Platelet count	68.34 ± 43.17 x 1,000 / cu mm
Serum bilirubin	0.79 ± 0.37 mg/dl
Serum AST	172.33 ± 300.78 IU/L
Serum ALT	107.45 ± 104.69 IU/L
Blood urea	24.92 ± 9.22 mg/dl
Serum creatinine	0.83 ± 0.22 mg/dl

Table II: Platelet counts in dengue patients

Platelet count	Number of patients	Percentage of total patients
<20,000/cu mm	05	4.38 %
20001-50,000/cu mm	42	36.84 %
50,001-100,000/cu mm	47	41.22 %
>100,000/cu mm	20	17.54 %

Table III: Serum aspartate aminotransferase (AST) levels

Serum AST level	Number of patients	Percentage of total patients
Normal ≤ 40 IU/L	10	8.77 %
41-120 IU/L	54	47.37 %
121- 200 IU/L	29	25.44 %
201- 400 IU/L	13	11.43 %
401-1000 IU/L	07	6.14 %
> 1000 IU/L	01	0.88 %

Table IV: Serum alanine aminotransferase (ALT) levels

Serum ALT level	Number of patients	Percentage of total patients
Normal ≤ 40 IU/L	10	8.77 %
41 -120 IU/L	79	69.30 %
121- 200 IU/L	14	12.28 %
201- 400 IU/L	8	7.02 %
401-1000 IU/L	3	2.63 %
>1000 IU/L	0	0 %

Table V: Serum bilirubin levels in patients

Serum bilirubin	Number of patients	Percentage of total patients
≤ 1 mg/dl	100	87.72 %
>1-2.5 mg/dl	13	11.40 %
>2.5 mg/dl	01	0.88 %

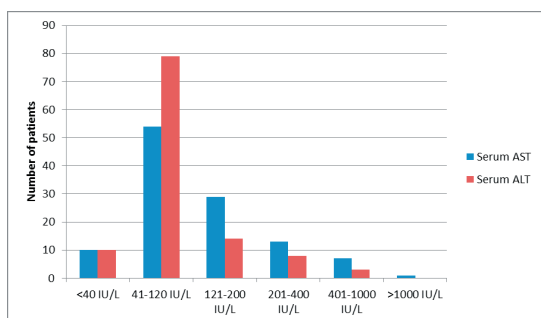


Figure1: Bar diagram showing number of dengue patients with raised aminotransferases

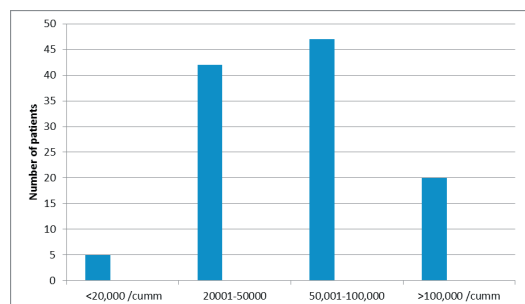


Figure 2: Platelet counts in dengue patients

DISCUSSION

In our study mean age of the patients affected by dengue fever was 27.13 ± 8.62 years indicating that dengue fever is predominantly a disease of younger age group. Chatterjee N *et al*⁴. in their study from eastern India observed 46.7 years as the mean age of dengue patients. The maximum number of patients in their study belonged to the age group 20-29 years (31.1%) followed by 10-19 years (26.6%). Main finding in the study done by Chatterjee was mild to moderate hepatic dysfunction with isolated increase in aminotransferases level with normal serum bilirubin in most of the cases of dengue fever. Serum ALT levels were normal in as many cases as were serum AST levels, however the mean serum AST level was higher than that of mean serum ALT. The frequency of mild increase in serum aminotransferases levels ($< 3 \times$ upper normal limit) was more for AST than ALT. Characteristic of increase in serum aminotransferases levels in dengue virus infection was a greater elevation in AST than ALT levels. This observation is useful for differential diagnosis of acute viral hepatitis caused by the hepatitis A, B, C or E viruses, in which more elevation is observed in serum ALT levels than that of serum AST^{12,15}.

Kuo *et al*¹⁶ observed abnormal levels of serum AST and ALT in 93.3 % and 82.2 % dengue fever cases respectively. They reported that the rise in serum transaminase levels was mild to moderate in most cases. Both these observations are in agreement with our study. In their study serum aminotransferase levels reached 10 times above the upper normal limit for AST and ALT in 11.1% and 7.4% of the patients respectively, however it was 7.04 % and 2.63 % respectively in present study. They also reported that the elevation in serum AST level was usually greater than serum ALT. This may be due to the release of aspartate aminotransferase during myocyte damage in dengue fever. In a large study from Brazil, out of 1585 dengue cases, elevation in AST and ALT were seen in 63.4% and 45% of patients respectively, with 3.8% of cases having 10-fold increase in transaminase levels¹⁷. The results in our study indicate that derangement in serum aminotransferases level is a common feature of dengue fever however it is needless to remind that aminotransferase enzymes being primarily associated with liver cells are also found in other body tissues. ALT is also found in cardiac and smooth muscles whereas AST is also found in RBC, kidney and brain tissue in addition to cardiac and smooth muscles. In view of the body pain being the prominent symptom in dengue fever skeletal muscle injury may also be responsible for

a greater rise in serum AST levels. Mild to moderate increase in serum aminotransferases may also be found in enteric fever, malaria and alcoholic liver disease. Hepatic involvement in enteric fever is due to hepatocytes damaged by endotoxin, and includes hepatomegaly and biochemical abnormalities in the form of raised serum aminotransferases as well as alkaline phosphate levels. Malarial hepatopathy is characterised by raised serum bilirubin along with raised serum glutamate pyruvate transaminases levels > 3 times upper normal limit. To summarize, raised aminotransferases levels or transaminitis was observed in most of the cases with dengue virus infection among patients admitted during the outbreak of dengue in 2013, and raised aminotransferases levels had a bearing on the disease activity in terms of severity of illness and duration of symptoms, however it had no bearing on patient outcome.

CONCLUSION

Dengue virus infection has emerged as big challenge for tropical and subtropical countries. Isolated elevation of transaminases levels or transaminitis is common manifestation of dengue / dengue hemorrhagic fever. Control of *Aedes aegypti* is the key to prevention of dengue fever. Non biodegradable plastic containers / tires and lack of public awareness to the need of eliminating mosquito breeding site have been major drawbacks in control efforts. With live attenuated dengue vaccine being developed it is hoped that vaccination will help reducing the transmission of dengue virus to negligible levels.

Ethical Clearance: Taken from ethical and research committee of the institute.

Source of Fund: Self

Conflict of Interest: None

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A Study of Severe Anemia with Respect to Clinical Features and Hematological Changes in Infancy and Childhood

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ABSTRACT

Introduction: Anemia is one of the most commonly encountered clinical entities in children. The causes of anemia in India are different from that in the western world, because of high prevalence of malnutrition & infection. Severe anemia i.e. Hb% < 8g/dl in adolescents and school going children and < 7g% in pre-school children is responsible for high mortality and morbidity in children. Hence, the present study was done to know the etiology, hematological changes, clinical presentation age and sex distribution of severe anemia in infancy and childhood, so that effective preventive and curative measures can be taken to decrease the incidence of severe anemia.

Design: Prospective study

Material & Method: 200 children whose Hb% was < 8g/dl were studied. Detailed clinical evaluation and hematological investigations were done in every case. Some other investigation wherever required were also done.

Results: In the present study more than half of the case were seen in age group of 0-5 years (i.e. 60%). A great majority (90%) of the children were malnourished. The most common type of anemia was iron deficiency anemia (61.5%), followed by hemolytic anemia (28.5%), malaria being the major cause.

Conclusions: Severe anemia is very common in under 5 children and most of these children had iron deficiency anemia.

Keywords: Anemia, Nutritional Deficiency anemia, Iron Deficiency Anemia, Malnutrition, Malaria

INTRODUCTION

Anemia is defined as a condition in which the concentration of hemoglobin or red blood cells volume either singly or in combination is reduced below the age corrected values¹.

Anemia is widely prevalent in developing countries & causes significant morbidity. According to national family health survey (NFHS), the incidence of anemia is highest among children in growing age due to malnutrition, nutritional deficiencies and infections

where 7 out of every 10 young children are anemic². Besides nutritional deficiency anemia is also caused by a number of other condition like malaria, thalassemia & malignancies like lymphoma & leukemia which usually lead to hospitalization³.

In such cases child presents with generalized weakness of uncertain duration, fever, GI upset & respiratory problems. Pallor is the most commonly encountered clinical sign^{4, 5}. Various investigations are done to determine the etiology, morphology & hematological changes⁶.

Though a number of studies have been done in different parts of the country to know the cause and nature of anemia in children, no such study has been carried out in this part of the country.

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The present study is aimed to study the chief causative factors, clinical manifestations, various hematological & morphological types in children with severe anemia in this part of western Uttar Pradesh.

MATERIALS AND METHOD

The study was conducted at Department of Pediatrics, Muzaffarnagar Medical College & Hospital, Muzaffarnagar from April 2014 to May 2015. A total of 200 cases were studied ranging between 20 days and 16 years showing severe anemia as per standards laid down by WHO, viz. namely <7g/dl -6 to 59 months; <8g/dl-5years & above. The cases were taken from the outpatients as well as from the inpatients department of

the Hospital.

A detailed clinical history was recorded and physical examination was done in children. Clinical features like weakness, pallor, fever, palpitation, anorexia, bleeding, GI symptoms, respiratory symptoms and abnormal movements were noted. All the children were investigated for these cases were Hb%, total and differential counts, peripheral smear examination, serum ferritin, Hb electrophoresis, total iron binding protein (TIBC). Bone marrow examination, liver & renal function tests, stool & urine examination, montoux test & radiological investigation were done in selected cases whenever required.

OBSERVATION & RESULTS

Table: 1 - Distribution of studied children by Age & Sex

Age	Male	Female	Total	%
0 – 5 yr	81	39	120	60%
>5 yr – 10 yr	27	11	38	19%
>10 yr – 18 yr	19	23	42	21%
Total	127 (63.5%)	73 (36.5%)	200	100%

Age & Sex distribution as shown in table 1, shows maximum age group fall at the age group below 5 years of age (60%) and majority of male children were more affected i.e. 127 (63.5%) than female children (36.5%).

Table: 2 - Clinical Features

		No. of cases	Percentage
Symptoms	Generalized weakness	195	97.5
	Fever	110	55
	Vomiting	44	22
	Loss of Appetite	42	21
	Breathlessness	42	21
	Palpitation	24	12
	Irritability	21	10.5
	Loose Stools	21	10.5
	Bleeding (stools & vomiting)	19	9.5
	Abdominal Distention & Pain	18	9.0
Cough	17	8.5	
Signs	Pallor	200	100
	Lymphadenopathy	134	67
	Hepatomegaly	79	39.5
	Splenomgaly	71	35.5
	Icterus	21	10.5
	Edema	13	7.5
	Petechial Hemorrhage	6	3.0
Frontal Bossing/Harrison Sulcus	5	2.5	

The most symptoms were generalized weakness which was close to 100%, fever (55%), vomiting (22%), loss of appetite (21%) and breathlessness (21%).

Pallor of skin/conjunctiva/mucus membrane was present variably in all the children (100%). Other common signs observed were lymphadenopathy, hepatomegaly, splenomegaly.

Table: 3 – Causes of Anemia in children

S. No.	Types	Number
1.	Anemia Due to Nutritional Deficiencies	
	a) IDA	123
	b) Megaloblastic	15
	c) Dimorphic	8
2.	Anemia Due to Hemolysis/blood loss	
	a) Malaria	46
	b) Thalassemia	5
	c) Dengue	6
3.	Malignancy	1

Table : 5 - RBC indices in children

		No. of Cases	Percentage (%)
MCV (fl)	Upto 75	121	60.5
	75-96	62	31
	> 96	17	8.5
MCH (pg)	Upto 23	79	39.5
	23-34	111	55.55
	>34	10	5
MCHC (g/dl)	Upto 30	83	41.5
	30-37	113	56.5
	> 37	04	2

MCV in majority of cases i.e. in 121 cases (60.5%) was upto 75fl, MCH was between 23-34pg in 111 cases (55.55%) and MCHC was between 30-37g/dl in 113 cases (56.5%).

DISCUSSION

The present study shows that anemia is not a specific entity but results from many underlying pathological processes. The findings of the study are discussed below.

Incidence of severe anemia is more in 0-5 year age group (60%). This observation is comparable to the

The most common cause of anemia in children was nutritional deficiency anemia i.e. iron deficiency anemia seen in 61.5% cases. Anemia due to other causes included hemolysis/blood loss seen in cases like malaria (23%), dengue (3%) and thalassemia (2.5%).

Table: 4 - Hemoglobin concentration studied in children

Hemoglobin concentration (gm%)	No. of cases
< 5	57
5-8	143

In majority of the cases, hemoglobin concentration was observed between 5-8 gm% i.e. 71.5%.

study done by Bharat G.N. et al⁷(35%), S.S. Manchanda et al⁸(51.42%), R.G. Goel et al⁹, B.D. Patel et al¹⁰. This shows that the incidence in this age group in our study is higher than the other studies.

A higher incidence of anemia was noted in male children in this study, which is similar to the studies done by Bharat G.N. et al⁷, R.G. Goel et al⁹, B.D. Patel et al¹⁰. About 90% of the children of our study had varying degrees of malnutrition which is higher as compare to study done by Bharat G.N. et al⁷

In our study, the clinical features present with the

highest incidence our generalized weakness (97.5%) which is similar to the study done by Manchanda et al⁸ & higher than the other studies. Similarly pallor (100%) is of same incidence in all the studies. Other clinical features like fever, palpitation, dyspnea, GI upset, organomegaly are of varying incidence in all the studies.

In this study, considering the types of anemia according to etiology, the leading cause was nutritional deficiency causing severe anemia in 146 cases (73%) in which iron deficiency anemia accounts for 123 cases (61.5%), 15 cases (7.5%) of megaloblastic anemia and 8 cases (4%) of dimorphic anemia which is compared to studies conducted by Bharat G.N. et al⁷, R.G. Goel et al⁹ and G.C. Bothra et al¹¹. It is noted that the incidence of nutritional deficiency anemia is more in the present study.

In present study, 28.5% of children had Hb concentration < 5g/dl & 71.50% had Hb concentration in between 5-8g/dl which is not similar to the studies done by Manchanda et al⁸ (<5g/dl - 62.92%; 5-7g/dl-37.08%), R.G. Goel et al⁹(<5g/dl - 52.00%; 5-7g/dl-48.5%), Bharat G.N. et al⁷ (<5g/dl - 30%; 5-7g/dl-70%). Incidence of etiology is also compared with these various studies and it was seen that nutritional deficiency anemia (75%) had approximately similar incidence with G.C. Bothra et al¹¹, R.G. Goel et al⁹ but was higher than that of Bharat G.N. et al⁷.

CONCLUSION

Finally, this study concludes that the most common cause of severe anemia in children is nutritional deficiency anemia especially iron deficiency anemia in this region.

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Conflict of Interest: None

Funding: Self

Ethical Clearance: Taken from ethical committee of the institute and the procedures followed were in accordance to the ethical standards of the responsible committee on human experimentation (institutional and national).

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Practices during Common Cold and Ear Ache in Children among the Koraga Tribes: A Descriptive Survey

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ABSTRACT

Background: Common cold and ear ache are one of the major problems which occur due to infection in children. Tribal populations use different practices to get rid of these infections.

Objectives: The objective of the study was to assess the practices of the Koraga tribes during common cold and ear ache in children.

Materials and Method: The study used a descriptive survey approach to collect data from 200 Koraga tribal care takers using a practice questionnaire. The data was analysed using SPSS 16.0 software.

Results: Majority 110 (55%) of caretakers were using pepper, 49 (24.5%) were using lemon and honey mixture and 19 (9.5%) were using ginger for common cold. Other practices include applying Vicks vaporub over forehead, nose and neck 156 (78%), using pepper and black cumin kashayam 21 (10.5%) and samabarbel leaves 23 (11.5%). Practices during ear ache in children includes, 96 (48%) of caretakers were not practicing any home remedies, 58 (29%) putting oil into the ear, 14 (7%) putting water into the ear and 32 (16%) of sample were observing and cleaning the ear with soft cotton. Other practice includes dry fish water into the ear 11 (5.5%).

Conclusion: The study concluded that majority of Koraga tribes still practice many home remedies to treat the children with common cold and ear ache.

Keywords: Practices, common cold, ear ache, common childhood illness

INTRODUCTION

In the modern world, the traditional believes and practices regarding health care during illness still exist. There is a cultural lag present between the materialistic and non-materialistic culture. Most of the societal beliefs and practices are still followed by majority of Indians happily without looking into the adverse effects of it. The health care practices are related to traditional culture and environment. Its the major responsibility of the health care team to be aware of the health practices and cultural

aspects, to protect the health of the children and eliminate the unhealthy practices.¹

In India, 8.2% of the population are the tribes which constitute around 1, 04,281,034 as per the 2011 census. In Karnataka it was 4,248,987 and in Udupi it was 20117. The tribal communities have their own unique customs, traditions, beliefs and child rearing practices. The need for seeking health care also varies and they follow different traditional beliefs and practices for different minor ailments which are at times harmful.²⁻³

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The basic health care facilities are inaccessible to majority of Indians says the WHO fact sheets (2006). The present generation is moving towards the alternative and complementary medicines for many diseases.⁴ The tribal population also uses variety of traditional medicines and practices for the minor ailments where few remain

harmful.^{3,5} But the practices and medicines which the tribes use to treat many of the ailments are not evidence based and requires further research to prove its significance.

A cohort study was conducted by McKee MD, Mills L and Mainous AG in 1999 on cold and predictors of health services utilization in Massachusetts among 261 families who had at least one under five child. The results showed that majority (93%) believed that causative organism for cold is virus, 66% of care takers believed bacteria as causative factor for cold. About 53% thought that antibiotics are necessary to manage cold. As per them (23%) they would visit the emergency department or their doctors (60%) during the episode of common cold in their child.⁶

A study was conducted by Solberg and Braun in 2000 on care seeking behavior during upper respiratory infections in Manhiça, southern Mozambique. A total of 257 adults and 249 care takers of children who visited primary care clinics were selected conveniently for the study. The data was collected through telephone interview with the participants. Those who came to the clinic within first two days were compared with those who visited later. The results showed that 30% of care takers and 50% of adults with symptoms demanded antibiotic to manage the symptoms.⁷

A study was conducted by Srikanth S1, Isaac R, Rebekah G et al, in 2008 among 150 care givers of children who were attending day care on knowledge, attitudes and practices with respect to risk factors for otitis media in a rural South Indian community. Data was collected with the help of a questionnaire. The results showed that around 50% of care givers are lacking in regard to risk factors for the occurrence of earache and ear infections. Mothers used to clean their children's ear on daily basis in view to prevent infections. Majority (67.2%) practiced different home treatments and 50% of them treated the ear discharge by physician. Care takers from high socio economic status involved most of the time in practicing home remedies while compared to other status of community.⁸

There also exists a need to initiate an effective collaboration and research between the practitioners of Indian System of Medicine and modern health care practitioners of different specialties. The increased attraction of modern practitioners towards outside the India making this collaboration more difficult. With this achievement, our country will gain more benefit and people will be clear about the areas where these two systems differs. Several

measures need to be taken to support and strengthen these systems and enable them to act meaningfully in achieving positive health among the people.¹

In today's age of evidence- based medicine and continuing use of folk remedies for the treatment of medical conditions warrants evaluation. While going through the literatures, there are limited numbers of studies related to practices during common cold among Indian tribes. Therefore an initial step is necessary to highlight different practices of Koraga tribes during common cold in children. This initiation gives in depth information for the necessity to provide awareness programme if their practices found to be harmful to the children.

The purpose of the study is to assess the practices of the Koraga tribes during common cold in children. This will help to get a baseline data and in depth information, so as to provide awareness on care of the child during common childhood illnesses.

MATERIALS AND METHOD

A descriptive survey was conducted among 200 Koraga tribal care takers residing in selected tribal areas of Kundapur Taluk, Udipi District, Karnataka. Criteria used to select the samples includes, people of Koraga tribes who have experience of taking care of a child, age group 18 and above, Koraga tribes with no known/documentated mental illnesses and Koraga tribes who can understand Kannada.

Cluster random sampling technique was used to select the research settings and final sample were selected through purposive sampling technique. Face to face interview with the help of semi structured practice questionnaire was used to collect data.

Background Data was used for the purpose of collecting background information of the Koraga tribes. It consisted of five items which includes age, gender, education level, type of family and previous information on care of the child during common illnesses and the source of information.

Semi structured practice questionnaire was developed by the researcher to assess the practices of Koraga tribes during common childhood illnesses. It consisted of five areas like practices during common cold and ear ache in children, number of usage within last one year, way of usage, any precautions followed after particular practice and the effect of particular practice on child. The tool was validated, translated into kannada, pretested and reliability computed by test-retest method and the tool was found to

be reliable ($r= 0.9$)

After obtaining the administrative permission from Dean, Manipal College of Nursing Manipal, ethical approval from the Institutional Ethics Clearance committee of Kasturba Hospital Manipal, and Department of Scheduled Tribes, Udupi District, the data collection was done in selected Tribal colonies of Kundapur, Udupi district. Cluster random sampling was used to select the various Koraga tribal areas in Kundapur Taluk and final samples were selected from five selected tribal areas through purposive sampling technique. Kundapur Taluk is situated at 36.8 km distance from Udupi Taluk and Byndooru Hobli region is situated at 32.5 km from Kundapur. The researcher approached the samples along with the community health nurses during their home visits. After identifying the Koraga families in the colonies, people who were available during that time and who met all the eligibility criteria and who were willing to participate in the study were included in the study. The purpose of the study was explained to each of them and written consent was obtained and they were assured about confidentiality of their responses. The data was collected through face to

face interview among eligible samples after giving subject information sheet about the study and obtaining informed consent from each caretaker. The information gathered during interview was documented in the tools itself where the options were provided.

RESULTS

The data was analysed based on the objective of the study using descriptive (frequency and percentage) statistics. The data gathered was coded and summarized in a master data sheet and then analyzed using SPSS version 16.

1. Description of Sample Characteristics:

The data analysis related to the sample characteristics is shown in table 1. It was found that majority of the care takers 139 (69.5%) belonged to the age group of 36-52 yrs and 168 (84%) of them were female care takers with educational qualification 116 (58.0%) of primary school. Majority of them 148 (74%) were living in nuclear families

Table 1: Description of sample characteristics in frequency and percentage

n=200

S.N	Sample characteristics		Frequency (f)	Percentage (%)
1	Age	18-35	51	25.5
		36-52	139	69.5
		53-70	10	05
2	Gender	Female	168	84.0
		Male	32	16.0
3	Education	No formal education	54	27.0
		Primary	116	58.0
		High school	26	13.0
		PUC	1	.5
		Graduation	3	1.5
4	Type of family	Nuclear	148	74.0
		Joint	52	26.0

2. Description of practices of Koraga tribes during common cold in children

The study findings regarding description of practices of Koraga tribes during common cold is depicted in table 2.

Table 2: Frequency and percentage distribution of practices during common cold. n=200

Category	Practice	Frequency (f)	Percentage (%)
Practice during common cold	Lemon and honey mixture	49	24.5
	Ginger	19	9.5
	Pepper	110	55.0
	Not using any of the above	22	11.0
Any other practice for common cold	Applying Vicks vaporub to neck, nose and forehead	156	78.0
	Pepper and black cumin kashayam	21	10.5
	Sambarbelle leaves	23	11.5
Number of usage within one year	Not used within last one year	53	26.5
	Used at least once or more within last one year	147	73.5
Way of usage	Applying Vicks vaporub to neck, nose and forehead	156	78.0
	Boiling pepper and black cumin and adding a piece of jaggery	21	10.5
	Heating sambarbelle leaves and keeping on forehead and nose	23	11.5
	Adding one fourth of lemon into one teaspoon of honey and drinking	49	24.5
	Grinding ginger and boiling with water and drinking	19	9.5
	Mixing black pepper and salt and making the child to eat	110	55.0
Any precaution following usage	No precaution	175	87.5
	Avoiding water for some time after drinking kashayam	24	12.0
	Avoid bath for some time after application of leaves	1	0.5
Effect after usage	No effect	15	7.5
	Reduction in running nose	55	27.5
	Reduction in cough	96	48.0
	Reduction in both cold and cough	34	17.0

The study findings revealed that majority 110 (55%) of sample were using pepper, 49 (24.5%) were using lemon and honey mixture and 19 (9.5%) were using ginger for common cold. Other practices include applying Vicks vaporub over forehead, nose and neck 156 (78%), using pepper and black cumin kashayam 21 (10.5%) and samabarbelle leaves 23 (11.5%). Majority 147 (73.5%) of them used these remedies at least once or more within last one year. Their way of usage of particular home remedies were applying Vicks vaporub to neck, nose and forehead, boiling pepper and black cumin and adding a piece of jaggery, heating sambarbelle leaf and keeping on forehead and nose, adding one fourth of lemon into one teaspoon of honey and drinking, Grinding ginger and boiling with water and drinking, mixing black pepper and salt and making the child to eat. No precautions were followed by majority

175 (87.5%) of them, following usage of these remedies, whereas other precautions includes avoiding water for some time after drinking kashayam 24 (12%) and avoid bath for some time after application of sambarbelle leaves 1 (0.5%). Effects of particular practices experienced were reduction in cough 96 (48%), reduction in running nose 55 (27.5%) and reduction in both cold and cough (17%).

3. Description of practices of Koraga tribes during ear ache in children

The description of practices of Koraga tribes during ear ache is depicted in table 3. Practices during ear ache in children includes, 96 (48%) of samples were not practicing any home remedies, 58 (29%) putting oil into the ear, 14 (7%) putting water into the ear and 32 (16%) of sample were observing and cleaning the ear with soft cotton. Other

practice includes dry fish water into the ear 11 (5.5%). Majority 189 (95.5%) of sample not used these remedies within last one year and 9 (4.5%) of them used at least once or more within last one year. Their way of usage of particular home remedies includes, putting cold or warm water into the ear 14 (7.0%), putting boiled cooled coconut oil into the ear 58 (29%) and scratching dry fish with water

on a stone and putting that water into the ear 11 (5.5%). A precaution followed by them following particular practice making the child to lie down on unaffected side for some time 65 (34.5%). Effects of particular practices experienced were reduction in the intensity of pain and provides comfort 46 (23%) and relief from insects and its bite 59 (29.5%).

Table 3: Frequency and percentage distribution of practices during ear ache

n=200

Category	Practices during earache	Frequency (f)	Percentage %
Practices during ear ache	Not using anything	96	48.0
	Putting cocunut oil into the ear	58	29.0
	Putting water into the ear	14	7.0
	Observing and cleaning with soft cotton	32	16.0
Other practices	Not used any other remedies	189	94.5
	Dry fish water	11	5.5
Number of usage within one year	Not used within last one year	191	95.5
	Used at least once or more within last one year	9	4.5
Way of usage	Putting cold or warm water into the ear	14	7.0
	Putting boiled cooled coconut oil into the ear	58	29.0
	Scratching dry fish with water on a stone and putting that water into the ear	11	5.5
Precaution following usage	No precaution	131	65.5
	Making the child to lie down on unaffected side for some time	69	34.5
Effect after usage	No effect	95	47.5
	Reduction in the intensity of pain and providing comfort	46	23.0
	Relief from insects and its bite	59	29.5

DISCUSSION

The findings of the present study is supported by a study conducted by Lee GM, Friedman JF, Ross- Degnan D et al, in 2002, on parent's way of caring the children during common cold. Majority of them used to provide rest (97%) and non-prescribed medications (63%) to the child suffering with cold.⁹

Practices during ear ache in children includes, 96 (48%) of samples were not practicing any home remedies, 58 (29%) putting oil into the ear, 14 (7%) putting water into the ear and 32 (16%) of sample were observing and cleaning the ear with soft cotton.

The findings of the present study is supported by a study conducted by Srikanth SI, Isaac R, Rebekah G, et al on practices during otitis media in a rural South Indian community. The results showed that educated mothers used to clean their children's ear on daily basis in view to

prevent infections. Care practices differed among them. Most caretakers (67.2%) treated with home remedies and 50% of them by doctor for ear discharge.⁸

CONCLUSION

Koraga tribal care takers were following different practices during common cold in children. Majority 110 (55%) of the care takers were using pepper, most of them 49 (24.5%) were using lemon and honey mixture and 19 (9.5%) were using ginger for common cold. It has given a base to look into their different practices and its effects on children.

The investigator observed some of the practices like putting dry fish water into the ear, putting water and oil into the ear etc during the data collection period and found that it was harmful to the child. Hence the investigator provided an awareness programme regarding home care of the child during common childhood illnesses and also distributed an

information leaflet which was developed by the researchers and validated by the experts. There is a need to educate the tribal population on care of child during common illness to eliminate the harmful practices.

Conflict of Interest: None

Source of Funding: None

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Susceptibility Status of *Phlebotomus Argentipes*, to Synthetic Pyrethroid Insecticides in Kala Azar Endemic Parts of Bihar, India in Relation to Elimination of Visceral Leishmaniasis

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ABSTRACT

Since 1976, DDT @1gm/sq meter being sprayed to control Kala azar in India. Government of India along with Government of Bihar have decided to use synthetic pyrethroid insecticides in order to eliminate kala azar from India by 2016. A study was therefore conducted in 2015 in Bihar, selecting 13 villages of four highly kala azar endemic districts like Siwan, Samastipore, Muzaffarpore and Katihar in order to note baseline susceptibility status of commonly used synthetic pyrethroids like Deltamethrin, Lambda-cyhalothrin, Alphacypermethrin to *Phlebotomus argentipes*, the vector of Kala azar in India. The test was conducted as per standard WHO technique using WHO test kits. Adult *Phlebotomus argentipes* were found highly susceptible to those insecticides.

Keywords: Susceptibility status, *Phlebotomus argentipes*, kala azar vector, synthetic pyrethroids

INTRODUCTION

Visceral leishmaniasis (VL) or Kala Azar (KA), the most Neglected Tropical Disease was apparently disappeared from India during 1960s due to collateral benefit of intensive Indoor Residual Spray (IRS) of DDT Under National Malaria Control Programme in 1953 and subsequently National Malaria Eradication Programme in 1958, (Sanyal et al 1979). Since 1970s, Bihar, Jharkhand, Uttar Pradesh and West Bengal in India are again under the grip of kala azar^{1,2}. The proven vector of VL in India is *Phlebotomus* (*Euphlebotomus*) *argentipes*. As a part of vector control programme, DDT is being sprayed at the rate of 1gm/sq.m since 1976¹. During the years 2014 and 2015 Bihar state alone is contributing 82 and 76 percent kala azar cases respectively (NVBDCP, Govt of India). The National Health Policy 2002 set the goal of Kala azar elimination by the year 2010 in India, which was revised to 2016³. Several researchers reported that *P. argentipes* has developed tolerance or resistance to DDT in several parts of Bihar and West Bengal^{4,5,6,7}. Recently The Government of India along with Government of Bihar has decided to spray Synthetic Pyrethroids (SP) like Alpha cypermethrin in selected areas of Bihar to reduce

vector density in order to eliminate kala azar from Indian subcontinent (Dte. NVBDCP, Govt of India).

A study was therefore initiated in 2015 in some KA endemic areas of Bihar to know the base line susceptibility status of *P. argentipes* to synthetic pyrethroid insecticides like Deltamethrin, Lambda-cyhalothrin, Alphacypermethrin.

MATERIAL AND METHOD

Among the worst kala azar affected districts of Bihar, Samastipore, Muzaffarpore, Katihar and Siwan were selected in random method for the study. The districts are situated at the northern side of Ganges having low lying alluvial plains with people of poor socio-economic conditions. Since 1976, however these districts are under DDT spray @ 1gm/sq meter for kala azar control.

From each district, one to three blocks and from each block one to three villages reporting high incidences of kala azar, were selected by random method. The villages are: Satmalpur, Belahi Chandauli (Block Warisnagar), Khanpur, Hasapur and Chatur Bahura (Block Khanpur), Ramgaon Kamal, Rupauli Chaksima and Hasanpur Surat

(Block Patory) under district Samastipore, Raksha and Madhuban (Block Marwan) under district Muzaffarpore, Kalsar of block Hasanganj under District Katihat and Goriakoti (Block Pahlejpur) and Ratanpura (Block Maharajganj) under district Siwan.

Sand flies were collected from eleven villages in four blocks of districts Samastipore and Muzaffarpore using Light trap as well as aspirator torch technique. Flies were brought to district entomology laboratories, Care. After morphological identification, healthy gravid female *P. argentipes* were kept in village wise marked cages. 10 % of the female *P. argentipes* were dissected and species were reconfirmed by the method of Lewis (1978). Rest of the *P. argentipes* were reared in the laboratory maintaining temperature and relative humidity as $25 \pm 5^{\circ}\text{C}$ and $75 \pm 5\%$ respectively and created a healthy F1 Colony. Batches of 25 raisin fed healthy female *P. argentipes* were exposed to 0.05 % Deltamethrin, 0.05% Lambda-cyhalothrin % and 0.05% Alpha-cyhalothrin separately for one hour along with control. Exposure to the above insecticides to each batch was repeated four times. A total of 100 flies were exposed to each concentration of insecticides for every village under experiment. The temperature and relative humidity of the room was maintained at $24^{\circ}\text{C} \pm 2$ and at $75 \pm 5\%$, respectively,

and mortality was recorded after 24 hours. The study was conducted according to a standard WHO technique, using WHO test kit^{9,10,11}. After the test, the identity of all *P. argentipes*, dead or alive, was reconfirmed by the method of Lewis⁷.

As there was no facility for sand fly colonization in the district laboratories of Katihar and Siwan, wild female *P. argentipes* were collected from different biotopes of three villages of Districts Katihar and Siwan. Blood fed or gravid females were exposed to 0.05 % Deltamethrin, 0.05 % Lambda-cyhalothrin and 0.05% Alpha-cyhalothrin separately for one hour along with control. A total of 100 flies were exposed to each concentration of insecticides along with control for every village under experiment. The temperature and relative humidity of the room was maintained at $24^{\circ}\text{C} \pm 2$ and at $75 \pm 5\%$, respectively, and mortality was recorded after 24 hours as per WHO guidelines^{9, 10, 11}.

RESULT AND DISCUSSIONS

Detail village, block and district wise results on susceptibility status of *P. argentipes* on synthetic pyrethroids i.e. Deltamethrin, Alpha-cypermethrin and Lambda-cyhalothrine are shown in tabular form.

Table . Showing village wise, block and district wise susceptibility status of *Phlebotomus argentipes* to synthetic pyrethroids in Bihar, India. *

DISTRICT	BLOCK	VILLAGE	SUSCEPTIBILITY STATUS TO S.P COMPOUND (n = 100)											
			Deltamethrin 0.05%				Alphacypermethrin 0.05%				Lambdacyhalothrine 0.05%			
			I	II	III	IV	I	II	III	IV	I	II	III	IV
Katihar	Hasanganj	Kalsar	ND	ND	ND	N	ND	-	-	ND	100	100	100	2
Samastipur	Warishnagar	Satmalpur	94	100	100	3	93	99	99	2	100	100	100	0
		Belahi	100	100	100	0	98	100	100	0	100	100	100	2
		Chandauli	100	100	100	1	99	100	100	0	99	100	100	0
	Khanpur	Khanpur	100	100	100	0	100	100	100	0	100	100	100	0
		Hasopur	99	100	100	2	100	100	100	0	98	100	100	4
		Chatur Bahuara	100	100	100	0	99	100	100	3	100	100	100	0
	Patory	Ramgaon kamal	100	100	100	2	99	99	99	0	100	100	100	0
		Rupauli chaksima	100	100	100	1	100	100	100	0	98	100	100	0
		Hasanpur Surat	99	100	100	0	100	100	100	0	100	100	100	2
	Muzaffarpur	Marwan	Raksha	98	100	100	2	100	100	100	0	100	100	100
Madhuban			100	100	100	0	99	100	100	0	100	100	100	0
Siwan	Goriakothi	Pahlejpur	100	100	100	4	ND	ND	ND	ND	ND	ND	ND	ND
	Maharajganj	Ratanpura	ND	ND	ND	-	ND	ND	ND	ND	100	100	100	1

I = Knockdown after 1 hour. II = Death after 24 hours. III = Mortality percent. IV = control mortality percent. ND = Test not done.

**This study was conducted as per MOU signed between BMGF/CARE-INDIA and Government of Bihar in regard to Elimination of kala-azar under Strengthening of Kala-azar Elimination programme in Bihar.

Both laboratory bred (district Samastipore & Muzaffarpore) and wild caught (Katihar & Siwan) female *P. argentipes* were found highly susceptible to SP compounds ie 0.05% Deltamethrin, 0.05% Lambda-cyhalothrin and 0.05% Alpha-cyhalothrin. As shown in tabular form, in one hour exposure, cent percent mortality of the fly was noted after 24 hours in all study villages, when exposed to Deltamethrin and Lambda-cyhalothrin, whereas 99% mortality to Alpha cypermethrin was noted in two villages (Satmalpur and Ramgaon kamal) in Samastipur district. Abbott's formula was not applied as control mortality was below 5% in all the experimental villages.

Till 1979^{1, 2} *P. argentipes* was known to be highly susceptible to DDT. Mukhopadhyay et al (1990) first reported *P. argentipes* developed tolerance to DDT in some parts of District Samastipore, Bihar. Thereafter, series of studies were conducted on susceptibility status of the fly to DDT. R. Singh et al in 2001⁵, later R K Singh in 2012⁶ made a detail survey on resistance status of *P. argentipes* to DDT. Recently Ram Singh et al (2015) noted *P. argentipes* has developed resistance to DDT in 38.1% villages in 6 districts of Bihar. He also noted that the same species is susceptible to Deltamethrin. Government of India along with Government of Bihar has decided to use synthetic pyrethroid compound for control the vector in order to eliminate the disease from India^{3, 12}. At this stage, baseline data on susceptibility of *P. argentipes*, to Synthetic pyrethroids used in vector control programme is highly essential. This literature therefore has established a base line data recording that the vector *P. argentipes* is highly susceptible to synthetic pyrethroids commonly used in vector control programme.

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Conflict of Interest - Nil

Ethical clearance :- Directorate of National Vector Borne Disease Control Program, Government of India. Delhi gave a clearance to note the susceptibility status of vector of kala azar (*P. argentipes*) to synthetic pyrethroids.

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Depression and Quality of Life among Patients with Type 2 Diabetes Mellitus in the Coastal City of Mangalore, India

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ABSTRACT

Background: The global prevalence of this disease is on a steady rise. India has the second highest prevalence of diabetes in the world with 65.1 million people having diabetes and is estimated to be 109.0 million by the year 2035. Diabetics are also at a two-fold increased risk for depression.

Methodology: A facility based cross-sectional study was conducted over a period of 2 months at out-patient department (OPD) of Government Wenlock Hospital (GWH). 245 type 2 DM patients with duration of illness of at least one year were included in the study. The PHQ-9 is the depression module, which scores each of the 9 DSM-IV criteria as “0” (not at all) to “3” (nearly daily) for the purpose of determining depressive symptoms and the WHOQOL-BREF questionnaire for the purpose of assessing quality of life among diabetic patients was used. The collected data was then entered into MS-Excel sheets and analyzed using SPSS Version 15.0

Results: The study included 243 patients of type 2 Diabetes Mellitus. Mean values were found to be highest for social relationships (60.29) and lowest for physical health (48.17). After analysis of depressive symptoms it was seen that 129 (53.1%) participants had depression while the rest 114 (46.9%) were free of depressive symptoms.

Conclusion: The study has shown high prevalence of depression among type2 diabetes patients in the study area. Moreover, the quality of life among the study subjects with depression is also seen to be poorer compared to those without depression.

Keywords: Diabetes, Depression, Mangalore

INTRODUCTION

Diabetes mellitus is defined as “a clinical syndrome characterised by hyperglycaemia caused by absolute or relative deficiency of insulin”^[1]. The global prevalence of this disease is on a steady rise. Diabetes mellitus in the world is predicted to increase from 4% in 1995 to 5.4% by the year 2025^[2]. India ranks second among the countries with highest prevalence of diabetes globally with 65.1 million people having diabetes and is estimated to be 109.0 million by the year 2035.^[3]

India has the largest regional mortality, with 1.1 million deaths due to diabetes in 2013^[3]. The mortality rate of male subjects with DM is 1.9 times that of subjects without it, whereas for females it is 2.6 times compared to

ones without diabetes. Diabetes results in approximately a decade of life lost due to premature deaths. It can lead to numerous complications all of which are classified under: micro vascular diseases (retinopathy, blindness, nephropathy, kidney failure, etc.) and macro vascular diseases (coronary heart disease, stroke, peripheral vascular disease, lower extremity amputation, etc.). These lead to development of disabilities^[3-5]. Diabetics are also at a two-fold increased risk for depression. A previously-conducted study suggests that on an average, 1 in every 5 patients suffers from depression^{[3][5]}. Another study revealed decline in the quality of life among diabetic patients^[5]. The prevalence of diabetic complications or co-occurrence of depression and diabetes or both may have influence on it in these subjects^[6,7]. Hence

symptoms of depression act as determinants in the quality of life among diabetics.

This study aims at evaluating the general quality of life among diabetics as well as studying the association of depression and influence of other factors on the quality of life of the study participants.

SUBJECTS AND METHOD

Study design and duration

A facility based cross-sectional study was conducted during March to May 2013.

Study setting

The study was conducted in the medical out-patient department (OPD) of Government Wenlock Hospital (GWH), an associate hospital of Kasturba Medical College (KMC), Mangalore. The city of Mangalore is located in the coastal region of Karnataka state. It is the second fastest developing city of Karnataka state, with a highly industrialized work environment. The prevalence of DM in the coastal Karnataka is 16% [17]. The healthcare system in Mangalore is highly privatized with the presence of six private medical colleges and a sea of private clinics. The GWH is a tertiary care level district hospital, which is having a public private partnership (PPP) with KMC, Mangalore. It is one of the oldest PPP model in the country since the year 1955. The GWH not only caters to the residents of Mangalore city but people from adjoining districts too. The OPD case load for every day ranges from 200 to 300 patients, among whom 60–70 patients will be with diabetes for follow-up care. Apart from everyday medical OPDs, every Wednesday diabetes clinic is conducted. The patients with diabetes are, usually, attended by the consultant doctors, junior residents and interns.

Study participants

The participants of our study included type 2 DM patients with duration of illness of at least one year and are willing to consent, who attended the out-patient departments of Government Wenlock Hospital, Mangalore. Patients with type 1 DM or those not willing to provide consent were excluded from the study.

Sample size estimation

A sample of 243 participants was required considering a power of 80%, confidence level of 95%, and absolute precision of 6% and prevalence of diabetes mellitus to be 20% among general population [8].

Sampling

The participants were selected using convenient sampling.

Study instruments

The Patient Health Questionnaire-9 (PHQ) was used to assess the prevalence of depression among the study participants and the WHOQOL-BREF tool was used for the purpose of assessing quality of life. Both the tools were translated into Kannada language and pre-testing was conducted before the start of the study.

Statistical analysis

The collected data was entered and analyzed using SPSS Version 11.0 (Chicago IL, USA). Descriptive statistics like medians (interquartile ranges) and proportions were used. The collected information was analyzed in descriptive manner in terms of percentages, means and averages. In addition, the association between the variables of interest such as depression and QOL has been assessed using Mann Whitney U test, with p value of <0.05 as significant.

Ethical Considerations

Ethical clearance was obtained from the Institutional Ethics Committee (IEC) of KMC, Mangalore and all the study participants were provided with participant information sheets and consent form describing the purpose of the study. All the collected information has been kept confidential.

RESULTS

The study was conducted among 243 patients of type 2 DM who visited the various outpatient departments of Govt. Wenlock hospital, Mangalore during the study period. This included 160 males (65.8%) and 83 females (34.2%) – of which 216 participants were married, 17 unmarried and 10 were widowed. Also, 129 study participants (53.1%) were working while 114 were not working/retired. 193 (79.4%) were literate and 35.8% of the participants had the habit of consumption of alcohol as well.

The assessment of QOL among the study participants was done for all the domains. Mean values were found to be highest for social relationships (60.29) and lowest for physical health (48.17). The maximum and minimum range for; physical health was found to be 25 - 81, psychological was 25 - 75, social relationships was 19 - 94 and environment was 31- 75.

Table 1: The domain wise score of quality of life among study participants (n=245)

S. no	Domains	MEAN ± 2 Standard Deviation	Range
1	Physical health	48.17 (13.41)	25 – 81
2	Psychological	50.35 (11.52)	25 – 75
3	Social relationships	60.29 (22.25)	19 – 94
4	Environment	60.04 (11.99)	31 – 75

After analysis of depressive symptoms it was seen that 129 (53.1%) participants had depression while the rest 114 (46.9%) were free of depressive symptoms.

Table-2: Association between presence of depression and quality of life among the study participants (n=245)

S.no	Domains	No depression Median (IQR)*	Depression Median (IQR)*	Z Score	P-value
1	Physical health	81.0 (69.0-81.0)	44.0 (38.0-50.0)	-9.222	0.001
2	Psychological	75.0 (72.6-75.0)	50.0 (44.0-56.0)	-3.013	0.003
3	Social relationships	75.0 (72.6-75.0)	69.0 (44.0-75.0)	-1.993	0.046
4	Environment	70.2 (75.0-75.0)	56.0 (56.0-69.0)	-1.231	0.218

*IQR-Inter Quartile Range

Association between depressive symptoms and QOL was found to be significant for the domains of physical health, psychological, social relationships, and environment. Subjects with depression had physical health scores of 38 – 50 with mean value of 44, psychological scores of 44 – 56 with mean value of 50, social relationship scores of 44 – 75 with mean value of 69, and environment scores of 56 – 69 with mean value of 56.

DISCUSSION AND CONCLUSION

Out of the 243 type 2 DM patients studied, it was seen that 129(53.08%) were seen to have depressive symptoms while the remaining 46.9% were free of depressive symptoms. This assessment was done based on the PHQ-9 questionnaire. Diabetes is a chronic disease and hence the thought of living with a disease lifelong can be considered as the cause of this depression. Moreover, the burden of managing the illness as well as its complications (both minor and major) contributes further to their depression. The results of the study concur with a randomised control trial done in Netherlands .The latter study revealed that 35–38% of the type 2 DM patients studied, had depression and also, having diabetes as a sole comorbidity did not increase the chances of depressive

symptoms but having other comorbidities increased the chances of having depression [4]. A study conducted by Kivimaki et al revealed that the risk of depressive disorders development two years following the diagnosis of type-2 diabetes in the absence of associated complications [9]. In another study conducted by O’Connor et al it was found that a less intensive treatment was found to be protective against the development of depression as compared to a more intensive treatment [10].

The testing of association between QOL and depression revealed that those with depressive symptoms had a lower quality of life; as compared to those without depression. Diabetes affects a person’s health as well as QOL in different ways. For example, the daily self-intake of oral medications or insulin and restriction in diet affect a person’s lifestyle to a major extent. In addition the complications caused by diabetes worsen the quality of life in patients further. The results were in concurrence with the findings of another study conducted by Thoolen et al [11].

The results suggest the importance of evaluating quality of life and depressive symptoms in diabetic patients[12,13]. Hence it is important for clinicians to identify risk factors and screen for depression among their patients. This would not only improve treatment compliance but also reduce the risk of complications

which impair quality of life.

The study has shown high prevalence of depression among type 2 diabetes patients in Mangalore. Moreover, the quality of life among the study subjects with depression is also seen to be poorer compared to those without depression. Therefore this study aims to reveal the importance of detecting as well as treating the depressive symptoms among type 2 diabetes patients as early as possible, rather than just managing the signs and symptoms of diabetes. This would help the patient enjoy a better quality of life and may even prevent the risk of development of complications. More detailed research is needed to overcome the limitations faced while conducting this study.

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Ethical Clearance: Ethical committee approval was sought before the commencement of study from Institutional Ethics Committee of Kasturba Medical College, Mangalore, Manipal University.

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A Study on Risk Factors of Hypertension in Urban Population of Eluru, West Godavari

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ABSTRACT

Background: Hypertension disease exhibits the iceberg phenomenon of the disease. Review of epidemiological studies suggests that the prevalence of hypertension has increased in both urban and rural subjects and presently is 25% in urban adults and 10-15% among rural adults **Objectives:** 1. To study the prevalence of hypertension in urban population of Eluru. 2. To find the risk factors association with hypertension among the urban population. **Materials & Method:** The present community based cross sectional study was conducted at urban area of Eluru, Andhra Pradesh, during the period from June 2013 to June 2014. A total of 533 individuals were selected randomly from the urban field practice area of Alluri Sita Ramaraju Academy of Medical Sciences. Results were analyzed and necessary statistical tests were applied. **Results:** Out of 533 study population, 52.1% were males and 47.9% were females. In the present study overall prevalence of hypertension was found to be 24.9%. There was statistically significant association was found between smoking individuals, less physical activity and more stress were significantly associated with hypertension respectively ($P < 0.01$, $P < 0.001$ $P < 0.002$) **Conclusions:** Based on the above study results, prevalence of hypertension was more in smokers, no physical activity individuals and extra salt taking persons. We can advocates the study population, that is adoption of some life style modifications like decreased stress, avoidance of smoking, extra salt intake as far as possible.

Keywords: Age, Sex, smoking, alcohol consumption, physical activity, Salt intake

INTRODUCTION

Hypertension is a major public health problem and greatest challenge of 21st century. Hypertension was reported to be fourth contributory to premature death in developed countries and the seventh in developing countries. Recent reports indicate that nearly 1 billion adults had hypertension and this predicted to increase to 1.56 billion by 2025¹.

The World Health Organization and the Seventh report of Joint National Committee on Prevention, Detection, Evaluation and Treatment of high blood pressure (JNC-7) defines hypertension as systolic blood pressure more than or equal to 140mm Hg and diastolic

blood pressure more than or equal to 90mm of Hg.^{2,3}

Uncontrolled hypertension will lead to cardiovascular complications such as myocardial infarction, heart failure, peripheral arterial diseases and aortic aneurysm. It may lead to renal complications like chronic renal failure, end stage kidney diseases etc and neurological complications like cerebrovascular accidents such as stroke. Most of these complications will occur without obvious signs and symptoms. Hence this disease, hypertension is called as "silent killer"⁴.

Globally cardiovascular disease accounts for approximately 17 million deaths in a year, nearly one third of the total deaths. Of these, complications of hypertension account for 9.4 million deaths worldwide every year. Hypertension is responsible for at least 45% of deaths due to heart disease and 51% of deaths due to stroke⁵.

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In 2020 AD, 2.6 million Indians are predicted to die due to coronary heart disease which constitutes 54.1 % of all CVD deaths. Nearly half of these deaths are likely to occur in young and middle aged individuals (30-69 years). Review of epidemiological studies suggests that the prevalence of hypertension has increased in both urban and rural subjects and presently is 25% in urban adults and 10-15% among rural adults⁶.

Non modifiable risk factors of hypertension are age, gender and hereditary and modifiable risk factors are tobacco use, alcohol use, physical inactivity, over weight and Obesity⁷.

Hypertension is an iceberg disease and the many studies were conducted on hypertension prevalence in many urban areas mainly in metro cities. Still some data is lacking, as such as in small towns like Eluru regarding hypertension prevalence and risk factors. As per my knowledge there is no much studies conducted in and around Eluru city regarding prevalence of hypertension more than 30 years age group. Early onset of hypertension leads to decreasing life expectancy and also leads to pre mature deaths and disability. Hence, I have taken this particular study to find hypertension prevalence among 30 years and above age group and how the risk factors associated with hypertension

Objectives:

1. To study the prevalence of hypertension in urban population of Eluru.
2. To find the risk factors association with hypertension among the urban population.

MATERIALS AND METHOD

This was a community based cross-sectional study conducted among the adult individuals (aged ≥ 30 years) residing in the urban field practice area of a ASRAM Medical College, Eluru. It would also serve the purpose of providing base line data of Hypertension in the target population of the UHTC, for future follow up and studies. The study has been conducted from June 2013 to June 2014 (including 6 months of field work) individuals above 30 years of age residing in the field practice area of ASRAM Medical College were included in the study. Systematic random sampling method was used for collecting the data. Based on JNC VII (3) criteria, a

person was considered hypertensive if SBP ≥ 140 and/or DBP ≥ 90 mmHg and Persons already on anti-hypertensive treatment. Data was collected by listing all the areas which comes under urban field practice area. As there were no prevalence studies in this area above 30 years age group, for calculating required sample size for the study, a pilot study was undertaken by considering 50 subjects above 30 years of age in one of the urban field practice area and the prevalence of hypertension was found to be 25% and as per the global statistical report 2010 the prevalence of hypertension in urban area was also 25%. So by taking the mean prevalence of Hypertension in this age group was 25%. Fixing the allowable error to be 15% the minimum required sample size was calculated by using the formula $n = \frac{4 \times p \times q}{L^2}$

$$L^2$$

Statistical Analysis: Necessary statistical tests like simple proportions and Chi square tests were used with 95% confidence intervals.

RESULTS

Table 1: Distribution of study population according to Blood pressure status

Hypertension type	Number	Percentage
Normotension	237	44.4%
Pre hypertension	163	30.5%
Stage 1 Hypertension	98	18.3%
Stage 2 Hypertension	35	6.5%
Total	533	100%

In the present study, out of total 533 study population normotension individuals were 237 (44.4%) and 163 (30.5%) prehypertension individuals according to JNC VII³. 18.3 % stage I hypertension and 6.5% stage II hypertension. In the present study overall prevalence of hypertension was found to be 24.9%

Table 2: Distribution of study subjects according to their blood pressure status and age.

Age group	Hypertension	Normotension	Total
30-40	30 (11.4%)	232 (88.6%)	262 (100%)
41-50	58 (63.7%)	91 (36.3%)	91 (100%)
51-60	29 (74.3%)	39 (25.7%)	39 (100%)
>60	16 (42.1%)	38 (57.9%)	38 (100%)
Total	133 (24.9%)	400 (75.1%)	533 (100%)

$\chi^2 = 53.0, df=3, p=0.0001$

In the present study, the prevalence of hypertension was 11.4% in 30-40 age groups. The prevalence of hypertension increased by age as in age group 41-50 it was 63.7%.

Table 3: Blood pressure status and habit of smoking.

Smoking habit	Hypertension	Normotension	Total
Smokers	59(44.3%)	60(55.7%)	119(100%)
Non smokers	74(17.8%)	340(82.2%)	414(100%)
Total	133(24.9)	400(75.1%)	533(100%)

Chi square $\chi^2=49.6, df=1, p=0.0001, p>0.01$

The above table shows the relation of hypertension with history of smoking. 44.3 % of smokers and 17.8% of non smokers were hypertensives. The association between hypertension and smoking was found to be statistically significant.

Table 4: Blood pressure status and alcohol consumption.

Alcohol consumption	Hypertension	Normotension	Total
Consumed	40(28.7%)	99(71.3%)	139 (100%)
Not consumed	93(23.6%)	301(76.4%)	394 (100%)
Total	133(24.9)	400(75.1%)	533 (100%)

Chi square $\chi^2= 1.47, df=1 p=0.226(>0.05)$

Above table shows the association between alcohol and hypertension ,out off 533 study population 139 individuals consumes alcohol among them 28.7% were with hypertension and among those not consumed alcohol, 23.6% were with hypertension.

Table 5: Distribution of study subjects according to their blood pressure status and habit of adding extra salt.

Extra salt	Hypertension	Normotension	Total
Consumed	54(36.4%)	94(63.6%)	148(100%)
Not consumed	79(20.5%)	306(79.5%)	385(100%)
Total	133(24.9%)	400(75.1%)	533(100%)

Chi square $(\chi^2) =14.6, df=1, p=0.0001$

Among the study population, those consumed extra salt per day, among them 36.4% were found to be having hypertension and among extra salt not consumed 20.5% were found to be hypertension.

Table 6: Distribution of study subjects according to their blood pressure status and physical exercise.

Physical exercise	Hypertension	Normotension	Total
Yes	15(11.5%)	115(88.5%)	130(100%)
No	118(29.2)%	285(70.8%)	403(100%)
Total	133(24.9%)	400(75.1%)	533(100%)

$$x^2=16.5, df=1, p=0.0001$$

Above table shows that association of hypertension with physical exercise. High percentage of hypertnsives were found in those who not do physical exercise 29.2%, compare to 11.5% hypertensive who do physical exercise.

Table 7: Distribution of Blood pressure status with stress

Stress	Hypertension	Normotension	Total
Present	37(46.8%)	42(53.2%)	79(100)
Absent	96(21.1%)	358(78.9%)	454(100%)
Total	133(24.9%)	400(75.1%)	533(100%)

$$\text{Chi square } (x^2) = 23.7, df=1, p=0.0001$$

Among the study population (46.8%) hypertensive individuals were having stress full life were found to be having hypertension and when compare with those not having the stress, in that 21.1 % were found to be hypertension.

DISCUSSION

The present study was conducted to study the prevalence of hypertension in urban field practice area of ASRAM Medical College and to study some risk factors associated with hypertension. A total of 533 study subjects were selected comprising of 278 males and 255 females. Most of the study population belonged to age group 30-40years.

In our study the overall prevalence of hypertension was found to be 24.9%. These results were comparable to the rates obtained by shymal kumar etal⁸ in his study titled 'prevalence of hypertension in urban population of west Bengal, representing eastern India, where the prevalence of hypertension has been reported to be 24.9 in urban adults and also similar rate was obtained by renu rani etal⁹ in his study prevalence of hypertension among adults in urban area of jammu in 30 years and above age

group. Early onset of hypertension in urban population may be as a result of leading a stressful and fast urban life-style, without sufficient rest to mind and body.

However in present study 27.7% those who consumes, extra salt intake in that 10.1% were hypertensives. A significant association was found between extra table salt intake with hypertension. Higher salt consumption was found in our study.

The present study found that people who were engaged in regular physical activity (Engage in regular aerobic physical activity such as brisk walking at least 30 min/day, at least 5 days/week) had less probability of developing hypertension compared to those who rarely do any physical activity. The prevalence of hypertension was 11.5% among those who did regular physical exercise and 29.2% among those who do not undergoing exercise.

People who are doing exercise regularly have lower resting heart rates and they are able to consume greater volumes of oxygen in turn lowering their systolic blood pressure. Studies have shown that regular physical activity reduces the Systolic blood pressure by 4 – 9 mmHg. Apart from this regular exercise also reduce atherosclerosis by

lowering LDL and increasing HDL. Midha T et al¹⁰ conducted a study on hypertension in Lucknow and inferred that people who were physically inactive were at increased risk of developing hypertension.

In the present study, there was a significant association found between smoking and hypertension. Many studies have found statistically significant association between smoking and hypertension. Tobacco smoking has been reported to cause acute rise of BP, but whether prolonged smoking leads to sustained hypertension has not been well established³.

Indian studies have shown a significant correlation of smoking or tobacco use with hypertension prevalence. Study conducted by NC Hazarika¹¹ in Assam shown the similar results.

The prevalence of hypertension was found to be less in alcoholics than non-alcoholics. However, the Chennai urban population study¹² found no association between Hypertension prevalence and alcohol consumption. Saunders found a significant positive association between hypertension and alcohol consumption. Study conducted by SE Mahmood et al in barielly which shown a significant differences in alcoholics and non alcoholics. Study done by wamala jf e tal¹⁴ in uganda they found that odds of people consuming alcohol developing hypertension was 2.28 times more than that of non alcoholic people.

In the present study stress was found to be present in 46.8% in hypertensives when compare to those who don't have stress were found to have 21.1% hypertensives. Stress is difficult to define and even more difficult to measure. This knowledge has led to the speculation that long term stress may play an important role in the development and maintenance of Hypertension¹³. A study done by Deswal BS, among the residents of Pune showed that the relative risk of developing hypertension in those who had stress and anxiety was 2.5 and 2.43 times respectively.

CONCLUSIONS

A total of 533 adults above 30 years age group participated in the study. Of the total study participants, males were 278(52.1%) and females were 255(47.9%). The overall mean age of the study subjects was found to be 41.53±17.32 years. The overall prevalence of hypertension in the study population was found to be 24.9.% Mean systolic blood pressure (SBP±2SD) was

found to be 126±17 mm Hg and the mean diastolic blood pressure (DBP±2SD) was 82±10 mm Hg.

A statistically significant association found between smoking and hypertension. The prevalence of hypertension was found to be almost similar in alcoholics (28.7%) and non-alcoholics (23.6%). Subjects who had the habit of adding extra salt frequently had higher prevalence of hypertension compared to subjects who did not have the habit of adding the extra salt (20.5%).

RECOMMENDATIONS

The prevalence of hypertension in this study (24.9%) speaks about the alarming condition which needs to be effectively controlled by proper public health measures. High risk screening of all individuals aged above 30 years must be undertaken to detect all the submerged cases of hypertension in the community.

1. Inculcation of healthy lifestyles should be promoted. This includes regular physical activity (exercise for at least 30 minutes each day 5 days/week), proper diet (reduced salt & low calorie balanced diet); abstinence from smoking, tobacco chewing and alcohol consumption. Around 45% of the study population is having pre-hypertension and lifestyle modification is the best option available to bring down their blood pressure into the normal range.

2. Legislation should be passed by the government of India for banning tobacco products.

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A Concurrent Study of Knowledge & Perceptions of Asthma among Parents & Guardians of Asthmatic Children

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ABSTRACT

Asthma is the commonest chronic illness of childhood and account for more 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 years. Western studies have also unequivocally established the increased prevalence of Asthma. The number of hospital admission and death due to Asthma have also increased. Parental perception of the child's illness is a significant factor in the compliance with treatment. In addition, parental perception of what the child may or may not be able to do greatly influence what the child then believes he or she is capable of accomplishing^(6, 7). Studies conducted in the past have shown inadequate physician parent communication, basic misconception about the illness and drug treatment and problems pertaining to discipline and over protection.

The present study was conducted to assess the level of understanding and believes held by parent of Asthmatic children regarding the causations, prognosis and treatment of Asthma.

Keywords: *Bronchial Asthma, Knowledge, Perception, Attitude.*

INTRODUCTION

Asthma is the commonest chronic illness of childhood and account for more 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 17 years. Western studies have also unequivocally established the increased prevalence of asthma. The number of hospital admission and death due to asthma have also increased. Parental perception of the child's illness is a significant factor in the compliance with treatment. In addition, parental perception of what the child's then believes he or she is capable of accomplishing^(6,7). Studies conducted in the past have shown inadequate physician parent communication, basic misconception about the illness and drug treatment and problems pertaining to discipline and over protection.

The present study was conducted to assess the level of understanding and believes held by parent of asthmatic children regarding causations, prognosis and treatment of asthma.

MATERIAL AND METHOD

The study done by chi-square test & paired t-test.

The sample consisted of 170 Asthmatic children attending the OPD of Swarwati Institute of Medical Sciences Anwarpur, Pilkhuwa (Hapur), Emergency and Private OPD + Special OPD conducted by individual Doctors from a period Jan, 2014 to Dec, 2015. The inclusion criteria were a minimum duration of 2 years since the onset of symptoms and age between 5 to 18 years at the time of Interview. The sample was divided in Group A (age 5–9 years, n = 60), Group B (age 10–14 n = 60) and Group 3 (age 14–18 n = 50). The diagnosis of Asthma was based upon history of recurrent reversible bronchospasm and response to bronchodilator drugs. Statistical analysis was performed using a Chi-square test and paired t-test.

After obtaining informed consent, the family characteristics were noted down. The socioeconomic status (SES) of the family was determined according to Gupta and Sethi's⁽⁸⁾ SES scale and divided into high, upper middle, middle, lower middle, and low SES groups. Following this, the questionnaire for assessment

of knowledge about asthma was administered. The questionnaire contained 17 questions, each answerable as one of a limited number of choices. Some questions allowed for spontaneous answers. The questions dealt with the nature of the illness, natural history and prognosis, etiology and treatment of asthma. A pilot study was carried out on 10 patients to test the questionnaire before using it for the present study.

The interview was conducted in a separate room with either the mother or the father of the patient depending upon whoever had brought the child to the hospital on that day. No attempt was made to correct a wrong answer till the end of the interview.

RESULT

The respondent was the father in 50 cases and mother in 120 cases 82 patient (56.6%) belong to Hapur rest 88 patient were from Galand, Dholana, Pilkhuwa, Garh and Babugarh Chawni and some patients were interviewed in emergency department. 110 patients were muslims and 60 patients were Hindus. The SES of the families is given in table 1.

Table 1. Groupwise Distribution of Socio-economic Status

SES	Groups		
	A	B	C
High	0	0	2
Upper Middle	4	6	10
Middle	20	22	18
Lower Middle	22	22	10
Lower	14	10	10

Table 2. Asthma, A stigma: Relationship to SES

Stigma	High	Upper middle	Middle	Lower Middle	Lower	Total
Yes	0	0	28 (16.5)	36 (21.2)	20 (11.8)	84 (49.4)
No	2	20	32 (18.8)	18 (10.6)	14 (8.2)	86 (50.6)
Total	2	20	60	54	34	170

Chi square = 14.41, $p < 0.001$, Degrees of freedom = 2

Figures in parentheses indicate percentages.

67 % of families belong to middle & lower middle socio economic status. Thirteen families had another asthmatic member in the family. The duration of illness varied from 2 to 12 years in 25 cases (29.4%) the onset of illness was before 3 years of age and in 28 cases it was between 4 to 6 years of age. Overall 54 (34.1%) of those interviewed believed that asthma is the hereditary disease and 52 (36.6%) held that asthma is contagious. The response to this item was significantly associated with the age of child. (Chi square = 10.28, $p < 0.01$) in greater proportion of parents of younger children stating that asthma is the contagious disease. Significantly more rural subject as compared to urban parent held this belief (Chi square = 7.16, $p < 0.01$); there was no significant association however with either the socio-economic status of the family (Chi square = 3.34, $p < 0.01$); or the sex of the respondent (Chi square = 0.66).

When asked about chances of asthma occurring in other children in the family only 12 (7.1%) stated the chances to be very high 15 (17.6%) said the chances were high and 18 said (21.2%) there was only a small chance. Nearly half said that the sibling were at no risk. 42 parents believe that asthma occur due to super natural power.

The chief source of asthma related knowledge was the physician in 42.3% cases, friends and relatives (9.4%) and rarely books (3.5%), were the other sources. Half of those interviewed (49.2%) said that there was no particular source from where they had acquired knowledge about asthma.

A large number of parents (48.2%) admitted that they hesitated in disclosing the fact that their child suffered from asthma. The relationship of this attitude towards asthma with the SES of the family is depicted in Table 2.

It is evident that there is a strong correlation between SES of the family and the response with none of the respondents in high and upper middle SES considering asthma to be a stigma. No association was found with religion or urban/rural background of the family. Significantly more mothers (64%) when compared to fathers (35%) said that they felt hesitant in disclosing the diagnosis of asthma (Chi square= 7.35, p < 0.01).

One-third (35.3%) of those interviewed believed that asthma is a life long disease. Forty one (48.2%) said that cure is possible in some cases. Only 9 (10.6%) believed that asthma is always self limited.

One Hundred Fifty (88.2%) parents were aware of situations that precipitated an acute attack of asthma. Food items, change in weather and exposure to cold were frequently mentioned. Nearly all parents (n=162, 95.3%) believed that even a mild attack of asthma should be treated. Related to this was the fear that the child might die during an acute attack (n=132, 77.6%).

Parents were asked as to how they reacted when the child developed an acute attack. The responses for various age groups are displayed in Table 3.

Table 3. First Step Taken in Case of an Acute Attack of Asthma (n=170)

Action	Groups			Total (%)
	A	B	C	
Give drug	20 (33.3)	34 (63.3)	36 (72.0)	104 (61.2)
Consultant doctor	20 (33.3)	16 (26.7)	12 (24.0)	48 (28.2)
Go to Hospital immediately	8 (30.1)	10 (10.0)	0 (0.0)	14 (8.2)
Go to hospital next morning	2 (3.3)	0	2 (4.0)	4 (2.4)

The majority of the parents (89.4%) either gave bronchodilators to the child at home, or consulted a doctor. The less favoured actions were taking the child to the hospital-on that very day, or the next day. The relationship of various other variables to the practice of administering bronchodilators at home is given in Table 4.

Table 4 - Administration of Bronchodilators at Home at the Beginning of Attack

Variable		Chi-square value	p Value
1.	SES	8.10	<0.02
2.	Hapur residents versus other towns	7.54	<0.01
3.	Urban versus rural family	8.24	<0.01
4.	Duration of illness (<6yr versus > 6yr)	3.15	>0.05
5.	Severity of asthma	3.15	>0.05
6.	Mothers versus fathers assuming primary responsibility for the child's treatment	0.00	>0.05

Parents were asked whether there was a cure for asthma. Fifty two (30.6%) believed that treatment from our hospital would cure their child. The rest of group was divided between various more people favouring homeopathy (9.9%) and God men (16.6%) (Table 5).

Table 5. – Is there a Cure for Asthma?

Action	Groups			Total (%)
	A	B	C	
None	26 (44.3)	22 (36.7)	22 (44.0)	70 (41.2)
SIMS, Anwarpur, Hapur	20 (33.3)	20 (33.3)	12 (24.0)	52 (30.6)
Saints	6 (10.0)	12 (20.0)	0 (0.0)	18 (10.6)
Homoeopathy	4 (6.7)	4 (6.7)	8 (16.0)	16 (9.4)
Ayurved	2 (3.3)	0 (0.0)	6 (12.0)	8 (4.7)
Acupressure/Yoga	0 (0.0)	2 (3.3)	2 (4.0)	4 (2.5)
Don't know	2 (2)	0 (0.0)	0 (0.0)	2 (1.2)

When asked about the side effects of drugs which their child was receiving only 16 (9.4%) could enumerate them correctly. Thirty Eight (22.6%) enumerated incorrect side effects. One hundred sixteen (68.2%) were not aware of the side effects and 10 out of these believed that there were no side effects at all.

Most parents (81.2%) said that they were regular in their follow up visits to the hospital. Again one hundred four (84.7%) said that they were able to comply with the doctors instructions regarding administration of drugs.

DISCUSSION

The main source of asthma related knowledge was the physician (42.3%). However, the results point towards a poor level of communication between the parents and the physician. It was surprising to find that in many cases, it was the investigator who first disclosed the diagnosis of asthma to the parents inspite of the fact that the child had been symptomatic for over two years and receiving bronchodilator drugs. Previous studies^(9,10) have also pointed out that parents feel unsatisfied with the information provided by the physician. In the present study no attempt was made to find out the correlation between the satisfaction level of the parents and the seniority of the clinician with whom they interacted.

In our society the diagnosis of asthma is viewed as a stigma. Fifty per cent of those interviewed in this study confessed that they hesitated to disclose to others that their child suffered from asthma. Parents used terms like allergy, chronic cough, chest congestion, etc. to refer their child's illness. The fact that parents were told of their child's diagnosis only in the hospital although they had been symptomatic and being treated, for variable durations before presenting to us, speaks volumes about the euphemisms being used for asthma by the doctors in the community. The colloquial term for asthma – 'Dama' – in particular evoked anxiety. It was observed that this problem is prevalent only in the middle and lower socio-economic status. Class values and educational status are probably the basic determinants.

Another possible reason why this attitude exists is that many people believe asthma to be contagious. One third of those interviewed held this belief which was more common amongst parents of younger children and rural background. Although it is difficult to postulate the basis of this belief, the consequences, as far as the child is concerned, are probably serious. In many families the affected child was not allowed to share food with

the other siblings. It is reasonable to presume that such actions on the part of the mother make the asthmatic child feel different or inferior to other children by repeatedly reminding him of the fact that he has asthma. It remains to be studied whether this contributes to behavioral disturbances in asthmatic children.

Parents described a variety of factors which could precipitate an attack of asthma in their child. These were foods, cold weather, change in seasons, exertion and others. Most parents were restricting certain foods in their child's diet because of these beliefs. These foods were rice, curd and orange (which are considered to be cold), pickles, chutney and sauces (which one considered to be sour), dals like urad and moong, rajmah (kidney beans), rice and green peas (which are believed to produce gas), and bananas. In a previous study⁽¹¹⁾ similar observations were made and it was pointed out that foods generally known to be allergenic like bovine milk, eggs, nuts and peanuts were not listed by the parents. Such beliefs were not restricted to any particular SES group. Similarly, urban and rural patients did not differ significantly in this regard.

It is important for the better control of asthma that acute exacerbations be recognized and treated at the onset⁽¹²⁾. Most parents in this study agreed that even a mild attack should be treated with drugs. In nearly two-third of the cases, bronchodilator drugs were started at home without consulting a doctor. Patients belonging to Hapur and to the upper SES groups were more likely to receive drugs at home. An important observation was that those parents whose children had a longer duration of asthma (over 6 years) were still as likely to self administer bronchodilators as those with a shorter duration of the disease.

Parents held diverse views regarding the prognosis and treatment of asthma. Out of the 60% who believed that asthma can be cured, only half expressed faith in allopathy. There was a general tendency to seek treatment from other systems of medicine (65% of the sample). Because the study was hospital based, this figure should be considered an underestimate. Homeopathy appeared to be the most popular alternative. This is a manifestation of the well known tendency to seek alternatives in regard to treatment leading to cure for all chronic ailments. Also, there is a fear expressed by people that modern medicines are very 'strong' or produce 'heat' in the body and thus harm the individual in the long run.

Childhood asthma is an illness which is going to

become more common in the coming years. Considering the chronic and unpredictable nature of the illness, there is an urgent need to improve communication between parents of asthmatic children and the treating physician⁽¹²⁾ and give serious attention towards educating the family regarding asthma so that they can become partners in management of their child's illness. Pediatricians must take the lead in this regard.

What this study adds?

1-Quality of life is affected by age of onset, frequency and parental education of Bronchial Asthma.

2-Parental awareness regarding the Bronchial Asthma enhances the quality of life provided to children with Asthma a fact also highlighted by the international consensus report on management of Asthma.

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Conflict of Interest: None

Ethics approval The present study is ethically approved by ethical society of SIMS Anwarpur, Pilkhuwa, Hapur (U.P.)

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Nurses Perception of Factors Influencing Clinical Decision Making

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ABSTRACT

Introduction: Nurses are practicing in the era of ongoing advancement of research and technology. This change in health care environment needs nurses to improve competency in decision making to respond to client's requirement. **Objective:** To find out perceived factors affecting Clinical Decision Making (CDM) skills regarding Post-operative pain management among staff nurses. **Methodology:** A cross-sectional survey was carried out among 165 nurses in a selected hospital of Udupi district, Karnataka. A 36 item Questionnaire on Factors Affecting CDM regarding Post-operative pain management was used to assess the factors affecting CDM for caring for with post-operative pain. **Results:** Majority of the participants agreed that Self-esteem (General), education regarding decision making, situation, clinical nursing experience were the most influencing factors. Apart from the above factors, influence of Senior nurses in the clinical field (Modeling), cognitive process, relationship with ward in-charge, perception of CDM were the moderately influencing factors and the least influencing factors were locus of control and stress related to clinical decision making regarding Post-operative pain management

Conclusion: Clinical decision making is an essential component of quality clinical nursing practice. Understanding the factors influencing decision making enables to strengthen the individual and external factors enabling appropriate decisions to be taken regarding patient care.

Keywords: Factors influencing, Clinical decision making, Staff nurses.

INTRODUCTION

Nurses' constitute a major part of service in health care sector¹. They practice with ongoing advances in evidence based research and health care technology. Hence the complexity of health care system needs nurses to be more specialised to meet demands of advancements in patient care management². Despite the fact of challenging factors such as financial burden, demographical dynamics, health care cost, demanding health needs and raising expectations, there is a vast demand for professional health care providers all over

the world since last three decades because of lack of competency in arriving at decisions³.

Nurses' practice takes place in a context of ongoing advances in research and technology. The dynamic and uncertain nature of health care environment requires nurses to be competent decision-makers in order to respond to clients' needs. There are wide varieties of researches happening all over the world which are focussing on clinical functioning of nurses. Majority of these studies are related to nurse's knowledge and skills^{4, 5, 6}. Nurses are expected to make decisions regarding health care, to respond quickly to emergencies and to attend consistently to all patient care situations intelligently⁷. However factors influencing and barriers affecting clinical functioning and judgemental skills have rarely been reported. Research reports on clinical decision making emphasize that judgement is a competitive task in practice when

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compared to laboratory experiment or theory⁸. Broadly in a daily situations, decisions are taken under dynamic context⁹. Since the recognition of facilitators and barriers affecting CDM ability is considered as primary step to develop an educational program to enhance clinical decision making skills, this study is designed assuming to help the nurse administrators and educators to strengthen the quality nursing education and thus contribute to effective patient care.

Aim of the study: The aim of the study was to assess the perception of nurses regarding Factors Affecting Clinical Decision Making (FACDM) ability regarding postoperative pain management.

MATERIALS AND METHOD

A descriptive cross sectional design was used to collect data from the staff nurses working at a selected tertiary hospital of Udupi district. A total of 165 staff nurses were recruited by purposive sampling technique. The inclusion criteria used were nurses who are currently working in surgical units (post-operative wards), nurses who are taking care of post-operative patient with pain up to 72 hours after they are shifted from post-operative recovery unit and nurses who are willing to participate .

Nurses who are not available during the period of study, nurses who are working in Post-operative ICU’s, nurses’ who underwent post-operative pain management course were excluded from the study.

Ethical Considerations

Study was approved from Institutional Ethics Committee. Subject information sheet was provided and Informed consent was obtained from the study participants.

DATA COLLECTION PROCEDURE

Data was collected using a Demographic proforma and a likert scale measuring the factors influencing clinical decision making. The demographic variables included in the tool for data collection were: age, gender, qualification, experience, any additional program undergone in CDM and need for such education interventions.

The likert scale on factors affecting clinical decision making was used. It consists of 36 items with 10 areas such as ‘relationship with ward in charge’, ‘perception of decision making’, ‘locus of |control’, ‘clinical nursing experience’, ‘situation’, ‘educaion regarding decision making’, ‘cognitive processes’, ‘stress’, ‘role modelling’, General Self-esteem. The original tool was developed by Weins 1991, however it was modified for the current study. Participants were asked to rate each item of the tool in terms of their agreement such as “strongly agree”, “agree”, “Undecided”, Disagree and strongly disagree. The minimum score was 36 and the maximum was 180. The tool was validated and reliability was established. Internal consistency coefficients for the scale was 0.75. The data collected were analysed using the descriptive and inferential statistics with the help of SPSS 20.0 version

RESULTS

The mean age of the nurses enrolled in the study was 26±6.73 (SD). Majority of them were females i.e. 93.33%. It was found that 67.87% of the nurses were diploma holders and rest were with Bachelor’s degree in Nursing. It was found that majority of them were having an experience of less than one year in surgery wards (76.36%).(Table 1).

Table: 1 Demographic characteristics of staff nurses

N=165

	Demographic variables	Frequency(f)	Percentage (%)
1	Gender		
	Male	11	6.66
	Female	154	93.33
2	Professional qualification		
	DGNM	112	67.87
	BSc Nursing	53	32.12
3	Experience in post-operative (Surgical) ward		
	Up to 1 yr	126	76.36
	1-6 yrs	39	23.63

The factors affecting clinical decision making was analysed in terms of the subareas. As the number of items in each of the subarea varied, the weighted average and standard deviation was computed. Higher the weighted average more is the influence of that factor on clinical decision making among nurses. The data is presented in table 2 and Fig 1 respectively. .

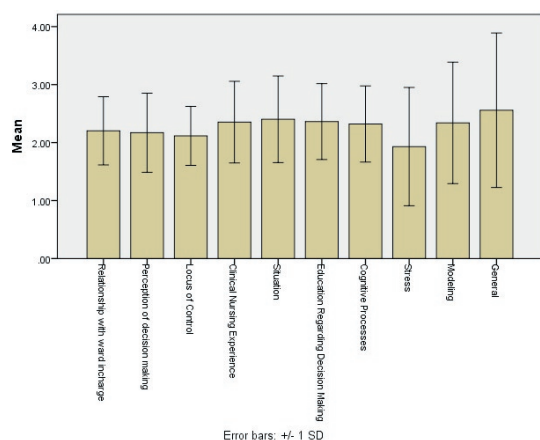


Fig-1: Distribution of Factors affecting clinical decision making among staff nurses

Table-2: Weighted Mean and Standard Deviation of Factors affecting Clinical Decision Making regarding Postoperative pain management among nurses
N=165

	Mean	Std. Deviation
General Self-esteem- Nurses are accepted as valued member as a team	2.55	1.33
Situation nurses are encouraged to participate actively in patient care	2.40	0.74
Education Regarding Decision Making- education and use of nursing process in training	2.36	0.65
Clinical Nursing Experience- Previous work experience	2.35	0.70
Modelling - Influence of Senior nurses-when nurses learn from their senior staff about handling the situation	2.33	1.03
Cognitive Processes - Nurses use intuition with critical thinking in examining the a patient data and reaching conclusions	2.31	0.65
Relationship with ward in charge- when nurses are develop good rapport with ward in charge	2.20	0.58

Perception of decision making- when nurses perceive CDM and process of arriving at judgements	2.16	0.68
Locus of Control- doctors' orders, hospital rules, other nursing staff involvement	2.11	0.50
Stress	1.93	1.07

Self-esteem (General).

The Weighted average and standard deviation for the subarea "General self-esteem" was 2.55 ± 1.33 . The nurses felt that when they are well accepted as a valued member in a team, they perceive, they can make appropriate clinical decisions. The self-confidence increases and this helps to be more confident in taking appropriate clinical decisions with regard to patient care.

SITUATION

The second highest rated factor was "Situation". The Weighted average and standard deviation was 2.40 ± 0.74 . The nurses perceived that when they are encouraged to participate actively in patient care they felt that it helped them to make appropriate clinical decisions. They also expressed strong agreement for their acceptance of unique ideas by the team in taking necessary clinical decisions regarding pain management.

Education Regarding Decision Making

Majority of the nurses rated "education regarding clinical decision making" as the third highest influencing factor. The Weighted average and standard deviation for this area was 2.36 ± 0.65 respectively. The educational preparation where there is more emphasis on problem solving while using nursing process enabled them to put in practice by performing appropriate assessment and taking actions in solving patient problems.

Clinical Nursing Experience

Majority of the nurses strongly felt that previous work experience enabled them to make better decisions in patient care. Repeated opportunities in the clinical area facilitated clinical decision making. The Weighted average and standard deviation for this subarea was 2.35 ± 0.70 . Hence nurses perceived that experience is a strong factor influencing clinical decision making.

Apart from above described factors, the other factors that influenced nurses decision making included :influence

of senior nurses (2.33±1.03), the cognitive process which included use of intuition and analysis of patient data in making appropriate decisions (2.31±0.65), relationship with ward in charges wherein they encourage and support decision making (2.20±0.58), strong perception regarding clinical decision making where the nurse strongly feels that clinical decision making is necessary. The least influenced factors were locus of control and stress.

DISCUSSION

Clinical decision making is an important element of quality patient care and it is necessary to optimise outcomes for patients and improve clinical practice. In the current study majority of the participants agreed that self-esteem (General), education regarding decision making, situation, clinical nursing experience were the most influencing factors. Apart from the above factors, influence of Senior nurses (Modeling), cognitive process, relationship with ward in-charge, perception of CDM were the moderately influencing factors and the least influencing factors were locus of control and stress related to clinical decision making regarding Post-operative pain management

Similar factors were reported in a qualitative study conducted among nursing students by Wiens (1999) such as feeling competent, being self-confident, organisational structure and nursing education played a significant role clinical decision making⁷.

Many researchers supports the evidence that environmental factors, amount of professional knowledge and clinical experience, collegial relations and staff interactions with their authorities play a vital role in nurses' self-confidence and effective clinical decision making^{10,11,12,13,14}. But contrary to it, context of situation will decide the decision making model used by nurse, but not the level of knowledge and experience¹⁵. A research shows that experience and education are not associated with perceived decision making¹⁶. In line with current findings, there is a finding which says that expertise in nursing linked with clinical decision making¹⁷.

Some researchers found that differences in decision making is related to differences in culture, education and everyday practice at work¹⁸. Similarly, Varcoe et al (2003), investigating moral judgements and decision making by nurses, found that decisions and actions were highly relational and contextual, with decisions of the individual being related to the decisions of others in the

team¹⁹.

Studying the factors influencing decision making helps us to strengthen the nursing educational programme where future nurses need to be prepared with adequate clinical reasoning and critical thinking skills to make appropriate decisions. Incorporating clinical decision making model of analysing the cues, judgements and actions enables the nurses to prepare in using analytical method of clinical decision making rather than only intuition.

Individual nurses, professional bodies, educators, administrators, institutions and public sector organisations that employ nurses are accountable for finding strategies facilitating effective clinical judgement. In fact they are in the place to identify barriers and enhancing factors within their environment that facilitate nurse's clinical decision making because of advancements in health care and need based service to the public.

CONCLUSION

The findings of the present study and similar findings from literature strongly supports the fact that understanding the factors influencing clinical decision making makes it imperative to take necessary actions such as Improving and respecting self-esteem, providing education regarding CDM, experience and situational factors in the clinical settings so as to provide effective clinical practice and quality patient care.

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

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A Study of Injury Pattern among Road Traffic Accident Victims Admitted in a Medical College in Amritsar

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ABSTRACT

Introduction: Road traffic injuries are a growing public health and development problem. Road traffic injuries are predicted to rise from tenth place in 2002 to eighth place by 2030 as a contributor to the global burden of diseases. The road accident situation in India is alarming. So the present study was planned to ascertain the pattern of injury in road traffic accident victims. **Material & method:** The present cross-sectional study was done at SGRDIMSAR, Hospital, Amritsar. All the road traffic accident victims who reported in the emergency wing of the hospital of SGRDIMSAR, Amritsar from October 2015 – December 2015 were included in the study. A pre-designed pre-tested proforma was used to collect information from the accident victims. The statistical analysis was done by using SPSS 20.0 version. **Results:** It was observed that there were 209 (92.9%) males and 16 (7.1%) female victims RTA in this study. 36% of victims of RTA belonged to less than 25 years of age, followed by 21.3% in age group of 26-35 years, 24.4% were in age group of 36-45 years, 14.7% were in age group of 46-55 years and 3.6% belonged to age group of more than 55 years. Head and neck injuries were observed in 78.7% of victims of RTA. Upper Limb & Lower Limb were involved in 67.1% & 63.1% victims respectively. Maximum number of injuries were involved among drivers of two wheelers. **Discussion:** Maximum accidents in our study were observed to be in younger age group. Maximum injuries (74.2%) were observed in head and neck region in our study. The lack or inappropriate use of helmets has been shown to increase the risk of injuries resulting from road crashes involving motorized two wheelers. **Conclusions:** Encouraging a culture of safe road behavior that in turn achieves sustained education in road traffic injuries requires persistent attention. Sustaining high levels of enforcement and maintaining a high perception of enforcement among the public are essential to the success of such legislative measures. Helmet legislation needs to be supported by strong enforcement and social marketing campaigns.

Keywords : Injury Pattern, Road Traffic Accidents, Victims, Amritsar

INTRODUCTION

Road traffic injuries are a growing public health and development problem. Worldwide, an estimated 1.2 million people are killed in road crashes each year and as many as 50 million are injured¹. According to WHO, road traffic injuries were the 11th leading cause of death worldwide and accounted for 2.1% of all deaths globally. Furthermore, these road traffic deaths accounted for 23% of all injury

deaths worldwide². Road traffic injuries are predicted to rise from tenth place in 2002 to eighth place by 2030 as a contributor to the global burden of diseases³.

Road traffic injuries cause emotional, physical and economic harm. Road traffic injuries put significant strain on families. For everyone killed, injured or disabled by a road traffic crash there are many others deeply affected. Globally, the economic cost of road traffic injuries is about US\$ 518 billion with low income and middle-income countries accounting for US\$ 65 billion⁴.

Accident severity is increasing in increasing order due to increasing in vehicle population. Accident leads to disablement, death, damage to health and property, social

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suffering and general degradation of environment.

One of the main factors contributing to the increase in global road crash injuries is the growing number of motor vehicles. Road traffic injuries are a major but neglected public health challenge. Globally, millions of people are coping with the death or disability of family members from road traffic injury.

Reports from the World Health Organization indicate that India has the highest number of traffic accident fatalities in the world. In India an estimated 2 million people have a disability that results from a road traffic crash⁵. Road traffic injuries affect all age groups, but their impact is particularly striking among the young – they are the leading cause of death worldwide among those aged 15–29 years⁶.

Road traffic injuries are increasing, notably in low- and middle-income countries, where rates are twice those in high-income countries. This is partly attributable to the rapid rate of motorization in many developing countries that has occurred without a concomitant investment in road safety strategies and land use planning.

Young adults aged between 15 and 44 years account for 59% of global road traffic deaths according to WHO⁷. More than three-quarters (73%) of all road traffic deaths occur among men⁸. For every road traffic fatality, at least 20 people sustain non-fatal injuries. Urban roads, roads in towns and cities are usually shared by pedestrians, cyclists, users of public transport as well as higher speed traffic.

Rapid growth in the use of motorized two wheeled vehicles in many countries has been accompanied by increases in injuries and fatalities among their users⁹. Motorcyclists comprise a third of all road traffic deaths in the South-East Asia and Western Pacific Regions, but are also increasingly represented among deaths in Africa and the Americas, which are seeing rapid increases in motorcycle use⁹.

The newly adopted 2030 Agenda for Sustainable Development's has set an ambitious road safety target of halving the global number of deaths and injuries from road traffic crashes by 2020⁸.

The road accident situation in India is alarming. Road traffic injuries cause considerable economic losses to victims, their families, and to nations as a whole. These losses arise from the cost of treatment (including rehabilitation and incident investigation) as well as reduced/lost productivity (e.g. in wages) for those killed

or disabled by their injuries, and for family members who need to take time off work (or school) to care for the injured. So the present study was planned to ascertain the pattern of injury in road traffic accident victims.

METHODOLOGY

The present cross-sectional study was done at SGRDIMSAR, Hospital, Amritsar. The study subjects were victims of road traffic accident. All the Road Traffic Accident (RTA) victims who reported in the emergency wing of the hospital of SGRDIMSAR, Amritsar from October 2015 – December 2015 were included in the study. A road traffic injury is a fatal or non-fatal injury incurred as a result of a collision on a public road involving at least one moving vehicle¹⁰. Consent was obtained from victim and in case of unconscious patient consent was taken from the relative. A pre-designed pre-tested proforma was used to collect information from the accident victims. In case of unconscious victims, the relatives or attendants were interviewed and information was collected about the accident. Data was collected about the nature and type of injuries to the victims. Also region involved of body part injured and distribution of injuries was recorded. All the cases admitted to the Hospital were analyzed in detail regarding the pattern, nature and distribution of the injuries. The other factors like the age, sex of victims and type of vehicle were analyzed. Glasgow (GCS) coma score was noted in every patient. Fatal road traffic accident victims were excluded from the study. A total of 237 non fatal accident victims reported to the emergency of SGRDIMSAR, Amritsar during the three months. Exclusion was done of 12 victims and relatives (in case of unconscious patients) who did not consent to be a part of the study. So the total number of accident victims came out to be 225. The statistical analysis was done by using SPSS 20.0 version.

RESULTS

It was observed that there were 209 (92.9%) males and 16 (7.1%) female victims RTA in this study. 36% of victims of RTA belonged to less than 25 years of age, followed by 21.3% in age group of 26-35 years, 24.4% were in age group of 36-45 years, 14.7% were in age group of 46-55 years and 3.6% belonged to age group of more than 55 years (Table 1). The study revealed that 9.4% of study subjects were illiterates, 39.1% were educated till primary, 41.3% were educated till secondary & 10.3% were graduates. It was observed that out of total 225

victims, 29.8% were students, 17.3% were farmers, 15.1% were drivers, 10.2% were servicemen, 8.4% were skilled workers & 19.2% belonged to other categories.

Pedestrians constituted 11.1% of RTA victims, 49.3% were drivers of two wheelers, 11.1% were drivers of four wheelers, 8.4% were drivers of heavy vehicles while rest were occupants of two wheelers (15.1%) and four wheelers (4.9%) as shown in Table 2.

Head and neck injuries were observed in 78.7% of victims of RTA. Upper Limb & Lower Limb were involved in 67.1% & 63.1 % victims respectively. Injuries to abdomen and lower back occurred in 25.8% victims while injuries to thorax in 14.2% victims.

Maximum number of injuries were involved among drivers of two wheelers. Majority of the drivers of two wheelers showed injuries to head and neck region followed by injury to upper limb & lower limb as shown in Table 3.

Superficial wounds were observed in 77.3% of RTA victims followed by 74.7% occurrence of fractures among victims. 31.6% showed intracranial injuries, 15.1% showed polytrauma and amputation was observed in 12.9% of victims.

Superficial injuries were observed in all RTA victims. Injuries were observed mainly among drivers of two wheelers. The difference was found to be statistically significant.

As regards owning protective devices during time of accident, 73.3% stated wearing some kind of protective gear. 26.2% were wearing helmets and 47.1% were wearing seat belts.

GCS score on admission in patients was between 12-15 in 79.1% victims, 8-11 in 14.7% victims, 3-7 in 6.2% victims. The time of getting first aid after road traffic accident was reported less than half hour in 33.4 % RTA victims, between half an hour to one hour in 56.4 % RTA victims & more than one hour 10.2 % in RTA victims.

DISCUSSION

The study showed that maximum number of road traffic accidents occurred among males. Male to female ratio was observed to be 13.06:1. Similar findings were observed in another study Jha N, Srinivasa D.K., Roy G, Jagdish S study in South India¹¹. This could be because males are much more exposed to RTAs than females.

Maximum accidents in our study were observed to be in younger age group. Similarly in another study by Mahajan N, Bharadwaj A, Gupta A, Raina SK, Gupta BP in Shimla where largest proportion of victims was between 20 and 29 years of age¹².

Maximum injuries (74.2%) were observed in head and neck region in our study. Injuries to upper limb and lower limb were involved in 67.1% & 63.1 % victims respectively. In another study by Lakhani C, Kapadia R, Prajapati D, Bhagyalaxmi A done in Civil Hospital, Ahmedabad, lower limb injuries were the most common mode of external injuries (86.67%), followed by face injuries (37.65%) and head injuries (36.47 %) were most common form of internal injuries as observed¹³. Similar findings were revealed in a report published by IRCOBI conference where serious head injuries were predominant, followed by thorax injuries for car, motorcycle, and pedestrian fatalities¹⁴.

Superficial wounds were observed in 77.3% of RTA victims followed by 74.7% occurrence of fractures among victims. 31.6% showed intracranial injuries, 15.1% showed polytrauma and amputation was observed in 12.9% of victims.

Maximum number of superficial injuries were involved among drivers of two wheelers in our study. Similar findings were observed in report published by IRCOBI, where 56% of the injuries to head region were reported in motorcyclists¹⁴. These severe head injuries were often caused by contact with the ground or due to striking the head against the windshield of the other vehicle. The substantial growth in the use of motorized two wheelers, particularly in low-income and middle income countries, is being accompanied by an increase in the number of head and traumatic brain injuries. This is of particular concern in Asia where, for many commuters, the motorized two-wheeler is used as a family vehicle¹⁵. Use of such vehicles increases exposure to the risk of road traffic injuries.

In our study, only 26.2% victims were wearing helmets. The lack or inappropriate use of helmets has been shown to increase the risk of injuries resulting from road crashes involving motorized two wheelers.

Majority (79.1%) of victims of RTA on admission had GCS score between 12-15. More than half (56.4%) of RTA victims received first aid within half an hour to one hour of accident.

Table 1 Age & Sex wise distribution of RTA victims

Age group	Males	Females	Total
Less than 25	79	2	81 (36.0)
26-35	38	10	48(21.3)
36-45	53	2	55(24.4)
46-55	31	2	33(14.7)
>55	8	0	8 (3.6)
Total	209(92.9)	16(7.1)	225

Figure in parentheses indicate percentages

Table 2 Distribution of RTA victims according to vehicle involved

Victim		Frequency	Percentage
Pedestrian/cyclist		25	11.1
Drivers	2wheeler	111	49.3
	4wheeler	25	11.1
	heavy vehicles	19	8.4
Occupants	Two wheeler	34	15.1
	Four wheeler	11	4.9

Table 5 Affected Region of injury according to RTA victims

RTA victims		N	Region of injury				
			Head &neck	Thorax	abdomen	Upper limb	Lower limb
	Pedestrian	25	14 (56.0)	3(12.0)	7(28.0)	7(28.0)	18(72.0)
Drivers	Two Wheeler	111	87(78.3)	4(3.6)	22(19.8)	78(70.1)	75(67.5)
	Four Wheeler	25	25(100.0)	15(60.0)	8(32.0)	16(64.0)	16(64.0)
	Heavy Vehicles	19	17(89.4)	6(31.5)	6(31.5)	13(68.4)	7(36.8)
Occupants	Two Wheelers	34	26(76.4)	3(8.8)	11(32.3)	17(50.0)	20(58.8)
	Four Wheelers	11	8(72.7)	1(9.1)	4(36.3)	10(90.9)	6(54.5)
Total		225	177	32	58	151	142

Figure in parentheses indicate percentages

Table 6 : Type of superficial injury and victims role

	Victims role	Injury			
		Contusion	abrasion	hematoma	Laceration
	Pedestrian	8	6	6	5
Drivers	Two wheeler	18	86	4	3
	Four wheeler	2	6	13	4
	Heavy vehicles	0	4	11	4
Occupants	Two wheelers	3	20	3	8
	Four wheelers	0	2	3	6

Chi square= 114.2, df = 15,p=0.000 (highly significant)

Table 3 Region wise distribution of RTA victims

Region	RTA VICTIMS	
	Frequency	Percentages
Head And Neck	177	78.7
Thorax	32	14.2
Abdomen &Lower Back	58	25.8
Upper Limb	151	67.1
Lower Limb	142	63.1

Total exceeds n because of multiple injuries

Table 4 Type of injury among RTA victims

Type of Injury	Frequency	Percentages
Superficial Wounds	174	77.3
Fracture	168	74.7
Polytrauma	34	15.1
Intracranial	71	31.6
Amputation	29	12.9

Total exceeds n because of multiple injuries

CONCLUSIONS

The level of road traffic injury is unacceptable and that it is largely avoidable. Encouraging a culture of safe road behavior that in turn achieves sustained educations in road traffic injuries requires persistent attention. Sustaining high levels of enforcement and maintaining a high perception of enforcement among the public are essential to the success of such legislative measures. Helmet legislation needs to be supported by strong enforcement and social marketing campaigns. Governments need to take action to address road safety in a holistic manner, that requires involvement from multiple sectors (transport, police, health, education) and that addresses the safety of roads, vehicles, and road users themselves.

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Conflict of Interest : None declared

Ethical Clearance: Study approved by Ethical Committee of SGRDIMSAR, Amritsar

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An Assessment of Janani Suraksha Yojana in a District of Delhi

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ABSTRACT

Background: less institutional delivery in India leads to high maternal mortality rate and high infant mortality rate, aim; to study the utilization of services from health care delivery system under JSY scheme by the eligible women, Methods; women delivered in the reference period from 1.04.2010 to 31.03.2011. The eligible women were assessed by using interview schedule, Results; about 58% of non-users of the benefits under JSY scheme had delivered at their home. 86% of the users were aware about the JSY while only 55% among the non-users were aware. Major source of awareness were ANMs(48.5%), ASHAs(31%) among users. Recommendations;- Increasing awareness among the target group about the services and benefits under JSY scheme through local functionaries such as ANMs, ASHAs etc. In-service orientations training of ASHAs & ANMs focusing their role and responsibility under the JSY scheme in the study area.

Keywords: JSY Scheme, institutional delivery, ASHAs, ANMs,

INTRODUCTION

The causes of 80 per cent of all maternal deaths include haemorrhage, sepsis, eclampsia, prolonged or obstructed labour and unsafe abortions¹. Those who survive these complications are often left with infections, injuries or disabilities². Looking specifically at India, the major causes of maternal deaths include complications from haemorrhaging and sepsis³. If women in India had access to appropriate maternal health care, 75 per cent of maternal deaths occurring in India could have been prevented⁴.

However, the delay in seeking and utilizing appropriate health care can be divided into three different segments, the first being the delay in seeking professional health care, the second being a delay in reaching the appropriate health facility, and the third as the delay in receiving care⁵. Their delay in seeking health care is rooted in perceptions of the failure of the health system, and their mistrust in health facilities⁶.

The National Rural Health Mission (NRHM) was launched by the Hon'ble Prime Minister on 12th April 2005, to provide accessible, affordable and quality health care to the rural population, especially the vulnerable groups. The Union Cabinet vide its decision dated 1st May 2013, has approved the launch of National Urban Health Mission (NUHM) as a Sub-mission of an overarching National Health Mission (NHM), with National Rural Health Mission (NRHM) being the other Sub-mission of National Health Mission. NRHM seeks to provide equitable, affordable and quality health care to the rural population, especially the vulnerable groups.

Janani Suraksha Yojana⁷ under the overall umbrella of National Rural Health Mission (NRHM) was proposed by way of modifying the existing National Maternity Benefit Scheme (NMBS).

METHOD

1. Study design – cross-sectional & descriptive study.

Study area- The study was carried in south-west district of Delhi.

3. Study population- women delivered in the reference period from 1.04.2010 to 31.03 2011.

4. study variables- institutional delivery of women under JSY , socio-economic poulation of women such as

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caste, decision maker in the family, number of children, occupation, education of husband, awareness of women/ husband/decision maker in the family about JSY incentive & health facility for women for delivery.

5. Sample techniques and size- four dispensaries selected from the 45 dispensaries in the south- west district of Delhi by drawing lots these were

a. Delhi government dispensary –Allopathic Kapashera

b. Delhi government dispensary –Allopathic Mahipal pur

c. Delhi government dispensary- Allopathic sector-2 Dwarka

d. Delhi government dispensary- Allopathic , sector-12 Dwarka

The women eligible for benefits under JSY scheme who had delivered in the reference period 1.04.2010 to 31.03 2011. In the selected dispensary were listed. During this period 2226 women delivered in the area out of which 71 utilized the benefits under JSY scheme & 80 women who did not utilize the JSY scheme were selected by simple random sampling.

RESULTS

1. The current infrastructure and facility at a district hospital Safdarjung hospital were adequate for the services to mothers under the JSY scheme.

2. The population covered by the dispensaries ranged from 1 lakh to 1.5 lakh . 50% of dispensary had adequate staff. There was 50% shortage of ANMs & ASHAs in the area covered under the dispensary included in the study. All dispensaries kept the records of vital statics, undertook the health education activities & had adequate IEC material.

Opinion of various functionaries about the JSY scheme

The population covered by an ASHA varied from 1046 to 1236. 95% of ASHAs were in the age group of 20-30 years. 60% of ASHAs were educated up to the intermediate and rest of ASHAs were up to the high school. Half of ASHAs had 2 years of service. All the ASHAs had no other job. Nearly 50% of ASHAs were trained up to module -5. None of the ASHAs had received refresher training.

Utilization of services provided under the JSY scheme by the women in the area:-

Table – 1, General profile of users and non-users of JSY scheme in the study population of south-west district of Delhi

General profile	Users of JSY scheme N=71(%)	Non-users of JSY Scheme N=80(%)	X ² test Value
Age (in years) 20-25 yrs. 25-30 yrs. 30-35 yrs.	62(87.32%) 9(12.67%) 0	67(83.75%) 12(15.0%) 1(1.25%)	1.05 p>0.05
Caste SC BPL	4(5.63%) 67(94.36%)	7(8.75%) 73(91.25%)	5.51 P<0.05
Educational level of Head of the family Illiterate Primary Middle High school Intermediate	9(12.67%) 21(29.57%) 9(12.67%) 21(29.57%) 11(15.49%)	8(10%) 12(15%) 27(33.75%) 13(16.25%) 10(12.5%)	3.87 p>0.05
Occupation Unskilled-worker Semi-skilled Shop owner	39(54.92%) 21(29.57%) 11(15.49%)	45(56.25%) 23(28.75%) 12(15.0%)	0.06 p>0.05
Monthly income of the head of the family <Rs.979 Rs.980-2935	5(7.04%) 66(92.95%)	7(8.75%) 73(91.25%)	0.47 p>0.05
SES (Kuppuswamy) II III IV V	14(19.71) 28(39.43%) 29(40.84%) 0	26(32.5%) 25(31.25%) 24(30%) 5(6.25%)	3.57 p>0.05

87.32%) of the JSY scheme user the age group of 20-25 years & 94.36% of them belonged to the BPL category. About 12.6% of the heads of their families were illiterate, 29.5% were educated up to primary, 12.6% were middle pass, 29.5% were high school pass and rest were intermediate. More than half (54.9%) of the heads of their families were unskilled laborer, 29.5% were semiskilled and rest were small shop owners. 92.9% of the families mentioned that their monthly income was between Rs. 980/- to Rs.2935/-. As per the Kupuswamy classification for SES scale for urban areas, 19.7% of them were in SES-II,39.4% in SES-II,40.8% in SES-III.

The chi-square test when applied to the socio demographic characteristics of users and non-users of JSY scheme such as for age group, caste, educational level, occupation, income and economic status, there

was no statistically significance difference, ($p > 0.05$). However there was significantly higher proportion of BPL households among the users of JSY services ($p < 0.05$).

ANC services utilized by the women during their last delivery:- It was observed that 84.5% of users of benefits under JSY scheme were registered in the first trimester of their pregnancy and all had received immunization with TT injection this was statically higher than registration of 47.5% in first trimester by the non-users of the JSY benefits. Moreover the users were registered with local dispensaries whereas the non-users were seeking ANC from RMPs/private clinic in the local area. The blood and urine test was done in all of the users and non-users of the scheme. Almost none of the women had completed the course of 100 tablets of iron and folic acid during their last pregnancy.

Table – 2, Responses of users and non-users of JSY scheme about place of their last delivery in the study population of South-West District of Delhi

Sl. No	Place of delivery	Users of JSY scheme N=71(%)	Non- users of JSY Scheme N=80(%)	X ² test Value
1.	Decision maker for the place of Delivery Husband Relatives others	60(84.50%) 7(9.85%) 4(5.63%)	66(82.50%) 14(17.5%) 0(0%)	0.64 P>0.05
2.	Birth order of the child First Second	43(60.56%) 28(39.43%)	39(48.75%) 41(51.25%)	2.1 P>0.05
3.	Sex of child delivered Male Female	32(45.07%) 39(54.92%)	39(48.75%) 41(51.25%)	0.75 P>0.05
4.	No. of live male children other Than this delivery 0 1	18(25.35%) 14(19.71%)	22(27.5%) 18(22.5%)	0.11 P>0.05
5.	No. of live female children other Than this delivery 0 1	25(35.21%) 14(19.71%)	17(21.25%) 23(28.75%)	3.68 P>0.05

The easy accessibility and less costs involved in the delivery were mentioned to be the main reasons by both the users and non-users for deciding about the place of their deliveries. Their husband were mainly taking decision in this regard. There was no significant differences in the birth order & sex of the child delivered, nor with the number of other male or female children in the family.

DISCUSSION

Current infrastructure, facilities, and services under the JSY in the study area- the current infrastructure & facilities at the district hospital, Safadarjung were adequate for the services to mother under JSY scheme. The location of the hospital was more than 15 kms. from the areas.

The population covered by the dispensaries ranged from 1 lakh to 1.5 lakh. 50% of the dispensary had adequate staff. These dispensaries were largely catering to the poor communities. There were shortage of the ANMs & ASHAs in the area covered under the dispensaries included in study. All the dispensaries had diagnostic facility. All the dispensaries kept the record of vital statistics, undertook the health education activity & had adequate IEC material

Nupur Chaudhury et al 2010, carried out their study in Delhi's Resettlement Colonies⁸ also observed inadequate government services in areas where the slum dwellers had been resettled. Additionally, their findings reflected that the women in such communities had a negative perception of the government hospital system: they felt that the hospital staff mistreat them, are careless and unnecessarily refer their patients to other hospitals. As far as the Accredited Social Health Activist (ASHA) worker was concerned, the positions were during the study period vacant at Savda. In Narela, there was evidence to suggest that the presence of ASHA workers had motivated women towards institutional delivery.

Roles of ASHAs & ANMs under JSY the scheme in the study area

Roles of ASHAs

The population covered by an ASHA varied from 1046 to 1236. 95% of ASHAs were in the age group of 20-30 years. 60% of ASHAs were educated up to the intermediate and rest of ASHAs were up to the high school. Half of ASHAs had 2 years of service. All the ASHAs had no other job. Nearly 50% of ASHAs were trained up to module -5. None of the ASHAs had received refresher training. All the ASHAs interviewed had received training under the NRHM. The knowledge of ASHAs about the various criteria for selection of beneficiaries for JSY scheme, ranged from 15% for BPL criteria to 65% for women having up to two live births. Most of the ASHAs were not aware of the revisions made

for selection of beneficiaries under the JSY scheme. The awareness of ASHAs about their role in ANC was also poor. Only 25% of them mentioned that ensuring at least 3 AN check ups for pregnant women as one of their roles. 45% of them responded that they have to provide 100 tablets of Iron and Folic Acid and 30% of ASHA mentioned that ensuring T.T. to pregnant women as their perceived roles. 75% of the ASHAs mention that accompanying beneficiaries to place of delivery was their major role under JSY scheme. About 65% of the ASHA responded that providing JSY incentives to woman was their responsibility.

Roles of ANMs

82.1% of ANMs were in the age group of 20-30 years. 87.2% of ANMs were graduate. Nearly 87% of ANMs mentioned that they were residing in the same area where they were working. The population covered by nearly 90% of the ANMs ranged between 10,000-12,000 and rest mentioned to have been covering less than 12,000 population for various services. All the ANMs in the study area had received training under NRHM. All the ANMs the study area were able to mention the income criteria (BPL) for identifying JSY beneficiaries in their area. However, their knowledge about other criteria was not adequate. Nearly 69% of them were not aware of latest modifications in eligibility criteria. Calling the CATS ambulance for delivery was mentioned by all the ANMs as their role during transportation of women under the scheme. Filling up JSY form by ANMs for incentive money and helping the women receive the cheques were the perceived roles of ANMs after delivery.

Although both ASHAs and ANMs had received training in NRHM, yet their perceptions about their roles in providing services under the JSY scheme were limited. Moreover there was shortages of ASHAs and ANMs in the study areas as a result they could not create awareness about the JSY scheme.

Utilization of services provided under the JSY Scheme by the women in the area:- 87.32% of JSY scheme users were in the age group of 20-25 yrs. And 94.36% of them belonged BPL category. About 12.6% of heads of their family were illiterate 29.5% were educated up to primary 12.6% were middle pass, 29.5% were high school pass & rest were intermediate. More than half 54.9% of the heads of the family were unskilled labor, 29.5% were semiskilled & res were small shop owner.

92.9% of families mentioned that their monthly income was between Rs. 980 to Rs. 2935/- as per Kuppaswamy SES scale for urban areas, 19.7% of them were in SES-2, 39.4% in SES-2, 40.8% IN SES-3. However there was significantly higher proportion of BPL households among the users of the JSY scheme. It was observed that 84.5% of users were aware of JSY scheme in their area and nearly half of them even named the scheme. It was observed that 84.5% of users of benefits under JSY scheme were registered in first trimester of their pregnancy and all had received immunization with TT. This was statically significantly higher in registration of 47.5% in the first trimester of non-users of JSY benefits. Moreover the users were registered in the local dispensaries whereas the non-users were seeking the ANC from others RMPs/ Private clinics in the local area. The blood and urine tests were done in all users and non-users of the scheme. Almost none of the women had completed the 100 tablets of iron and folic acid during their last pregnancy. 57.5% of the non-users of the benefits of the JSY scheme were delivered at their home and rest was delivered in private clinics /RMPs less than 10 kms. from their home. In 65.1% such cases time taken for transport was less than one hour. The easy accessibility and less cost involved in the delivery were mentioned to be the main reason by the both users and non-users for about the place of delivery.

The total amount of JSY incentive received by the users of JSY scheme was Rs.600/-, the amount was mentioned to have covered the cost of other expenses. On an average the users had spent Rs.563/- for these. All the users in the study population had received refund of transport expenditure.

CONCLUSIONS AND RECOMMENDATIONS

Current infrastructure, facilities and services under JSY in the study area. At the district hospital, Safdarjung were adequate for services to mothers under JSY scheme. The location of the hospital was more than 15 kms. from the area. There was significantly higher population of BPL households among the users of the JSY services ($p > 0.05$)

Recommendations:- increasing awareness among the target group about services and benefits under the JSY scheme through local functionaries such as ASHAs, ANMs, RMPs, private practitioners, local dais etc.

Acknowledgement:- Parents, my wife, and my kids, Riya, Khusboo, Himank.

Ethical Clearance:- The permission from Delhi govt.

was taken before the study was done. The data collection from the women was done after taking the informed consent and it was clarified that their participation in the study was voluntary.

Conflict of Interest: No conflict of interest.

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Vaccine Wastage Assessment in an Urban Health Care Setup in South India

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ABSTRACT

Introduction: Vaccine wastage is reported to be at 50% globally. Even though vaccine wastage is unavoidable it can be reduced to certain extent. Introduction of multi dose vial policy, effective use of vaccine vial monitors is expected to decrease vaccine wastage. **Objective:** To determine the vaccine wastage rates and vaccine wastage factors in a tertiary and primary care set ups and to identify the factors associate with it. **Method:** A record based descriptive study conducted over a period of two months in a district hospital and primary health centre of Mangalore, Karnataka. The study population included children who were vaccinated at immunization clinic between January 1st 2009 and December 31st 2011. The investigators visited the health centre and retrieved the number of vials used during immunization sessions and number of children vaccinated. The Vaccine Wastage Factor was calculated by using the formula $100 / (100 - \text{vaccine wastage rate})$. **Results:** Vaccine wastage was found to be higher in the government hospital for all four vaccines included in the study. Vaccine wastage rates of open vial at PHC were Measles (59.6%) >BCG (6.4%) >DPT (38.1%) >HEPB (24.2%). Measles vaccine wastage was found to be greater. On other hand, tertiary care center vaccine wastage in open vial was found to be BCG (91.4%) > DPT (90.4%) >HEPB (87.8%) > Measles (67.8%). **Conclusion:** Vaccine wastage was found to be higher than the recommended amount as stated by the Ministry of Health and Family Welfare and was also found to be higher in the Government hospital as compared to the PHC in all the three years, except for measles vaccine.

Keywords: India; Tertiary Care Centers; Primary Health Care; Vaccination

INTRODUCTION

The Universal Immunization Program (UIP) of India is one of the largest immunization programmes in the world. Its budget is over US\$ 500 million every year.¹ Under the Routine Immunization scheme, it targets to vaccinate 156 million beneficiaries² that includes new born, children of the age 1-5 years and pregnant mothers.

Significant leaps have been made in the health care with the implementation of this program. However, one of the major issues remaining to be resolved is vaccine wastage. Vaccine wastage is a pertinent issue in today's health care scenario. The load of vaccine wastage has failed to decrease despite introduction of new tools in various countries. The World Health Organization reported vaccine wastage of over 50% around the world.³ Vaccine wastage though unavoidable to certain extents can be reduced to much lower levels than the current. It is classified as occurring in 'unopened vials' and in 'opened vials'. Wastage in 'unopened vials' is accounted for by expiry, Vaccine Vial Monitor (VVM) indication, heat exposure, freezing, breakage, missing inventory and theft. Vaccine wastage in opened vials may also occur because doses remaining in an opened vial at the end of a session are discarded, the number of doses drawn from a vial is

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not the same as that indicated on the label, reconstitution practices are poor, opened vials are submerged in water, and contamination is suspected. Evaluating the degree of vaccine wastage and assessing its causes will help target efforts to reduce losses suffered in immunization programmes. In the presence of inaccurate or incomplete data, serious shortages of vaccine due to wastage will be encountered. It is therefore crucial that all immunization points using vaccines and that the stores handling them monitor their use continuously. Such monitoring can provide programme managers with good guidance on the introduction of corrective actions to reduce wastage whenever necessary. With the introduction of new vaccine management policies such as the application of multi dose vial policy (MDVP), the effective use of vaccine vial monitors (VVMs), and improved immunization strategies and practices, vaccine wastage is expected to decrease. This study attempts to calculate the vaccine wastage rates and wastage factors in an urban setting in the current era of new vaccine management policies. The data so generated in relation to different types of vaccines at different levels in a government hospital and PHC in Mangalore region will help recommend measures to reduce vaccine wastage.

MATERIALS & METHOD

This is a record based analytical study conducted over a period of two months (March-April 2012) in a District Hospital and a Primary Health Centre (PHC) of Karnataka under Kasturba Medical College, Mangalore. The study population included children who were vaccinated at immunization clinic between January 1st 2009 and December 31st 2011. The health centres followed National Immunization Schedule⁴ recommended by Ministry of health and family welfare. The vaccines included in the study were Measles, DPT, BCG and Hepatitis-B. At immunization clinics, BCG was offered until one year of age. DPT and DT were given to children up to 5 years. If the child had not received measles vaccine at 9-12 months of age, it was given up to 5 years of age. BCG, DPT, DT and TT vaccines vials used were 10 dose preparations, Measles vaccine vials used were 5 dose preparations and OPV vials were 20 dose preparations. The number of vaccine vials issued during each session and number of children vaccinated at the clinics was maintained in the immunization register. Approval was sought and permission was obtained from the medical superintendent of the hospital and ethical clearance was obtained from Institutional Ethics Committee (IEC) of

KMC, Mangalore prior to commencement of the study. Investigators visited the health centre and retrieved the number of vials used during immunization sessions and number of children vaccinated from the immunization registers for the period of 1st January 2009 and 31st December 2011. During data analysis, only the vaccine wastage at the clinic was taken into consideration. Losses before the transport to the immunization clinic were zero or negligible. The Vaccine Wastage Factor was calculated by using the formula $100 / (100 - \text{vaccine wastage rate})$.⁵ Data were entered into Microsoft Excel spread sheet and descriptive analysis was done. Chi square test was applied to find the difference between wastage rates (proportions) for different vial size and p values were calculated at 95% confidence level.

$$\text{Vaccine usage (rate)} = \frac{\text{Number of doses administered}}{\text{Number of doses issued}} \times 100$$

$$\text{Vaccine wastage rate} = 100 - \text{vaccine usage rate.}$$

$$\text{Vaccine wastage factor} = \frac{100}{\text{Vaccine usage rate}}$$

$$\text{Proportional vaccine wastage rate in unopened vials} = \frac{\text{Number of doses discarded}}{\text{Start balance} + \text{number of doses received}} \times 100$$

RESULTS

Table-1: Year wise comparison of vaccine wastage rates for different vaccines at the level of PHC and Tertiary care hospital

Vaccine and year	PHC (%)	Tertiary care hospital (%)	p-value
Measles			
2009	61.6	62.5	1.000
2010	38.3	61.5	0.003
2011	77.2	78.0	0.954
BCG vaccine			
2009	9.1	88.0	<0.001
2010	3.7	92.2	<0.001
2011	6.5	92.5	<0.001
DPT vaccine			
2009	34.2	85.8	<0.001
2010	18.6	88.3	<0.001
2011	19.4	88.9	<0.001

There was a significant difference of vaccine

wastage rate between tertiary care centre and primary Health Centre as shown in table 1.

DISCUSSION

This study was carried out in two health care centers; a Primary Healthcare Centre (PHC) and a Government Healthcare Centre and it aimed to determine the usage rates, wastage rates and wastage factors in relation to different types of vaccines and to identify associated determinants in relation to vaccine utility and vaccine wastage. The Ministry of Health and Family Welfare, Government of India has recommended that wastage rate of all vaccines should not be higher than 25% (Wastage factor of 1.33)⁶ and according to the WHO, projected vaccine wastage rate for lyophilized vaccines is expected to be 50% wastage rate for 10-20 dose vials, and for liquid vaccines 25% wastage rate for 10-20 dose vials.⁷ The vaccine wastage rates for all vaccines except BCG (6.4 %) and HepB (24.2 %) vaccines at the PHC and vaccine wastage factors for all vaccines except BCG vaccine (1.1) were more than the recommended vaccine wastage rate and factor by the Ministry of Health and Family Welfare, Government of India which is <25 % and < 1.33 respectively. The results showed that the vaccine wastage rates for all vaccines were higher in the government center as compared to the PHC except for the vaccine wastage factor for measles vaccine (13.1) in 2009 which was higher in the PHC. The vaccine wastage rate for measles vaccine at the government centre (67.8%) was found to be higher than that of the PHC (59.6 %) but the vaccine wastage factor at the government centre (3.8) was less than that of the PHC. The rate of measles vaccine wastage found in this study was higher than that found in other studies done to evaluate the various vaccine wastage rates (28%, 39.9%, and 45.7%)^{8,9,10} but a study done in Bangladesh showed a higher vaccine wastage rate of 69.7 %.¹¹ Vaccine wastage rate for BCG vaccine was found to be less than the recommended vaccine wastage rate by the MOHFW, India at the PHC (6.4 %) and much higher than the recommended wastage rate at the government centre (91.4%) which is close to the wastage rates found in a study done in Bangladesh (84.9%),¹¹ high rates of BCG vaccine wastage are found in analogous studies but the vaccine wastage rate at the government centre is still higher than that found in other studies. (45%, 70.9%, and 52.6%).^{8,9,10} DPT vaccine had a vaccine wastage rate of 38.1% and 90.4% at the PHC and the government centre respectively. The vaccine wastage rate at the government centre was again much

higher than the recommended vaccine wastage rate. Even though a study done to evaluate vaccine wastage in Surat showed wastage rates less than the recommended wastage rate (16%),¹⁰ the results of the PHC wastage rates corresponded with that of other studies (44.4%, 38.6% and 26.8%).^{8,9,11} Very few studies have been carried out to assess the vaccine wastage rates of HBV from the study done to evaluate vaccine wastage in Surat the wastage rate of HBV (21%)¹⁰ similar to the wastage rate of 24.2% at the PHC but the wastage rate for HBV (87.8%) was much higher at the government centre. Vaccine wastage can be expected in all programmes and there should be acceptable limit of wastage. This might differ from location to location depending on many factors like urban or rural setting, immunization coverage etc. The questions arise as to whether the wastage is preventable and, if so, how to prevent it. It is also important to know the type of vaccine wastage. A high wastage rate attributable to opening a multidose vial for a small session size in order to avoid missed opportunities is more acceptable than wastage attributable to freezing or expiry. Higher wastage rates are acceptable to increase vaccine coverage in a low vaccine coverage setting.¹²

CONCLUSION

Vaccine wastage was found to be higher than the recommended amount as stated by the Ministry of Health and Family Welfare and was also found to be higher in the Government hospital as compared to the PHC in all the three years, except for measles vaccine. As many causes contribute to vaccine wastage, steps must be taken to ensure proper utilisation of multi-dose vaccines and freezing and cold chain techniques must be properly implemented. Vaccine programmes should be regularly monitored and wastage rates calculated to minimise losses.

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Conflict of Interest: The authors have declared that no conflict of interest exists.

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Study of Morbidity Pattern among the Male Construction Workers

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ABSTRACT

Background: With urbanization being on rise the construction sector is a booming industry. Migrant labours in the industry are susceptible to various health and occupational hazards. These migrant workers are spread across the country and travel from one area of work to another, at times along with their families. They live in temporary settlements for the duration of the construction process and then move to another site or city. Being migrants they do not get registered, hence, are denied the basic government facilities.

Aims and Objectives: 1) To study the morbidity pattern among the construction workers.

2) To know their literacy status and habits.

Materials and Method: It was a cross sectional study of 200 male construction workers living and working at 2 construction sites in Bangalore city. A predesigned questionnaire was used to collect the data about the demographic and health status of the workers.

Results: The 200 construction workers surveyed were between the age group 18-55 years. 90.5% of the workers were migrants from other states and villages. 26.5% were in the habit of smoking and consuming alcohol, 35% of them did not have any habit of smoking, chewing tobacco or consuming alcohol. Of the total workforce 16% were found to have respiratory infections, 13% had gastrointestinal infections, 9% had skin and musculoskeletal problems. Out of 200 study population, 26% of the workers were illiterates with 6% who were degree holders.

Conclusion: The number of respiratory infections being 16% and those having various habits of smoking and consuming alcohol is 65% making them prone for accidents and other health problems. The construction companies should be brought under stringent legislations for safety at construction sites. Better housing conditions away from the construction sites should be provided to prevent from various infections and skin conditions

Keywords: Construction workers, Migrant Labourers, Health Profile, Habits, Literacy status

INTRODUCTION

According to the National Sample Survey Organisation(NSSO, 1999- 2000), 370 million workers constituted 92% of the total unorganized workers in the country.¹ With an estimated work force of 26 million construction workers in India, it is important to evaluate and promote health among them due to poor work habits, prolonged work hours, hazardous working conditions with poor health access, unhealthy drinking and eating habits

and low family social support. The workers are usually recruited for a limited time and are mainly migrants from other states who come in search of jobs exposing them to various factors which are a threat to their health. These migrant workers in general constitute a vulnerable social category with little capacity to bargain for their constitutional rights as workers, they are forced to work and live under subhuman conditions. These migrant workers are absorbed in low paid jobs in the unorganized sectors. The workers' living conditions are poor with

denial of basic amenities to maintain the standard of living, making them prone to health problems.¹

Workers represent half the world's population and are major contributors to economic and social development.² In India nearly two-thirds of the contribution to the net domestic product is by the unorganized sector.³

JUSTIFICATION

Very little research and studies have been done on health problems of construction workers, especially in India.

OBJECTIVES

1) To study the morbidity pattern among the construction workers.

2) To know their literacy status and habits.

METHOD AND MATERIALS

Study Design: It is a cross sectional study of 200 construction workers done at two different sites of construction in Bangalore city, which was a place of temporary settlement for the workers and their families.

Study period: August 2012 to October 2012

Methodology: 200 male workers were included in the study after taking an informed consent. Data was collected using a pre-designed questionnaire, it was used to collect the information regarding socio-demographic details, morbidity history in the past 1 month, habits and present state of health. This was followed by physical examination of the worker.

Data Analysis: Data was analysed using EPI INFO 18. The results are expressed in percentages.

RESULTS

In the study population of 200 male construction workers, the age group was between 18-55 years with a mean of 27.74 as shown in Table 1.

Among the 200 workers 16.5% were having a BMI <18.5, 7.5% with a BMI of 25-29.9, 0.5% were between 30-34.9 and 75% were of normal BMI of 18.5-24.9.

Of the 200 workers, 52 (26%) were illiterates, 30 (15%) had studied upto primary school, 27 (13.5%) had studied upto High Primary, 22(11%) were educated upto PUC

level and 12(6%)(95% CI 10.41-13.58) had completed degree as shown in Table 2.

Of the total work force of 200, 181 (90.5%) (95% CI 165.45-196.94) were migrants from various parts of the country, with maximum from West Bengal followed by Bihar.

Among the 200 workers 115 (57.5%) were married but, majority of them were living without their families.

The morbidity pattern observed among the 200 workers was as shown in table no 5, 32(16%) (95% CI 27.64-36.35) of them were suffering from respiratory infections, 26(13%)(95% CI 22.47-29.52) had gastrointestinal infections, 18(9%)(95% CI 15.58-20.41) had musculoskeletal pain, 18(9%)(95% CI 15.58-20.41) had skin infections and 8(4%)(95% CI 6.9-9.01) had work related injuries.

DISCUSSION

Though it was a small cross sectional study conducted among only 2 construction sites, It made us aware of various personal and health issues among unorganized workers.

Morbidity pattern: It was observed that 16% of the workers had respiratory ailments. Gurav et al⁴ have reported respiratory problems in 4.8% of workers. The higher prevalence in this study maybe due to higher exposure to dust during the working hours and post working hours as the accommodation is situated within the campus.

About 13% of the workers had gastrointestinal problems. A study conducted by Adsul et al found that 4.4% had gastrointestinal problems, such as loose motions, abdominal pain, constipation and loss of appetite, as workers are exposed to chemical agents, parasitic agents, or infective agents at the work and residential place.¹

The study shows that 9% had skin problems such as fungal infections, contact dermatitis, and eczematous rash. Contact with cement and lime may lead to irritant dermatitis. The presence of chromate and cobalt in cement is known to cause allergic contact dermatitis.⁵

In this study 9% of the workers had musculoskeletal problems. Malhotra⁶ has reported 40% of workers suffer from musculoskeletal disorders affecting various joints and muscles ranging from neck to foot. In this study the

prevalence may be less due to less manual activity, as the work is mostly mechanized.

The study shows 4% of the workers had sustained work related injuries. A similar study done by Ramsay⁷ says the risk of accidents increases with extremes of temperature. Age, sex, personal habits(such as working under the influence of alcohol) , personality traits(risk taking behavior) and physical and mental state of the worker play an important role in the occurrence of accidents. Construction industry is known for high incidence of accidents. More than 90% of accidents are preventable.⁸

Hypertension was seen among 5(2.5%) Of the workers. A similar result was observed by Adsul et al. ¹.

This study paves way for conducting further studies and workshops to prevent work related injuries. The construction companies should be brought under stringent legislations for safety at construction sites. Better housing conditions away from the construction sites should be provided to prevent from various infections and skin conditions.

Table1. Age wise distribution of study population

Age in years	Frequency	Percentage
<20	31	15.5
20-30	119	59.5
30-40	31	15.5
40-50	13	6.5
>50	6	3.0
Total	200	100

Table 2. Distribution of study population based on literacy status

Education	Frequency	Percentage
Illiterate	52	26.0
Primary	30	15
High Primary	27	13.5
High School	57	28.5
PUC	22	11.0
Degree	12	6
Total	200	100

Table 3. Distribution of study population according to Marital Status

Marital Status	Frequency	Percentage
Married	115	57.5
Unmarried	85	42.5
Total	200	100

Table 4. Distribution of study population as per Habits

Habits	Frequency	Percentage
Smoking	30	15
Tobacco chewing	22	11
Alcohol	09	4.5
Smoking plus chewing	05	2.5
Smoking plus alcohol	53	26.5
Alcohol plus chewing	11	5.5

Table 5 . Distribution of Morbidity Pattern among the study population.

Morbidity	Frequency	Percentage
Respiratory tract infection	32	16
Gastrointestinal infection	26	13
Skin infections	18	9
Musculoskeletal pain	18	9
Injuries	8	4
General weakness	5	2.5
Hypertension	5	2.5
Fever0.5	3	1.5
Myopia	2	1
Dental	2	1
Anaemia	1	0.5
Renal calculus	1	0.5
Cardiac	1	0.5
Rat bite	1	0.5

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The Changing Role of Supervisors: From Authoritative to Supportive

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ABSTRACT

Supervision is an integral part of effective human resource management in health. Since its implementation into health system monitoring processes, the word 'Supervision' symbolizes an erratic-timed, interrogative, fault-finding exercise often de-motivating and demoralizing healthcare workers. Supportive supervision of health staffs is an answer to labour-intensive, stressful and challenging work environments in health. This article outlines the definition and principles of supportive supervision, skills of a supervisor and steps in conducting a supportive supervisory visit. It also identifies current constraints and challenges in the integration of supportive supervision into human resource management.

Keywords: Health Supervision, Supportive supervision, Traditional supervision.

INTRODUCTION

A country's health system performance is dependent on the presence and performance of well-trained,⁽¹⁾skilled and motivated health workforce.⁽²⁾With health worker retention being crucial,⁽³⁾absenteeism,⁽⁴⁾staff shortages⁽⁴⁾and increasing attrition rates⁽⁵⁾are hurdles to quality-led healthcare. These hurdles are attributed to lower job-satisfaction rates,⁽⁶⁾de-motivating work environments,⁽⁵⁾inadequate staff supervision and management,⁽⁷⁾deficient career progression paths with non-existent career structures⁽⁷⁾and inadequate incentive systems⁽⁵⁾. In such stressful scenarios, Supportive Supervision (SS), a key component of health system monitoring processes,⁽⁸⁻¹¹⁾is a powerful tool to ensure health staff retention, build on their capacities and improve their productivity.⁽⁸⁾

Defining Supervision

Supervision, as a managerial activity is the "overall range of measures to ensure that personnel carry out their activities effectively and become more competent at their

work".⁽¹²⁾

How is supervision conducted currently?

The inspection manual by Health & Family Welfare Department, GOK contains prescriptive checklists on availability and functioning of staff, equipment and resources. District and Taluka Health officers (THO), Primary Health Centre Medical officers (PHC MO), Programme officers, Senior Health Assistants, Lady Health Visitors (LHVs) as supervisors are expected to mandatorily employ these checklists during their supervisory visits. While the checklists assist supervisors in conducting detailed visits, often the entire procedure becomes a fault-finding/policing exercise, failing the prime goal of supervision.

"Now it is become common for me to hear the LHV blame my inability to properly enter immunization data into the registers. She doesn't want to help me in any way. Her supervisory visits are very stressful" – Auxiliary Nurse Midwife

"The day when the supervision happens is a bad day for me. The patients load up and they keep waiting while the supervision happens. Patients are unhappy because of the waiting time. I am upset because he just (THO) gives a long list of faults, doesn't want to hear my explanation and I have to end up doing overtime on that day" – PHC MO

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Table 1: Traditional vs Supportive supervision ⁽¹⁸⁾

(Adapted from Marquez and Kean, 2002)

Type of Supervision	Traditional supervision	Supportive supervision
Who conducts the supervision	<ul style="list-style-type: none"> External supervisors as per National and State ministry of Health and Family Welfare guidelines eg THO for a PHC MO LHV or FHA for an ANM 	<ul style="list-style-type: none"> External supervisors as per National and State ministry of Health and Family Welfare guidelines Staff from other facilities(eg adjoining PHCs) Staff from the same facility (internal supervisors) (eg THO is part of the supervisory team (with state level consultant + Additional Chief Medical and Health Officer (CMHO) or RCHO + District nodal head) reviewing RMNCH+A services in his Taluka Hospital(THI)) Peer assessors (assessing each other within the team) Self assessment (staff assessing themselves)
Aim of the visit	<ul style="list-style-type: none"> The general mind-set is that a surprise inspection/visit will help in finding as many faults as possible. There is an authoritarian, punitive approach to the visit Usually, the visit is aimed towards meeting the needs of higher level supervisors to monitor activities at the points of health service delivery rather than meeting the support and guidance needs of health teams at particular health facilities 	<ul style="list-style-type: none"> The mind-set here is to help the health teams identify the discrepancies and to find feasible and achievable solutions together. There is a supportive, facilitative and formative approach to the visit
Focus of the visit	<ul style="list-style-type: none"> individuals and their past performances faults/mistakes and problem areas greater adherence to policies and procedures than improving performances 	<ul style="list-style-type: none"> processes identifying problem areas and finding solutions together/ jointly concentrating on systems, people, their overall performances and plans for the future
When does supervision happen	<ul style="list-style-type: none"> It is adhoc, sudden and sporadic It happens irregularly and infrequently Quite often the visit is a reaction to a complaint or pressure from higher ups for the declining performance of a health facility 	<ul style="list-style-type: none"> It is a continuous procedure It happens during routine work, team meetings, and regular visits by supervisors Due to the cordial relationship shared between supervisor and supervisee, it happens both formally and informally
How do supervisors prepare for the visit?	<ul style="list-style-type: none"> There is meagre or no preparation at all before the visit. There will be no prior intimation about the visit to the particular health facility It is often looked up as part of one's duty to quickly give a surprise visit to the health facility 	<ul style="list-style-type: none"> Supervisors review previous supervisory reports and reported achievements A prior intimation is sent and a date is set in agreement with the health team (supervisee) of the particular facility Supervisors make a detailed plan on the aim of the visit, the areas to be focused on during the visit, all recent guidelines/news that the team needs to be updated upon and the time needed to complete the entire visit
What happens during supervision	<ul style="list-style-type: none"> There is inspection of the facility, review of records and supplies The supervisor collects data as per the aim of his visit and draws attention to all the errors in the implementation/ delivery of particular programs and services The communication during this visit is usually uni-directional communication with the supervisor being the lone decision maker 	<ul style="list-style-type: none"> There is review of the facility, records and supplies without interrupting routine work The supervisor observes the processes and performances and compares to the standards There is an empathetic, two way communication between supervisor and the supervisees and supervisor listens patiently to their explanation Visit is accompanied with on-site training and provision of technical updates or guidelines
What happens after supervision	<ul style="list-style-type: none"> Appraisal of the health teams at the end of the visit is often, fault finding and punitive Supervision findings often are not documented and there is very little discussion on the observations made by the supervisor Problem-solving by the supervisor is reactive, episodic and the supervisee team is rarely a part of the joint action plan There is little or no sharing of field visit reports with other program supervisors Feedback and follow up after the last visit is rare 	<ul style="list-style-type: none"> During the appraisal, the supervisor has an open discussion with the supervisees to help them identify their problem areas and challenges. The supervisor provides corrective and supportive feedback on their performances as well. Problem solving happens through formulating a joint action plan in agreement with the supervisees and the supervisor. This is recorded and followed during formal and informal visits. There is review of earlier reports and follow-up on previously identified problems There is also ongoing monitoring and support of team members in weak areas Feedback and follow up after the last visit is very important here
Outputs and Outcomes	<ul style="list-style-type: none"> Supervisees are uncomfortable and fear such visits Traditional supervision has little impact on health worker performances. The outputs and outcomes of such visits are insufficient, inadequate and meagre 	<ul style="list-style-type: none"> Supervisees are happy to see the supervisor and look forward to such visits With sustained continuous supportive supervision, the health worker performances improve thereby enhancing the health service delivery to communities

(Excerpts from Swasthya Karnataka* participants on current supervision process)

Despite the emphasis on SS to improve health service delivery by National Rural Health Mission (NRHM), supervision in itself is lacking in Karnataka. The 7th NRHM Common Review Mission report⁽¹³⁾ identifies fallacies like absence of monitoring registers to record feedback after a supervisory visit, incomplete and inaccurate documentation of the visits and unavailability of SS checklists at District and State Program Management offices⁽¹³⁾ as prime reasons for a weak SS system in Karnataka.

While our neighbouring state Tamil Nadu has a robust and well-structured SS system in place,⁽¹⁴⁾ Karnataka is far behind in implementing SS in the field.

What does traditional supervision mean?

Traditional method of supervision, often hierarchical and authoritative, is defined as where a 'supervisor or appointed group leader is primarily held accountable for the activity and results of the work unit'⁽¹⁵⁾ or 'work that is organised to emphasise the vertical relationship between the supervisor and each worker and to minimise co-worker interaction'.⁽¹⁶⁾

A traditional supervisory visit focusing on fault-finding is considered as an opportunity to display power and authority.^(17,11) Frequently erratic timed and often being interrogative,⁽¹⁹⁾ most visits have unclear goals and believe that health staff are naturally unmotivated and require strong controls to perform adequately^(12,17,18). The health staff receive meagre or no guidance/feedback⁽¹⁹⁾ future direction, at the end of such visits.

Problem-solving during such event-oriented visits are reactive and episodic⁽¹⁸⁾ with supervisors blaming individuals for deficient systems instead of encouraging them to find solutions for setbacks at work.⁽¹⁸⁾ Such visits threaten the confidence, competence and morale of health workforce.

Is there a need to shift from traditional supervision to supportive supervision?

Multiple studies and program evaluations evidence the accomplishments of SS. Apart from functioning as an efficient tool⁽²⁰⁾ to strengthen local health systems, SS has improved immunization-coverage rates,^(20,21) health provider satisfaction rates,⁽¹⁸⁾ supply chain management,⁽¹⁰⁾ facility-level

problem-solving⁽¹⁸⁾ and quality-of-care indicators. It has augmented⁽²²⁾ and sustained job satisfaction/motivation levels⁽⁶⁾ of health workers.^(23,11) It has increased health service efficiency⁽²⁴⁾ and equity,⁽²⁵⁾ promoted patient management and partners' adherence to national HIV guidelines,⁽¹⁰⁾ improved routine data collection, timely reporting for monitoring and evaluation of community-based programs⁽²⁶⁾ and STI interventions.⁽²⁷⁾ Policy makers and managers have realised its potential and are strongly advocating its incorporation into human resource management (HRM) in health.^(10,28)

Non-punitive work climate with team-based culture, consultative, participative, supervisory behaviour, less-hierarchical work structure, consistent and focused training and development, continuous quality improvement and management are prime drivers and enablers of high performances in healthcare organisations.⁽²⁹⁾ Supervision that is supportive and conducive to health staff provides an opportunity to routinely incorporate all the above factors.

With crippling healthcare systems impacted by health staff scarcity, a shift from a supervision that sustains on inspection, interrogation and policing to a supportive, formative and facilitative visit; is crucial and critical.

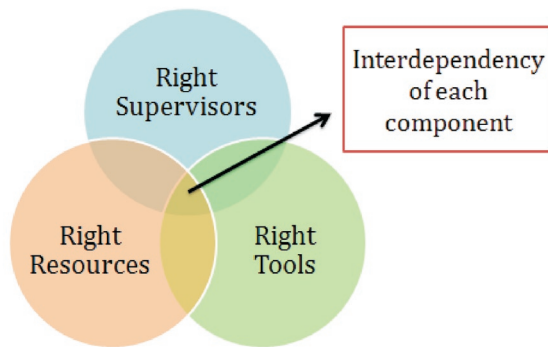


Figure 2: Components of Supportive Supervision system^(10,17)
Right Supervisor

An effective supervisor is multi-skilled with well-defined responsibilities

- Being the only face⁽³¹⁾ of the larger health system to peripheral health workers, a supervisor's prime responsibility is to improve and sustain health worker performances by creating a dynamic and healthy work environment
- Balancing between poor supervision where staffs

Definition, Principles and Components of Supportive supervision⁽²¹⁾

The MoHFW India guidelines, 2005⁽²¹⁾ describes SS as a “process which promotes quality outcomes by strengthening communication, identifying and solving problem, facilitating team work, and providing leadership and support to empower health providers to monitor and improve their own performance”.

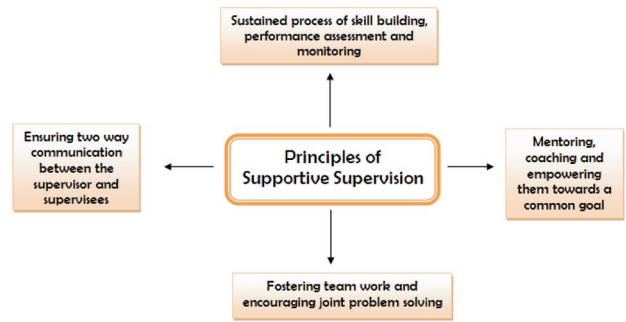


Figure1: Principles of SS^(18,19,30)

(Adapted from Marquez and Kean, 2002; PATH, 2003 & USAID, 2009)

A strong, sustainable SS system involves 3 components.^(10,17)

Right Supervisors	Right Tools	Right Resources
<ul style="list-style-type: none"> • Trained on supportive supervision techniques • Updated information in the respective field 	<ul style="list-style-type: none"> • Checklists, tools, guidelines, standards, • Job aids, training materials to train supervisees • Records of recommendations or action plans for follow up 	<ul style="list-style-type: none"> • Reliable transport • Travelling allowances • Adequate time allocated for preparation, travel, field visit, reporting and follow-up activities • Support for periodic review meetings

(Adapted from WHO, 2008 & MOHSW (Tanzania), 2010)

feel isolated and unsupported and excessive supervision instigating staff resentment⁽³²⁾ is crucial

- Identifying⁽³²⁾ strengths, weaknesses, career and educational goals of team members and providing timely, constructive and productive feedback is also important
- A supervisor should understand that SS, being mutually beneficial, provides an opportunity to motivate and empower his/her subordinates. Gradually,

responsibilities will be shared and the supervisor becomes a leader/mentor resulting in reduced work friction and improved performances of health facilities.

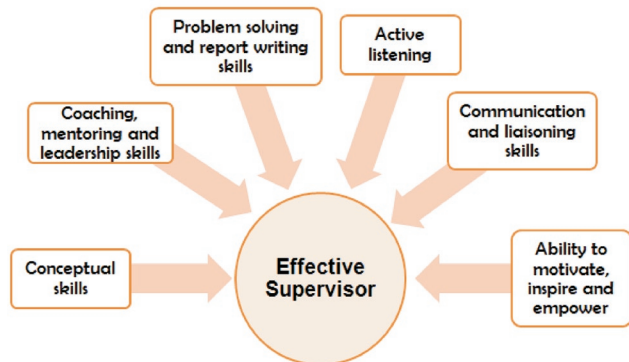


Figure 3: Skills of an effective supervisor^(10,31)

Right tools

Right tools assist in strengthening the supervisees and updating them on changes in healthcare policies and procedures.

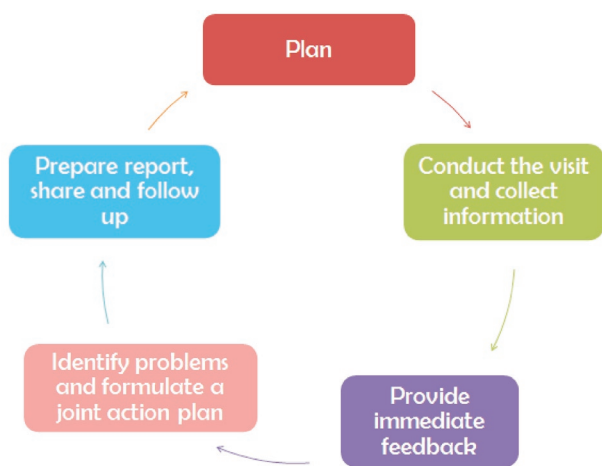
Additional to the checklists, supervisors should formulate a priority issues list that needs attention during the visits.⁽¹⁷⁾

Right resources

Adequate resources are vital to conduct the visits. The supervisor should marshal resources feasible within his/her capacity or convince higher-ups⁽¹⁷⁾ to allocate them for the visits.

Conducting Supportive supervisory visit

Figure 4: Steps in conducting SS visit



(Adapted from WHO, 2008; Strasser S, 1999 & MOHSW (Tanzania), 2010)

Example 1

A visit to supportively supervise an ANM with

immunisation session in progress

Table 2: SS steps for Example 1

Step 1: Plan	<ul style="list-style-type: none"> Contact the ANM and decide/agree on the day of the visit. Ensure that you conduct the visit on the day when you can observe the immunization session in progress. Plan the amount of time you will spend at the SC. This is dependent on the needs and performance of the particular SC and its staff. Develop a plan for your visit <ul style="list-style-type: none"> Formulate the purpose and objectives of your visit List the priority issues/areas that needs to be observed and recorded Check if reports of previous supervisory visits is available and make note of all the recommendations from it Get a copy of the annual plans. Review the objectives and the progress, the particular SC had made so far. Make note of all setbacks or discrepancies Plan well ahead to train SC staff in the areas of improvement Prepare new updates that needs to be presented to the staff Make copies of the immunization checklist and Rapid Immunization Coverage Assessment Tool If a team is conducting the visit, brief the entire plan to all team members and include their suggestions (focus areas) into your checklist Organize logistics for your travel
Step 2: Conduct the visit and collect information	<ul style="list-style-type: none"> At the SC meet the staff and explain the entire supportive supervisory plan to them If the SC is busy, do not interrupt the staff (unless you feel that the beneficiary will be harmed without your intervention) Start your observations. This can be done both passively and actively <ul style="list-style-type: none"> Passive observation <ul style="list-style-type: none"> Is the ANM administering the vaccines to children safely Is she taking all precautionary measures to ensure that there is no vaccine contamination What about the safe disposal of medical sharps etc Active observation <ul style="list-style-type: none"> Are there any immunization-related IEC material displayed at the SC Check the vaccine carriers or expired/ frozen vaccines Interact with the parents or community members or staff if free etc Reviews all records and registers - check the immunization coverage rates, dropout rates, newborns registered etc, entry and calculation of all data. Measure it to prescribed guidelines. Check for discrepancies and low performances. Apply the 'Supervision Checklist for immunization session site' and fill in all your observations. You could also do a 'Rapid Immunization Coverage Assessment Tool'. Refer to your checklist to ensure you have covered all focus areas and met the objectives of the visit Pay attention to your tone of voice and body language. It should be carried out in a non-judgmental and non-authoritarian way. Show respect and patience throughout the supervisory visit.
Step 3: Provide immediate feedback	<ul style="list-style-type: none"> Wait the staff to complete clinical work. Do not criticize the ANM or any other staff when immunization session is in progress. Assemble in a comfortable room with the staff and ensure appropriate privacy before you start your feedback Present all your observations Start with positive feedback. Appreciate and point at all the areas that are well performed. Progress to areas of improvement. Check reasons behind the problems or discrepancies. With patience, provide enough time for the SC staff to answer to your queries. Ensure that you provide a constructive, empathetic and supportive feedback while describing the areas of improvement. Focus on systems, processes and performances not on the person or his/her past actions. Listen earnestly and note down all their problems and challenges. Analyze them and make note of possible solutions. Review the action points from previous visits and status of implementation and make notes In case a procedure is performed incorrectly, demonstrate the correct procedure and ask for return demonstration <ul style="list-style-type: none"> eg Reconstituting vaccines or formulating a micro plan for immunization or calculating the monthly target of beneficiaries or the requirement of vaccine vials etc Give on-the-job training on new techniques and approaches if required
Step 4: Identify problems and formulate a joint action plan	<ul style="list-style-type: none"> Using the list populated during feedback, jointly identify the causes for the problems and challenges. Discuss possible solutions for each problem Together, formulate an action plan to each problem and jot down the plan (Table 3) This plan can be used to monitor the progress of SC staff. It has to be signed by both the supervisor and the supervisee and attached to the SS visit report.
Step 5: Prepare report, share and follow up	<ul style="list-style-type: none"> Prepare a complete report recording the date of the visit, main observations, training given, and agreed follow-up actions Insist on and maintain a supportive supervision record-book at the SC. Fill in your visit details in the book. Attach a copy of the report with the Joint action plan. This is useful during your next visit. Invite the SC staff to provide feedback on your visit and enquire into the kind of help and support they would expect from you <ul style="list-style-type: none"> When ready to leave, thank the supervisees and others Decide on the probable date of next visit and keep up to it Remember poor performing SC would need more visits than better performing ones Use the report for continuous monitoring of the SC performance. Share it with others who are able to support and assist the SC

Table 3: Example of Joint Action Plan

Joint action plan : Immunization session at XYZ SC				
Problems	Causes	Recommendations	By Whom	By When
High immunization dropout rate	The immunization session timings are not convenient to the community	<ul style="list-style-type: none"> Meet and consult the community/parachayat members, political or religious leaders, school teachers, private medical practitioners, NGOs about changing the service timings Modify the session timings accordingly Seek their help and support to spread the word Identify left-outs and dropouts Make home visits to inform about the change in timings and to motivate caregivers of children who are behind schedule 	ANM supported by ASHA/AWW	Within the next two weeks

Constraints and Challenges of Supportive Supervision

Despite the emphasis, SS implementation suffers from numerous constraints and challenges

Table 4: Constraints to SS

Resources	<ul style="list-style-type: none"> • lack of adequate and reliable resources^(10, 33)[transportation, fuel, financial resources, human resources⁽³⁴⁾]; • diversion of resources from planned allocations⁽⁴⁸⁾; • insufficient dedication of time⁽¹⁰⁾for the visits due to heavy burden of administrative duties^(18, 36)and restricted mobility of supervisors that constrains field supervision⁽²²⁾
Supervisors and supervisees	<ul style="list-style-type: none"> • inadequate training⁽³³⁾of supervisors and thus lack in supervisory skills⁽¹²⁾; • lack of requisite technical and managerial skills or limited authority to resolve service delivery problems⁽¹⁸⁾; • lack of skills, work overload⁽¹⁰⁾and low morale⁽¹⁸⁾among supervisees with lack of understanding of the benefits of supervision⁽³⁶⁾; • negligent attitude towards SS with prioritization to superiors' preferences or donors' financial incentives (per diems) to attend workshops and trainings⁽³⁶⁾
Tools	<ul style="list-style-type: none"> • absence or lack of use of standard checklists⁽²²⁾during supervision • lack of clear guidelines⁽¹⁰⁾for supervision, • absence of trainings⁽¹⁸⁾to update skills and knowledge of supervisors which can trickle down to supervisees
Approach and processes	<ul style="list-style-type: none"> • lack of a standardized approach to SS⁽¹⁰⁾ • lack of appropriate planning⁽¹⁸⁾ • failure to define priorities⁽¹⁸⁾ • failure to develop and follow up on the formulated action plans^(18, 22) • vertical supervision of vertical programmes⁽²²⁾leading to uncoordinated, fragmented, intervention-specific supervisory activities⁽¹⁰⁾
Policy, stability and accountability	<ul style="list-style-type: none"> • Absence or frail supportive supervision policies⁽²²⁾in health systems • lack of financial stability and accountability⁽¹⁸⁾ • lack of support or hostility from superiors, peers and supervisees⁽³⁶⁾

(Sources: MOHSW (Tanzania), 2010; Criel B, De Brouwere V, 2012; Marquez L, Kean L, 2012; Agoro O, Osuga B, Adoyo M, 2015; Som M, Panda B, Pati S, Nallala S, Anasuya A, Chauhan A et al, 2014; Bosch-Capblanch X, Liaqat S, Garner P, 2011; Tavrow P, Young-Mi K, Malianga L, 2002 & Fam Plan Manager, 1993)

Challenges

- Adopting SS seeks fundamental changes in approach, processes and policies. With fear of loss of control and rigidity towards change, SS biggest challenge is a major change in human behaviour.^(18,19,22) Including cursory and surprise inspections in the inspection manual fails the very spirit of SS.

- Top management's move to embrace this shift in approach and conduct of SS and its integration into existing HRM, rather than being introduced as an isolated/parallel intervention, determines its sustainability.^(11,18,37)

- Individual supervisor-characteristics, the setting and context of supervision, the topics and tasks covered, frequency, duration, time allocated and structure of supervisory interactions, including ways to sustain and enhance quality of visits, all influence the way supervision is conducted and perceived.⁽¹²⁾ Striving towards improvements in each of these need time and patience.^(10,12,18)

- Meagre evidence on practice, benefits and cost-effectiveness of SS is its biggest setback. Greater efforts directed towards research and advocacy of SS and documentation of good practices are significant to evidence its impact on health system performances and encourage its adoption into health policies and programs.^(10,11,18,19)

Success stories from the field

A 2-day training programme encompassing lectures, role play, facilitated discussion and practical field visits on SS was organised for SK participants in Tumkur. Months later few participants shared their success stories of adopting SS.

Dr Asma Tabassum, District Tuberculosis officer articulated that SS had improved communication with her staff, the quality of testing and reporting at health facilities had improved and she had found newer ways to motivate her staff to surpass.

Dr Rajani, the Reproductive and Child Health officer vocalised that SS had helped her subordinates understand her viewpoints much better. The participatory decision making process had created a sense of ownership in her staff and the improvement in interpersonal relationships had brought about a positive change in their performances.

During external evaluation of SK initiative, SS was rated as one of the modules most relevant to their activities at workplace by the participants.⁽⁴⁰⁾

CONCLUSION

- For long-lasting impact on strengthening health staff capacities, SS, as an ongoing performance

monitoring and quality improvement activity, should become a routine exercise for health worker."^{11,12} This cannot be possible without policy-level attention and interventions."^{11,12}

- SS shouldn't be a one-off event that happens only during planned visits. It should happen on multiple, varied occasions: on the job, both formally and informally; in one-on-one meetings; in peer discussions; in meetings outside work places; and during self-evaluation of performances by health workers.^(18,19)

- Shifting the locus from individuals to teams and processes, employing participatory decision-making, and focusing on problem-solving, a supportive supervisor should adorn the role of a facilitator, coach, mentor to empower health teams⁽¹⁸⁾ towards optimizing their performances.⁽³⁸⁾

- Finally immense efforts need to be directed towards documenting experiences/best practices of SS and its impact on health system performances. These can be employed to advocate the SS implementation as a policy-level intervention."^{11,12,21} This would pave way in strengthening health staffs, health systems and health performances

**Swasthya Karnataka, a consortium initiative by Institute of Public Health, Karuna Trust, Institute of Health Management and Research, Centre for Leadership and Management in Public services & Centre for Global Health Research in partnership with government of Karnataka conducted a capacity-building intervention in Tumkur district from August 2009-January 2011. Health teams involved in management of health services at Taluka and district levels were trained on public health management. Designed on experiential learning methods, the intervention had a blended methodology with contact sessions, field assignments and mentoring of participants. This initiative received technical support from the Department of Public Health, Institute of Tropical Medicine, Antwerp, Belgium and the State Institute of Health and Family Welfare, Karnataka.*

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Source of Support: Self

Ethical Clearance: None, It was a training programme

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Open Defecation: A Menace to Health and Dignity

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ABSTRACT

Open defecation is a serious threat on sanitation health and dignity. The problem is more intense in developing countries like Sub-Saharan and Asian countries. India is the worst hit country and women are the one who are the worst affected. It is not only serious threat to their health but also their dignity. It also increases their risk of verbal, physical and sexual abuse. Lack of household toilets is not the only major reasons for this heinous practice but the deep rooted habit of relieving themselves in open is also quite difficult to be removed from their mindset. As the child learns from his parents this habit gets propagated in their predecessors. This sanitation crisis needs urgent redressal as millions of lives are at stake.

Keywords: *Open Defaecation, Women, Dignity, MDG, Sanitation*

INTRODUCTION

The Millennium Development Goal target on sanitation is to halve the proportion of global population living without access to safe sanitation, remains the most off-track of all the MDG targets and according to WHO this target will not be met until 2035. ^[1,2] Currently around 2.6 billion people are deprived of basic sanitation out of which two-thirds live in the developing nations of Asia and sub-Saharan Africa. 1.2 billion People lack even a sanitation facility and must defecate in the open, of which more than half live in India. ^[3] Globally, India has the largest number of people (more than 595 million) still defecating in the open and only one in two people uses a toilet. In rural part of Northern India, the popularity on open defecation is that as a long standing habit, more comfortable and an opportunity to take in fresh air. ^[4]

Current Scenario: Almost 300 million women in India have no access to basic sanitation facilities. This sanitation crisis is more threatening for the weaker sex in the community. The impact of lack of the most basic service has profound negative impacts on maternal and child health, gender equality, livelihoods and more importantly on Self- Dignity. ^[2] As many as 1-in-3 women in India have to relieve themselves without any privacy in the fields, behind the bushes, or worse in the open, running a risk of various gastrointestinal, gynecological and urinary problems and dignity shed to pieces. These women face the threat of not only health hazards but sexual abuse and

violence every single day and especially after nightfall. In an interview of a woman in a slum in Kenya said that “Women, more than men, suffer the indignity of being forced to defecate in the open, at risk of assault and rape.” She further went to add on that women being responsible for the home and for children and other dependents are more affected by a lack of sanitation and by the indignity of living without sanitation. ^[5] In a study conducted in India, it was observed that women encountered three broad types of stressors- environmental, social, and fear of sexual violence all of which contributed to sanitation related psychosocial stress; the intensity which was related with access to sanitation facilities. ^[6] A mathematical model, which was developed in South Africa also, links risk of sexual assault to the number of sanitation facilities and amount of time women spends walking to a toilet. ^[7]

The situation is further complicated by menstruation. Around the world, girls stop their education not for lack of desire, but for lack of sanitation. Once a girl reaches puberty, many practical and cultural barriers form, all of which can be easily overcome by access to appropriate sanitation. ^[8] Studies show that girls who are menstruating do not attend school because school latrines, if available, often do not offer the necessary privacy, sanitary waste disposal or hand washing. ^[8] The lack of dignity, privacy and safety for women without access to sanitation can further manifest itself through increased urinary tract infections as women choose to drink less during the day as part of their sanitation strategy. ^[9]

A survey was conducted in rural India after the introduction of new eco sanitation facilities where it was observed that better health and better attendance was seen in schools where sanitation facilities were being provided. It was found that on average, there was an increase of almost 15% in girls' school attendance after sanitation facilities were being made available. ^[10]

For women, access to household sanitation reduces the risk of exposure to physical/verbal/sexual violence when going to outside fields to defecate, and for girls, the provision of school sanitation facilities would mean that the school drop out rates would decrease and would be less likely to stay at home during menstruation thereby, ensuring safety, dignity and sense of self-worth. Maintaining dignity is critically important during a young girl's adolescent years for her overall well being. Having safe sanitation facilities helps to ensure that girls stay in school and continue their education, thereby improving their livelihood and overall status. ^[11]

DISCUSSION AND RECOMMENDATIONS

Sanitation in India is in a crisis that needs to be looked into critically. Most sanitation drives around the world are focusing on elimination of open defecation. Governments should advocate for enhanced political focus on sanitation and involving the communities and individuals in decision-making by giving priority to the poorest and most marginalized populations to tackle this inequity and to ensure that all people have access services and information.

To accelerate the efforts to improve sanitation and to reach the target of India eliminating open defecation by 2019, the current Prime Minister of India launched the Swachh Bharat Mission / Clean India Mission to improve sanitation coverage, and pledges to have toilet for each Indian by 2019. ^[12] But this is not enough, understanding the various deep-rooted causes of open defecation should be the first and foremost step and then actions should be taken accordingly.

Community mobilizing innovations like Community Led Total Sanitation (CLTS) for eliminating open defecation are welcome steps. At the heart of these innovations lies the recognition that merely providing toilets does not guarantee their use, until improved sanitation and hygiene becomes the felt need. Many approaches to sanitation earlier offered subsidies as an incentive. But this led to uneven adoption, and only partial use. The long-term sustainability was

questionable as it also created a culture of dependence on subsidies. The need is to focus on the behavioral change communication (BCC) to ensure sustainable improvements – shifting the focus from toilet construction for individual households to raising awareness that as long as even a minority continues to defecate in the open everyone is at risk of disease. Communities must be facilitated to conduct their own appraisal and analysis of open defecation and take their own action to become open defecation free. ^[13]

Additionally, sanitation plays an important role in improving the social conditions of not only women but also other members of the society who face daily social stigma who have no say in the natural or human-made environment such as the disabled people, geriatric population, children, people living with chronic conditions. Sanitation improves the quality of life among people of all domains of life. As said by United Nations, Sanitation will provide the population dignity, equity and safety – and ultimately human right. ^[14]

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A Study of Pain Management during Labour by Epidural V/S Pentazocine & Tramadol

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ABSTRACT

Epidural is of course the best form of labour analgesia. Aim is to find out an alternative method of labour analgesia where epidural is not a choice.

Method and Material: A total of 90 parturient at term of 30 in each arm were selected for the study. The women received 30 mg of Pentazocine (P), 1 mg / Kg of Tramadol (T) & 10 ml of 2% Ropivacane with Fantanyl 50 µg as top up dose. The pain was assessed by using VAS at 0,1,2,4, hour & full dilatation of cervix. No side effects were observed on mothers & neonates.

Result: Pain relief was found best in epidural (80%) in Pentazocine group (63.3%) and Tramadol group (43.3%) moderate. These two can be used for moderate in pain relief where epidural is not available. The mode of delivery did not differ significantly among these groups.

Keywords: Epidural, VAS, Pentazocine, Tramadol, Analgesia, Labour.

INTRODUCTION

The big Question in women's mind ? is "how much pain be during labour" There are three main causes of pain during child birth-emotional, functional & Physiological. Each women¹⁵ labour is unique & the amount of pain perception is different. Thus her psychic condition & her fear regarding labour & its out come are important as well.⁽¹⁾ Epidural analgesia is a gold standard in obstetrics; It is used to achieve the complete pain relief with no ill effects on child & its complication are rare. It has been found to give highest level of satisfaction to parturient.⁽²⁾ Intermittent or continuous administration of local anesthetic (with or without opioids) or use of intermittent bolus is considered to provide similar analgesic efficacy^(2 3 4). Combination of opioid & anesthetic in epidural enhances the quality of pain relief & contributes to good progress of labour & vaginal delivery .^{(2) (13)}

MATERIAL METHOD

The prospective study was carried out at Rama Medical College, Hospital & Research Centre, Pilkhwa - Hapur, U.P. after approval by the clinical research & ethics committee. Women were enrolled after written informed consent for

the study after 36 weeks of gestation. Healthy term women, singleton pregnancy, vertex presentation requiring analgesia during labour was the eligibility criterion. The parturient were included in the study at 4 cm of cervical dilatation. Their base line pain score was noted at peak of contraction which was 5 on a 10 cm visual analysis pain score (VAPS) with 0 representing no pain & 10 representing worst pain. Prior to initiation of analgesia base line maternal pulse, Blood pressure, foetal CTG were recorded & infusion of Ringer Lactate solution was started.

A total of 90 women 30 in each arm were recruited by using computer generated random number table as sample. All women were informed about study & blinded about which arm of study they belong. Group (P) Pentazocine received 30 mg IM, Group(T) received Tramadol 1mg/kg. In one single shot & in group E all women were given initial dose of 10 ml of 2% Ropivacaine with 50 µg Fantanyl. All women were admitted to labour room. Epidural catheter was setup in Lt lateral position at L-3-4/ L -4-5 inter space. Epidural space was identified using loss of resistance to saline technique 16 gauge Tuohy needle. An epidural catheter was inserted to 3-4 cm in epidural space through the Tuohy needle & fixed. 10 ml of 2% Ropivacaine with

50 µg of Fantanyl given as loading dose & top-up dose 5 ml 0.2% Ropivacaine with Fantanyl 2 µg every hour. Following data were noted for each group.

- Demographic characteristic
- Labour data
- Time of onset of analgesia
- Mode of delivery
- Duration of 1st stage from the time of insertion of epidural catheter & injection
- Pulse, B.P, every 5 minutes for 30 minutes then one hourly.
- Maternal satisfaction & fetal out come.

Table I: OBSERVATION: Comparison of Pain Score (VAS) Among Three groups (N-30)

Time Hour	Pentazocine IM (P)		Tramadol IM (T)		Epidural(E) Rupavacaine+F	
	Median	Range	Median	Range	Median	Range
0	8	4-10	8	4-10	8	5-10
1	6	2-10	7	4-10	6	4-10
4	8	2-10	8	5-10	8	2-10
Full dilatation	10	6-10	10	7-10	10	7-10

The median pain score was 8 prior to drug administration in 3 groups. The score was 6,7,6 after one hour respectively, 55% women in Tramadol group & 48% in Pentazocine group delivered within 4 hours of drug administration. Thus the analgesic effect was comparable at the end of first stage pain score was 10 in all groups.

Table II: Pain characteristics at 1 & 4 hours after drugs administration

Character	P		T		E	
	1	4	1	4	1	4
No Pain					24 (80%)	
Mild	1 (3.3%)	1 (3.33%)	2 (6.66%)		6 (20%)	
Moderate	18 (60%)	6 (20%)	13 (43.3%)	5 (16.6%)		
Severe	11 (36.61%)	23 (76.6%)	15 (56.6%)	26 (86.6%)		
Total	30	30	30	30	30	

After one hour of drug administration mild pain was observed in 1 (3.3%) in P group none in T group and 6 (20%) in Epidural group , 17 (56.6%) women in T group rated pain as severe. After 4 hours majority of women rated pain severe in both groups which is not statistically significant.

Table III: MODE OF DELIVERY

Delivery	Count/%	P	T	E
Normal	Count/%	24 / 80%	20 / 66.66%	18 / 60%
Assisted	Count/%	5 / 16.66%	6 / 20%	8 / 26.66%
C.S. (Caesaren Section)	Count/%	1 / 3.33%	4 / 13.33%	4 / 13.33%
Total		30	30	30

Mode of vaginal Delivery (Both Normal / Assisted) did not differ significantly among these groups. Rate of caesarean sections were 13.3% in both Tramadol & Epidural group while 3.33% in Pentazocine group, which is not high as compared to over all caesarean section rate.

Table IV: Comparison of Injection to Delivery Interval

Parameter	Gr. P	Gr. T	Gr. E
Duration of 1 st stage in minutes	Mean	Mean	Mean
	117.29	103.35	238.8

Mean Duration was shortest in Tramadol group, as compared to Pentazocine & Epidural. The injection to delivery interval was 238.8 minutes in E group.

Table V: Neonatal out come

Apgar score	P	T	E
1 min	9	8.93	9
5 min	10	9.98	10

Neonatal out come i.e. apgar score in all the groups observed is 9-10. Which is good, indicate there is no bad effect on neonatal out come.

Table VI: Maternal Satisfaction

	P	T	E
Fair	20 (66.66%)	18 (60%)	2 (6.6%)
Good	10 (33.33%)	11 (36.66%)	17 (56.66%)
Excellent			11 (36.66%)
Poor		1 (3.3%)	

DISCUSSION

There is urgent need for awareness about labour analgesia as mother suffer from labour pain to significant extent⁵ Epidural analgesia is not available in all delivery setups so there is need for alternative low cost method.^{5,6} To reduce the dose of local anesthetic drug opiates are included¹³. The addition of Fentanyl to Rupavacaine provided superior analgesia^{6,13}.

Our study compared single shot Intramuscular Injection and Epidural^{8, 10}. The analgesic property of Pentazocine & Tramadol is comparable as majority of patients rated severe pain and 33.33% in P group & 36.66% patients T group had good satisfaction.⁷ Maternal satisfaction was good in 56.66% & Excellent in 36.66% in epidural group.⁹

CONCLUSION

Epidural analgesia (with Ropivacaine and Fentanyl) is the best kind of analgesia during labour. Pain relief & maternal satisfaction in this group is better than opioids. But in places where epidural is not available the Intra muscular opioids injection is good choice as 33-36% of parturient rated analgesia as good. There is no side effects on duration

of labour and neonatal out come in tramadol & pentazocine group. Thus in the setups of limited facility Tramadol & Pentazocine are good alternative method for labour pain relief.

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An Interventional Study on Bio Medical Waste Management among Nursing and Paramedical Staff in a Tertiary Care Hospital

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ABSTRACT

Background: The waste produced in the course of healthcare activities carries a higher potential for infection and injury than any other type of waste. Inadequate and in appropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well.

Objectives: 1. To assess the knowledge, attitude, and practice of Bio medical waste management among nurses and laboratory technicians.

2. To assess the effectiveness of Educational intervention on Bio medical waste management among them.

Materials and Method: The study was conducted among 80 staff members during May – Sept 2014 in Sri Venkateshwara Medical College Hospital & Research Centre. A training programme on Bio medical waste management was conducted for the study participants and their performance was assessed before and after the training session. Analysis of data was done by applying Wilcoxon signed rank test and Mann Whitney U test to note the statistical significance.

Results: Of total 80 study participants 75% (60) were nurses while 25% (20) were lab technicians. Significant statistical difference (pretraining and post training) was found among these staff members who have received training in biomedical waste management which is evident from the improved level of knowledge and attitude and practice about Biomedical waste management.

Conclusion: The importance of training regarding biomedical waste management needs emphasis. Lack of proper and complete knowledge about biomedical waste management impacts practices of appropriate waste disposal.

Keywords: Biomedical waste management, hospital, Nursing, Lab technicians.

INTRODUCTION

Health Care Waste (HCW) is the second dangerous waste in the World that needs to be properly disposed by trained health care staff. Knowledge and safe practices of medical staff is very imperative while managing this waste. Most populous countries like Pakistan, India, China, Nigeria and Bangladesh facing the improper infectious waste management practices in the hospitals that result in occupational and public health challenges for the general population¹.

Fears about the Ebola virus crisis, which is the largest outbreak ever recorded, being transported to India is impending among the concerned authorities here. A WHO document of August 2014 on 'Infection Prevention and Control Guidance for Care of Patients with Suspected or Confirmed Filovirus Haemorrhagic Fever in Health-Care Settings, with Focus on Ebola' gives nine key messages to the medical fraternity. Out of these nine messages, five messages are related to Bio-Medical waste management. This clearly indicates the importance of BMW in

today's health care provision².

Health-care waste refers to all the waste generated by a health care establishment. It is estimated that 10-25% of health care waste is hazardous; with the potential for creating a variety of health problems³. Proper management of biomedical wastes (BMW) is of utmost public health importance⁴. There are many examples and ample evidences that indiscriminate management of Bio-Medical Waste could cause serious hazards to health and environment as cholera, typhoid, dysentery, infective hepatitis, polio, ascariasis, hook worm disease, malaria and filaria etc. Rag pickers in the hospital, sorting out the garbage are at a risk of getting Hepatitis and HIV infections. Dust may harbour Tubercle Bacilli and other germs, which cause diseases if inhaled. Pathogens in infectious waste may enter the human body through a puncture, abrasion or cut in the skin through mucous membrane by inhalation or by ingestion.

The most common and most investigated cause of the microbiological risks associated with healthcare wastes are injuries due to needles. Various units of healthcare facilities contribute variety of the waste in mainstream. The main categories of the healthcare waste are human blood and blood products, cultures and stocks of infectious agents, pathological wastes, contaminated sharps, contaminated laboratory wastes and contaminated wastes from patient care, discarded biological and body parts⁵.

It is estimated that annually about 0.33 million tonnes of hospital waste is generated in India and, the waste generation rate ranges from 0.5 to 2.0 kg per bed per day. Wherever, generated, a safe and reliable method for handling of biomedical waste is essential. Effective management of biomedical waste is not only a legal necessity but also a social responsibility⁶.

The current scenario in the country reveals partial or no segregation at the time of generation, which at times is done by the contractors, or the rag pickers AJAY. The BMW rule applies to all those who generate, collect, receive, store, transport, treat, dispose or handle BMW in any manner and also to every institution that generate BMW. The bio medical waste should be segregated at source into colour coded bags or containers and its collection and proper disposal should be a significant concern for both medical personnel and general community⁷.

Although the disposables are considered a boon for infection control, this itself becomes a 'Frankenstein's monster' for infection control if not managed properly. Since the last three decades, unregulated handling of biomedical waste is emerging as a serious threat to human health and safety, and many researchers have documented this as a priority area⁸. Unsafe medical waste disposal in India according to the All India Syringes and Needles Manufacturers Association, at least 20% of syringes sold are from recycled sources. Recycled syringes may harbour deadly viruses such as those causing Hepatitis B & C. Used surgical cotton and bandages are often used to make quilts and mattresses⁹.

Among the hospital employees, nursing personnel usually constitute the largest proportion of the health professionals in the hospitals. There is lack of information related to infectious healthcare waste management. The nurses and the lab technicians are mostly the ones who are at the source of generation and are responsible for segregating the waste according to the category based colour coded bags¹⁰. Hence an intervention programme was planned among the staff, who are at the point of generation of wastes in order to make them more aware of the potentially serious implications of the mismanagement of waste, help them in self protection and impart clear knowledge regarding segregation and disposal of wastes.

METHODOLOGY

An intervention study was conducted in Sri Venkateshwara Medical College Hospital & Research Centre, Puducherry after obtaining the Institutional Ethical Committee clearance. Among 80 participants, 60 nurses and 20 lab technicians participated in the study during May– September 2014, by convenient sampling and voluntary participation of the study subjects.

Research instrument used was a structured questionnaire. The research tool was developed by the investigator and content validated by the ten experts in the field of Community Medicine and Microbiology. Every item of the questionnaire was rated by the experts. The item was included in the tool only if it has been rated as relevant by seven or more experts. Face validity of the Questionnaire was assured by conducting test retest method among the participants.

The questionnaire consisted of three parts –Section I consisted of 10 items related to Attitude of the nurses and

lab technicians regarding biomedical waste management importance and the role of the study participants. Scoring was done using Likert scale, a score of less than zero was considered to have negative attitude and score more than zero was considered to have positive attitude.

Section II consisted of 10 items related to Knowledge regarding segregation, colour coding, waste treatment, storage, transportation and final disposal of waste. Correct response was awarded one mark and no mark was given for incorrect response. A score of more than 7 was considered as adequate knowledge, score of 4-7 was considered as average knowledge and a score of less than 4 was considered as poor knowledge. Section III consisted of 15 items related to Bio medical waste segregation practices. This section enquired the practice of segregation of wastes into the colour coded bags. Scores of >10, 5-10, <5 were graded as good, average and poor practice.

The intervention was given in two ways. Forty members attended three sessions by lecture cum discussion aided with power point presentation on bio medical waste management. Remaining forty members had simulation exercise on categorization, pre treatment, segregation in colour coded bags and final treatment of biomedical wastes in addition to lecture cum discussion on bio medical waste management.

The training was planned and structured and covered the following topics.

1. Importance of Biomedical waste management.
2. Definition and classification of Biomedical waste
3. Process of segregation, pre treatment, collection, storage, transportation, treatment and final disposal. (According to biomedical waste management and handling rules, revised 2011).

Evaluation was done before and after the intervention. Answered questionnaire forms were collected and were analyzed by SPSS 17 (Statistical Package for Social Sciences) and results expressed in percentages. Non parametric tests like Wilcoxon signed rank test and Mann Whitney test were used to find the effect of intervention and the difference between the methods of intervention.

RESULTS

Of 80 study participants 75% (60) were nurses and 25% (20) were lab technicians. The mean knowledge, attitude and practice score before the training session were 5.74 ± 1.44 , 4.61 ± 5.19 and 4.51 ± 2.43 respectively. Post training scores were 8.36 ± 1.12 , 10.03 ± 5.29 and 12.26 ± 2.73 for Knowledge, Attitude and Practice respectively. Educational intervention showed a statistically significant improvement in the performance in all the three domains. (p value = .0001).

Table 1: Comparison of KAP before and after intervention

Variables	Grade	Pre Test (n=80) No. (%)	Post Test (n=80) No. (%)
Knowledge	Poor	6 (7.5)	0 (0)
	Average	67 (83.7)	15 (18.8)
	Good	7 (8.8)	65 (81.2)
Attitude	Favourable	62 (77.5)	77 (96.2)
	Unfavourable	18 (22.5)	3 (3.8)
Practice	Poor	49 (61.3)	0 (0)
	Average	28 (35.0)	20 (25)
	Good	3 (3.7)	60 (75)

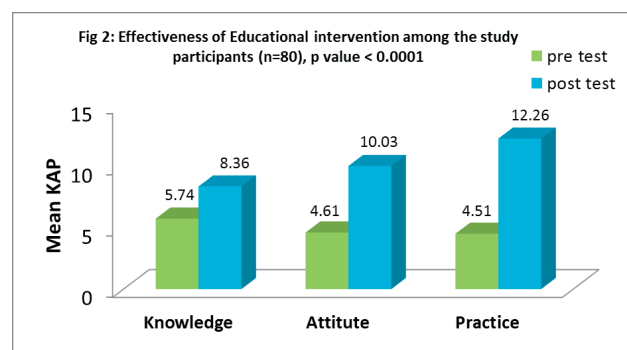


Table 3: Post intervention score comparison between the intervention methods

Variables	Lecture cum discussion group (n=40)	Simulation exercise group (n=40)	Mann Whitney Test (p value)
Knowledge	8.33 ± 1.02	8.40 ± 1.22	0.726
Attitude	10.85 ± 4.41	9.20 ± 6.01	0.304
Practice	12.93 ± 1.91	11.60 ± 3.24	0.146

The Educational intervention was given in two methods i.e. lecture group and lecture with simulation group. There was no statistically significant difference in knowledge, attitude and practice of bio medical waste management between the methods of intervention.

DISCUSSION

Knowledge, attitude and practice act as three pillars, which make up the dynamic system of life itself. Knowledge being the basic criterion that allows one to earmark between the right and the wrong, is a mixture of comprehension, experience, discernment and skill. Attitude accredits to thinking towards a proper situation. Practice means contemplation of rules and knowledge that lead to action¹⁴. Thus, a right knowledge, a positive attitude and a good practice are imperative to guide and serve the patients.

About 80 percent of the study participants had average level of knowledge regarding hazards of bio medical wastes, pre treatment, storage time and the final treatment and disposal of wastes. Similar results were recorded by the study conducted among the health care personnel in a tertiary care hospital^{7, 15}. Though more than 75 percent of the study participants had favourable attitude and fair knowledge regarding proper bio medical waste management, they could not follow the correct practice of segregation because some of the infectious wastes were disposed into one or two colour coded bags based on the Bio medical waste management and handling rules 1998.

More than 60 percent of the health personnel in the present study did not follow correct practice of bio medical waste segregation according to BMW management and handling rules 2011 (amended) which is controversial with the results of the studies conducted in Allahabad and Pune^{8, 12}. Poor level of practice may be attributed to lack of update about the latest amendment of bio medical waste management and rules by the Ministry of environment and forest.

The knowledge, attitude and practice scores have been low among the study individuals before educational intervention has been given. Present study also observed highly significant improvement among knowledge and practice scores after educational intervention. The percentage improvement ranged from 10% to 88% which is in concordance with the intervention studies conducted

in Egypt and India^{16, 17}.

CONCLUSION

The present study also revealed that hospital employees had better scores in knowledge, attitude and practice test score which was done after training session on the subject. As evident the knowledge level got improved after the training which clearly indicates the effectiveness of structured training to study participants. As the number of hospitals is increasing the burden of waste will also increase proportionately. In order to eliminate the potential danger posed by growing quantum of waste to human and environmental health, it is mandatory for hospital employees be armoured with "hospital or biomedical waste management plan" and be given regular training on every type so waste produced during the diagnostic and curative patient care in the hospital and healthcare facilities.

Conflict of Interest- Nil

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The Utility of Body Mass Index as Measure of Overweight and Obesity among Adults in Republic of Macedonia Screening Study

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ABSTRACT

The occurrence of overweight and obesity has become a world-wide problem. People with obesity or overweight have a much greater risk of developing different kinds of serious disease conditions. Obesity is not a problem only in developed countries; it is also starting to increase in developing countries as well. The Republic of Macedonia is a developing country for which no single data exist concerning prevalence of the overweight or obesity. In this study for the first time, we try to tackle the frequency of the overweight and obesity true examination of body mass index (BMI) in adult Macedonian populations. The results show that the prevalence of overweight is very high 50.98% in male and much less in female 20.38%. On the contrary, overweight frequency of obesity is much lower; 10.46% in male and 6.16% in female. The men and women of the older age group (>30) show the significant higher value. In total 33.24% of the Macedonian population are overweight and 7.92% have obesity. The study gave evidence for overweight and obesity, data which calls the government and other responsible organizations on emergency dealing in the pattern of making more deep study and to take the measure for decrease of especially high overweight in Macedonian population as prevention measure for possible increase of obesity in the future.

Keywords: *anthropometry, body mass index, obesity, overweight, screening*

INTRODUCTION

Obesity is a physiological condition characterized by an excessive accumulation and storage of body fat, more precisely adipose tissue beneath the skin. The ongoing rise in obesity especially in developed countries like the USA and some EU countries, have become the major public health problem. In the USA, obesity has been declared the number one health threat. Analyses made in 2009-2010 showed persistence of obesity in more than 78 million adults ⁽¹⁾. Moreover, investigation of obesity indicated high prevalence of overweight and obesity even in children and adolescents in USA ⁽²⁻³⁾. The prevalence of adult obesity is also high in East Asia, South America, and some European countries ⁽⁴⁾. Increase of obesity or overweight where also reported for other less developed countries as for example Iran ⁽⁴⁾ or in Vojvodina, part of Serbia ⁽⁵⁾. Obviously, obesity and overweight have become a worldwide problem.

If an individual were overweight, he/she is at a much greater risk of developing diseases as diabetes, cardiovascular disease, hypertension, high blood pressure,

stroke and gastrointestinal disease ^(4,6-10). Obesity is also in association with certain types of cancer ⁽⁸⁾ and can even cause increased morbidity and mortality according World Health Organization (WHO) ⁽¹¹⁾.

The BMI formula was developed in the 19th century by Belgian mathematician, Adolphe Quetelet, and has been widely used after World War 2 to link body weight with cardiovascular disease. It was first named Quetelet index after its inventor but from 1972 it has been known just as the BMI.

Despite that other health indices or indicators exist ^(2,10), and despite all the downfalls and limitations shown of the BMI ⁽¹²⁾, as it does not measure body fat directly, it is still widely used. It is the broadest and by far simplest index to calculate, existed great number of data for comparison and it has the ability to compare groups of people and even entire countries by their BMI. Thus, we use the BMI, despite its limitations, to get a general idea of how healthy Macedonian population is.

In Republic of Macedonia, no anthropometrical study has been performed yet. The aim of our pilot study is to determine the height and weight of the population and variations of these parameters caused by gender and aging. Moreover, for the first time BMI in adult Macedonian population has been calculated, which allow us to conclude about frequency of obesity or overweight in adult population.

MATERIAL AND METHOD

Participant in the study were randomly selected along 2015. In total 1092 subjects were included in the study, 638 female and 456 male. All subjects used in this study live in the capital city, were healthy and belong to Macedonian nationality. On the base of the height and weight measurement of the subjects, BMI was calculated by person's height in m and weight in kg. BMI is calculated as mass or weight divided by the square of the body height. Categorization of BMI association with health risk used in this study is showed in Table 1.

Table 1 Health risk classification according to body mass index (BMI)

Obesity class	BMI category (kg/m ²)	Risk of developing health problems
Underweight	<18.5	Increased
Normal Weight	18.5 -24.9	Least
Overweight	25.0 -29.9	Increased
Obesity class I	30.0 -34.9	High
Obesity class II	35.0 -39.9	Very High
Obesity class III	> =40	Extremely High

Table 2. Descriptive statistics for the study population of different age

age	20-29	30-39	40-49	>50
Male				
height (cm)	177.99 (8.54) ^A	180.42 (5.81) ^A	179.39 (7.38) ^A	176.24 (7.34) ^A
weight (kg)	76.41 (11.26) ^{Aa}	87.74 (8.32) ^{Ab}	87.67 (12.52) ^{Ab}	85.62 (10.50) ^{Ab}
BMI (kg/m ²)	24.11 (3.32) ^{Aa}	27.05 (3.55) ^{Ab}	27.33 (3.31) ^b	27.58 (3.43) ^b
Female				
height (cm)	165.72 (6.56) ^B	164.17 (7.73) ^B	164.68 (5.28) ^B	163.17 (4.35) ^B
weight (kg)	59.50 (8.11) ^{Ba}	65.21 (10.61) ^{Bb}	69.58 (9.14) ^{Bb}	67.30 (7.81) ^{Bb}
BMI (kg/m ²)	21.60 (2.54) ^{Ba}	24.28 (4.11) ^{Bb}	25.71 (3.72) ^b	25.34 (3.38) ^b

For every different uppercase superscript letters represent differences between gender (read vertically), different lowercase superscript letters represent differences between age group (read horizontal) within male and female according ANOVA followed by Newman-Keuls test.

The classification is based on the Canadian guidelines for body weight classification in adults. Ottawa: Ministry of public works and government service Canada, 2003

The age of the all of the examined subject were recorded. Based on their age the populations were divided into 4 age group (Table 2). Data are presented as a group means of individual values, accompanied with the respective standard deviation for continuous variables and as proportion for categorical variable. For statistical analyses of the data for height, age and BMI, Statistica 7.0 for windows is used. After checking the normality and homogeneity of variances, they were analyzed by one way ANOVA followed by post hock Newman-Keuls test. Differences were considered significant when $p < 0.05$.

FINDINGS

The results of examined population height, weight and BMI are presented in Table 2. In general, with age no significant differences were noted in the height of the examined subject's age category although, height shows patterns for decrease with age in male and in female. On the other hand, weight increases in relation to the age in both genders. Significant differences were observed between genders; male were higher and have higher weight compared with female. It is already pointed that normal body weight for people varies from age, gender, and population⁽⁵⁾. Thus it is important to obtain data for BMI for every population

According to WHO ⁽¹¹⁾ BMI although imperfect is an useful parameter that can indicate obesity risk. This method has different advantages and disadvantages but it is still a good indicator of overweight and obesity.

Examination of BMI in male shows that these index significantly increase in relation with age. In male, the lowest weight was recorded in the youngest subjects 24.11% and increased to around 27% in individuals from the age of 30 and higher. The same pattern is noted for female the BMI increase from 21.60% (the age of 20-29) and reach the highest value 25.71% and 25.34% in persons from the age of 40-49 and 25.34% in 50 year old persons respectively. The same trend was observed for Serbian population in Vojvodina ⁽⁵⁾. In general the BMI in Macedonian female is lower than in male. Significant differences were observed for younger population 20-29 and 30-39 old individuals. Differences between genders were expected because BMI is gender specific due to the physiological differences between males and females ⁽¹²⁾. According to our results BMI is age and sex dependent which is in agreement with

data from other study ^(5,13). Moreover, values for BMI for adults 25 and 30 kg/m² have been recommended as limit value by WHO ⁽¹¹⁾, so data which we get were not out of the limit. However, in addition to age and gender other factors can have influence on BMI as socio-economic conditions, levels of education and even ethnicity/nationality ^(5,14-15).

In the Table 3 the frequency of the individuals from the different weight category were presented. The data show in general that 1.96% male and 5.69% female are with weight below the normal. 36.6% male and 67.77% female were healthy. Overweight occurs in large percent of population, 50.98% male and 33.24% female contrary to obesity which is observed in 10.46% male and 6.16% female. The Macedonian male are more likely to be overweight and obesity than women are. According to European populations, the percentage of obesity is between 10-20% for male and between 10-25% in female ⁽¹⁶⁾. If we compared our data in Macedonian population, they are the same for male and near the mean frequency in female.

Table 3. Frequency of underweight, overweight and obesity in population of different age

age	underweight	normal weight	overweight	obesity
male				
20-29	5.00	61.67	28.33	5.00
30-39	0.00	50.00	37.50	12.50
40-49	0.00	18.75	70.83	10.42
>50	0.00	13.89	72.22	13.89
total male	1.96	36.60	50.98	10.46
female				
20-29	9.40	81.20	8.55	0.85
30-39	7.69	53.85	30.77	7.69
40-49	0.00	50.00	34.00	16.00
>50	0.00	53.12	37.50	9.38
total female	5.69	67.77	20.38	6.16
Total	4.12	54.67	33.24	7.97

Among both men and women, the prevalence of obesity increases with advancing age. Possible explanation for such results could be more sedentary life in older people, even in the middle aged group from 30 to 39 compared with the youngest one, although the young people live in the time of fast food, and sitting long term in front of the computer and are physically more inactive. Sedentary life, television viewing and the popularity of computers have especially contributed to the obesity epidemic ⁽¹⁷⁾. Regular physical

activity is extremely important contributors to energy balance, helping to prevent obesity and excess weight.

This study show that large amount of population especially males (50.98%) and less females (20.38%) were overweight. Overweight is probably as a result of unhealthy eating behavior and/or lack of exercise. Both factors can explain the observed high percent of overweight Macedonians. Future research is needed to explore the

right reason for such high overweight in investigated population.

High level of overweight and especially obesity is recorded for many developed but also developing countries⁽⁴⁾. Macedonia belongs in developing countries in which according to our preliminary results obesity is still low 10.46% in males and 6.16% in female population but results showed very high overweight. From medical point of view, obesity and underweight were considered as reasons for many chronically and long life disease^(4,8-10). The obesity can have also psychological consequence as association between obesity and depression was noted⁽¹⁸⁾.

CONCLUSION

In conclusion, obesity is a chronic disease with complex interaction of genetic, metabolic, behavioral, physiological and environmental factors. Independent on low level of obesity in examined populations, high overweight becomes a serious problem. The line between obesity and overweight is very thin. Appropriate health education and government strategies as well as local community actions can help to reduce overweight and to avoid obesity in Macedonian population. Maintaining a healthy weight of the individuals is important for overall population health and can help to prevent and control many diseases and health issue conditions. This study can serve as a reference for future more in-depth research.

Conflict of Interest: None

Source of Funding: Self

Ethical Clearance: The procedures were in accordance were in accordance with national and institutional ethical standards and with Helsinki Declaration.

Acknowledgement: Nil

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Ethical Issues in Nanomedicine Research: An Overview and Principles

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ABSTRACT

Nanotechnology has been progressing during the past decade. Nanomedicine research, which seeks to promote human health through the development of nanodrugs and nanoscale therapeutic methods, has also received increasing attention. Although nanotechnology can lead to major advancements in medicine, it cannot be appropriately applied to protect human dignity and welfare if its social and ethical consequences are neglected. In fact, as nanomedicine deals directly with human health, its related ethical issues should be considered with great caution. Therefore, the present study attempted to identify the most important nanomedicine-related ethical issues in health and bioresearch. In a comprehensive review, the relevant literature were extracted from two major databases (pubmed and web of science) and other resources such as books and proceedings. The existing approaches to ethics in nanomedicine and considered ethical principles were then analyzed and the most important ethical issues in this field were identified and summarized. According to the reviewed articles, autonomy, privacy protection, nonmaleficence, and controlling human capabilities are the most important ethical issues involved in nanomedicine research. These principles should hence be carefully regarded in nanomedicine research.

Keywords: *Nanotechnology, nanomedicine, nanoethics, ethics*

INTRODUCTION

Nanomedicine is the application of various nanoscale (< 100 nm)¹ approaches, equipments or specific nanostructures to diagnose, prevent, or treat different human diseases. Attention to such consequences of nanomedicine is critical since this field of science deals directly with human health². According to the European Science Foundation, nanomedicine is a branch of science involving the application of molecular knowledge and instruments to relieve pain and enhance human health by the prevention, diagnosis, and treatment of diseases and traumatic injuries.^{3,4}

Unprecedented advances in medical imaging, sensors and sensitivity tests, organ transplantation, drug delivery methods, and laser-based biomolecular structure determination following the development of nanomedicine promise rapid evolutions in the prevention, diagnosis, and treatment of human diseases. Particular ethical, social, and legal issues will nevertheless arise subsequent to progress in various fields of science. If remained unattended, such issues in the field of nanomedicine will not only prevent human health promotion, but in fact turn into future hazards to the ethical and social health of human communities.⁵⁻⁷

Considering the numerous applications of nanomedicine, establishment of rules and regulations in each of its aspects would be inevitable but time-consuming. Therefore, identifying the ethical aspects of nanomedicine and placing ethics on the front line of biomedical and health research (dealing with prevention, diagnosis, and treatment of diseases) would be essential to providing clearly defined legal rules and preventing

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possible risks in this branch of medicine⁶.

Regarding above mentioned introduction, the aim of this study was to review related literature in the field of nanoethics to identify main ethical issues in nanomedicine research and practice and summarize these issues as the findings of this review study.

METHOD

The present study sought to perform a review of the available literature about ethical issues in biomedical and health research. It also tried to clarify the necessity of ethics in nanomedicine (e.g. the reasons why ethics are indispensable to this field of science) and summarize main ethical principles in nanomedicine raises from reviewed literature.

To achieve these objectives, we searched relevant literature via two major databases (pubmed and web of science) with keywords such as nanotechnology, nanomedicine, bioethics, nanoethics, risk and safety and search strategies such as: nano*[tiab] ethic*[tiab] to retrieve articles related to our aims. The retrieved articles were then read meticulously and the parts with the greatest relevance to the study objectives were extracted. As well, to cover the gap in reviewed articles, some other literature in the field of ethics and nanotechnology were reviewed such as websites, workshop proceedings and books.

After completing the review phase, the finding were summarized based on objectives of our study consisting the role and necessity of ethics in nanomedicine and also the main principles of ethics in nanomedicine.

RESULTS

Nanomedicine, comprising the application of nanotechnology in the diagnosis and treatment of diseases and control of biosystems, is on the forefront of clinical medicine and preclinical studies^{2,8}. Quantum dot probes (in intracellular sensing)⁹ and nanowires and cantilevers (to facilitate cancer diagnosis)¹⁰ are instances of application of nanotechnology in medicine. Drug delivery is also an application of nanomaterials in treatment. for example, Gold nanoparticles have been used in tumor targeting, imaging, and drug delivery^{9,11} and also as potential novel contrast agents in photothermal therapy¹².

Although nanomedicine has provided potential solutions to many long-standing unsolved medical problems, the ethical issues related to its emergence have

been commonly neglected. Since ethical considerations have not developed at a pace similar to the science itself, investments are required to fill the gap between science and ethics⁵⁻⁷. Raj Bawa and Summer Johnson (as pioneers medical ethics) indicated that pharmaceutical companies desire to maximize their profit via investments in nanotechnology that might prevent them from paying sufficient attention to social and ethical considerations¹³.

In the absence of explicit ethical codes in the field of nanomedicine, the following sections of the present article elucidate the ethical criteria suggested by relevant literature.

Autonomy (informed consent)

Autonomy means self-determination, and as an ethical principle, the respect for autonomy means that in questions concerning one's own life, one has the right to make one's own decisions¹⁴. Consent in bioresearch seeks to provide the study subjects with free to participate and decide, but the possible unknown and unpredictable consequences of nanomaterials would affect information provision and informed consent procedures and made it a challenge nanomedicine research^{15,16}.

The safety of long-term application of nanoparticles cannot be guaranteed since they may cause off-target effects (e.g. tissue toxicity, crossing the blood-brain barrier). The complicated nature of nanodrugs and their unspecified long-term disadvantages lead to problems in obtaining informed consent from the patients. Furthermore, the need for long-term commitment of sponsors to supporting the patients would incur additional costs¹⁵⁻¹⁷.

JUSTICE

Justice as an ethical principle implies that all people should receive equal health facilities regardless of their personal characteristics¹⁸. Because of the predicted development of Nanotechnology to more than two-trillion-dollar industry¹⁹, it might be limited to countries with considerably high gross domestic products and a wide gap may be created between developed and developing countries^{20,21}. As a result, developed countries would be more capable of producing nanotechnologies and benefiting from their production. Moreover, researchers may solely focus on introducing innovative nanotechnological solutions to the developed countries problems. In the absence of adequate resources to

run their own research projects, developing countries would have to rely on research findings of developed countries^{20,22}.

PRIVACY PROTECTION

Many concerns about the ethical and moral consequences of nanotechnology, especially in healthcare provision, stem from worries about data collection and people's privacy. As the detailed cellular-level information about human body collected through nanotechnology-based diagnostic equipment is transferred to medical databases for further analysis, lack of appropriate privacy protection systems would cause serious ethical issues. In addition, the constant miniaturization of equipment, along with advances in communication and information technology, increases chance of accidental disclosure or unethical use of confidential information²³.

NONMALEFICENCE

The principle of nonmaleficence is a general concept covering all aspects of planning and implementation (or transferring the implementation) of harmful biological projects¹⁴. Numerous international legal documents have been released to protect both the environment and human dignity against potentially harmful trials. Furthermore, domestic regulations in different countries prohibit harmful biological studies and limit them to in vitro experiments in very necessary cases^{24,25}.

Some scientists are worried about the properties which have the potential to serve humans. For instance, researchers are attempting to use specific nanoparticles to deliver drugs to defective cells with minimum side effects. Small size of nanoparticles allows them to cross inner membranes and reach the target cells which may lead to spreading in the environment and decreasing their elimination. As well, although higher surface area to volume ratios may facilitate the inclusion of high drug doses in tiny packages, they may unintentionally elevate the toxicity of particles²⁶⁻²⁸.

CONTROLLING HUMAN CAPABILITIES

Consequent to advances in nanotechnology, healthy individuals may soon be able to change their appearance, performance, or personality. Although such activities are still mainly theoretical, widespread social and ethical debates have been conducted over their acceptability^{29,30}. While any technology aims to maximize benefits for

all human beings, the innovation, ease of use, and simultaneity of developments in nanotechnology may offer the public with the chance to diagnose or treat their diseases at home. Self-screening and self-treatment can be accompanied with concerns about the safety and reliability of tests (especially under uncontrolled conditions) and the effects of unsupervised and unsupported diagnosis. In fact, while advanced nanotechnology-based diagnostic tests can be directly accessible by the users, they may also result in unpredictable social consequences^{31,32}.

Moreover, the idea of providing diagnostic tools for incurable or unpreventable diseases needs to be more carefully assessed. For instance, the prenatal diagnosis of susceptibility to a genetic disorder without a definitive treatment will leave the parents to be with no more choices than voluntary termination of pregnancy or monitoring the health of their unborn child. Therefore, nanotechnology can magnify the existing dilemmas faced by parents³¹⁻³⁴.

DISCUSSION AND CONCLUSION

Despite our inability to explicitly predict the social and ethical consequences of nanotechnology, there will be unceasing debate over such issues. Since nanotechnologies empower the existing technologies, their social and ethical effects will depend on the exact technologies they interact with. Meanwhile, as nanotechnologies accelerate technological advances in other fields, attending to their ethical issues will soon turn into a major concern. Hence, such issues have to be dealt with at the initial stages of each research¹⁷.

Our review of the available literature on nanomedicine and its related ethical concerns revealed that similar ethical issues are involved in both nanomedicine and biomedical research. However, the specific characteristics of nanoparticles, including their diversity and the unclarity of their side effects, and theories about their potential consequences should not be neglected in developing ethical codes for research in nanomedicine. In addition, nanomedicine should be applied more cautiously due to the unpredictability and unclarity of its outcomes and its direct effects on human health and the environment.

- Autonomy is a crucial issue in nanomedicine research. While obtaining an informed consent requires the provision of accurate information to the patients, no exact information about the long-term effects of the interventions can be provided when nanomedicine is

involved. Therefore, the patients should be asked for their consent after being explained about the hypothetical and unpredictable consequences and potential risks (which may never occur or develop in the long-term) of nanomedicine.

- Justice is another noteworthy issue. Increasing popularity and profitability of nanomedicine has attracted the attention of large groups of scientists and investors. However, such investments may be limited to developed countries, i.e. developing countries and their nations may never have access to the benefits of these advances. Moreover, due to the high costs of nanoproducts, only the wealthy population of the developed countries may be able to afford them. As a result, there will be a wider gap in access to healthcare services between the developed and developing countries and also between the rich and the poor.

- The increased capabilities of humans following the application of nanotechnology may also jeopardize their privacy and provide chances to access individuals' confidential information without their permission. Privacy protection is a sensitive issue whose neglect would decrease patients' trust in nanomedicine. Consequently, regardless of how successful or accessible nanomedicine becomes, people will tend to adopt a hesitant and conservative attitude toward its application. The advancement of nanomedicine will also be decelerated due to people's lower interest in volunteering for research projects.

- The principle of nonmaleficence implies that the results of research should not harm or threaten humans, other living creatures, or the environment. Since strict adherence to this principle will prevent or decelerate scientific progress, it is essential to minimize the risks and take all steps with caution. In other words, inadequate attention to precautionary measures and ethical aspects may not only lead to further complications in patients, but also impose exorbitant costs on both patients and the health system. Consequently, positive approaches to the application of nanomedicine would also be spoiled.

- Nanomedicine will soon enhance the capabilities of humans. This will raise ethical issues since individuals will be able to change their appearance, performance, and personality. The ethical issues will of course be more remarkable in cloning research where the violation of human dignity, identity challenges, and interference in

natural laws are involved. Furthermore, the possibility of self-diagnosis and self-treatment following the development of nanomedicine will decrease the significance of physicians in the mentioned processes and result in a number of social and ethical consequences. In addition, various social and ethical challenges may arise when diagnostic measures are more advanced than therapeutic approaches, i.e. when diagnosis is possible but treatment is impossible.

According to the abovementioned facts and the promising future of nanotechnology, attending to ethical issues in all stages of bioresearch (prevention, diagnosis, and treatment) is essential for the protection of research volunteers who facilitate scientific advancement with their participation.

Although it is difficult to predict the future of nanotechnology, discussions about its hypothetical or proven objectives and consequences should not be postponed. All involved individuals should thus feel committed to finding the best solutions to protect research volunteers without decelerating the process of research.

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Clinical Spectrum and Unusual Manifestations of Dengue Fever

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ABSTRACT

Introduction: Dengue viral infection has become a significant public health concern with increased recognition of atypical manifestations apart from the classical clinical features. Appropriate, timely diagnosis and risk stratification for severe disease are crucial in the optimal management of this illness. The study outlines the evolving clinical spectrum of dengue with special emphasis on unusual manifestations. **Methodology:** A prospective hospital based study was conducted over a period of two years (June–2013 to May–2014). Data of 186 IgM dengue antibody-confirmed hospitalised cases was collected, compiled and analysed. Atypical manifestations in dengue fever were noted and analyzed. **Result:** The dengue infection was affecting mostly the younger age group with male preponderance. Most common symptoms apart from fever and headache were gastrointestinal symptoms like abdominal pain, vomiting and diarrhoea. Liver injury was almost universally present in the form of transaminitis. Atypical features were seen in 38.17% cases. Platelet count did not correlate exactly with severity of bleeding. Overall recovery rate was good. 4 (2.15%) patients succumbed to multiorgan failure and shock. **Conclusion:** Dengue illness may have a non-specific and varied presentation, thus mandating its screening in febrile illness especially during the post-monsoon period. An understanding of the course of disease progression, recognition of the warning signs during the different phases of the disease will enable primary care physicians to manage dengue fever in an appropriate and timely manner to reduce morbidity and mortality.

Keywords: Dengue fever, Dengue haemorrhagic fever, Dengue shock syndrome, Severe dengue, Dengue with warning signs.

INTRODUCTION

Dengue viral infection has emerged as a serious international public health threat with almost half of the world's population at risk. Between 50 and 100 million dengue infections occur annually worldwide, accounting for 20 000–70 000 deaths per year.¹ In India the resurgence of dengue has led to frequent outbreaks in both urban and rural parts of the country.

Dengue presents with a range of clinical symptoms often with unpredictable clinical evolution and outcome. Infection by any of the four dengue virus serotypes may be asymptomatic or lead to classic dengue fever (DF) or more severe forms of the disease namely dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS).¹ The 2009 WHO revised criteria classify dengue virus infection into dengue with or without warning signs and severe dengue (dengue with severe plasma leakage,

severe bleeding, or organ failure).² A wide spectrum of unusual manifestations of dengue affecting various organ systems have recently become more frequent, which might be under reported because of lack of awareness.³ The present study was conducted to assess the varied clinical profile of dengue patients admitted in a teaching hospital with special emphasis on unusual manifestations.

METHODOLOGY

The present study was conducted prospectively at Sharda Hospital, in the department of Medicine, School of Medical Sciences and Research, Greater Noida, over a period of two years from June 2013 to May 2014.

The study was approved by the Institutional Ethics and Research Committee. All probable dengue cases were investigated initially. Patients with clinically and serologically confirmed dengue virus infection, admitted in the medical wards of the hospital were included in the

study. A proforma with detailed epidemiological, clinical, and laboratory parameters recorded during the hospital stay, was used as a tool for data collection. All clinical and laboratory details were reviewed daily and atypical manifestations were recorded. A positive serology was defined as the presence of IgM antibodies by ELISA at 5 or more days from the onset of fever with or without IgG antibodies. On the basis of their clinical presentation study subjects were classified and grouped as dengue without warning sign (D), dengue with warning signs (DW) and severe dengue (SD) according to WHO classification 2009 and treated as per standard WHO guidelines. The variables included as warning signs were persistent vomiting, restlessness, abdominal pain or tenderness, clinical fluid accumulation, mucosal bleed, liver enlargement, increase in haematocrit with concomitant drop in platelet count. Severe cases were defined as the following: severe plasma extravasation that led to dengue shock syndrome (DSS) or liquid accumulation with respiratory discomfort, severe haemorrhage, severe involvement of tissues, such as ≥ 1000 IU/L levels of aminotransferases; and impairment of the central nervous system, heart, and other organs.² All categorical variables such as clinical characteristics and biochemical tests were expressed as numbers and percentages and continuous variables were expressed as mean \pm SD.

Acute liver injury was defined as increased aminotransferase levels more than three times the upper reference limit.

Acute kidney injury was defined as increase in serum creatinine of more than or equal to 0.3 mg/dl or 1.5- to 2-fold from baseline.

RESULTS

418 patients were admitted to the hospital with a clinical diagnosis of dengue fever, but only

186 patients have been included in this study as these cases fulfilled the standard serological criteria for the diagnosis of dengue infection.

Table (1): Distribution of patients according to age and sex

Variable	No.	%	
Age	15-30	141	75.8
	30-45	36	19.35
	>45	9	4.83
Sex	Male	152	81.72
	Female	36	19.35

Table (2): Clinical manifestations of dengue patients

manifestations	number	percentage
Fever	168	90.32
Headache	149	80.10
Vomiting	140	75.2
Abdominal pain	126	67.74
Diarrhoea	39	20.96
Bleeding	51	27.41
Effusions	56	30.1
Skin rash	36	19.35
Petechiae	27	14.51
Restlessness	44	23.65
Hepatomegaly	28	15.05
Itch	40	21.50

Table (3): Laboratory parameters of dengue patients

Parameter	Number of patients	%
Haemoconcentration HCT >45 %	34	18.27
Thrombocytopenia $\leq 20,000$ /cu mm	15	8.06
20,001-50000/cu mm	74	39.78
50001-100,000/cu mm	60	32.25
>100,000/cu mm	37	19.89
High AST > 50 IU/L	161	86.55
High ALT > 50 IU/L	150	80.64
Bilirubin > 2mg/dl	8	4.3
Creatinine > 1.2mg/dl	6	3.22

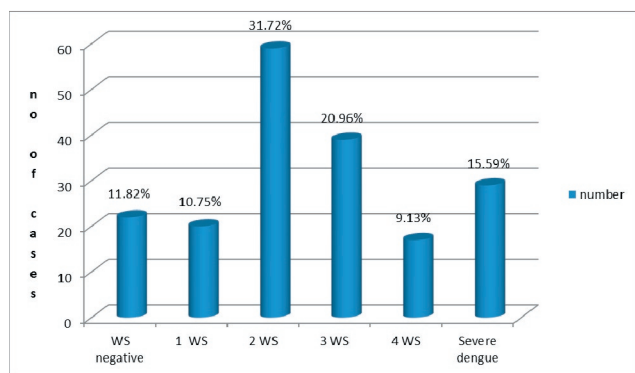


Fig (1): Dengue case categorization according to 2009 revised criteria

Apart from the classical profile, we observed some atypical manifestations of dengue fever in this study. A total of 71 (38.17%) patients in the present study had atypical presentation.

Table (4): Atypical clinical presentation of dengue patients

Atypical clinical presentation	Number of patients
1. Acute liver injury	42
2. Acute kidney injury	6
3. Conduction abnormalities	8
4. Myocarditis	3
5. Guillain-Barre syndrome	2
6. Encephalitis	4
7. Hypokalaemic paralysis	3
8. Acute respiratory distress syndrome	3

DISCUSSION

Dengue is an important emerging problem of the tropical and sub-tropical regions today. The epidemics of dengue fever have been reported in the post monsoon season, in every 2-3 year interval. In this study, more than two-third of the study subjects were males. Various other Indian studies have also shown male preponderance.^{4, 5, 6} A recent study from eastern India by Chatterjee et al, however, found an equitable sex distribution.⁹

The majority of the patients in the present study were young individuals, mean age being 27.22 years (table 1). Asmita Ashok Patil from Maharashtra⁵ and Chaturvedi et al⁸ also reported a high incidence in young population.

Out of a total of 186 dengue sero-positive cases, 22(11.82%) cases were classified in group of dengue without warning signs, 135(72.58%) cases in group of dengue with warning signs and 29(15.59%) cases in

severe dengue (figure 1). Early warning signs of dengue infection like pain in abdomen, persistent vomiting, hepatomegaly, haematocrit rise and evidence of fluid leak should be observed carefully for timely intervention to prevent shock and severe complications.

The most common presenting symptoms were fever (90.32%), headache (80.10%) and vomiting (75.2%) (Table 2). These results are in agreement with several studies in the literature. Abdominal pain was another frequent presentation seen in 67.74% subjects which was higher than that reported in previous dengue outbreaks.

Cutaneous manifestations can vary from maculopapular rash, petechiae, flushing and itching. In this study rash was seen in 19.35%, petechiae in 14.51% and itch in 21.5% cases. A north Indian study by Karoli et al⁶, reported rash in 26% cases and cutaneous hypersensitivity in 16% cases while a study from eastern India found rash in 37.84% cases⁷. In our study, radiological evidence of serositis was seen in 30.1% cases. In contrary to our findings, Chatterjee et al⁹ found serositis in 43% subjects but was self limiting and subsided within 2-3 weeks of recovery.

Bleeding diathesis is a known feature of dengue illness because of low platelet count and leakage from blood vessels. A significant proportion of patients 149(80.1%) in our study had platelet count below 100,000/cumm and 72 patients (38.7%) had platelet count below 50,000/cumm. Bone marrow suppression, immune mediated clearance, spontaneous aggregation of platelets to virus infected endothelium; all may contribute to thrombocytopenia. Bleeding manifestations were seen in 51 (27.41%) patients and were mainly in the form of epistaxis, gum bleed, subconjunctival haemorrhage and gastrointestinal bleed (table 2). This is in contrast to 63% and 69% of bleeding manifestations reported by Horvath from Australia¹¹ and Sharma from India¹² respectively. Type and severity of bleeding did not correlate with platelet count, signifying the fact that factors other than thrombocytopenia like platelet dysfunction, consumption coagulopathy and endothelial dysfunction might be contributory. Likewise many of the studies did not see any direct association between the platelet counts and bleeding diathesis.

Abnormal levels of AST and ALT were observed in 86.55% and 80.64% of the patients, respectively. Anicteric hepatitis was commonly seen with elevated

bilirubin in only 4.3% patients.

The mechanism of liver injury in dengue remains unclear. Liver cells may be damaged through one or more of the following mechanisms: (i) direct cytopathic effect of the virus; (ii) unregulated host immune response; and (iii) a non-specific effect of shock and hypotension.¹⁵

Elevation of AST was more as compared to ALT in the present study and is consistent with other studies.^{16, 17, 18} This differs from the pattern seen in viral hepatitis, in which ALT levels are usually higher than or equal to AST levels. Though liver involvement is mild in majority of patients, fulminant hepatic failure may occur rarely leading to massive necrosis of the liver, hepatic encephalopathy, and even death.¹⁸

Atypical Manifestations of Dengue Fever

More than one third of our study group had one or the other atypical manifestations. Most common atypical manifestation was acute liver injury, seen in 42 (22.58%) patients.

In our study, neurological involvement was seen in 9 (4.83%) patients in the form of hypokalaemic paralysis (3), encephalitis (4) and Guillain-Barre syndrome (2). The pathogenesis of neurological complications can be related to neurotrophic or systemic effect of the virus or can be immune mediated.¹⁹ The exact incidence of various neurological complications is uncertain. Hypokalaemic quadriplegia is one of the manifestations for which only few case reports are present in literature.^{20,21} Gupta et al reported that dengue fever can precipitate an attack of hypokalaemic paralysis; however, pure motor quadriplegia due to hypokalaemia was only occasionally reported. Our patients had pure motor quadriplegia and responded dramatically to potassium supplementation. Dengue fever as an antecedent infection in Guillain-Barre syndrome is uncommon. Some previous reports, as with our case, call attention to the possibility that Guillain-Barre syndrome may occur in association with dengue,^{6,7,23} although the mechanisms that relate to this infection are still not known.

The reported incidence of encephalopathy and encephalitis has been found to vary between 0.5% and 6.2%.¹⁹ The primary features of dengue encephalitis are fever, headache, reduced consciousness, and seizures; although other neurologic manifestations may be evident.

Acute Respiratory Distress Syndrome (ARDS) is one of the dreaded complications of dengue haemorrhagic fever, secondary to increased alveolar-capillary membrane permeability due to endothelial damage leading to interstitial and alveolar oedema. 3 (1.61%) patients in our study developed ARDS. There are reports of ARDS with dengue fever (Sen et al., 1999; Wang Lin et al., 2007; Devarajan et al., 2008).

Cardiac arrhythmia such as atrioventricular block and sinus node dysfunction, as well as, reversible myocarditis has been reported in patients with dengue; most of these are self-limiting.^{28,30} In this study 8(4.3%) patients developed conduction abnormalities, of which sinus bradycardia was the most common. There was some degree of myocardial damage causing impairment of the LV systolic function and elevation of the serum troponin T level. Both had favourable outcome with adequate and efficient supportive therapy.

Acute kidney injury was seen in 6 (3.22%) patients. Shock induced acute tubular necrosis is the main cause of renal failure in dengue patients apart from other rare causes like multi-organ dysfunction and rhabdomyolysis.³⁰ Descriptions of glomerular changes observed in DHF are scarce.

The outcome of the disease is variable as evidenced by various studies; however overall patient outcome in our study was good, with majority of the patients recovering completely. During the study period 4 (2.15%) patients died due to multiorgan failure and shock.

CONCLUSION

The problem of dengue is enormous in our country that is compounded by the huge population, poor medical and diagnostic facilities, inadequate mosquito control and all the ground conditions that favour expansion of the vector. In view of increase in number of cases and changing clinical spectrum of the disease, future studies should be designed to find predictive value of clinical and biochemical abnormalities that will help physicians in triaging patients in outbreak situation. A high index of suspicion is required to detect and timely manage the atypical manifestations of dengue fever as these are no more a rare occurrence.

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A Prospective Randomized Double Blind Comparative Study of Clonidine, Dexmedtomidine and Tramadol for Treatment of Shivering Under Spinal Anaesthesia

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ABSTRACT

Aim & Background- Shivering is a common problem during spinal anaesthesia. Neuraxial anaesthesia impairs thermoregulatory control and up to a 40-70% incidence of shivering has been reported. The aim of this study was to evaluate and compare the efficacy, potency and side effects of clonidine, dexmedtomidine and tramadol in post-spinal anaesthesia shivering.

Material & Method- A prospective, randomised, and double-blind study was conducted in 90 American Society of Anaesthesiologists Grade I and II patients of either gender, aged between 20 and 50 years, scheduled for various surgical procedures under spinal anaesthesia who developed shivering. The patients were randomised in to three groups of 30 patients each to receive either dexmedetomidine 0.5 µg/kg or clonidine 0.5 ug/kg or tramadol 0.5 mg/kg as a slow intravenous bolus. Onset time of shivering, time for cessation of shivering, recurrence, response rate, and adverse effects were observed at scheduled intervals.

Statistical Analysis: Data among groups was compared using one way ANOVA. The incidence of shivering and side-effects were compared using the chi-square test.

Results- Time taken for cessation of shivering was significantly less with dexmedetomidine and clonidine when compared to tramadol. Response rate was comparable in all the three groups. Nausea and vomiting was observed only in tramadol group (36% and; 26% respectively).

Conclusion- Treatment of post-spinal shivering is faster with dexmedtomidine or clonidine in comparison to tramadol with fewer side effects but dexmedtomidine has an edge over clonidine in being more haemodynamic stable with less adverse effects.

Keywords- Clonidine, Dexmedtomidine, Tramadol, Shivering.

INTRODUCTION

Shivering is defined as an involuntary, repetitive activity of skeletal muscles. The incidence of shivering has been found to be quite high, approximately 40-50% in different studies.^[1] Shivering can double or even treble oxygen consumption and carbon dioxide production.^[2] Shivering also increases intraocular and intracranial pressure, and may contribute to increased wound pain, delayed wound healing, and delayed discharge from post-anaesthetic care unit.^[3] Apart from being an uncomfortable experience, its deleterious effects deserve primary prevention and rapid control on occurrence.

Intra and post-operative management of shivering are usually done by external heating (forced air warming, warming blankets, warmed fluids) or pharmacological interventions. Various drugs from different groups like opioids, 5-hydroxytryptamine receptor (5-HT₃) antagonists, N-methyl D-aspartate receptor antagonists, cholinomimetics and biogenic amines have been used in the literature.^[4-6] Unfortunately, till now no gold standard treatment is known for shivering as the administration of all the available drugs is associated with various side effects.

During the last decade, Tramadol has become a

favoured and commonly used drug for post-spinal anaesthesia shivering with many adverse effects like nausea, vomiting, dizziness etc.^[7,8] Clonidine is another agent which has gained popularity during the last few years. Various studies, which have been conducted to compare them have concluded that clonidine has better efficacy and less adverse effects as compared to tramadol.^[7,8] But there was 5-10% incidence of hypotension and bradycardia with clonidine. Dexmedetomidine, a congener of clonidine, is a highly selective α_2 -adrenoceptor agonist. It has been used as a sedative agent and is known to reduce the shivering threshold.^[9] Few studies which have explored its anti-shivering potential have inferred that dexmedetomidine is an effective drug without any major adverse effect and provides good haemodynamic stability.^[10,11] Hence, we planned to do a comparative study of the efficacy, haemodynamic, and adverse effects of tramadol, clonidine and dexmedetomidine when used for the control of post-spinal anaesthesia shivering.

MATERIAL & METHOD

After obtaining approval of the ethical committee and written informed consent, 90 American Society of anaesthesiologists (ASA) grade-I or grade II patients of either sex aged 20 to 50 years scheduled for elective lower abdominal, lower limb orthopaedic and gynaecological surgeries, e.g, inguinal herniorrhaphy, abdominal or vaginal hysterectomy, dynamic hip screw (DHS), tibial plating / nailing under spinal anaesthesia with no prior pre-medication, were included in this study. Patients with known hypersensitivity to clonidine, dexmedetomidine and tramadol, known history of alcohol or substance abuse, hyperthyroidism, cardiorespiratory diseases, psychological disorder, severe diabetes or autonomic neuropathies and urinary tract infection (UTI) were excluded. All patients who developed post-spinal anaesthesia intraoperative shivering were randomly allocated to three groups: Group C (n=30) received clonidine 0.5 $\mu\text{g}/\text{kg}$ intravenously (I.V), group D (n= 30) received dexmedetomidine 0.5 $\mu\text{g}/\text{kg}$ (I.V) and group T (n=30) received tramadol 0.5 mg/kg (I.V). Anaesthesiology personnel who were not involved in the study made the trial preparations and recorded group randomization separately. Subarachnoid block was given with inj. Bupivacaine 0.5% heavy (15 mg) at L3-4 or L4-5 interspace using 25 gauge Quincke's needle, and blockage up to T9-10 dermatome was achieved. All operation theatres in which the operations were performed maintained constant humidity (60-70%) and

an ambient temperature of around 23°C to 24°C. Oxygen was administered to all the patients of both groups at a rate of 6 L/min with face mask, and patients were covered with drapes but not actively warmed. No means of active re-warming were used. Intravenous fluids and anaesthetic drugs were administered at room temperature. Preloading was not done in all the groups as we did not want intravenous fluid to influence the onset of shivering mechanism. Before beginning of spinal anaesthesia, standard monitoring procedures were established. Standard monitoring of heart rate (HR), non-invasive blood pressure (NIBP), oxygen saturation (SPO2) and body temperature (axillary) were recorded before the commencement of surgery and thereafter at every 5 minutes from the baseline for initial 1 hour and then every 15 minutes, for the rest of the observation period.

Grading of shivering was done as per Wrench^[12] which is as follows:

Grade 0: No shivering

Grade 1: One or more of the following: Piloerection, Peripheral vasoconstriction, peripheral cyanosis with, but without visible muscle activity

Grade 2: Visible muscle activity confined to one muscle group

Grade 3: Visible muscle activity in more than one muscle group

Grade 4: Gross muscle activity involving the whole body

Patients who developed either grade 3 or grade 4 of shivering were included in the study. Any of the three drugs was given as slow IV bolus injection. The drugs were diluted to a volume of 10 ml in a 10 ml syringe and presented as coded syringes as per randomisation list by an anaesthesiologist who was not aware of the group allocation. The attending anaesthetist recorded the time in minutes at which shivering started after spinal anaesthesia (onset of shivering), severity of the shivering, time to disappearance of shivering after drug therapy (in minutes) and response rate (shivering ceased after treatment in 15 minutes). Duration of surgery was noted, and duration of spinal anaesthesia was recorded by assessing spontaneous recovery of sensory block using pin-prick method and observing spontaneous movements of limbs in the postoperative period. If the shivering did not subside by 15 minutes, the treatment was considered to be not effective. Recurrence of shivering was also noticed until the patient left the operation theatre. Patients

who did not respond or in whom recurrence of shivering occurred were treated with additional dose of clonidine (0.5 µg/kg I.V), dexmedetomidine (0.5ug/kg I.V) or tramadol (0.5 mg/kg I.V) in their respective groups, if required. Side effects like nausea, vomiting, bradycardia (<50/min), hypotension (>20% of baseline), dizziness; and sedation score were recorded. Sedation score was assessed with a four-point scale as per Filos:^[13]

- 1: Awake and alert
- 2: Drowsy, responsive to verbal stimuli
- 3: Drowsy, arousable to physical stimuli
- 4: Unarousable

Bradycardia, hypotension and vomiting were treated with inj, atropine, mephenteramine and ondasteron respectively, in titrated doses when required.

All parameters were analyzed using SPSS 13.0 and STAT 9.0 software. The data among groups were compared using one-way ANOVA. The within group data were analyzed using repeated-measure analysis of variance followed by Bonferroni's post hoc testing. The incidence of shivering and side-effects were compared using the chi-square test. The data was expressed as mean±SD. A value of P<0.05 was considered as statistically significant. Further, with the power of 80% and at the 5% significance level, it can be concluded that the sample size of 30 is sufficient enough to evaluate the effectiveness of prophylactic use of intravenous dexmedetomidine, clonidine and tramadol in controlling shivering and for analyzing any side effects of the drugs used.

RESULTS

In the present study, a total of 90 patients were included in the study and were randomized into three groups of 30 each. Out of the total patients, 62 were male

and 28 were female. All the three groups were comparable with respect to age, sex, weight, ASA grade, duration of surgery, type of surgery and the duration of spinal block [Table 1]. Duration of surgery varied from 30 min to 90 min and duration of spinal anaesthesia ranged from 90 min to 140 min [Table 1]. All the patients had Grade 3 shivering. There was no statistically significant difference in time for the onset of shivering between the three groups. However, the difference in the time interval between administration of study drug and cessation of shivering was significantly shorter in the dexmedetomidine (2.48± 0.36 min) and clonidine (2.60 ± 0.44 min) group when compared to tramadol group (5.93± 0.54 min) with P value <0.01 [Table 2]. Shivering disappeared in 29 (96.6%) patients who received clonidine, 30 (100%) patients who received dexmedetomidine and 28 (93.3%) who received tramadol [Table 2]. Hence all the three drugs were found to be equally effective in reducing shivering. However, severity of shivering was unchanged in 1 (3.6%) patient of group C and 2 (6.7%) patients of group T. One patient in group C (severity of shivering unchanged) and 5 patients (2- severity of shivering unchanged; 3- recurrence of shivering) in group T were given rescue doses of clonidine or tramadol, respectively. Six (6.6%) patients out of a total of 90 patients received rescue doses.

Nausea and vomiting was observed only in tramadol group (nausea – 11, vomiting- 8) in comparison to dexmedetomidine and clonidine groups. However more numbers of patients were sedated in D (n=16) and C group (n=14) when compared to tramadol group (n=10) and the sedation score in all the patients was 2. In group C, 3 patients suffered from hypotension, and 2 patient complained of dry mouth, both of which were not present in group T and group D. There was no evidence of respiratory depression or bradycardia in any of the patients. HR, body temperature, and SPO2 remained within normal limits throughout the procedure in both groups [Table 3].

Table 1- Patient characteristics

Demographics	Group C(n=30)	Group D (n= 30)	Group T(n=30)	P value
Age (years)	32.63±4.13	33.0±3.86	32.7±5.11	0.942
Sex (M/F)	20/10	18/12	21/9	-
Weight (Kg)	62.06±8.83	60.54±10.45	61.13±7.71	0.808
ASA grade (I:II)	24: 6	25:5	23: 7	-
Duration of surgery(min)	60±12.34	64±10.23	62.0±13.11	0.435
Duration of spinal anaesthesia (min)	140±15.43	145± 12.48	136± 18.24	0.086

Age, weight, duration of surgery and duration of anaesthesia are presented as mean±SD.

Test done was one way ANOVA. n – Number of patients; SD – Standard deviation

Table 2- Parameter for Post-spinal anaesthesia shivering

Variables	Group C (%)	Group D (%)	Group T (%)	F value	P
Onset of shivering (mins)	18.00±3.54	19.25±2.82	17.50±3.34	2.311	0.105
Time for cessation of shivering after medication (mins)	2.60±0.44	2.48±0.36	5.93±0.54	561.3	0.000
Response rate (%)	29 (96.6)	30 (100)	28 (93.3)		
Recurrence (%)	nil	Nil	3 (10)		

Data was analysed using One way ANOVA. Statistically significant at P<0.05

Table 3- Complications in all the three groups

Complication	Group C n=30 (%)	Group D n=30 (%)	Group T n=30 (%)
Nausea	0	0	11 (36.6)
Vomiting	0	0	8 (26.6)
Bradycardia	0	0	0
Hypotension	3 (10)	0	0
Respiratory depression	0	0	0
Sedation	14 (46.6)	16 (53.3)	10 (33.3)
Dry Mouth	2 (6.6)	0	0

Data expressed as percentage. n – Number of patients

DISCUSSION

Regional anaesthesia, either central neuraxial block or peripheral nerve block, is a safe and very popular technique used for various surgeries. However, 40% to 70% of patients undergoing regional anaesthesia develop shivering, though it is also found to occur after general anaesthesia.^[1] The probable mechanism which leads to shivering after regional anaesthesia could be, decrease in core body temperature secondary to sympathetic block; peripheral vasodilatation; increased cutaneous blood flow which leads to increased heat loss through skin; cold temperature of operation theatre; rapid infusion of cold IV fluids; and effect of cold anaesthetic drugs upon the thermosensitive receptors in the spinal cord.^[14,15]

The present study was designed to standardize these possible compounding factors, while the temperature in the operating room was maintained constant at 23°C to 24°C. IV fluids and drugs were given at room temperature. Demographic factors such as age, gender, duration of anaesthesia and surgery have also been matched to reduce

any confounding bias

Tramadol is a centrally acting analgesic that has weak opioid agonist properties. It also inhibits serotonin and norepinephrine uptake in the spinal cord and is effective in the treatment of post-operative shivering after regional and general anaesthesia.^[16] It is a well-established agent in the treatment of post-anaesthetic shivering but may cause nausea and vomiting. Tramadol has a low risk of respiratory depression, tolerance and dependence. Alpha-2 adrenergic agonists are widely used nowadays in anaesthesia and intensive care settings. Clonidine is a centrally acting selective α_2 agonist. Clonidine exerts its anti-shivering effects at three levels: Hypothalamus, locus coeruleus and spinal cord. At the hypothalamic level, it decreases thermoregulatory threshold for vasoconstriction and shivering, because hypothalamus has high density of α_2 adrenoceptors and hence is effective in treating the established post-anaesthetic shivering.^[17,18] At the spinal cord level, it activates the α_2 adrenoceptors and release of dynorphine, norepinephrine and acetylcholine.

Dexmedetomidine is a newly α_2 adrenoceptor agonist, with antihypertensive, sedative, analgesic, and anti-shivering properties.^[19] The anti-shivering effects of alpha adrenoceptor agonists are mediated by binding to α_2 receptors that mediate vasoconstriction and the anti-shivering effect. Dexmedetomidine comparably reduces the vasoconstriction and shivering thresholds, thus suggesting that it acts on the central thermoregulatory system rather than preventing shivering peripherally.^[20]

In the present study, we found that clonidine and dexmedetomidine is more effective as compared to tramadol in treating post-spinal anaesthesia shivering in terms of the time interval from the commencement of treatment to cessation of shivering as it is quite less with clonidine (2.60 ± 0.44 minutes) and dexmedetomidine (2.48 ± 0.36) than with tramadol (5.93 ± 0.54 minutes) ($P < 0.0001$). However time interval of cessation of shivering after drug administration was not statistically significant between clonidine and dexmedetomidine. This result is supported by the similar finding in studies by Shukla U et.al and Mittal G.^[7,21] The response rate in our study with tramadol (93.3%) was also lower in comparison to group D and C but difference was statistically insignificant ($p > 0.05$). With same dose, that is, 0.5 mg/kg of tramadol, the response rate reported by Shukla et al. was 92.5% and by Reddy and Chiruvella was 95.56%.^[7,8] Maheshwari et al. reported similar recurrence rate with tramadol as in our study (10%) but the dose used in their study was 1 mg/kg.^[22] The incidence of nausea and vomiting with tramadol in our study was 36.6% and 26.6%, respectively. These results correspond with that of other studies by Reddy and Chiruvella and Bansal and Jain.^[8,23]

In a study by Easley, all children who had post-anaesthesia shivering were treated with a single IV bolus dose of dexmedetomidine 0.5 $\mu\text{g}/\text{kg}$ over 3-5 min.^[24] All children had cessation of shivering behaviour within 5 min following the completion of dexmedetomidine administration. There was no recurrence of shivering and no adverse effects occurred. We also found a response rate of 100% and apart from sedation, there was no other adverse effect observed in our study.

The patients in clonidine group has reported a high incidence of hypotension (10%) and dry mouth (6.6%) while none of the patient in group D and T, has complained of these side effects. These findings were similar to the findings of other researchers who compared clonidine

with other drugs having anti-shivering properties.^[25] In this respect, dexmedetomidine has an edge as it causes less variations in haemodynamics. Incidence of sedation of was higher in group D (53.3%) and group C (46.6%) in comparison to tramadol group (33.3%). The sedation seen with dexmedetomidine, in the absence of nausea and vomiting, is beneficial for the surgeon, anaesthetist as well as the patient.

The results of this study indicate that dexmedetomidine and clonidine takes lesser time to control shivering although response rate was comparable in all the three groups. The higher incidence of adverse effects like nausea and vomiting in case of tramadol compared to dexmedetomidine and clonidine make them as better alternatives for treatment of post-spinal shivering. More studies need to be undertaken with varying dose ranges to extrapolate the results of this study.

Limitations of our study are small sample size, failure to monitor core body temperature and short duration surgeries.

CONCLUSION

Dexmedetomidine (0.5 $\mu\text{g}/\text{kg}$), Clonidine (0.5 $\mu\text{g}/\text{kg}$) and tramadol (0.5 mg/kg) are equally effective in treating patients with post-spinal anaesthesia shivering, but time taken for complete cessation of shivering was significantly shorter with dexmedetomidine and clonidine as compared to tramadol. Furthermore, higher sedation, better haemodynamic stability and lesser side effects have put dexmedetomidine as good alternative to clonidine and tramadol but further large clinical trials are needed to cement its position as an efficient anti-shivering agent.

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Self-esteem and Anxiety among Nursing Students

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ABSTRACT

Self-esteem, a feeling of self-worth is an essential quality that promotes the self confidence and helps the individuals to handle stressful situations without anxiety and hassles. As student nurses are the beginners in the nursing profession, the nurse educators should help them face the demands of profession with courage and confidence. Thus the present study was aimed at assessing the self-esteem and anxiety among the student nurses. Quantitative non experimental design was used. The 52 participants were selected by non probability purposive sampling method. Majority 81% had normal self-esteem and 10(19%) had low self-esteem, and 58% were normal without anxiety, 10 (19%) with moderate anxiety, 8(15%) with mild anxiety and only 4(8%) with severe anxiety. There was no significant difference in the self-esteem and anxiety between the groups. There was a negative correlation between self-esteem and anxiety with $r = -0.303$ and significant at $p < 0.05$.

Keywords: *Self-esteem, Anxiety, Nursing, and Profession.*

INTRODUCTION

Self-esteem, a feeling of self worth is an important quality that plays a vital role in promotion and maintenance of mental health and social well-being. It influences the students' academic and clinical performance and their interaction with members in the society and members related to health care profession as patients, caregivers, and health team members. It also influences aspirations and personal goals. Sense of self worth can lead to better health and social behaviour, and that poor self-esteem is associated with a broad range of mental disorders and social problems, both internalizing problems (e.g. depression, suicidal tendencies, eating disorders and anxiety) and externalizing problems (e.g. violence and substance abuse)¹.

Attainment of career goals starts with getting admission to a professional program. However, the rigors of professional education can be demanding. The students may undergo various stress and strains during the period of professional education. The process of learning is affected by the stress and anxiety faced by the students. It affects not only their academic performance, but also hinders their performance in the clinical nursing practice. In general studies report an increase in the severity of and extent of mental health problems among college/university students². Self-esteem and interpersonal ability

to interact is considered as an inseparable component of effective care process. Hence assessing and identifying factors associated with nursing students is a valuable step in improving the quality of nursing care rendered by them in a future career of this major segment of the community³.

II.BACKGROUND OF THE STUDY

Every individual faces anxiety on a daily basis, the cause of which may be known or unknown. Anxiety is an emotional response in anticipation of danger. It is a motivational force for attaining the goals, and which is essential at times for survival and accomplishments. Accomplishments promote the emotional wellness. Emotional wellness requires that an individual have some degree of self worth-a perception that he or she possesses a measure of value to self or others⁴. The high levels of anxiety can affect students' self-esteem, learning, performance and in some cases retention within a nursing program⁵. At each age, emotionally stable, extraverted, and conscientious individuals experience higher self-esteem than emotionally unstable, introverted, and less conscientious individuals. Moreover, individuals with high self-esteem are predicted to have, high sense of mastery, low risk taking, and better health⁶.

Self-esteem is a complex, multifaceted phenomenon.

While there is no single factor that can increase or decrease a person's self-esteem. Self-esteem is linked to social anxiety and is therefore related to fear of negative evaluation. It is important to study nursing students' feelings about self-esteem and negative evaluation, and to assess whether or not both these constructs change as students' progress through their education programme. Nursing students' self-esteem might be increased by expansion of intrinsic job characteristics, improving their job satisfaction and providing frequent positive feedback⁷. Positive self-esteem is significantly associated with proactive coping behaviours. Nursing students with positive self-esteem may cope well during stressful and anxious situations by using both problem-focused and emotion-focused coping skills⁸.

It is known that some student nurses who experience anxiety during clinical experiences leave nursing education programs. If nurse educators can better understand the anxiety of student nurses during clinical experience, they will be able to develop educational interventions to minimize students' anxiety. Firstly, when anxiety is decreased, learning may be increased. Decreasing anxiety may help alleviate the nursing shortage because more students complete their nursing education⁹. Anxiety affects 30% of the nursing students and has detrimental effects on academic performance and student success. Nurse educators can have a significant impact on student outcomes by recognising anxiety, intervening early, and implementing effective and supportive strategies¹⁰.

The present study was designed to assess self esteem and anxiety among diploma nursing students. Thus the findings of the study would enable the nurse educators to plan, develop and implement various educational programmes, guide and motivate them to recognize and learn adaptive behaviors and techniques to improve their self esteem and reduce anxiety.

III. MATERIAL AND METHOD

1.1. Objectives

- To assess the Self-esteem among Nursing students.
- To assess the Level of Anxiety among Nursing students.
- To correlate between Self-esteem and Anxiety.

1.2. Research approach & Research design

Quantitative Non experimental descriptive design was used for the study.

1.3. Setting of the study

Present study was conducted in a school of Nursing, perinthalmanna, Kerala.

1.4. Population

Nursing students studying in various schools of nursing were the target population to be studied.

1.5. Sampling

The school of nursing for the conduction of the study was selected by simple random (lottery) method. Non probability purposive sampling was used to select the 52 participants for the study.

1.6. Description of the tool

Section A: Demographic Variables: It consisted of 15 items which included age, year of studies, gender, religion, education of father and mother, occupation of father and mother, income of the family, type of family, place of residence, birth order, experience as class leader in school of nursing, whether participated in games and sports, and participated in cultural events.

Section B: Rosenberg Self-Esteem Scale was used to assess the self-esteem. It consisted of ten item answered on a four point scale - from strongly agree to strongly disagree. Participants indicated how well they agree or disagree to the statements and is scored as 0-15 = low self-esteem, 15-25 = normal, and 25-30 = high Self-esteem.

Section C: Hamilton Anxiety Rating Scale (HAM-A) was used to assess the severity of symptoms of anxiety. The scale consisted of 14 items and measures both psychic and somatic anxiety. Each item is scored from 0 (not present) to 4 (very severe) with a total range of the score as 0-56.

1.7. Data collection procedure and data analyses

The content validity of the tools was assessed by obtaining opinion from experts. Data were collected after obtaining permission from the principal school of Nursing. After seating the participants comfortably in a room, the researchers introduced themselves to the participants, gave an introduction regarding the study and

its objectives to the study subjects. The participants were informed that the informations would be kept confidential and would be used only for the purpose of research. Informed consent was obtained from the participants. Data were collected from 15th of January to 19th of February 2016. The collected data were tabulated and analyzed using SPSS 16.0 ver. Frequency and percentage distribution was used to describe the demographic variables; Pearson's correlation was used to find the correlation between the variables such as self-esteem and anxiety. Non parametric test was used to compare the means between he groups.

IV. FINDINGS

Table: 1 Socio-Demographic variables

Demographic variables		Fre-quency (n=52)	Percentage (%)
Age in years	17-21	52	100
Sex	Female	52	100
Year of studies	First year	18	35
	Second year	16	30
	Third year	18	35
Religion	Hindu	16	31
	Christian	29	56
	Muslim	6	11
	Others	1	2
Education of the father	Illiterate	-	-
	Primary	4	8
	Middle school	19	36
	High school	25	48
	Intermediate	3	6
	Graduate/p.g/professional	1	2
Education of the mother	Illiterate	-	-
	Primary	1	2
	Middle school	12	23
	High school	33	64
	Intermediate	5	9
	Graduate/p.g/professional	1	2
Occupation of the father	Unemployed	3	6
	Unskilled	2	4
	Semi skilled	5	9
	Skilled	10	19
	Clerical/farmer/shop keeper	31	60
	Semi professional	1	2
Occupation of the mother	Unemployed	34	65
	Unskilled	4	8
	Semi skilled	6	11
	Skilled	2	4
	Clerical/farmer/shop keeper	6	12
	Semi professional	-	-
	Professional	-	-

The distribution of study participants according to the year of study, religion, and father's and mother's education, and father's and mother's occupation are summarized in Table 1. All the 52 student nurses were in the age group of 17-21 years, and all were female. First and third year constituted about 18 (35%) each, and 16 (30%) in the second year. Majority of the participants 56% were Christians, 28(48%) and 33 (64%) of the participant's father and mother had high school education. 31 (61%) of the participant's father's were working as clerk/farmer/shop keeper and 30 (65%) of the mother's were unemployed.

Table 2: Socio-demographic variables

Demographic variables		Frequency (n=52)	Percentage (%)
Family income	<1600	4	8
	1601-4809	29	56
	4810-8009	12	23
	8010-12019	1	2
	12020-16019	4	7
	16020-32049	2	4
	>32050	-	-
Type of family	Nuclear	43	83
	Joint family	7	13
	Extended	2	4
Place of residence	Urban	9	17
	Rural	30	58
	Semi urban	13	25
Birth order	First	12	23
	Second	19	36
	Third	20	39
	More than four	1	2
Experience as class leader	Yes	34	65
	No	18	35
Involvement in games and sports	Yes	50	96
	No	2	4
Involvement in cultural events	Yes	50	96
	No	2	4
Future aspiration	Yes	52	100
	No	-	-

Table 2 indicates the distribution of study participants according to the income of family, type of family, place of residence, birth order, their experience as class leader, and their involvement in games, sports and cultural events. Majority of the participants' 29 (56%) family income was within the range of 1601-4809, 43 (83%) were from nuclear family, 30 (58%) were residing in the rural area, 20 (39%) were third child in the family, 34 (65%) had experience as class leader in school of nursing, and 96% of them used to involve in games, sports and cultural activities being organized by the school of nursing or other agencies. All (100%) had the future aspiration of undergoing higher studies.

Table: 3 Frequency and Percentage distribution based on self-esteem and Anxiety among Nursing students.

S.No	Variable	Level	Frequency (n=52)	Percentage (%)
1.	Self-esteem	Low	10	19
		Normal	42	81
		High	-	-
2.	Anxiety	Normal	30	58
		Mild	8	15
		Moderate	10	19
		Severe	4	8

The frequency and percentage distribution of participants based on the self-esteem and anxiety are summarized in the table 3. It reveals that the majority 81% had normal self-esteem and 10(19%) had low self-esteem, and 58% were normal without anxiety, 10 (19%) with moderate anxiety, 8(15%) with mild anxiety and only 4(8%) with severe anxiety.

Table: 4 Self-esteem and Anxiety between groups of Nursing students.

Variable	Year of study	Mean	
Self-esteem	First year	25.72	f=0.179
	Second Year	26.62	df=2
	Third Year	27.17	p=0.914
Anxiety	First year	23.33	2.691
	Second Year	25.50	df=2
	Third Year	30.56	p=0.260

Table 4 shows that comparatively the mean score of self-esteem for the third year was 27.17, 26.62 for the second year and 25.72 for the first year. The mean anxiety score was 30.56 for the third year, 25.50 for the second year and 23.33 for the first year. Analyses of data using Kruskal Wallis test revealed that there was no significant difference between 1st, 2nd, and 3rd year in the self-esteem and anxiety scores.

Correlation between self-esteem and anxiety: Pearson correlation coefficient was used to identify the correlation between self-esteem and anxiety. It revealed that there was a negative correlation between self-esteem and anxiety with $r = -0.303$ and significant at $p < 0.05$.

V. DISCUSSION

Chaves et al reported that among 135 Nursing students 90% were females, 68% presented with high self-esteem, 30% average and 2% low¹¹. In the present study among 52 student nurses all 100% were females, majority 81% presented with normal self-esteem and only 10(19%) had low self-esteem. 58% were normal without anxiety, 10 (19%) with moderate anxiety, 8(15%) with mild anxiety and only 4(8%) with severe anxiety.

Pearson correlation coefficient was used to identify the correlation between self-esteem and anxiety. It revealed that there was a negative correlation between self-esteem and anxiety with $r = -0.303$ and significant at $p < 0.05$. A similar finding was demonstrated between self-esteem and anxiety in a study on Asian and European students with ($r = -4.20$), $p < 0.001$, confirming the inverse of relationship between self-esteem and anxiety¹².

VI. CONCLUSION

Rapid changes in the technology and value system in the society pose challenges for student nurses in the delivery of health care to the patients. The challenging environment always triggers the anxiety and stress for the students as it is a novice experience for them. Nurse educators are the better persons to understand the situations which can cause anxiety for the student nurses, develop and teach them intervention strategies to equip them to face challenges confidently, thereby boosting their self-confidence for a better living physically and psychologically.

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Effect of Curcumin on Aminoacid Absorption: An Experimental Study on Albino Rats

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ABSTRACT

Curcumin derived from the rhizome *Curcuma longa* is one of the primary ingredient of turmeric. Turmeric is extensively used in Indian cuisine. It is used as a food additive (spice), preservative and coloring agent. The intake of turmeric in the diet may expose the gut to curcumin and affect its physiological functions, including the absorption of nutrients from small intestine. To explore this possibility, transport of amino acid from small intestine was studied in adult albino rats following feeding the animals curcumin intragastrically for five consecutive days. The controls were fed simultaneously, the vehicular fluid intragastrically in the identical volume. Transport of amino acid from small intestine was studied using everted sac technique of Wilson and Wiseman (1954) on animal fasted for 16-20 hrs. Everted sacs were prepared from both jejuna and ileal portion of small intestine.

Observations showed a significant increase in amino acid transport from jejuna ileal portion of small intestine suggesting that curcumin does influence the transport of nutrients from the gut.

Keywords : *curcumin, L-proline, jejunal sac, ileal sac, everted sac, vehicular fluid*

INTRODUCTION

Turmeric (*CURCUMA LONGA L.*) is a medicinal plant native to South Asia, India and Indonesia. It extensively used in Ayurveda, Unani and Siddha system of medicine. It is also used as a household remedy for various diseases. For that reason a number of references to the plant are found in ayurvedic text such as Charaka Samhita, Shushruta Samhita, Ashtanga Haridya and Sharangdhara Samhita. These text have described the use of turmeric for a number of systemic and local disorders pertaining to many systems⁽¹⁻²⁾.

Traditional Indian medicine use turmeric powder for the treatment of biliary disorders, anorexia, coryza, cough, diabetic wounds, hepatic disorders, rheumatism and sinusitis. In China, it is used for diseases associated with abdominal pain. Over a last few decades, extensive

work has been done to establish the biological activities and pharmacological actions of turmeric and its extracts. Studies have been done on curcumin, suggesting the beneficial effects of curcumin on gastrointestinal tract. It has antiulcer activity, it increases mucin secretion thus act as gastroprotectant against irritants.⁽³⁻⁴⁾

In ancient Hindu Medicine, it was used to treat sprain and swellings caused by injury. Other actions of curcumin includes wound healing, antiinflammatory, anticarcinogenic, anticoagulant, antimutagenic, antifertility, antidiabetic, antibacterial, antifungal, antiprotozoal, antifibrotic, antiviral, antivenom, hypotensive, analgesic, antioxidant, antispasmodic, anticeptic, astringent, carminative, digestive, diuretic and hypocholesteremic activities. In the human being and the experimental animals curcumin is found to be having beneficial effect on function of gastrointestinal tract. It increases bile secretion in anesthetized dogs and rats. It increase the activity of pancreatic lipase, amylase, trypsin and chymotrypsin⁽⁵⁻⁶⁾.

Since turmeric is the main ingredient of many food additives and after metabolism in liver is mainly

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excreted through bile and present in gastrointestinal tract for a long time. Because of continued exposure of gastrointestinal mucosa there is a possibility of change in the absorptive property of mucosa of small intestine. It might have effect on absorption of various nutrients from gastrointestinal tract including amino acids. The present study was therefore aimed at studying the effect of Curcumin on amino acid absorption in small intestine in albino rats.

MATERIAL AND METHOD

The present study was conducted on 20 albino wistar rats weighing 120-180 gms, following approval of Ethical committee of H. I. M. S. (over a period of 12 months).

Animals

The rats were housed in polycarbonate cages of size 35, 23, 16 cms with 4 rats per cage in a room temperature of $24 \pm 2^\circ\text{C}$, and humidity of 45% to 60% with normal day light cycle. During the entire experimental period, animals were fed with a freshly prepared balanced cooked diet and water ad libitum. Animals were divided into 2 major groups (group I and group II). Each group containing 10 rats each. Group I animals were treated as control while group II animals were treated with drug curcumin 1 gm/kg body weight. 6 everted intestinal sacs were made from each rat, 3 from jejunum and 3 from ileum.

Curcumin dose schedule

Curcumin was dissolved in the freshly prepared normal saline 0.9%. The concentration of the drug solution was kept at 100 mg/ml. The animals were fed curcumin intragastrically, in the dose of 1 gm / kg body weight, twice daily at 8:00 am and 8:00 pm daily for five consecutive days. The intragastric feeding was done using infant feeding tube (no-6) reaching upto the lower 1/3 of the oesophagus. The control group of animals were fed simultaneously, the vehicular fluid intragastrically in the identical volume twice daily for five consecutive days.

Experimental protocol for absorption studies

The animals were fasted for 16- 20 hrs before being subjected for absorption studies. The animal were killed by cervical dislocation. The abdomen was opened by midline incision, and the small intestine was washed of its contents with normal saline and stripped of its mesentry and transferred to the container with Krebs-

Bicarbonate Ringer buffer solution Krebs and Hansleit. Everted sacs were prepared from the jejuna and ileal segments of the small intestine following the technique of Wilson and Wiseman⁽⁷⁾.

Incubation media and the conditions of the incubation

The tissue was incubated in a medium of Krebs-Ringer Bicarbonate buffer solution, containing L- proline in concentration of 5.0mMol/L. The media was gased adequately with 95% O₂ and 5% CO₂ mixture. The container and its contents were shaken for 10 min. at 37° C, in a constant temperature bath at a rate of 12 oscillations per minute.

Measuring the initial and final volume of the sac was done as described by Wilson and Wiseman. The results were expressed in terms of dry weight of the intestinal tissue.

Chemical estimation

After incubation the sac were blotted dry, placed in a watch glass. Then one end of the sac was cut and serosal fluid was drained into a test tube. This serosal fluid was analysed for concentrations of L- proline, by the method, as described by J.J. WREN and P.H. Wiggall (1964). L-proline concentration was calculated by putting values on standard curve. The results were expressed in terms of dry weight of the sac. The dry weight of the intestine was determined by drying the tissue in the hot air oven at 110-120° C for 16-24 hrs⁽⁸⁾.

Statistical analysis was performed with paired student "t" test to see the difference in control and experimental groups and results were expressed in Mean \pm SD.

RESULTS

Results are summarized in Table-1. Results of the experimental animals showed, increase in the transport of L-proline, in all intestinal sacs. As results showed in table-1, the mean transport of L-proline showed a highly significant increase in experimental animals. Maximum transport seen in first sac of ileum.

DISCUSSION

In the present study the technique described by Wilson and Wiseman was used because the eversion exposes the highly active mucosa to the well oxygenated suspending

medium while the distension increases the surface area of the sac and reduces the thickness of the sac wall⁽⁷⁾. These factors facilitate the amino acid absorption from small intestine. The net transport of L-proline in jejunum and ileum increases in the experimental animals.

The present study showed a highly significant increase in the rate of L-proline absorption from all the segments of small intestines of experimental animals, fed curcumin (1gm/kg of body weight per dose, twice a day, for 5 days). Shimizu M. reported in their study, that capsiainoside (sweet pepper) facilitates the paracellular absorption of nutrients from small intestine⁽⁹⁾. Curcumin might be acting through the same mechanism.

Rogers et al, reported in their study in rats that, neomycin enhances glucose absorption from small intestine. Khajuria A. reported that piperine enhances bioavailability and can cause an increase in microvilli length. Piperine induces permeation characteristics. Isreal and Roseman seen that alcohol inhibits the active transport of Na⁺ and K⁺, by inhibiting the Na⁺-K⁺ ATPase and transport of amino acid depends on the fully operative active transport of Na⁺-K⁺ ATPase. Kreydiyyeh SI, Usta J and Copti R reported in their study that the extract of nutmeg, cinnamon, clove, cumin, coriander lowered the absorption of alanine from the rat intestine by inhibiting Na⁺-K⁺ ATPase activity. Prakash O., Sharma RK, and Nagchaudhuri seen in their studies that vinblastine inhibits the glucose absorption from small intestine. Vinblastine inhibits the energy producing mechanisms⁽⁹⁻¹⁹⁾.

Hari et al found in their study that following administration of curcumin for 7 days there were twofold increase in the activity of Na⁺-K⁺ ATPase⁽²⁰⁾. The present study has also shown that L-proline transport was more in experimental animals. These findings are supported by the previous studies⁽⁹⁻²⁰⁾.

It is generally accepted that the net transport of fluid from the mucosal to serosal side of the intestine depends on the active transport of the Na⁺ from the intestinal epithelial cell to the serosal side. Thus the increase in the absorption rate of the L-proline, found in the present study can be attributed to increased absorptive area, increase in activity of Na⁺-K⁺ ATPase and increased permeability of intestinal wall.

TABLE-1: Transport of L-proline(in µgm/mg of dry wt of sac) in different sacs, at 5.0mMol/L concentration of L-proline in control and experimental animals

Sacs	Control N=10 Mean± SD	Experimental N=10 Mean± SD
1	1.37± 0.07	1.85± 0.03
2	1.44± 0.03	2.05± 0.05
3	1.50± 0.02	2.20± 0.08
4	2.34± 0.06	5.91± 0.09
5	2.15± 0.06	5.50± 0.09
6	2.14± 0.05	5.12± 0.06

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Conflict of Interest: Nil

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ETHICAL CLEARANCE

Approved by Ethical committee of H.I.M.S. Swami Ram Nagar, Jollygrant, Dehradun.

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Relation of Smoking in the Development of Mucosal and Ulcerative Lesions in Upper Gastrointestinal Tract

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ABSTRACT

Smoking promotes an increase in both the incidence and recurrence of peptic ulcers. The association of upper gastrointestinal lesions with smoking was studied in 120 patients with or without the symptoms of upper gastrointestinal lesions. Of the total, 50 nonsmoker and 70 smokers (cigarette or bidi). It was observed that, smokers are more prone to develop both mucosal and ulcerative lesions.

Keywords: Smoking, peptic ulcers, mucosal lesions, Ulcerative lesions

INTRODUCTION

Smoking affects the entire body, increasing the risk of many life threatening diseases including lung cancer, emphysema and heart diseases. Although the gastrointestinal tract is not directly exposed to inhaled cigarette smoke, its constituents condense on the mucus membrane of the mouth and pharynx are swallowed. This contact is likely pathogenic mechanism for mucosal damage and carcinoma of gastrointestinal tract⁽¹⁻⁶⁾.

It is proved that smoking plays an important role in etiopathogenesis of peptic ulcers by decreasing gastric emptying, vascular dysregulation of gastric mucosa, increases PG-I levels, reducing the duodenal bicarbonate secretion, may predispose to H. pylori infection and reducing gastric and duodenal prostaglandin secretion. Several studies which have been done so far support the role of smoking in causing reflux esophagitis, gastritis, peptic ulcers, esophageal and gastric carcinomas⁽⁷⁻¹⁴⁾.

In the view and opinion of above, the aim of our study is to see the upper gastrointestinal lesions in smokers.

MATERIAL AND METHOD

This study was performed in the Department of Medicine LLRM Medical College and associated SVBP Hospital, Meerut.

Study was performed upon 120 patients, out of which 50 patients were serving as control and 70 smokers with or without symptoms of upper gastrointestinal lesions.

All smokers were smoking for 5±2 yrs, 7±3 cigarette or bidi per day and continued to smoke till upper gastrointestinal endoscopy was done. Age of the patients ranging between 30±5 yrs.

Controls do not smoke, with or without symptoms of gastrointestinal tract lesions.

The patients with the history of diabetes, hypertension, renal failure, pancreatitis, ulcerative colitis, gall bladder stones, COPD, pregnancy and lactation, chronic NSAIDs intake, alcohol abuse, poisonings, known case of acid peptic disease, excessive intake of tea, coffee and spicy, fried food and individual underwent for upper gastrointestinal endoscopy for any reason were not included in the study.

RESULTS

In this study every case was enquired about the disease and etiological factors known to produce upper gastrointestinal lesions. Every case was asked about the complaints like heart burn, sore eructation, upper

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abdominal pain, anorexia, nausea, vomiting, early satiety after meals, fullness and flatulence, water brash, hematemesis and melena.

In control group, heart burn, fullness and flatulence and sore eructation were the most common symptom. Vomiting was present in only 5% cases. In study group early satiety after meals, fullness and flatulence, heart burn, sore eructation and upper abdominal pain were the most common symptom. No upper abdominal pain was observed in non smokers.

The results are summarized in table-1 and table-2. As the results shows in table-1 and table-2, smokers are more prone to develop both mucosal and ulcerative lesions.

DISCUSSION

Smoking has several effects on gastric mucosa, due to impair spontaneous and drug induced healing of peptic ulcer and recurrence of ulcers, it inhibits carbonate secretion, accelerates gastric acid emptying into duodenum , predispose to H. pylori infection that is why

the incidence of duodenal ulcer appears to be increased in smokers.

In smokers the H. pylori is very common. H. pylori alters the physical and chemical mileau of gastric mucosa, decreased secretion of ascorbic acid leading to formation of carcinogenic compounds. Continued smoking causes the gastric ulcers which are less likely to heal on standard treatment ⁽¹⁵⁻¹⁷⁾.

Smoking is an important factor in development of upper gastrointestinal lesions and affect gastric mucosa due to impaired spontaneous and drug induced healing of peptic ulcers and increases recurrence, inhibition of carbonate secretion by nicotine, it accelerates gastric emptying into the duodenum, predisposes to H. pylori infection ⁽¹⁸⁻¹⁹⁾.

In this study we have found that incidence of peptic ulcers, esophagitis and gastritis is significantly higher in patients who were giving history of smoking. There is a direct association between smoking and upper gastrointestinal lesions.

Table-1: Comparison of Mucosal lesions in control and smoker group

S. No.	Lesions	Controls n=50		Smokers N=70	
		No	%	No	%
1	Oesophagus-				
	Oesophagitis Grade I	11	22	19	27
	Grade II	04	08	18	25.6
	Grade III	03	06	13	18.5
	Grade IV	00	00	00	00
	Oesophageal Varices	00	00	00	00
	Oesophageal growth	00	00	00	00
2	Stomach-				
	Acute gastritis	03	06	00	00
	Chronic gastritis	10	20	42	60
	Hypertrophic gastritis	00	00	01	1.42
	Erosive gastritis	00	00	08	11.4
	Haemorrhagic gastritis	00	00	01	1.42
3	Antrum-				
	Antral gastritis	06	12	34	48.3
	Pyloric spasm	00	00	02	2.8
	Pyloric edema	00	00	03	4.3
4	Duodenum-				
	Erosive duodenitis	00	00	12	17
	Non erosive duodenitis	02	04	18	25.5

TABLE-2: Comparison of Ulcerative lesions in control and smokers

S No	Lesions	Control n=50		Smokers n=70	
		No	%	No	%
1	Oesophageal				
	Acute	00	00	00	00
	Chronic	00	00	01	1.4
2	Gastric Ulcers				
	Acute	00	00	08	11.4
	Chronic	04	08	35	49.8
3	Antral Ulcers				
	Acute	00	00	05	7.1
	Chronic	00	00	27	38.4
4	Duodenal Ulcers				
	Acute	00	00	08	11.4
	Chronic	02	04	39	55.4

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Comparison of Outcome of Dots and Self Administered Therapy in Patients of Tuberculosis in Tertiary Care Hospital, Nainital

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ABSTRACT

Introduction: Tuberculosis (TB) is a major public health problem in India, and it is being made worse by poor adherence to and frequent interruption of antitubercular treatment. Directly observed treatment short course (DOTS) is one of the key elements in the WHO global tuberculosis control program strategy. Limited studies have been conducted in Uttarakhand state to compare DOTS and Self-administered therapy (SAT).

Objective: To compare the effectiveness of DOTS and SAT in patients with tuberculosis.

Methodology: This prospective study was conducted in 120 patients of tuberculosis in the department of TB and Chest of Government Medical College Haldwani, Nainital from March 2014 to November 2014. Patients with both pulmonary and Extra pulmonary TB with no previous history of Anti-tuberculosis treatment (ATT) were included in the study. Sixty patients of tuberculosis on DOTS and 60 patients on SAT were followed. Sputum smear and radiological examination was repeated at 2, 4, and 6 months after initiation of ATT.

Results: Out of 120 patients included in the study, 72(60%) were male. Seventy two (60%) were in age group of 16-45 years while rest were in the age group > 45 years. Fifty (83.3%) patients were successfully treated under intermittent DOT compared to 40 (66.7%) under SAT and it was found to be statistically significant.

Conclusion: The treatment outcome of the patients treated with DOTS was better than those treated with SAT

Keywords: Directly observed therapy, Self administered therapy, Tuberculosis.

INTRODUCTION

Worldwide, 9.6 million new Tuberculosis (TB) cases and 1.5 million TB deaths are reported in 2014¹. Despite many efforts to control TB, it remains a major public health problem in India & among the top killer diseases. India accounts for 23% of the global T.B burden¹ and the situation is being made worse by poor adherence to and frequent interruption of anti-tuberculosis treatment (ATT). Directly observed treatment short course (DOTS), is one of the key elements in the World Health Organization (WHO) global tuberculosis control program strategy and has been widely publicized as a breakthrough and strongly promoted globally by WHO.

DOTS is administered as per the guidelines of Revised National Tuberculosis Control Program (RNTCP) to TB patients nationwide². It is based on scientifically sound technology and direct observation of drug intake of the patient by treatment observers, thus obviating the drug default problem. In order to improve adherence to treatment, A DOTS strategy is recommended as the key to successful treatment outcomes for tuberculosis patients by WHO in which patients are observed ingesting each dose of ATT. Several studies have been conducted to compare the effectiveness of DOTS and SAT. Studies from India have shown that DOTS has higher cure rates compared to SAT³⁻⁴. However, a Cochrane review detailed no difference in cure rates between tuberculosis patients

taking SAT or receiving DOT⁵. With this background, the present study was carried with objective to compare the effectiveness of DOTS and SAT in patients with tuberculosis.

METHODOLOGY

This prospective study was conducted in 120 tuberculosis patients in the department of TB and Chest of Government Medical College Haldwani, Nainital from March 2014 to November 2014. Patients with both Pulmonary and Extra-pulmonary TB with no previous history of ATT were selected non-randomly in the study. Sixty patients of on SAT and 60 patients on DOTS were followed till treatment outcomes. Sputum smear and radiological examination was repeated at 2 and 5 months after initiation of ATT. The patients with diabetes, HIV, liver and renal disease, pregnancy/lactation, and very critically ill patients were excluded from the study. DOT is defined as ingestion of anti-tuberculosis medication that is directly supervised by a health care worker. SAT is defined as unsupervised administration of anti-tuberculosis medications by patients as prescribed by treating physician. All the patients were categorized as per RNTCP guidelines and accordingly treated⁶. Patients treated by DOT received intermittent treatment, while patients treated by SAT received daily treatment. Treatment regimen was uniform in all the patients and included 2RHZE / 4HR. The data collected using the predesigned proforma included socio-demographic profile, clinical features, routine laboratory investigation, reports of sputum and examination. Data were tabulated and values were expressed as actual numbers and the corresponding percentages. The significant differences between groups were determined using the Chi-square test. P value less than 0.05 was considered to be significant. Analysis was done using SPSS version 22. Patients in the two groups were compared in terms of various outcomes. The main outcomes were rates for cure, treatment completion, loss to follow up, failure, default and death.

RESULTS

Table 1 shows the baseline characteristics of the study participants in DOT and SAT group. Out of 120 patients included in the study, 70 (58.3%) were male while 50 (41.7%) were female. Seventy two (60%) were in age group 16-45 years while 48 (40%) were in the age group > 45 years. Significant statistical differences between the

two groups were observed regarding educational level ($p=0.01$) with higher rates found among those who were educated.

The treatment outcome of the study population are shown in table 2. More than half of the TB patients in both groups were either cured or had completed their treatment. Of the patients with adverse outcome, five cases under DOTS and nine cases under SAT were failure cases. A smaller proportion of patients under DOT (10%) were lost to follow up than under SAT (18.3%). Fifty (83.3%) patients were successfully treated under intermittent DOT compared to 40 (66.7%) under SAT.

In table 3, bivariate analysis for the treatment outcome showed that age, sex, literacy, category of TB and sputum report were statistically insignificant. The type of treatment provided was found to be statistically significant with successful outcome being more with DOTS treatment.

DISCUSSION

This study indicates that SAT type of therapy can be an alternative to DOTS in order to achieve universal coverage for tuberculosis treatment but has few limitations. The cure rate of DOTS was found to be better than SAT and also the loss to follow up rate was more in patients on SAT treatment. Similar results were seen in the studies conducted in Manglore city and Haryana in India³⁻⁴. Several other studies have been done in India and abroad to test the efficacy of DOTS in the treatment of tuberculosis. Findings of our study is consistent with those carried out at Tuberculosis Research Centre (TRC) Chennai and National Tuberculosis Institute (NTI) Bangalore which have shown more than 80% cure rates with good quality TB control program. DOT is a major departure in the Revised National Tuberculosis Control Program which will ensure prevention of defaults and consequently drug resistance⁷. DOT envisages strict supervision, adherence and high compliance that results in high cure rates and less likelihood of emergence of drug resistance. Thus DOTS strategy envisages greater importance to cure than detection⁸.

It was also seen in our study that loss to follow up was more in SAT group so patient with high risk of non-adherence should be initiated on treatment by DOT to have greatest impact on public health. Appropriate monitoring of SAT for TB treatment, would require simple and validated tools⁹ administered by trained staff.

Counseling and treatment education should be provided to patients before initiation of treatment, to avoid relapse and loss to follow up during TB treatment on SAT¹⁰. However, our study findings are limited by the small number of patients and involving only one TB centre and therefore generalization or extrapolation of the results are not possible. There may be many other factors influencing tuberculosis outcome of these patients, however, it would be difficult to comment on these factors with routine program data.

Table 1: Demographic details of patients receiving DOT or SAT for tuberculosis

Characteristics		Patients receiving DOT No. (%)	Patients receiving SAT No. (%)	χ^2 test P-value
Sex	Male	38 (63.3)	32(53.3)	1.2 (0.67)
	Female	22 (36.7)	28(46.7)	
Education	Uneducated	20 (33.3)	9(15.0)	5.5 (0.02)
	Educated	40 (66.7)	51(85.0)	
Category	Pulmonary	53 (88.3)	46(76.7)	2.8 (0.93)
	Extrapulmonary	07 (11.7)	14(23.3)	
Sputum	Positive	18 (30.0)	23(38.3)	0.9 (0.34)
	Negative	42 (70.0)	37(61.7)	

Table 2: Outcome details of patients receiving DOT or SAT

Treatment outcome	Patients on DOT (n=60) No. (%)	Patients on SAT (n=60) No. (%)	Total (n=60) No. (%)
Cured	33 (55.0)	26 (43.3)	59 (49.2)
Completed	17 (28.3)	14 (23.3)	31 (25.8)
Loss to follow up	05 (8.3)	11 (18.3)	16 (13.3)
Failure	05 (8.3)	9 (15.0)	14 (11.7)
Successful	50 (83.3)	40 (66.7)	90 (75.0)
Unsuccessful	10 (16.7)	20 (33.3)	30 (25.0)

Table 3: Bivariate analysis for the characteristics in Treatment Outcome

Characteristics		Successful (n=90) No. (%)	Unsuccessful (n=30) No. (%)	OR (95% CI)	P-value
Gender	Male	52 (57.8)	18 (60)	0.91 (0.39-2.11)	0.83
	Female	38 (42.2)	12 (40)		
Literacy	Uneducated	21 (23.3)	8 (26.7)	0.84 (0.32-2.15)	0.71
	Educated	69 (76.7)	22 (73.3)		
Category	Extra pulmonary	16 (17.8)	5 (16.7)	1.08 (0.36-3.25)	0.89
	Pulmonary	74 (82.2)	25 (83.3)		
Sputum	Negative	30 (33.3)	11(36.7)	0.86 (0.37-2.05)	0.74
	Positive	60 (67.7)	19 (63.3)		
Treatment	DOTS	50 (55.6)	10 (33.3)	2.5 (1.05-5.94)	0.03
	SAT	40 (44.4)	20 (67.7)		

CONCLUSION

The treatment outcome of the patients treated with DOTS was better than those treated with SAT. We can conclude that initiation of treatment should be with DOTS for controlling TB in India. SAT can also be an alternative therapy for TB but it requires a proper care and better supervision.

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Dieulafoy's Lesion – from Past to Present

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ABSTRACT

Introduction: The Dieulafoy's lesion is a unique vascular abnormality accounting for 1-5.8% cases of acute non-variceal gastrointestinal bleeding. It is a uncommon, but potentially life-threatening condition. The objective of our study was to review the current trends in the diagnosis and management of Dieulafoy's lesion.

Materials and Method: A thorough literature search was performed for published English articles, using the search words 'Dieulafoy'(s)'. All retrieved articles were analysed and the findings are summarised in this article.

Discussion: Endoscopic therapy is the mainstay in the management of DL as it is safe and long term results are excellent (mortality <10%). Mechanical therapies are more effective in controlling bleeding in DL. Surgery is reserved as salvage therapy in 5% of cases where repeated endoscopic procedures fail to achieve long term haemostasis. In patients with failed endoscopic procedures who are poor risk for surgery, angiographic embolization may be successful.

Conclusions: Presently mortality associated with this lesion is more due to co-morbidities affecting the patients rather than the continued GI bleed from the lesion. We need to define criteria for selection of endoscopic modality according to the type and site of the lesion rather than a decision based on personal choice of attending physician.

Keywords: Dieulafoy's lesion, Massive Gastro-intestinal bleeding, Acute Non-variceal gastrointestinal bleeding, Calibre persistent artery, Submucosal arterial malformation of the stomach.

INTRODUCTION

A definite cause of massive upper GI bleeding cannot be found in 4-9% patients¹. The Dieulafoy's lesion is a unique vascular abnormality, accounting for 1-5.8% of all causes of acute non-variceal gastrointestinal bleeding^{2,3}

In 1884 Gallard reported 2 autopsy cases of sudden massive upper gastrointestinal haemorrhage as 'Submucous milliary aneurysm' of stomach⁴. Later on French surgeon George Dieulafoy in 1897 reported a series of 10 patients with massive upper GI haemorrhage from a protruding arteriole surrounded by normal mucosa without

ulcer or erosion. He concluded that these lesions are not typical gastric ulcers and named it "Ex ulceratio Simplex". He reported that "It is an acute ulcerative process which reaches a voluminous and superficial submucosal arteriole with Stomach being a certain site", "Condition evolves silently in a healthy patient with N,V syncope and large haematemeses" "is extremely serious" and "Future risk of recurrence is unknown"^{5,6}

Dieulafoy considered these lesions to be the initial phase in the development of gastric ulcers, the progression of which was interrupted by bleeding episode. Later on these vascular lesions in proximal stomach were characterized and named by various authors as Calibre persistent artery, Gastric artery aneurysm, Microaneurysm, Gastric arteriosclerosis, Submucous arterial malformation, Cirroid aneurysm, Serpigenous aneurysm, Sclerotic

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submucosal gastric artery, Distinctive arteriovenous malformation, Ulcus ventriculi and Solitary simple erosion but it is still known as 'Dieulafoy's Lesion' (DL)^{1,7,8}.

MATERIALS AND METHOD

Using various search engines, a literature search was performed for papers published in English, using the text 'Dieulafoy's' Lesion. All retrieved articles which were relevant to our study were analysed and summarised in this articles. Overall, 379 papers were identified and screened; of these, 88 papers were analysed in detail and included in the bibliography.

DISCUSSION

All relevant findings of retrieved studies are discussed in various sub-headings in this section.

Pathogenesis –

Dieulafoy described it as 'Very superficial lesion which is not raised or indurated, do not extend deeper than the tunica mucosa and gastric walls maintain their softness' with 'Very superficial and fairly extensive loss of substance in the stomach'⁶. He noted that on histological examination "lesions are small crateriform erosions caused by the disappearance of muscularis mucosae with the appearance of a gaping arteriole, and are different from ulcers caused by TB, typhoid, syphilis, uraemia and alcoholism"⁵.

Characteristic DL in any location has a *large tortuous submucosal artery*, usually 1-3 mm in diameter and *minute mucosal defects*, usually 2-5 mm in diameter and solitary. When this exposed artery ruptures, acute catastrophic GI haemorrhage occurs⁹. Morphology and CF of this lesion differ from other causes of massive GI bleed such as oesophageal varices, Telengectasia, Mellory-Weiss tear, A-V Fistula or Gastric Erosions¹⁰.

Barlow (1951), in his study of vasculature of normal stomach reported that as an artery penetrates from muscular walls into the submucosa, there is successive branching to form submucosal plexus along with simultaneous reduction in calibre of these arterial branches. Vessels from this plexus penetrate muscularis mucosae to form mucosal capillaries. He noted that along the lesser curvature arterial arcade gives direct origin to submucosal arteries, which reach mucosa obliquely without forming submucosal plexus¹¹. Womack in 1969 using celiac angiography verified that the submucosal plexus of the lesser curvature, pyloric region and proximal part of the duodenum is sparse, anastomoses

are longer and farther apart, mucosal arteries have origin frequently external to the muscularis propria making mucosal circulation precarious at times¹².

Voth (1962) initiated the concept of "Calibre persistent artery" to explain bleeding on the basis of the architecture of gastric vessels¹³. He reported that at times there is no reduction in the calibre of vessels as they penetrate gastric walls into the submucosa which is the upper limit of normal variation rather than a congenital abnormality and primary lesion is the superficial erosion at the place where an abnormally large artery runs through submucosa (*locus minoris resistentiae*). He was supported by Miko and Thomazy (1988), who reported that pathologic arteries were significantly larger than normal arteries at the level of muscularis mucosae rather than submucosal level.¹⁴ The mean diameter was 1.08 ± 0.39 mm for pathologic arteries, which was 1.02 ± 0.17 mm for normal submucosal arteries and 10 ± 0.01 mm for normal arteries at this level and these are accompanied by large veins leading to both arterial and venous rupture in 75% of cases. Fockens (1993), using endoscopic USG, reported that pathologic artery runs a course of 2-4 cm in submucosa before penetrating into muscularis mucosae¹⁵. They agreed that the vascular wall of pathologic artery has a normal structure with no histological evidence of aneurysm, arteriosclerosis or vasculitis and this condition is congenital rather acquired in origin^{9,14,15}.

The second characteristic component of DL is "Minute mucosal defects confined to the mucosa and submucosa". Surrounding mucosa is normal in appearance, although some authors have reported it to be infiltrated by inflammatory cells^{14,16}. Juler (1984) postulated that chronic gastritis predisposes the pathologic artery to subintimal fibrosis and vascular dysplasia leading to fibrin thrombosis, necrosis of the vascular wall, loss of elastic fibre adjacent to necrotic wall and thinning or loss of circular fibres of the artery, which eventually ruptures through overlying mucosa¹⁶. Miko and Thomazy, reported that this pathologic artery is fixed to the mucosa by a persistent musculoelastic mantle of Wanke rather than loose connective tissue which prevents mucosal movement during peristalsis, creating shear stress leading to the vulnerable mucosal spot. Pathologic artery pushes muscularis mucosae and mucosa towards the lumen which is prone to mechanical trauma, ischaemia and ulceration¹⁴. Various theories regarding the rupture are:-

- Exposure of pathologically artery to gastric

contents leading to chemical or mechanical erosion of the wall.^{6,17}

- Formation of arterial thrombus due to gastric wear and tear leading to necrosis of artery⁶
- Age related degeneration as the majority of these lesions are found in old patients with significant comorbidities. Degenerative changes of perivascular supporting tissue may precipitate rupture⁹. Vascular conditions causing GI haemorrhage like DL have been reported in Bahcet's syndrome, Takayasu arteritis, fibromuscular dysplasia of the celiac axis and polyarteritis nodosa^{17, 18}.

The most accepted theory for DL favours it to be a congenital anomaly as it has been reported in infants and paediatric age group also.^{9,10,19,20}

Site –

The Classical site for DL is proximal stomach, within 6 cm from the OG junction on the lesser curvature (39-82% cases)^{1, 2,15}. But these lesions are reported in other parts of the stomach,¹⁵ Oesophagus,²¹ Duodenum,^{17,22} Jejunum,^{23,24} Colon,²⁵ Rectum²⁶ and Anal Canal²⁷ as well as extra GI sites like Lip²⁸ and Bronchus²⁹. The second most common site reported is duodenal bulb (>50%)¹⁷. Colonic lesions are uncommon (right colon and rectum) and left side colon involvement is rare¹⁷. DL is reported in the afferent limb of a Billroth II reconstruction³⁰ and occurrence of two lesions at same site is also reported.^{31,33}

Patient Profile –

The age incidence ranges from neonates to 93 years, mostly in older age group of > 60 years with rare occurrence in paediatric age group¹⁷. DL is >2 times more common in males.^{1,2,33,34}

Although Dieulafoy reported his patients as healthy adults, recent data suggests significant co-morbidities in 28-90% of cases, these are Hypertension, ischaemic heart disease, Diabetes, Cerebral stroke, COPD, Cirrhosis, Ca oesophagus and stomach.^{2,35-37} Also reported are CRF(30%), history of GI Bleed, peptic ulcer or previous peptic ulcer surgery (11-53%) , use of NSAID, Warferin and Aspirin (32-51%) and Alcohol abuse (21-30%)^{2,31,33-35}. However the association between these conditions and DL bleeding couldn't be substantiated.^{1,16,35}

Clinical Presentation –

DL account for 0.3-9 % of all GI bleed cases but actual incidence may be higher due lack of recognition rather than true rarity.^{2,9,15,17}.It is being identified more frequently in recent years in cases of non variceal haemorrhage not due to gastro-duodenal ulcers³⁸.

Classically DL presents with catastrophic upper GI haemorrhage with haemetemeses alone (28%), haemetemeses and melena (51-68%) or melena alone (18%)^{1,17,39}. Lesions below the ligament of Treitz present with melena or haematochezia, while rectal and anal lesions present with massive per rectal bleeding^{9, 23, 27}. Hemodynamic instability is present in 53-79% of patients in the form of Hypotension, tachycardia, orthostatic changes with mean haemoglobin between 8.4-9.2 g/dl^{6,9}.

Uncommon presentations include repeated hemetemesis¹⁷, chronic GI Bleed⁹ and jejunal intususception⁴⁰. Bronchial DL present as frank copious haemoptysis²⁹.

Diagnosis –

Currently endoscopy is the procedure of choice both for diagnosis and management of all GI bleeds. This can identify DL in 49-92% patients^{2,3,16,33,35,39,41}. In non bleeding phase to detect lesion hiding between mucosal folds Fockens and Tygat recommended air insufflation for full distension of stomach⁴². During active bleeding phase, removal of clots by a large bore NG tube and irrigation with water has been recommended^{8,43}. A concomitant lesion like erosions, ulcers, varices, Mellory Weiss tear, diverticular disease or tumour may be held responsible if DL is very subtle.^{9,44} In lower GI bleed upper endoscopy should be done to rule out upper GI bleed. Then bowel wash with Polyethylene Glycol solution followed by enteroscopy and colonoscopy as required is recommended^{45, 46}. Intra-operative enteroscopy or laparoscopy assisted pan-enteroscopy are being reported as alternative methods for diagnosis and management^{47, 48}. Video Capsule Endoscopy (VCE) has been used successfully to identify bleeding DL in haemodynamically Unstable patients.⁴⁹ Endoscopic diagnostic criteria for DL, given by Dy⁴⁶ are:

a. Active arterial spurting or micropulsatile streaming from a small 3mm defect in the mucosa or through the normal surrounding mucosa.

b. Identification of a protruding vessel with or without active bleeding from a minute defect or normal mucosa.

c. A fresh densely adherent clot with a narrow point of attachment to a minute mucosal defect or normal appearing mucosa.

In patients where endoscopy fails to identify the lesion, Selective Mesenteric Angiography or Scintigraphy may help in localizing it⁹. In two serial reviews angiography localised the site of bleeding DL in 78-100% cases^{39,49,50,51}. Recently, EUS and Doppler visualization is used to find small vessel responsible for intermittent active bleeding.^{15,52-55}

Treatment –

Before the endoscopy era, surgery was the treatment of choice and prognosis was poor with mortality between 23% - 79%¹. Therapeutic endoscopic procedure gained wide acceptability following Pointers (1988) successful treatment in 18 out of 22 cases of DL, which was supported by successful permanent haemostasis in 90-95% patients with a rebleeding rate of 5-10% by other investigators^{2-3,7,31,35,39,46,56,57,58}. Endoscopic procedures brought down the mortality rate to 10%.

Endoscopic modalities –

Since late 1980s, successful management of DL has been reported with Injection Sclerotherapy, monopolar or bipolar electro coagulation, Heater Probe, Nd-YAG & Argon LASER photocoagulation, Endoscopic haemoclips and Band ligation. Each method has certain advantages and disadvantages and varying results have been reported.

1. Injection Sclerotherapy – The primary mechanism of action is tamponade resulting from volume effect e.g. Epinephrine⁵⁹ and normal saline. With the objective of obliterating the abnormal vessel, investigators used various sclerosing agents like Alcohol³¹, Sodium tetradecyl sulphate⁶⁰, Polidocanol⁹, Hypertonic glucose⁴⁴, ethanolamine oleate⁶¹ and Aethoxysklerol⁶² for peri-lesional as well as intra-lesional injections, these cause direct tissue injury and thrombosis. A separate class of injectable agents include thrombin, fibrin and Cyanoacrylate glue^{63,64}

The initial haemostasis rates reported are up to 95%, but reported rate of recurrent bleeding is upto 55%, which require repeated treatment or occasionally surgery¹⁷. Gastric perforation has also been reported^{2,65}. Epinephrine should not be used in volume >10ml as it may cause focal mucosal damage, inflammation with necrosis and perforation or vascular thrombosis⁹. Other sclerosing agents also cause mucosal or muscular necrosis, vascular

thrombosis or serositis.^{66,67}

2. Thermal Coagulation – Thermal methods involve local tamponade by mechanical pressure of probe tip on the bleeding site combined with heat or electric current to coagulate blood vessels (coaptive coagulation).^{9,61} Preferred methods are use of Bipolar Electro-coagulation or heater probe as they cause minimal tissue destruction and can be applied directly to large vessel⁹. Success rate achieved with thermal methods is 79-100%^{2,68}.

Argon plasma coagulation (APC) is a noncontact thermal method of haemostasis which uses argon gas to deliver plasma of evenly distributed thermal energy to a field of tissue adjacent to probe⁶⁹. The main advantage is safety due to reduced depth of penetration, so chances of excessive tissue damage and gastric perforation are minimal. It has been successfully used in management of DL⁷⁰ and other GI vascular lesions^{71,72}

3. Laser Photocoagulation – As in other GI lesion Nd-YAG laser has been employed in management of DL, with successful long term haemostasis^{73,74}.

4. Mechanical Methods – Endoscopic hemoclip placement (EHP) and endoscopic band ligation (EBL) are considered theoretically close to surgical ligation⁹. These mechanical endoscopic methods are more effective treatments than other injection or sclerotherapy^{75,76-79}.

EBL's is effective in DL with haemostasis achieved in the range of 75-100%^{36,38,80,81}. This was used successfully in DL of other sites also⁸⁰⁻⁸³. EBL might be better in patients with coagulation disorders³⁶. However, EBL entails risks of recurrent bleeding due to ulcer formation, perforation and technical difficulties.⁸⁴

Many reports have supported the use of EHP, with a reported success rate of initial haemostasis 69-91% with less re-bleeding 8.3% and permanent haemostasis in up to 100%^{34,35,85}

5. Combination Therapy – Several investigators achieved secure haemostasis with epinephrine injection followed by thermal probe coagulation by bipolar diathermy, heater probe and Laser photocoagulation with haemostasis rates up to 95%^{3,37,59}.

It seems the choice of endoscopic procedure depends on personal preference of investigators as well as availability of the particular modality. Endoscopic haemostasis can be considered successful if there is Endoscopic demonstration

of stoppage of blood spurting or capillary haemorrhage with clear endoscopic field or clinically there is no haematemesis or dark stool after treatment, blood pressure rises to a normal range and is stable and PR decreased with improved volume⁶². Initial haemostatic failure is defined as evidence of active bleeding on endoscopy, fresh episode of haematemesis, hematochezia hypovolemic shock (Systolic BP < 100mg, PR > 100/min within 12 hrs of initial procedure.

Short term recurrent bleeding within 1-4 days is reported in 6-28% of cases and results of combination therapy or mechanical therapy appear better than injection therapy^{9,17}. Trans-arterial embolization has also been suggested as a successful alternative, especially in high risk patients^{58, 86}.

Surgery

Despite high success rate reported by endoscopic modalities about 5% of DL patients require surgical Treatment due to failure of endoscopic modality or torrential haemorrhage^{2,9,39}. Tattooing the site of the lesion by India ink at the time of endoscopy helps the surgeon to promptly identify the lesion³. Wide gastrotomy for removal of clots and proper inspection of the gastric mucosa is recommended. Special attention should be given to region of cardia as it is the most common site for DL. Various procedures done are coagulation, suture ligation of the bleeding vessel, proximal gastric resection or wedge resection. Wide wedge resection of the area bearing is recommended as long tortuous course of the pathologic artery in submucosa renders suture over sewing inadequate and liable to rebleed.¹ For lesion of small bowel segmental resection is adequate.

If bleeding point is obscure mucosal surface can be gently wiped with dry gauze to remove adherent blood and this may precipitate brisk bleeding from DL⁸⁷. Careful palpation of the stomach wall between finger and thumb can sometimes help in identification of thickened blood vessel⁸⁸. Intraoperative enteroscopy will be helpful if the lesion is not found in the stomach and suspected in duodenum or further down in small bowel^{48,88}. Blind Billroth II resection or subtotal gastrectomy should not be done as a lesion may not be present in resected part and massive recurrent bleeding from remnant has been reported with poor outcome^{1,39}.

CONCLUSIONS

Since its description by G. Dieulafoy extensive studies on clinical and pathological characteristic of this lesion have made significant contribution in understanding this uncommon lesion. It is now being recognised as affecting all age groups and most patients have significant comorbidities. This makes accurate early diagnosis essential as multiple comorbid condition can lead to high mortality.

Endoscopic therapy has emerged as the mainstay in the management of DL as it is safe and long term results are excellent with low mortality (<10%). Mechanical therapies have been demonstrated to be more effective in controlling bleeding from the DL. Surgery is reserved as salvage therapy in approximately 5% of cases where repeated endoscopic procedures fail to achieve long term haemostasis. In patients with failed endoscopic procedures who are poor risk for surgery, angiographic embolization has been found to be successful. Currently, mortality associated with this lesion is more due to co-morbidities affecting the patients rather than the continued GI bleed from the lesion. We need to define criteria for selection of endoscopic modality according to the type and site of the lesion rather than a decision based on personal choice of attending physician.

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Impact of Chloroquine Withdrawal on Drug Resistance of Local *Plasmodium Falciparum* Malarial Parasites

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ABSTRACT

Objective: Withdrawal of Chloroquine (CQ) had shown a rapid reduction in the frequency of resistance in many countries. The present study was conducted using rapid detection technique to assess the reduction of CQR to determine its current status. The continuous monitoring of CQR will help to establish the point of reintroduction of the drug.

Method: A total of 104 blood samples were collected on Wattman filterpaper-III from the suspected malaria cases in Keonjhar district of Odisha. The PfCRT gene mutation was determined by nested Polymerase Chain Reaction (PCR) method.

Results: The result showed, *Plasmodium falciparum* (Pf) positivity of 48 (46.1%) by PCR assay. The PCR positives were processed for detection of PfCRT (K76T) mutation by nested PCR technique followed by digestion. The result revealed 58.3% of resistance of Pf strain.

Conclusion: The method used in the study will greatly help for screening of population in community based studies. Emergence of Chloroquine susceptibility in the country may give a scope for reusing chloroquine in treatment of Pf malaria.

Keywords- *Plasmodium falciparum* (Pf) Malaria, Chloroquine Resistance (CQR), PfCRT K76T.

INTRODUCTION

Malaria continues to be a leading killer of the world. CQ was the most important and successful drug used to treat Pf malaria during 1940s to 1990s worldwide (Wellems and Plowe, 2001⁴). CQR was first detected in early sixties (Eyles et al 1963¹⁶). Malaria parasites have developed resistance to every drug that has been introduced on a large scale, including CQ and sulfadoxine-pyrimethamine.

In India, CQR was first detected in Karbi-Anglong and Nowgong district of Assam in 1973 and 1974 respectively (Sehgal 1973⁶). (NVBDCP). By 2003, the PfCRT K76T mutation has been shown to be rampant (96-100%) in blood samples collected from patients infected with Pf,

especially in the northern and north-eastern parts of India (Vinayk et al, 2003⁵).

Based on the monitoring report, Directorate of NVBDCP, recommended the use of artemisinin combination therapy (ACT) as the first line of drug for the treatment of Pf malaria in the areas of chloroquine resistance. districts (NVBDCP, 2007⁹). including 24 districts of Odisha, a part of Peninsular India and with 3.7% of the country's population contributing 27% of all malaria cases, 40 % of Pf cases and 50% of malaria deaths in the country; while 60% of populations of Orissa are at the risk of infection (Tripathy et al, 2010⁷). Resistance of Pf to chloroquine in Orissa was first detected in 1977 in Bolangir, Koraput and Sambalpur district which has spread to 24 districts out of total 30 districts of Odisha (Ranjit, 2008⁸).

Withdrawal of CQ had shown a rapid reduction in the frequency of resistance. In 1993, Malawi became the first country in Africa to replace CQ with the combination of

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Sulfadoxine and pyrimethamine for treatment of malaria due to clinical in-efficacy of CQ in the population. However, CQ was again reported as an efficacious drug for malaria by 2001, almost 12 years after its withdrawal from use in Malawi. After that Kenya and Tanzania had also shown reduction in CQR after withdrawal from national treatment guidelines of Kenya and Tanzania (Frank et al, 2011¹⁵). So it is expected that within a period of 12 years after withdrawal sensitivity to CQ will be restored like it has happened in other countries (Laufer et al, 2010,¹⁰ Frank et al, 2011¹⁵). But there is a need of continued monitoring of the reduction in CQR in order to know when it can be reintroduced.

Many in-vivo studies have reported the CQR in the community and some reports indicated the resistance by using in-vitro biomarker. In vivo, therapeutic efficacy studies following the standard guideline follows a lengthy procedure with minimum 50 number of *Pf* mono-infection cases and which also requires a minimum period of more than one month. The PCR technique is being used to study the CQR which requires venous blood sample. But in a community-based study, IV blood sample collection is a difficult task. Thick blood smear (TBS) sample in a glass slide, though easy to collect, the DNA extraction from the dried TBS is a lengthy and tedious process that needs meticulous steps of DNA extraction for getting required quantity of DNA. Therefore there is a need to adopt easy blood sample collection method, transport technique and rapid molecular methods which will help to assess the reduction in CQR frequency.

The present study was conducted in Keonjhar district of Odisha which is highly endemic for malaria, with *Pf*% > 93%, Annual parasite incidence (API) >17, and 10% of deaths in the state (NVBDCP, 2010⁹). In the district chloroquine was withdrawn and ACT was implemented by the programme in the year 2008 NVBDCP. Prior to this, during 2008, CQ resistance of 78% was reported by Ranjit., (2008⁸), 87% (unpublished data) by in-vivo method by Kerketta., (2008-9¹⁷). Therefore, the present study was conducted using rapid detection technique to assess the reduction of CQR to establish the current status.

MATERIAL AND METHOD

a) Assessment of geographical situation and physical details of study area

Keonjhar district is located between latitude 20 ° -11' and 20 ° -10' N and longitude 85° 11' and 86 ° 22'

E, height from sea level: 500mtrs, forest coverage 34%, normal rainfall: 1534mm, humidity: 60-80, Temp: min 5.7 ° and max 44 ° C. (Directorate of statistics, Odisha). Harichandanpur PHC area of the district was selected based on high malaria prevalence (API: 35.3; NVBDCP, 2010⁹).

b) Sample collection

The blood samples were collected on Wattman filter paper-III from suspected malaria cases by finger prick method from study area through community based survey.

c) DNA extraction

DNA was isolated from filter paper blood following Tris-EDTA method (Berezy et al., 2005) with minor modifications. Tris-EDTA buffer, containing 10 mM Tris, pH 8.0 (Tris-base plus Tris-HCl and 0.2 mM EDTA in distilled water) was prepared and kept at room temperature. Each filter paper punch was placed in an Eppendorf (Banglogenei) tube, soaked in 65 microliter of TE buffer and incubated at 50°C for 15 minutes. The punches were then pressed gently at the bottom of the tube several times, using a new pipette tip for each punch and heated at 97°C for 15 minutes to elute the DNA. The liquid condensing on the lid and the wall of the tube were removed by a short centrifugation (2-3 seconds). The DNA extract was kept at 4°C for use within a few hours or stored at -20°C.

d) Polymerase chain reaction

The *Pf*CRT gene was analysed by nested PCR using the primers as described by Djimde et al., (2001³) 3d'W!X(Outer primers: 5'-CCG TTA ATA ATA AAT ACA CGC AC-3' and 5'-CCG ATG TTA CAA AAC TAT AGT TAC-3'; inner primers: 5'-TGT GCT CAT GTG TTT AAA CTT-3' and 5'-CAA AAC TAT AGT TAC CAA TTT TG-3'). The nested PCR product was then digested with restriction enzyme Apo I. The DNA fragments were resolved by electrophoresis in 2% agarose gel. For the *Pf*CRT -K76T mutation, Apo I cut the wild type but not the mutant gene into 34 and 100 bp fragments (this enzyme cuts the *Pf*CRT-K76 (wild type) but not the *Pf*CRT-T76 (resistant type).

RESULTS

A total of 104 samples were collected from suspected malaria cases. The result showed, *Pf* positivity of 48 (46.1%) by PCR assay. The PCR positives were processed for detection of *Pf*CRT (K76T) mutation by nested PCR technique followed by digestion. The result revealed

28(58.3%) of resistant *Pf* strain (Table-1).

Table-1. Total number of resistant *Pf* strains detected

No of samples processed	No of samples +ve for <i>Pf</i> (%)	No of samples showed Resistance from the +ve samples (%)
104	48 (46.15%)	28(58.3%)

DISCUSSION

In many malaria endemic regions, the therapeutic efficacy of CQ was reported to be decreased considerably. That led to switching over of the first line antimalarial drug CQ to artemisinin-based combination therapy (Olusola et al, 2007¹⁴). Constant observation of the existing parasite population concerning their genetic make-up determining the resistance to CQ became even more important. Many studies have reported reversal of CQ sensitivity after its withdrawal (Olusola et al, 2007¹⁴). Recently Laufer et al, demonstrated the return of chloroquine-susceptible malaria in Malawi after withdrawal of chloroquine (Laufer et al, 2010¹⁰). A modest increase in chloroquine-susceptible malaria had been documented in China following restricted use of chloroquine (Wang et al, 2005¹¹). In a recent multinational survey, sub-Saharan African countries were found to have maintained parasite diversity with respect to PfCRT where susceptible parasites are still present in the population, although they are in the minority (Picot et al, 2009¹²)

However, complex evolutionary models can be influenced by both demography and natural selection or an alternative model of natural selection. This has already been observed by Chauhan et al, (2013¹⁹), who observed microsatellite variation in-and-around the PfCRT gene in Indian *P. falciparum*. Based on the distribution of the four haplotypes (SagtVMNT, CVIET, CVMNT and CVIDT), the two following routes of possible migration of *Pfcr*t haplotypes (SVMNT and CVIET) into India have been hypothesized: where it has been cited that it has reached India via Odisha (Awasthi and Das, 2013¹⁸).

In the present study we found that the percentage of prevalence of CQR in Keonjhar district of Odisha is 58.3%. However, during 2008 the prevalence of CQR in the same area was 78% (Ranjit et al., 2008) and 87% by in-vivo study (Kerketta, 2008-9¹⁷). This shows a decline of 19.7% and 28.7% in CQR prevalence.

Therefore, we anticipate with successful implementation of artemisinin-based combination therapies the chloroquine-susceptible malaria will return back in the country like the trend that has been documented in Kenya (Mwai et al, 2009¹³).

Information on proportion of CQ sensitive strains is a means to evaluate an area for required drug regimen. The present study demonstrated an easy method for large quantity of sample collection and detection of CQ resistant strain at a single point of time. The application of the technique will help in getting information on the reversal of resistance strain or reduction of chloroquine-resistance strains of *Pf* in an area at the earliest. The method is easy, feasible and cost effective, less laborious and target specific. The finger prick blood sample collection in the filter paper can be undertaken by the grass root level health providers during their routine surveillance activity and can be sent to central laboratory for further test.

In this context, the present study will be of great help for screening of population transmitting the drug-resistant parasite in the malaria endemic zones. This will be further informative for deciding efficacious drug in the area for treatment of *Pf* malaria. Emergence of Chloroquine susceptibility in the state may give a scope for reusing, the chloroquine in treatment of *Pf* malaria.

CONCLUSION

The method used in the study will greatly help for screening of population in community based studies. Emergence of Chloroquine susceptibility in the country may give a scope for reusing chloroquine in treatment of *Pf* malaria.

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Utility of Geriatric Depression Scale-15 for Assessment of Depression among Elderly: A Cross Sectional Study

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ABSTRACT

Introduction: Depression in elderly is often overlooked as a clinical diagnosis, since it is assumed to be a normal response to ageing. In India, its prevalence ranges from 11 to 32% and is found to be significantly higher than the rest of the world. Earlier recognition of depression and its risk factors can reduce the morbidity and improve the quality of life. Hence this study was undertaken to assess the utility of Geriatric Depression Scale-15 to detect depression and its associated risk factors among elderly.

Method: A cross sectional study, conducted from January to December 2014 among 850 adults aged 60 years and above residing in Ashok Nagar area, Belagavi. Data was collected by house to house visit using a predesigned questionnaire, which included socio-demographic details and Geriatric Depression Scale-15 (GDS- Short Form).

Results: The prevalence of depression using Geriatric Depression Scale-15 was found to be 36.7%, with a higher preponderance in women than men (40.8% vs 32.3%). Advancing age, disrupted marital status, lower socio economic status and sedentary lifestyle were significantly associated with depression ($p < 0.05$).

Conclusion: Our study demonstrated a significant higher prevalence of depression and identified its risk factors in urban population of South India. Steps needs to be taken at the earliest to reduce the suffering and improve the quality of life among elderly.

Keywords: Geriatric Depression Scale, Depression, Risk factors, Elderly.

INTRODUCTION

Ageing is a universal phenomenon. It is a series of processes which begins with life and continue throughout the life cycle, ending with death. India's current population is 1.15 billion out of which 7.2% population is 60 years and above. It is expected to reach 12.6% by the year 2025¹. The Indian aged population is currently the second largest in the world². As the health care facilities improves, the life expectancy after birth and the proportion of the elderly in the population increases.

The elderly in India face a multitude of psychological, social and physical health problems. Quality of life is severely compromised in old age. It has been documented that elderly are more prone to psychological problems and depression being the commonest geriatric psychiatric disorder³. Depression is a common mental disorder, characterized by sadness, loss of interest or pleasure,

feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness and poor concentration². Many studies conducted in India have estimated the prevalence of depression among elderly in community samples to vary from 11-32%⁴. Depression is found to be the 3rd leading contributor to global burden of disease (DALY-Disability Adjusted Life Years) in 2004. By the year 2020, it may increase to 5.7% of total burden and occupy 2nd place⁵.

Depression in elderly is often overlooked as a clinical diagnosis, since it is assumed to be a normal response to ageing. Older adults may be reluctant to seek services for depression because of mental illness stigma. They may also fear loss of financial security and independence, embarrassment, isolation, or being declared incompetent. Thereby resulting in under diagnosis. Based on these observations, the objectives of our study was to determine

the prevalence of depression using reliable scale and also find the associated risk factors of depression among elderly.

Scales such as Geriatric Depression Scale (GDS), Hamilton Rating Scale for Depression and Beck Depression Inventory have been used to assess depression in several clinical settings but few have been evaluated for community settings⁶. In the present study, Geriatric Depression Scale (GDS-15) was used to know the prevalence of depression among elderly residing in an urban community.

METHODOLOGY

Study design:

A community based cross sectional study was conducted in Ashok Nagar, Belagavi from 1st January to 31st December 2014.

Sample size:

The sample size was estimated using the formula $n = 4pq/d^2$. The prevalence of depression, "p" among elderly persons was taken from reference study as 32%⁷. "d", which is the permissible error in the estimate of p was set at 10%. Using the above mentioned statistical formula which considers 95% confidence limits, the sample size was estimated to be 850.

Method of collection of data:

A house to house survey was conducted and a systematic random sampling procedure was applied to achieve the required sample size. Data was collected from persons after confirming the age to be 60 years and above by checking documents like Ration card/Aadhar card/Voter Id, etc. and after obtaining a written consent. Personal interview at the study participant's residence were conducted by using a pre-designed pre-tested questionnaire which included Socio-demographic questionnaire and Geriatric Depression Scale-15 questionnaire (GDS- Short Form). GDS-15 consists of 15 questions with a maximum score of 15. Those who scored 6 and more were considered as depressed. Information regarding marital status, socio-economic status (SES, Modified B.G Prasad Classification 2014), were also collected. The study was approved and ethical clearance was obtained from Institutional Ethics Committee, JNMC. A pilot study was conducted on 5% of sample size and necessary changes in the proforma were done.

Inclusion and Exclusion Criteria:

All persons aged ≥ 60 years who were permanent residents of the study area (residing for one year or more) willing to participate on a voluntary basis were included. Persons who were deaf, dumb or with severe illness who were unable to respond to questionnaire were excluded.

Statistical analysis:

Categorical outcomes were summarized by rates (%) and numerical outcomes were summarized by Mean + SD. To test the association between prevalence of depression and selected socio-demographic variables, Chi square test was used. Significance level of the test was kept at p value < 0.05 . SPSS (Statistical Package for Social Sciences) version 21.0 was used for analysis.

RESULTS

In our study, 65.9% were in 60 – 69 years age group, 27.6% were in 70 – 79 years age group and 6.5% were 80 years and above. The mean age \pm SD of the study participants was 68.1 ± 6.37 years. Females were 51.9% and males were 48.1%. (Table 1)

Majority, 60.1% were Hindus by religion followed by 34.6% Muslims and 5.3% were Christians, reflecting the population distribution of the study area (Table 2).

As regards to socio-economic status, majority of them, 435 (51.2%) belonged to class III, followed by 192 (22.6%) to class IV, 159 (18.7%) to class II, 33 (3.9%) to class I and 31 (3.6%) belonged to class V.

Most of the elderly i.e., 632 (74.4%) were married and living with their spouse and 20.5% were widowed, 35 (4.1%) participants were unmarried and 9 (1.1%) were divorced.

In the present study, the overall prevalence of depression (GDS score > 5) in the study participants was found to be **312 (36.7%)**, out of which, 256 (30.1%) scored between 6 to 10 suggestive of depression and 56 (6.6%) scored 11 to 15 implying definite depression. Around 538 (63.3%) elderly had no depression (score 0 to 5). The mean GDS score was 4.47 ± 3.48 (range, 1-15). (Table 3)

The percentage of depression was highest in the study participants who were aged > 80 years (89.1%), followed by 57.9% in 70-79 years age group and 22.7% in 60-69 years age group. As the age increased, the prevalence of

depression also increased and this trend was statistically significant ($\chi^2_{trend} = 157.341$ $p < 0.001$). (Graph 1)

The percentage of depression was more in women (40.8%) than in men (32.3%). This difference was found to be statistically significant ($p = 0.010$). (Table 4).

The prevalence of depression was maximum among unmarried (65.7%), followed by widowed (58%) and divorced (33.3%). In married participants the prevalence was comparatively lower (29.3%). The association between marital status of study participants

and depression was statistically significant ($p < 0.001$). (Table 5)

In our study, major percentage of depression was found among class IV i.e., 62.5% followed by 35.5% in class V and 33.3% in class III. Depression among class I was 30.3% and in class II was 16.4%. (Table 6)

The prevalence of depression among sedentary elderly was 43%. Among elderly with mild, moderate & vigorous physical activity the prevalence of depression was 30.5%, 40.9% and 35.3% respectively. (Table 7)

Table 1: Age and Sex wise distribution of study participants (N=850)

Age (in years)	Male		Female		Total	
	no.	%	no.	%	no.	%
60 – 69	289	70.7	271	61.5	560	65.9
70 – 79	93	22.7	142	32.2	235	27.6
≥80	27	6.6	28	6.3	55	6.5
Total	409	48.1	441	51.9	850	100

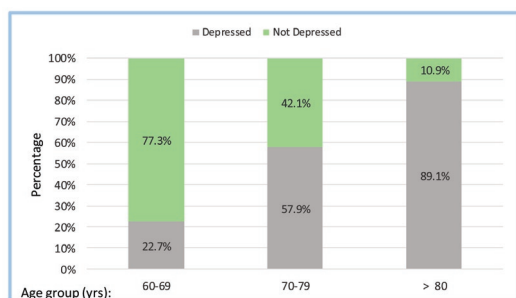
$\chi^2 = 9.632$ $df = 2$ $p = 0.008$

Table 2: Distribution of study participants according to religion

Religion	Number	Percentage
Hindu	511	60.1
Muslim	294	34.6
Christian	45	5.3
Total	850	100

Table 3: Distribution of study participants according to GDS score¹¹

GDS Score	Interpretation	Number	Percentage
0-5	No depression	538	63.3
6-10	Suggestive of depression	256	30.1
11-15	Always indicative of depression	56	6.6
Total		850	100



Graph 1: Association between age and depression

Table 4: Association between gender and depression

Gender	Depressed		Not Depressed		Total
	no.	%	no.	%	
Male	132	32.3	277	67.7	409
Female	180	40.8	261	59.2	441

$\chi^2 = 6.665$ $df = 1$ $p = 0.010$

Table 5: Association between marital status and depression

Marital status	Depressed		Not Depressed		Total
	no.	%	no.	%	no.
Unmarried	23	65.7	12	35.3	35
Married	185	29.3	447	70.7	632
Widowed	101	58.0	73	42.0	174
Divorced	3	3.3	6	66.7	9
$\chi^2 = 61.861$ $df= 3$ $p<0.001$					

Table 6: Association between socio-economic status and depression

Socio-economic status	Depressed		Not Depressed		Total
	no.	%	no.	%	no.
Class I	10	30.3	23	69.7	33
Class II	26	16.4	133	83.6	159
Class III	145	33.3	290	66.7	435
Class IV	120	62.5	72	37.5	192
Class V	11	35.5	20	64.5	31
$\chi^2 = 86.069$ $df= 4$ $p<0.001$					

Table 7: Association between physical activity and depression (N=850)

Physical activity	Depressed		Not Depressed		Total
	no.	%	no.	%	no.
Sedentary	96	43.0	127	57.0	223
Mild	105	30.5	239	69.5	344
Moderate	81	40.9	117	59.1	198
Vigorous	30	35.3	55	64.7	85
$\chi^2 = 11.101$ $df= 3$ $p=0.011$					

DISCUSSION

Depression was found to increase with advancing age mostly affecting elderly with lower socio-economic status. The percentage of depression was slightly more in women (40.8%) than in men (32.3%). The increased risk in women could be due to increased sedentary habits and genetic propensity for depression. Elderly with sedentary lifestyle were found more depressed ($p<0.05$). Disrupted marital status such as widowed, divorced or unmarried status were associated with depression. Living with spouse, being physically active were found to be protective against depression which was similar to the findings suggested by the studies done in Pakistan⁸, Brazil⁹, and California¹⁰.

Limitation to our study was that the data may be extrapolated to urban India but may not be applicable to rural India as lifestyle and socio-cultural factors vary

widely in urban and rural areas. We would recommend periodic screening of people aged 60 years and above for depression using reliable scales, such as GDS-15, for early intervention. Preferably to be performed at first visit to outpatient department at all health centres and followed up yearly, thereafter.

CONCLUSION

This study found GDS-15 to be a very useful and easy to administer tool for detection of depression among elderly in community settings. Our study reported a higher prevalence of depression among elderly residing in urban area of South India. The magnitude of the problem of depression was **36.7%** in our study area which was slightly higher compared to the national study data (11-32%).⁷ Steps needs to be taken at the earliest to reduce the suffering and improve the quality of life among elderly.

Abbreviations used: GDS- Geriatric Depression Scale; SD- Standard Deviation; χ^2 - Chi Square test; df-degree of freedom

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Investigation of the Relationship between Ethical Climate and Job Involvement among the Nurses Working in Educational Hospitals of Sari in 2016

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ABSTRACT

Introduction: The staff who have safe work environment, do their best to make their work environment better and more efficient. These staff act more successful and most probably have high job involvement. The aim of this study was to investigate the relationship between ethical climate and job involvement among the nurses working in educational hospitals of Sari.

Implementation method: This study is a descriptive-analytical one which was conducted on 151 nurses of educational hospitals of Sari in 2016. For data collection a three-part questionnaire was used, the first part of which was related to demographic features. The second part was a Kanungu standard job involvement questionnaire while the third part was related to the Olson's ethical climate questionnaire. Finally the collected data were analyzed by SPSS19 software using t-test statistical tests and variance analysis.

Findings: The participants of this study were the nurses working in educational hospitals of Sari whose average age was 31.56 ± 5.63 , 91 individuals were female and 96 of them were passed the ethics courses. The relationship between the gender and ethical climate was not significant while its relationship with job involvement was significant. Also the relationship of age and ethics course passing was not significant with ethical climate and job involvement. The ethical climate mean score was 93.72 ± 13.41 while job involvement's was 29.51 ± 6.35 and their relationship was significant.

Conclusion: The results indicated that although the staff had a good perception of ethical climate but they had low job involvement and the relationship between ethical climate and job involvement was significant.

Keywords: *Ethical Climate, Job Involvement, Nurses, Sari*

INTRODUCTION

The nurses have wide and numerous roles as well as the most contact with the patients ^[1]. Ethical action is one of the nurses' personal and professional

values ^[2]. From the Olson point of view, hospital work environment, as one of the areas affecting the ethical climate ^[3], strongly affects the health care personnel's ethical values emergence and can support or prevent the ethical behavior. The nurses who are supported due to following the professional standards, are more likely to use these standards and modify or improve the unethical behaviors that are contrary to the accepted standards ^[4]. Inappropriate ethical climate and ethical conflicts in hospital not only reduces the care quality in nursing profession ^[5], but also can leads to job stress and dissatisfaction among the nurses and finally their

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resignation^[6]. In treatment environments, ethical climate is formed by interpersonal communication of medical staff, convenient communication in patient's care, medical team supports and their communication with the patients and their families^[7]. Hart's study represented that negative ethical climate is related to the nurses' decision to turnover^[8, 9]. A weak ethical climate in hospital can lead to unethical behavior among the staff while this will cause serious and dangerous consequences. Although other variables can be affected by inappropriate ethical climate too^[2]. Other evidences also confirm the impact of ethical climate on satisfaction and job involvement^[10, 11].

High job involvement is a desirable feature. The people who have high job involvement are satisfied with their jobs, show a positive spirit in work and express a high commitment to their colleagues and organization^[12]. These people rarely think about resignation and are expected to work many years for their organization. Job involvement has a positive relationship with the variables such as organizational commitment, organizational citizenship behavior (OCB), motivation and performance while it has negative relationship with the absence and turnover^[13]. Nowadays, by increasing and becoming more complex of global competition, the need for flexibility and variability in organizations is revealed more than ever before. Today, organizations are looking for the ways through which make the staff to have more effort and work or in other words they want to make their staff more involved in their works. Work involvement is a concept which has recently entered to the organizational issues and has emerged less than two decades. Work involved staff are usually energetic and active, positively involve with their work and do their best to accomplish their tasks effectively^[14].

Kraug knows the staff job involvement as their ability to apperceive the work process (physical, emotional and cognitive) and interpret it as a motivation factor. These positive effects leads to more efficiency of work plans, and finally business output^[15]. There has paid less attention to this concept in service sectors and especially hospitals. Considering the above mentioned items and also the importance of hospital environment for the society and including various specialties of human resources, investigation of the relationship between its staff job involvement and ethical climate seemed inevitable. Therefore this study was conducted with the aim of investigating the relationship between ethical climate and job involvement among the nurses working

in educational hospitals of Sari.

MATERIAL & METHOD

This descriptive-analytical study was conducted in educational hospitals of Sari in 2016. The population of this study consists of 151 randomly selected nurses. A three-part questionnaire was used in order to data collection. The first part was related to the demographic features (age, gender, ethics course passing, marital status, work experience) while the second part was related to the Kanungu's job involvement questionnaire. This questionnaire contains 10 questions all of which are in the form of 5-item Likert scale and the grades 1 to 5 are considered as strongly disagree, disagree, no comment, agree and strongly agree, respectively. Therefore, the minimum score for each individual was 10 and the maximum score was 50. Scores equals or higher than 30 indicate high involvement and scores below 30 indicate low involvement. The reliability of questionnaire was obtained 0.79 in the population of nurses^[16]. The validity of the questionnaire was also approved by Salim, et al. in 2013^[17]. The third part of the questionnaire was related to ethical climate using Olson's questionnaire which was developed by Olson in 1998 containing 26 items in 5 areas of colleagues (4 items), doctors (6 items), hospital (6 items), patients (4 items) and managers (6 items). The participants' perceptions of ethical climate in hospital were measured by Likert scale in five levels (almost never=1/ rarely=2/ sometimes=3/ often=4/ almost always=5). Therefore, the minimum total score for each participant was 26 while that of maximum was 130. Scores equal to or higher than 78 was considered as positive ethical climate while scores lower than 78 as negative one. The questionnaire was translated to Persian by Mobasher, et al. in 2003 and its reliability was 0.92^[18]. Finally, after collection, data were analyzed by SPSS 19 software t-test statistical tests and variance analysis.

FINDINGS

The average age of the participants of this study was 31.56 ± 5.63 while 91 (60.3 %) of them were female. 65 individuals (43.0 %) had work experience of 1-5, 45 (29.8 %) of them 5-10 and 41 (27.2%) of them had more than 10 years. Also 96 (63.6 %) had passed the ethics course. The relationship between the gender and ethical climate was not significant ($P=0.864$) while its relationship with job involvement was significant ($p=0.013$). The difference of the ethical climate and job involvement mean score

between two genders was negligible. The relationship of age and ethics course passing was not significant with ethical climate and job involvement ($P > 0.05$). Ethical climate mean score was 93.72 ± 13.41 and that of job involvement was 29.51 ± 6.35 and their relationship was significant ($P = 0.001$).

DISCUSSION

The results of this study indicated that the relationship between ethical climate and job involvement was significant in consistence of Miandoab's study which was conducted in Zahedn^[9] and the study by Ebrahimi and colleagues which was conducted in Moaleman of Delijan city there were not significant relationships between ethical climate and job involvement. The most realistic view among all points of view, knows the job involvement as a function of personality and organizational climate^[13, 20]. Gonzales and colleagues admit that the staff who have safe work environment, do their best to make their work place better and more efficient^[21]. These staff are more satisfied with their jobs, act more successful and have high job involvement despite the job involvement is also related to many other factors. Anyway, the hospitals should encourage the staff to do their tasks better, raise their duty commitment, increase the members' empathy and integrity and finally create a fresh and safe environment for their staff by providing a climate with high organizational ethic safety. Therefore, due to satisfaction of their social needs and desirable duty accomplishment, not only they are satisfied with their work but also can deal with psychological and stressful factors of their work and manage them very well which leads to staff job involvement increase. Of course the difference in the results of these studies may be due to the different psychological conditions of the participants in different days because the staff who are completely involved with their works, depending on the amount of their job resources in a particular day, their job involvement may increase or decrease^[22-24]. The employees with high job involvement have sustainable work readiness, control and choosing right in work, sufficient knowledge and reward for work, the sense of community in work environment, fair management and sense of work meaningful. Unlike the staff with occupational disability experience, they have excessive workload, lack of job control, inadequate compensation, and lack of justice, and also have conflict of values between themselves and their organizations^[25-30].

None of the variables had a significant relationship with ethical climate in this study. Also in another study which was conducted on 374 nurses in British Columbia about the ethical climate, it was represented that none of the surveying demographic variables had a significant relationship with the nurses' attitude of ethical climate^[31]. In association with the job involvement also the only variable which had a significant relationship was gender. Miandoab, et al. in their study which was conducted in Zahedan, declared that perhaps one of the reasons of this matter is due to more occupation of the men, employing them in higher job titles and difference in their work conditions which leads to their dependence or independence on their job in proportion to their commitment and responsibility^[9].

Finally it should be mentioned that since favorable ethical climate strongly affects the nurses' performance, any factor which disrupt the nurses' calmness during their work would lower their proper performance and have dissatisfaction of patients and their companions with the care services. So coherent planning on each of the areas affecting the development of ethical climate seems to be done. It is important for the managers to be aware that nurses' favorable ethical climate encourages them to the organization. Therefore it can be declared that managers play an important role in favorable ethical climate creation. On the other hand many studies represent lack of proper attitude for the nurses against the doctors so it seems necessary to pay more attention to improve the relationship between the nurses and doctors. The difference between the results of this study and other ones can be due to sharp distinction in culture and management policies across the country, but more researches are needed in this field yet^[32].

CONCLUSION

The results of this study can be helpful in efficiency of patient, organization and personnel. The findings of this study represented that although the personnel had well perception of ethical climate, but they had low job involvement and the relationship between the ethical climate and job involvement was significant. Of course the difference between the results of this study and other ones demonstrate the need of more researches in this field.

This article was extract from a student research project and got the approval of ethical committee of the

Zahedan University of Medical Sciences.

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Role of VEPs in Early Diagnosis of Central Neuropathy in Type 2 Diabetes Mellitus

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ABSTRACT

Aims:

1. To compare the Pattern Reversal Visual Evoked Potentials(PRVEPs) of subjects of Type 2 Diabetes mellitus (Type 2 DM) of varying duration, with age and sex matched healthy controls .
2. To document that central neuropathy changes occur earlier than clinically evident retinopathy changes, in subjects having Type 2 DM.

Materials and Method: A cross sectional study was done on three study groups selected basing on the inclusion and exclusion criteria. PRVEPs were performed using Viking Select neuro-diagnostic system [Viasys Healthcare, USA].

Group 1 → 30 age and sex matched healthy individuals as controls.

Group 2 → 30 subjects having Type-2 DM with a duration of <5 years.

Group 3 → 30 subjects having Type-2 DM with a duration of 5-10 years.

Data was analyzed and processed using EPI INFO statistical software using Unpaired student t- test (two-tailed). The level of significance was taken as $p < 0.05$.

Results - P100 latencies were delayed in subjects with type 2 DM when compared to the controls and the delay was statistically significant. P100 latencies were found to be delayed in some subjects of type 2 DM, even with normal funduscopy findings.

Conclusions - Therefore we conclude that clinically evident retinal vascular disease in subjects with type 2 diabetes mellitus may be preceded by an increase in visual evoked potential latency in electro physiologic testing.

Keywords- Type 2 Dm, Prveps, P100, Central Neuropathy.

INTRODUCTION

Type-2 diabetes mellitus (DM) is considered as a silent epidemic and is posing an important problem to the health care providers world wide primarily because of the increase in the prevalence of sedentary life styles and obesity .^[1] Chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction and the failure of various organs, especially the eyes, kidneys, nerves, the heart and the blood vessels.^[2] Diabetic neuropathy is one of the most common causes of neuropathy worldwide. It can affect either the peripheral or central nervous system. Though most of the clinical manifestations of peripheral neuropathy were identified during the second half of the nineteenth century, our understanding of the pathophysiology of central

nervous system (CNS) abnormalities in type 2 diabetes mellitus is very little till date.

Retinopathy which is a common complication of diabetes and the principal cause of blindness in the adult population^[3] was usually considered a disease of retinal blood vessels. But it is now considered in a wider sense, as a neurosensory disorder.

This modern school of thought is an extension of concept of 'diabetic encephalopathy introduced in a case report in 1950 by De Jong.^[4]

In the last two decades, the advent of newer neurophysiological techniques to assess retinal and cerebral function, such as electroretinography and the measurement

of brain electrical-evoked potentials,(VEPs) has increased our understanding of normal visual function and the possible effects that type 2 diabetes mellitus may exert. In addition, the development of neuroimaging techniques, including magnetic resonance imaging, has provided evidence for structural changes in the brain associated with diabetes, suggesting that the central nervous system is affected as one of the long-term complications of diabetes.^[5,6]

As almost 75% of all people with diabetes will develop retinopathy of some form ^[7], the need for a regular eye examination is a fundamental part of the routine care of all diabetic patients.

The Pattern Reversal Visual Evoked potentials (PRVEPs) P100 assesses the visual pathway from retina to visual cortex and, as such, provides important information about neural pathways within the brain.

This study is aimed at early diagnosis of the central neuropathy in type 2diabetic subjects with regard to the visual pathway and to document that central neuropathy changes occur earlier than clinically evident retinopathy changes, in subjects having Type 2 DM, by correlating P100 latencies of PRVEPs with funduscopy changes.

MATERIALS AND METHOD

2.1 Subjects and type of study

A cross-sectional study was conducted after obtaining written consent from all subjects. The study was done at Electrophysiology laboratory, Department of Physiology, Osmania Medical College, Koti, Hyderabad, Andhra Pradesh, India, by using the Nicolet Viking Select neuro-diagnostic system version 10.0. [Viasys Healthcare, USA].

Two groups (30 subjects each) of type-2 DM with different durations of disease and 30 age and sex matched healthy controls were taken. All the cases of DM were taken from the endocrinology department of Osmania general hospital, Hyderabad and the controls were taken from the general population.

The groups were divided as:

Group 1 → 30 controls, age and sex matched healthy individuals.

Group 2 → 30 subjects of type-2 DM with a duration of <5 years.

Group 3 → 30 subjects of type-2 DM with a duration of 5-10 years.

2.2 Exclusion criteria

Persons with documented fundoscopic changes of diabetic retinopathy, persons with any disorder effecting the visual pathway viz., optic neuritis, hypertension, alcoholism, heavy smoking, persons addicted to tobacco in any form, and persons with any eye condition grossly effecting vision like cataract were excluded from the study.

2.2. Plasma glucose

Plasma glucose levels were assessed through use of the glucoseoxidase method. Fasting plasma glucose level of ≤ 100 mg/dL without history of diabetes mellitus was the inclusion criteria for controls.

2.3. Blood pressure (BP)

A sphygmomanometer was used to measure arterial blood pressure. BP was recorded on the left arm of the subjects in sitting posture. Systolic BP of ≤ 140 mm Hg and diastolic BP of 90 mm Hg without the history of hypertension were labeled as normotensives.

2.4. Recording Technique

PRVEPS were recorded using 1 channel recording having 2 electrodes, placed according to International 10/20 system (EEG) after performing the ophthalmological examination.

A VEP monitor displaying checker board was used to give the pattern reversal stimulus. The frequency of the pattern reversal stimulus was set at 1.1 Hz The subject was asked to sit comfortably in front of the checkerboard pattern at an eye screen distance of 100cm. An amplification which ranged between 20,000 and 1, 00,000 was used to record the VEPs. The electrode impedance was kept below 5K Ω by rubbing the areas of scalp where the electrodes are to be placed with NUPREP skin preparation gel.

The recordings were performed in a dark and sound attenuated room. Unocular stimulation was given to both the eyes separately with a light-tight opaque patch placed over the unstimulated eye as the subject was asked to fix his vision at a point in the center of the pattern field. The test was run for two sets to ensure the reproducibility of signals and the responses averaged over 100 sweeps in each set.

The usual glasses (if any) were allowed to be put on during the test. The subject was instructed to avoid the usage of meiotic or mydriatics drugs, 12 hours before the test.

VEPs consist of a series of waveforms of opposite polarity, a negative waveform (denoted as N) and a positive waveform (denoted as P)

Waveforms (The NPN complex)

- The initial negative peak (N1 or N75)
- A large positive peak (P1 or P100)
- Negative peak (N2 or N145)

The parameters which were recorded were- the latencies of the waves N75, P100 and N145 (in milliseconds) and the peak to peak amplitudes of the waves N75-P100 and P100-N145 (in microvolts)

2.5 Data and Statistical analysis

TABLE: 1 - Demographic and clinical data of the participants

NUMBERS REPRESENT MEAN ± STANDARD DEVIATION

Parameters	Group1	Group 2	Group 3
Age (years)	52±3	53±2	53±5
Duration of diabetes(yrs)	-	3±2	9±4
Fasting plasma glucose (mg/dl)	89±8	150±48	159±53
PRVEP Latency in (ms) for left eye			
N75	65.12± 3.89	66.83±1.67	66.89±3.56
P100	94.56±2.34	95.62±1.32	96.05±2.38
N145	128.26±3.82	134.59±2.65	134.52±2.86
PRVEP Amplitude in (μV) for left eye			
N75-P100	9.12±2.23	8.56±2.54	8.89±1.34
P100-N145	8.82±2.76	7.89±3.65	7.12±2.64
PRVEP Latency in (ms) for right eye			
N75	65.65±3.42	67.28±1.80	68.12±1.23
P100	95.45±1.63	96.02±2.14	97.12±2.12
N145	131.2±2.34	134.83±3.98	135.24±2.62
PRVEP Amplitude in (μV) for right eye			
N75-P100	9.12±2.23	8.56±2.54	8.32±2.87
P100-N145	8.82±2.76	7.89±3.65	7.07±1.78

TABLE- 2 p –value (Intergroup comparison of left eye PRVEP parameters)

NS- NON SIGNIFICANT; S- SIGNIFICANT; HS- HIGHLY SIGNIFICANT

	Group1 vs Group2	Group2vs Group3	Group3vs Group1
LATENCIES			
N75	0.0104 S	0.9337 NS	0.071 NS
P100	0.0348 S	0.3904 NS	0.0175 S
N145	<0.0001HS	0.922 NS	<0.0001 HS
AMPLITUDES			
N75-P100	0.3560 NS	0.8590 NS	0.3986 NS
P100-N145	0.1 NS	0.1666 NS	0.0096 S

TABLE -3 p –value (Intergroup comparison of right eye PRVEP parameters)

NS- NON SIGNIFICANT; S- SIGNIFICANT; HS- HIGHLY SIGNIFICANT

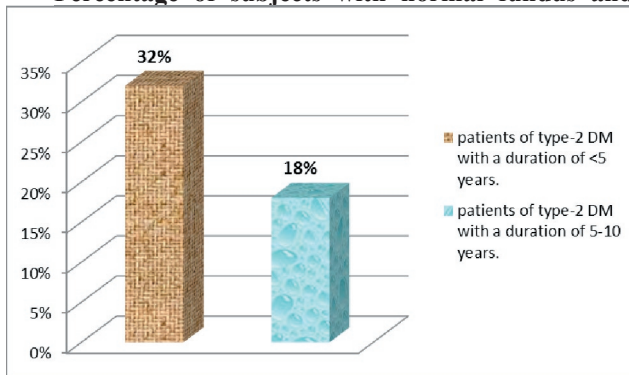
	Group1 vs Group2	Group2vs Group3	Group3vs Group1
LATENCIES			
N75	0.0245 S	0.0391 S	0.0004HS
P100	0.023S	0.0502 S	0.0012S
N145	0.0028 S	0.6392NS	<0.0001HS
AMPLITUDES			
N75-P100	0.3679 NS	0.7238 NS	0.2329 NS
P100-N145	0.1 NS	0.1666 NS	0.0096 NS

Group 2 → patients of type-2 DM with a duration of <5 years.

Group 3 → patients of type-2 DM with a duration of 5-10 years.

FIG-1

Percentage of subjects with normal fundus and



prolonged latency in the diabetic groups (group 2 and group3)

RESULTS

The mean value ± standard deviations of the PRVEP parameters of the left and right eyes in the control group as well as in the diabetic subjects of variable duration (group 2, 3), are shown in [Table-1].

On statistically analyzing the mean values of theVEP parameters and focusing on the p100 values results obtained are as follows-

1. The mean value of P100 latency was increased in all diabetic groups as compared to that in the healthy subjects. (Table-1)
2. The intergroup comparison of p100 values showed that the p-value was statistically significant in group3 vs group 1 and group 1 vs group 2, but not statistically significant in group 2 vs group 3 for the left eye (Table-2) whereas p-value of group 2 vs group 3 was also significant along with p-values of group 1 vs group2 and group 3 vs group1 for the right eye parameters. (Table- 3)

3. Significant percentage of subjects of type 2 DM with normal fundoscopic findings were found to have a prolonged p100 latencies.viz.32% in group2 and 18% in group3. (Fig-1)

DISCUSSION

Recording visual evoked potentials in response to pattern reversal stimuli is a very sensitive test for detecting any abnormality of anterior visual pathways. The visual neurons respond selectively to visual patterns of progressively greater complexities [8].

The present study focuses more on the correlation of P100 latency values among the different study groups since P100 is a prominent peak that shows reliability and reproducibility. It is generated in the striate and peristriateoccipital cortex due to the activation of the primary visual cortex and also due to the discharge of the thalamocortical fibers.

In our study, an increase in the mean value of P100 latencies in all the groups containing subjects with type 2 DM as compared to the controls, was consistent with the observations of Varkonyi T et al [9] Dolu H et al [10], Azal O et al [11], Szabela D et al [12] and Li P et al [13], who reported similar changes in their study.

The exact pathophysiology of the central nervous dysfunction in type 2 DM, relating to visual pathway is not clear.

According to one school of study it seems to be multifactorial, involving metabolic and vascular factors, which is similar to the pathogenesis of diabetic peripheral neuropathy. [14]

Kamijoet al [15] have demonstrated from animal studies that axonal atrophy and axonal dysfunction are the two structural lesions that occur in optic neuropathy of diabetes . The prolongation of P100 latencies, which are observed in diabetics, is thus an expression of structural damage at the level of the myelinated optic nerve fibers.

Further, the increase in P100 latency may indicate either retinal dysfunction or dysfunction in the retinocortical conduction pathways. Damage in retinal ganglion cell in diabetics can be due to extracellular glutamate accumulation leading to functional and anatomical changes, which arise even before vascular damage.

The delay in P100 latencies seen in subjects with

type 2 diabetes having normal fundoscopic findings, is consistent with the studies of Dolu H [10] et al, Bhanu R et al [16], Heravian J et al [17].

LIMITATIONS

There are some limitations to our study. One limitation is the small sample size. Also unknown and sub-clinical complications, which are unaccounted for, may have a bearing on the study.

CONCLUSION

Based on the observations made in the present study, it is concluded that the processing of patterned repetitive visual stimuli by the visual cortex is slower in the subjects with type 2 DM when compared to the control group. The effect of the duration of type 2 DM on the mean value of p100 latencies was not statistically significant. The clinically evident retinal vascular disease in subjects with type 2 diabetes mellitus may be preceded by an increase in visual evoked potential latency in electro physiologic testing. This increase may indicate either retinal dysfunction or dysfunction in the retinocortical conduction pathways. To confirm further whether the delay is due to retinal dysfunction or dysfunction in the retinocortical conduction pathways, pattern-reversal visual evoked potentials should be coupled with pattern-reversal electroretinograms. Thus, from the present study, it can be concluded that the changes in the VEP response occur much before the development of overt retinopathy or clinically apparent sensory neuropathy. So, VEP measurement which is a highly sensitive, reliable, noninvasive and reproducible method for detecting the early alterations in the central optic pathways in diabetics, should be recommended whenever possible and these must be added to the list of screening tools for a more complete and early assessment of the neurological involvement of the diabetic patients to advise them for an early and proper management of the disease.

Conflict of Interest - None.

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Ethical Clearance: The study was conducted after approval by the Institutional Ethics Committee and is in accordance with the Helsinki Declaration of 1975, as revised in 2000.

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Seasonal Variability of Tuberculosis in Sonapat, India

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ABSTRACT

Background: Despite many efforts to control TB, it remains a major public health problem. During last decade, many research regarding the seasonality of Tuberculosis (TB) has been conducted and a seasonal pattern has been found across different parts of the world.

Objectives: To determine seasonality of tuberculosis and to characterize the patterns of seasonal variation among TB patients.

Method: This retrospective study was conducted in BPS Government Medical College For Women and Hospital, Khanpur Kalan situated in Sonapat district of Haryana. Data from January, 2012 to November, 2014 were analysed. To study the seasonality of symptomatic and TB patients, the month-wise data were grouped into four quarters: 1st (January-March), 2nd (April-June), 3rd (July-September), and 4th (October-December) in a year.

Results: Out of the 12172 suspects, 1277 (9.5%) were cases of TB. The proportion varied from quarter to quarter, the third quarter (July to September) having the highest (12.2%) and the fourth quarter (October to December) the lowest proportion (7.6%) and this difference was statistically significant ($p=0.001$).

Conclusion: A seasonal pattern of TB was observed for TB cases.

Keywords: Tuberculosis, Respiratory diseases, Seasonal variation.

INTRODUCTION

Worldwide, 9.6 million new Tuberculosis (TB) cases and 1.5 million TB deaths are reported in 2014.¹ Despite many efforts to control TB, it remains a major public health problem. The transmission and diagnosis of the TB may be affected by global climate change. The extreme weather condition may affect transmission of TB through household crowding and may delay its diagnosis by limiting the access to healthcare services.

While seasonal variation has been widely reported for many respiratory infections in different parts of the world,

it is much less well documented for TB. But, during last decade, many research regarding the seasonality of TB has been conducted and a seasonal pattern has been found across different parts of the world. TB incidence shows a peak in spring and a trough in autumn.²⁻⁵ A seasonal pattern of TB has been observed for newly diagnosed smear positive cases in India. In Northern India, TB diagnosis peaked between April and June and it reached a nadir between October and December, but in Southern India, no such seasonal variation was found.⁵

With this background we undertook the present study in a Government Hospital of Haryana, India with the objective to determine seasonality of tuberculosis and to characterize the patterns of seasonal variation among TB patients.

MATERIALS & METHOD

This retrospective study was conducted in BPS Government Medical College For Women and Hospital,

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Khanpur Kalan situated in Sonapat district of Haryana. The Institute runs a daily Out-patient Department (OPD) with facility for indoor treatment with bed strength of 450. The patients seeking medical help not only come from Haryana but also from the adjoining states, like Uttar Pradesh, Rajasthan, etc. Patient data are maintained by a computerised system. Patients having any chest symptoms attending the OPD were included in study and data from January, 2012 to November, 2014 were analysed. Seasonality record was calculated using this data. To study the seasonality of symptomatic and TB patients, the month-wise data were grouped into four quarters: 1st (January-March), 2nd (April-June), 3rd (July-September), and 4th (October-December) in all three years. The quarters in which the mean values of patients were highest or lowest were examined and tested for significance of difference. Chi-squared test was used to test the significance of difference in proportion values between the seasons and a p value <0.05 was considered statistically significant.

RESULTS

Out of a total of 97406 chest symptomatic from Respiratory OPD over a period of three years, 12172 patients were included in the analysis. The distribution of suspects and the cases by quarter and year is shown in Table 1. Out of the 12172 suspects, 1277 (9.5%) were cases of TB. The proportion varied from quarter to quarter, the third quarter (July to September) having the highest (12.2%) and the fourth quarter (October to December) the lowest proportion (7.6%). In 2012, these proportions show excess proportion of cases among suspects in January to March (13.9%), followed by July to September (12.7%), April to June (11.3%) and October to December (10.6%). In the years of 2013 and 2014, lower proportions 9.5% and 1.6% were recorded in October to December, while higher proportions 12.9% and 11% were found in July to September respectively.

Figure 1 shows maximum average proportions of cases (12.2%) were during July to September followed by 11.3% and 10.7% during January to March and April

to June respectively. Lowest average proportion 7.6% were found during October to December. This quarter wise differences were found to be statistically significant ($\chi^2=30.9, p=0.001$).

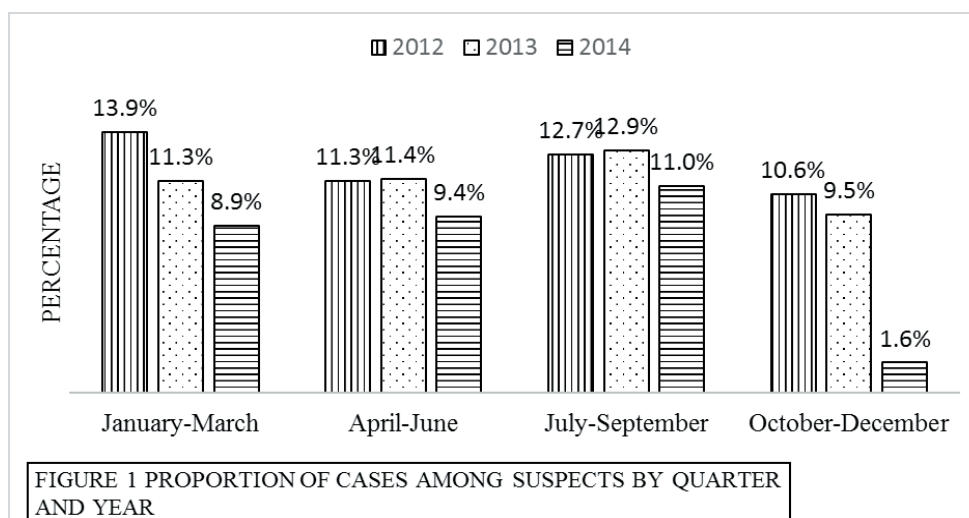
DISCUSSION

In an assessment of seasonal trends, the present study demonstrated the seasonality of symptomatic patients for TB cases at BPSGMCW Khanpur Kalan in Haryana. The chest symptomatics and TB cases were more in the period from July to September and January to March and less in the period from October to December. A study conducted in India found highest seasonal variation in the north India with peaked between April and June and dropped during October to December and low or no seasonality in central and southern regions of the country. ⁵

In studies conducted in other countries, the peak of tuberculosis incidence in England and Hong Kong was in summer, in Taiwan and Ireland was in spring and summer, in America was in spring while the least number was in December and September. ⁶⁻¹⁰ The causes of seasonality of TB are still unclear. There could be many speculations about the high number of TB cases during summer; one of the reasons could be that the process of transmission of TB infection is intensified by increased time spent in overcrowded, poorly ventilated housing conditions and by an increased frequency of coughing from other respiratory infections during winter. The fact that the transmission is higher in winter followed by development of the disease several months later may be the explanation of the findings of the present study. It could also be due to a rise in temperature during summer. It is speculated that because of harvesting period of wheat crop in north India during this period from March to May, lots of dust particles come out when the wheat's seed is taken out and very fine particles are dispersed in the atmosphere producing air pollution. In the present study, the seasonality was observed for symptomatic, PTB and EPTB cases. A retrospective study is the limitation of the study as information on occupation, travel, support of family etc, was not available.

Table 1: Tuberculosis suspects and cases, by quarter and year

Quarters	2012		2013		2014		Total	
	Suspects	Cases	Suspects	Cases	Suspects	Cases	Suspects	Cases
January-March	613	85	1163	132	1116	98	2892	315
April-June	1033	117	1408	161	1112	105	3553	383
July-September	970	123	1105	143	1004	111	3079	377
October-December	962	102	927	88	759	12	2648	202
Total	3578	427	4603	524	3991	326	12172	1277



CONCLUSION

A seasonal pattern of TB was observed for pulmonary TB and EPTB cases. This information would be useful for health planners and managers to take extra care to arrange and provide extra facilities during the peak seasons.

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Conflict of Interest - Nil

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Alcohol Use and Mental Health among Migrant Workers

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ABSTRACT

Introduction: There are about 30 million migrant workers in India. Migrant workers contribute significantly to the unorganised sector of occupation. The stressors associated with migrant's lifestyle are language barriers, unpredictable nature of housing or work, being away from friends and family, worries about socialisation and education of their children. Migrants are more susceptible to mental health problems such as depression, anxiety and substance abuse. Migrants may use increased alcohol and other drugs to offset the stressors of migrant life, boredom, and feelings of depression and anxiety. Thus, mental health and alcohol use among migrants become a vicious cycle. **Need for the study:** The Mental health status and alcohol use among migrant workers has been studied the least. **Objectives:** This study assesses the alcohol abuse, mental health status and associated factors among the internal migrant workers. **Methodology:** A cross sectional study was done among migrant workers staying in villages under Bangalore urban District, Karnataka, India. A sample size of 210 was estimated and the workers were selected from different work places like construction sites, quarries, rosegardens using non probability convenient sampling. The study tool consisted of an interview schedule with socio-demographic details and occupation. The mental health status was assessed using Modified MINI screen (Mini International Neuropsychiatric Interview). Alcoholism was measured using FIGS (Family Interview for Genetic studies) questionnaire. Chi square test and independent 't' test was used to analyse data as appropriate. **Results:** Among the 210 study subjects, 183 (87%) were males and 27 (13%) were females with mean age of 28.31 with S.D. of 9.52 and majority 130 (62%) were working in construction sites. Among the migrant workers it was observed that 40 (19%) were screened positive for mental health problems and 45 (21%) consumed alcohol. 4%, 2%, 1% of them were abusing, suffering from withdrawal, suffering from dependence of alcohol respectively. MMS positivity was associated with alcohol withdrawal, alcohol abuse, gender (more in females), with place of work (rose and brick factory), and health problems. **Conclusion:** Among the study subjects, 40 (19%) were screened positive for mental health problems and 45 (21%) were currently consuming alcohol.

Keywords: Migrant health, mental health, Alcohol use, Alcohol abuse, Alcohol dependence

INTRODUCTION AND NEED FOR THE STUDY

There are an estimated one billion migrants in the world today of whom 214 million international migrants (country to country) and 740 million internal migrants

(within country). The collective health needs and implications of this sizeable population are considerable. Migration comprise a wide range of populations, such as workers, refugees, students, undocumented migrants and others, with each different health determinants, needs and levels of vulnerability. Out of which, migration for occupation is common in a globalized world defined by profound disparities, skill shortages, demographic imbalances, climate change as well as economic and political crises, natural as well as man-made disasters, and migration is omnipresent¹. Migrant workers contribute significantly to the informal or unorganised

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sector of occupation. As per the NSSO (National Sample Survey Organization) report, 30 million workers in India are migrant workers.²

The health of migrants and health associated with migration are crucial public health challenges faced by governments and societies¹. The stressors associated with migrant's lifestyle are language barriers, unpredictable nature of housing and work, being away from friends and family, worries about socialisation and education of their children etc. Migrants are more susceptible to mental health problems such as depression, anxiety and substance abuse. Migrants may use increased alcohol and other drugs to offset the stressors of migrant life, boredom, and feelings of depression and anxiety. Thus, mental health and alcohol use among migrants become a vicious cycle.³

The mental health status and alcohol abuse among migrant workers has been studied the least. This study focuses on the alcohol abuse and mental health status among the internal migrants (from other states of India to Karnataka) staying in villages under Bangalore urban District, Karnataka who had migrated for occupation.

OBJECTIVES

1. To assess prevalence of alcohol abuse and to assess the mental health status among the internal migrant workers from other states to Bangalore urban District, Karnataka, India
2. To assess the associated socio-demographic and occupational factors with alcohol abuse and mental health.

METHODOLOGY

A cross-sectional study was carried out during the period of March to May of 2014, among the internal migrant workers, working in Bangalore urban District, Karnataka, India. We considered the person as migrant worker if the person doesn't possess the family card at the residence and had migrated for occupation. Non-working family members of migrant workers were excluded. 210 Migrants were included in the study, assuming maximum prevalence of 50% (similar studies were not available in the literature), with an absolute precision of 7% and 95%

confidence. Non – Probability convenience sampling was followed. After establishing rapport with the study subject, the purpose, procedure, benefits, risks and confidentiality of the study were explained. Informed written consent from the study subject was taken before the questionnaire was administered.

A structured interview schedule was used to collect relevant data from the respondents. The interview schedule had four parts: Part 1 – Personal and socio demographic details – consisting of age, gender, marital status, religion, education, income, current health problems and medications etc. Part 2 - Details related to their occupation – consisting of questions related to duration of work (hours per day, days per week), type of employment, enrollment in any medical schemes, pre placement examination, training, use of PPEs and availability of first aid kit. Part 3 - Modified MINI (Mini International Neuropsychiatric Interview) Screen MMS for assessment of mental health status – consisting of questions related to mood disorders, anxiety disorders, psychotic disorders, obsessive compulsive disorders and post-traumatic stress disorders. Score ≥ 10 is considered as treatment needed. Score ≥ 6 , ≤ 9 is considered as assessment needed. Part 4 – FIGS (Family Interview for Genetic studies) Questionnaire to assess level of alcohol abuse – consisting of questions related to any alcohol abuse, dependence and withdrawal. The data was analysed using SPSS version 16 for proportions, frequencies and associations. Frequencies, measures of central tendency and dispersion, chi square tests and independent 't' test was used to analyse data as appropriate.

RESULTS

1. Socio-demographic details:

The details of education, place of work and the state from migrated are represented in Table 1. The mean age of the study population was 28.31 with S.D. of 9.52. The minimum age of the study population was 14 and maximum was 59. Majority, 183 (87%) of the study population were males. 127 (60%) of the study population were married. 199 (95%) out of 210 were following Hinduism.

Table 1: Socio-demographic details of study population:

Sl. No.	Variable	Category	No	%
1	Migrated from	West Bengal	48	22.9
		Andhra Pradesh	34	16.2
		Orissa	21	10.0
		Uttar Pradesh	19	9.1
		Jharkhand	17	8.1
		Bihar	16	7.6
		Tamil Nadu	12	5.7
		Assam	12	5.7
		Others (Chhattisgarh, Delhi, Kerala, MP, Rajasthan, Uttarkhand)	30	14.2
2	Education (Highest education attained)	Illiterate	35	16.7
		Primary school	80	38.1
		Middle school	41	19.5
		High school	26	12.4
		Higher secondary school	20	9.5
		Graduate	8	3.8
3	Place of work	Construction	130	62
		Brick Factory	31	15
		Quarry	23	11
		Rose Garden	17	8
		Hatchery	9	4

2. Details related to their Occupation:

130 (62%) out of 210 migrant workers interviewed were working in construction sites, followed by 31 (15%) in brick factory. 98 (47%) of the migrant workers were working for all the seven days in a week. Only 20 (9.5%) migrant workers out of 210 were working less than or equal to eight hours a day. 34 (16%) of the migrant workers were working in the study area for more than five years. 40 (19%) of the migrant workers reported some health problems. Out of the health problems reported myalgia (37%) was the common, followed by allergic dermatitis, stomach ache and head ache. 178 (85%) of migrant workers in study were belonging to contract type of workers. Only 5 (2.5%) of the study population reported that they are eligible for medical benefits. Only 7 (3.3%) of the study population reported that they received a training for their work. 75 (35.7%) of the study population reported that they are using PPE's. 55 (32.2%) of the study population reported that the first aid kit was available at their work place.

3. Alcohol abuse and Mental Health status:

The findings of FIGS Questionnaire are listed below in Table 2:

Table 2: MMS screened positive, Alcohol abuse, withdrawal, dependence among migrants:

Sl. No.	FIGS/ MODIFIED MINISCREEN	NUMBER	PERCENTAGE
1.	ABUSE	8	4%
2.	WITHDRAWAL	5	2%
3.	DEPENDENCE	23	11%
4.	NEEDS ASSESSMENT	40	19%
5.	NEEDS TREATMENT	2	0.9%

40 (19%) out of 210, scored than ≥ 6 in Modified Mini Screen or screened positive and they need an assessment. 2 (0.9%) scored than ≥ 10 in Modified Mini Screen or diagnosed positive and they need treatment.

The usage of tobacco in the form of smoke like

cigarette, beedi etc., and smokeless form are 49 (23%) and 50 (24%) respectively. While the prevalence of use of alcohol among the study population was slightly less compared to use of tobacco. i.e., 45 (21%). None of them reported any other substance use. We applied FIGS pertained to use of alcohol.

4. Association between MMS positive and FIGS results with socio demographic factors:

Independent 't' test was done, when categorical variables (MMS screened positive, alcohol abuse, withdrawal, dependence) were associated with continuous variables (Age in years, Duration of stay, Total family income, years of work, No of hours of work per day, No of days of work per week). The 'p' value was significant between no. of hours of work with alcohol abuse and dependence showing negative association. The association between the gender and MMS Screened positive is significantly more in females ($p=0.017$), more in rose factory and brick factory ($p=0.025$), more in tobacco users ($p=0.012$), persons with alcohol withdrawal ($p=0.049$) and persons with alcohol abuse ($p=0.045$).

DISCUSSION

Community-based epidemiological studies conducted in India on mental and behavioural disorders report varying prevalence rates, ranging from 9.5 to 370 per 1000 population.⁴ Most Indian studies were focussing on mental health of women, elderly, child and adolescents. We could not find any article on mental health status and alcohol use among migrants in India. Study among Mexican-born immigrants in United States by Borges et al, showed that, despite significant socioeconomic disadvantages, migrants have better mental health profiles than do U.S. – born Mexican Americans. They showed half the mental morbidity of that of Mexican Americans⁵.

This study also showed that MMS screened positive was 18%, diagnosed positive was 0.9% which was less than the prevalence among general population in India. The decreased rates of psychopathology in migrant workers may be related to difficult access to abuse substances and a decreased frequency of alcohol abuse among migrant workers. Even though they are exposed to other risk factors like increased duration of work, high risk behaviour, other stressors like being away from their relatives etc., they are mentally healthy may be because, only resilient healthy persons are migrating out of their

states for occupation. The other reason for less prevalence of mental disorders in this study population is due to high proportion of males in this study population (87%). But that is the normal expected proportion of males among migrants.

Despite ensuring the confidentiality about the interview schedule and conducting the interview in confidential settings, the study population was slightly reluctant to reveal their problems related to their mental health probably because of stigma attached. MMS was used as study tool to assess the psychiatric morbidity which has sensitivity of 70-96% and specificity of 81-100% in Indian settings⁶.

MMS screened positive was significantly more among females which is because the psychiatric morbidity is more in females (especially depression) even in general female population. But the other reasons for significant increase in psychiatric morbidity among female population should be explored in detail in further studies. The MMS positivity was significantly more among persons using tobacco ($p=0.012$), persons with alcohol withdrawal ($p=0.049$) and persons with alcohol abuse ($p=0.045$).

CONCLUSION

Most of the migrant workers were from West Bengal (22.8%) followed by Andhra Pradesh, Orissa, Jharkhand and UP. Majority were contract workers (84.7%). 19.04 % of the workers reported health problems. MMS screened positive was found to be 18%, Diagnosed positive - 0.9%, 4%, 2% and 1% were abusing, suffering from withdrawal and suffering from alcohol dependence respectively. MMS positivity was associated with alcohol withdrawal, alcohol abuse, gender (females), with place of work (rose and brick factory), and health problems. Alcohol withdrawal and dependence were associated with health problems, alcohol dependence and alcohol abuse.

Ethical Clearance: Obtained from Institutional Ethical committee, St. John's Medical College, Bangalore-34.

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Nurses' Perspectives of Ethical Climate Investigation in Sari's Educational Hospitals 2016

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ABSTRACT

Ethical Climate is an important aspect in organizational climate and a positive ethical climate is required for supporting the nurses' professional actions. Therefore, it seems essential to do studies across the country in order to know about the hospitals climate. Hence, the aim of the present study was to survey the nurses' perception of the ethical climate of the educational hospitals in Sari.

This descriptive-analytical study was conducted on 151 randomly selected nurses in educational hospitals of Sari in 2016. A two-part questionnaire was used for data collection which the first part was related to demographic features and the second part was a standard ethical climate questionnaire. The collected data was analyzed in SPSS 19 software by using descriptive statistical tests, variance analysis and t-test.

The participants' average age was 31.56 ± 5.63 . There were 60 male among the participants, 6 associated nurses, and 124 bachelors of nursing as well as 21 MSc. in nursing. Also 65 nurses had 1-5, 45 individuals had 5-10 as well as 41 of them had more than 10 years' work experience. The relationship between perceived ethical climate of the nurses and participants' demographic features was not significant.

The results of this study indicated that the ethical climate of the educational hospitals of Sari was favorable.

Keywords: *Ethical Climate, Nurses, Sari*

INTRODUCTION

Today, health care organizations are subject to rapid and fundamental changes in order to increase the services quality, patients' satisfaction and efficiency improvement. Too much emphasis on efficiency values, organization effectiveness and economic performance had influenced the ethical performance of the nurses [1]. Although there are written or revised codes for many ethical issues, researchers state that in some professional positions, there is no proportionality between the patient's personal needs and the needs of the organization. On the other hand, they report that are facing serious challenges in providing qualitative care in rapidly changing health care environments. There are many reasons for the above mentioned challenges such as lack of professional staff, staff motivation, job dissatisfaction and long term commitment to work in care organizations which the

outcome of all these reasons influences on the patient. But there are also some evidences indicate that these challenges are related to the care environment ethics or ethical climate [2]. Nursing is a moral profession and the nurses' task is to protect the patient against the injury, prevent complications and providing a good psychological environment for the patients in order to faster recovery while achieving these goals needs effective cooperation between nurses and other hospital staff and also respect and sustainable trust in the hospital climate is required [3]. This group has multiple and widespread roles and also has the most contacts with the patients [4].

Due to the role of the nurses in patients care, they should consider the moral aspects in addition to the care aspects [5]. McDaniel and Olson have stated that ethical climate is an important aspect in organizational climate and a positive ethical climate is required for supporting

the nurses' professional actions [6]. Ethical climate can be evaluated by the organization employees' perspective because one person's perspective of moral environment is created by the reflection of ethical issues related to the work, particularly about the strength, trust, friendship, patience, role flexibility and query conditions [7]. Some have claimed that ethical climate is defined as common perception of staff about what is known as ethical behavior and how to respond to ethical issues. It also defined in three position of personal, local and global states as well as two aspects which the first one includes Self-love, benevolence and principles and the second one is related to the decisions [8]. According to the Olson definition, ethical climate is the individual's perception of the organization which affects his/her attitude and behavior and serves as a reference for the individual's behavior. In his opinion the ethical climate in health organizations, is reflected in the communications which the health care professionals have with each other, patients and the managers. Being aware of the ethical climate concept, the nurses, doctors and hospital managers can develop and apply some strategies to improve the ethical climate of their work environment. Olson puts ethical climate in five areas and points out that the nurses' perception of their work environment ethical climate is lies in their communication with the colleagues, doctors, managers, patients and hospital. From the Olson's point of view, the nurses' communication with colleagues, doctors, managers and patients are the other important factors of people perception of the ethical climate [9]. A fellow team with high moral flexibility, considerably affects the behavior of the nurse in the workplace [10]. The researches have shown that organizational safety climate has positive and profound effects on staff so its constituent elements are integrity, standards, responsibilities, flexibility, rewards and collective commitment. When each of these aspects' amount increase in each staff, people are motivated by their work environment meaning that workplace is considered as a place of pleasant and profitable. The more positive organizational climate, human communication will be easier. On the contrary, closed, frightening and negative climates lead to distrust, fear, separation and hatred of the people. Therefore, positive and open climate provides the mental health of the individuals [11]. Also the nurses who works in a non-supported environment are more likely to experience moral distress due to the lack of effective moral policies for their professional performance [12].

Considering the importance of hospitals' ethical climate in creation of proper environment for the nurses and according to the fact that ethical climate in any environment is subject to that one's conditions as well as requirement of a positive ethical climate to protect the nurse's workplace, so it seems essential to do more studies in different parts of the country in order to more recognition of the hospitals climate [6]. Therefore this study aimed to investigate the nurses' perception of the ethical climate of the Sari's educational hospitals.

METHODOLOGY

The present study is a descriptive-analytical one which was conducted on 151 randomly selected nurses in educational hospitals of Sari in 2016. The criteria of selecting the people in this study has been working the nurses in a hospital at least for one year or in other words having 1 year experience in nursing profession. For data collection a two-part questionnaire was used which the first part was related to the demographic features (age, gender, educational degree, income and work experience) and the second part was Olson ethical climate standard questionnaire which has been developed by Olson in 1998 and contained 26 items in five areas of communication with colleagues, doctors, hospital, patients and managers. Participants' perception of ethical climate of hospital are measured in five levels (Almost never=1/ rarely=2/ sometimes=3/ usually=4/ almost always=5) using Likert scale. Therefore, the minimum possible total score for each participant was 26 and the maximum score was 130. Thus, each area score and total score were divided by the number of items for better comparison, so the range of number was 1-5. Based on McDaniel classification, score equals or higher than 3.5 was the favorable comment of personnel about the ethical climate of hospital and indicated positive (favorable) climate. The questionnaire was translated to Persian by Mobasher, et al [13]. in 2004 and its reliability was 0.92. For data collection, the researcher went to hospital in three shifts (night, evening and morning) and distributed the questionnaires after coordination with department manager, explaining the aim of the study and obtaining consent of personnel. It was written "Your cooperation in this matter will be considered as your informed consent to participate in the present research. Also all information in this questionnaire is confidential and No Danger Does Threaten You." at the beginning of the questionnaires in order to the individuals' awareness of their consent to participate in this study. After completing

the questionnaires by personnel, researcher collected and revised the questionnaires on the same day. In case of incompleteness, the questionnaire was returned to the participant once again and he/she were asked to complete that with more accuracy. Data were analyzed in SPSS 19 software by using descriptive statistical tests, variance analysis and t-test.

FINDINGS

There were 151 nurses participated in this study who works in educational hospitals of Sari city and the participants' average age was 31.56 ± 5.63 . There were 60 male (39.7%), 6 associated nurses (4.0 %), and 124 bachelors of nursing (82.1) as well as 21 MSc. in nursing (13.9%). Also 65 (43%) of the participants had 1-5, 45 individuals (29.8%) had 5-10 as well as 41 of them (27.2%) had more than 10 years' work experience. The relationship between perceived ethical climate of the nurses and the variables like work experience ($P=737$), age ($P=0.357$), gender ($P=0.898$) and educational degree ($P=0.960$) was not significant.

Frequency distribution of total obtained score by nurses from the ethical climate questionnaire in each of ethical climate areas is illustrated in table 1.

Table 1: Frequency distribution in ethical climate and its areas among the nurses

Nurse's score in each of the ethical climate areas	Area	mean	Standard Deviation
	colleagues	4.01	0.53
	patients	3.86	0.56
	managers	3.95	0.68
	doctors	3.51	0.67
	hospital	3.55	0.61
	total	3.60	0.51

DISCUSSION

The obtained results of the present study indicated that the nurses have positive perspective of ethical climate in educational hospitals of Sari which is consistent with the results of Miandoab study which was conducted in Zahedan city on operating room personnel [3]. Findings in Jahantigh, et al. and Khazani, et al. studies also indicated that the ethical climate of the hospital was favorable from the nurse's perspective [11, 14].

Ethical climate is considered as a part of one organization's personality and represents its morality. Ethical climate not only has an immense impact on individuals' and organizations' behavior, but also can support or fortify what most people believe it is true. When the conditions of an ethical environment are clear and positive, everyone knows what to do and how to behave in moral dilemmas which are inevitable [11]. Hart also declares in his study which was conducted on 463 American nurses in 2003-2004 that the nurses' decision to leave their work and even their profession is related to the negative ethical climate of their work environment which caused their job dissatisfaction [15]. Therefore it is expected not to hesitate any effort to improve this situation and keep it well.

The highest ethical climate average score was in the colleagues and managers area. In Borhani and his colleagues study, the highest ethical climate score was in managers' area, after that colleagues' and the lowest score was in doctors' area [6]. Favorable working climate between the nurses and the managers represents the proper cooperation between these two groups. The desirability of this area is likely to be since that the managers themselves were served as nurses someday and experienced the difficulty of nurses' works, thus figure out the nurses very well and try to solve their problems. Therefore it can be found that there is a positive cooperation climate between the nurses and the managers of present hospitals could significantly play their roles in positive climate improvement and ethical principles implementation. By looking at similar studies, it can be inferred that the nurses' perception of real ethical climates was more in the manager's area in all studies [1, 11].

In this study, also the lowest mean score was related to the doctors' area. The doctors always had a special place in planning and providing health services and activities for the patients; the prevailing thought is that the doctors know everything about what is appropriate for the patients and require no knowledge of nurses. This prevailing thought is the promoter of the available power imbalance between the nurses and the doctors. The imbalance of power between doctors and nurses with emphasis on nurses' unquestioning obedience of doctors plays a pivotal role in nurses' moral distress cause. Also, the inability to patients care methods improvement or work environment changes causes frustration in nurses, this failure causes violation of professional independency in professional terms and leads to low self-esteem in the

nurses in terms of personality^[16-21]. It seems that the lower score of the doctor's and nurse's area than other areas is due to not achieving the common care goals in care team for the nurses and the doctors. In this regard it is better to train both groups in order to improve the interpersonal and intergroup behaviors. Since the doctors and the nurses have common goals in care and treatment of the patients and since the objective of providing better health care, further efforts should be improved in this regard because eventually this problem would be noticed by the patient and can lead to a lowering of the quality of health care. One of the most important restrictions of this study was staff mental condition when completing the questionnaire on which could affect them how to respond the questions, however it was tried to complete the questionnaire in appropriate time, after explaining the aim of the study and obtaining informed consent from the participants. We recommend further research to investigate ways to improve the ethical climate in educational hospitals.

CONCLUSION

The obtained results of this study represented that the available ethical climate of educational hospitals in Sari is favorable. It is recommended that the politicians and the managers lead the ethical climate of the hospitals to better quality by designing specific strategies and programs.

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A Study on Correlation of Glycemic Control with Serum Lipid Profile and Lipid Ratios among Type 2 Diabetes Mellitus Patients

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ABSTRACT

Diabetic dyslipidemia is one of the major risk factors for cardiovascular diseases (CVDs). Dyslipidemia in diabetes is manifested as elevated Triglycerides, LDL Cholesterol and decreased HDL Cholesterol levels.

The present study was to evaluate the diagnostic value of Glycated hemoglobin (HbA_{1c}) in predicting diabetic dyslipidemia. Clinically diagnosed cases of type 2 Diabetes Mellitus patients, within the age group of 25-70 years were included in the study. These patients were categorized into two groups. A number of forty known diabetic patients with good glycemic control (HbA_{1c} value < 8.0%) were included under Group B and another forty known diabetic patients with poor glycemic control (HbA_{1c} value >8.0%) were included under Group C. Age and sex matched non diabetic subjects, forty in number, were taken as a control group (Group A), thus making a total sample of 120.

In our study, the values of Total Cholesterol, Triglycerides, LDLc & VLDL levels showed statistically significant increase in Group-C (poor glycemic control) when compared to other groups. The study also found strong positive correlation of increased HbA_{1c} with Total Cholesterol, Triglycerides, LDLc and VLDL. It was also observed that there was positive correlation between HbA_{1c} and Lipid Ratios (TC/HDLc & LDLc/HDLc). HbA_{1c} showed a negative correlation with HDLc. Thus the study finds that HbA_{1c} value can be used as a potential marker for glycemic control and dyslipidemia in type 2 diabetes mellitus patients.

Keywords: Cardiovascular diseases, Dyslipidaemia, Diabetes mellitus Type 2, Glycemic control, Glycated haemoglobin, Lipid ratios.

INTRODUCTION

Diabetes mellitus is a chronic metabolic and global endemic disorder with increasing prevalence among both the developed and developing countries. Type 2 diabetes mellitus and its complications constitute a major worldwide public health problem. Patients with Type 2 DM develop complications resulting in angiopathy

and nephropathy¹. Type 2 DM patients have 2 - 4 times higher risk of developing cardiovascular diseases (CVD) than adults without diabetes^{2, 3}. The complications of diabetes are influenced by the duration of diabetes and by the average level of chronic hyperglycemia which is measured most reliably with glycated haemoglobin assay⁴.

In the normoglycemic subjects a small proportion of Hemoglobin A is attached to carbohydrate moiety; thus it creates a molecule called glycated haemoglobin (HbA_{1c}). In diabetic subjects HbA_{1c} levels elevates 2 to 3 folds over the levels found in normal individuals⁵.

Dyslipidemia is one of the major established risk factors for coronary vascular diseases (CVD) in diabetes mellitus⁶. The characteristic features of diabetic

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dyslipidemia are increased levels of TC, TG, LDLc, and decreased levels of HDLc. The NCEP made adult treatment panel III has recognized the importance of HDLc and TG, calling the combination as an atherogenic dyslipidemia⁷. Early therapeutic interventions, aiming to reduce TG and LDLc and to increase HDLc, significantly reduce mortality in Type 2 DM patients^{8,9}. The TC / HDLc and LDLc / HDLc ratios have good predictive value for future cardiovascular events.

This study was undertaken with the aim of evaluating the importance of HbA_{1c} in predicting the diabetic dyslipidemia and atherogenesis.

MATERIALS & METHOD

Design of the study: Analytical, Cross-sectional study.

Study subjects: Clinically diagnosed cases of type 2 DM patients, within the age group of 25-70 years, who approached ASRAM Medical College & Hospital for treatment. A number of forty diabetic patients with good glycemic control (HbA_{1c} value < 8.0%) were included under Group B and another forty diabetic patients with poor glycemic control (HbA_{1c} value >8.0%) were included under Group C. Age and sex matched non-diabetic subjects, forty in number, were taken as a control group (Group A), thus making a total sample of 120.

Study period: September – December' 2015

Methodology: After taking informed consent from the study subjects, venous blood samples were collected after a fasting period of 12 hours. Samples were analyzed for fasting blood glucose, lipid profile and glycated haemoglobin.

The parameters studied were, Glucose by HK G6P - DH method, Cholesterol by CHO - POD method, Triglycerides By GPO - POD method, HDL Cholesterol by Phosphotungstate method, LDL Cholesterol was calculated by Friedwald et al formula, i.e., LDL Cholesterol (mg/dl) = Total Cholesterol - [HDL Cholesterol + (Triglycerides / 5)], Glycated haemoglobin (HbA_{1c}) by Immuno-inhibition method and TC/ HDLc ratio and LDLc/ HDLc ratios.

Inclusion Criteria: Diagnosed cases of Type 2 DM patients with glycated haemoglobin (HbA_{1c}) levels > 6% were included.

Exclusion criteria:

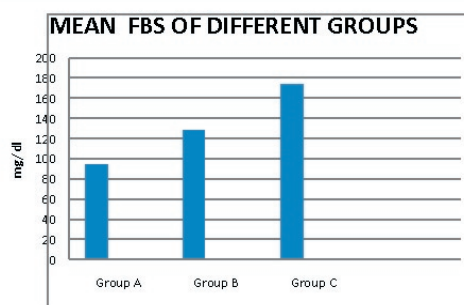
- Type 2 DM on hypolipidemic drugs,
- Known Hypertensives
- Patients with thyroid disorders &
- Patients with obstructive liver disorders.

Statistical Analysis: Data analysis was done by using MS excel' 2007 software. Data was presented using measures of central tendency and dispersion. Z - test was applied for testing the significance. Probability value < 0.05 was considered as significant difference. Correlation was studied using correlation coefficient test.

OBSERVATIONS

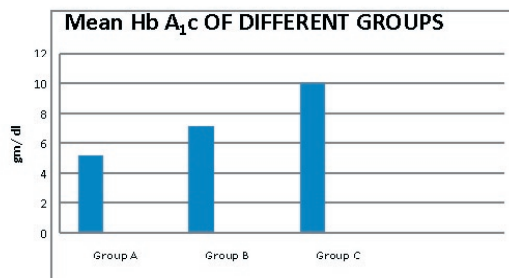
The mean values \pm (SD) of FBS were $94 \pm (17.78)$, $128 \pm (30.84)$, $173 \pm (68.57)$ in Group A, Group B and Group C respectively (Fig 1). It was observed that diabetic patients with poor glycemic control (HbA_{1c} > 8) had significantly higher values of FBS when compared to good glycemic control (HbA_{1c} < 8) patients.

Fig.1



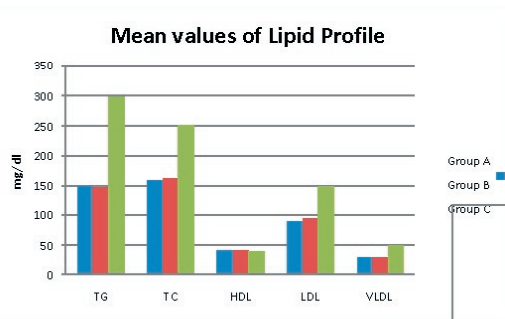
The mean values \pm (SD) of HbA_{1c} were $5.2 \pm (0.27)$, $7.0 \pm (0.56)$, $9.9 \pm (1.58)$ in Group A, Group B and Group C respectively (Fig. 2). There was a statistically significant difference of HbA_{1c} among the three groups, i.e., diabetic patients with good glycemic control, diabetic patients with poor glycemic control and the non-diabetic group

Fig.2



The mean values ± (SD) of TG 149 ± (56.1), 147 ± (72.3), 297 ± (210) ; TC 160 ± (33.9), 163 ± (41.6), 251 ± (100.84); LDLc 89 ± (27.54), 94 ± (33.37), 149 ± (35.43) VLDL 30 ± (11.4), 30 ± (14), 50 ± (11.81) and HDLc (42 ± (8.15), 42 ± (8.8), 39 ± (10.01) were observed in Group A, Group B and Group C respectively (Fig 3 & Table1). In our study we observed significant alteration of all lipid parameters except HDLc with regard to glycemic control.

Fig 3



Results of our study shows that values of all the three groups had a positive and significant correlation with total cholesterol, triglycerides, LDLc, VLDL and a negative correlation with HDLc. A good correlation was observed between HbA_{1c} and lipid ratios (TC/HDLc & LDLc/HDLc ratios) too (Table.1).

Table.1: Mean ± SD Values of FBS, HbA_{1c}, Lipid profile and Lipid Ratios of All groups

PARAMETER	Group A (Mean ± SD)	Group B (Mean ± SD)	Group C (Mean ± SD)
FBS	94 ± 17.78	128 ± 30.84	173 ± 68.57
HbA _{1c}	5.2 ± 0.27	7.0 ± 0.56	9.9 ± 1.58
TG	149 ± 56.1	147 ± 72.3	297 ± 210
TC	160 ± 33.9	163 ± 41.7	251 ± 100.84
HDL	42 ± 8.15	42 ± 8.8	39 ± 10.01
LDL	89 ± 27.54	94 ± 33.37	149 ± 35.43
VLDL	30 ± 11.4	30 ± 14.49	50 ± 11.81
LDL/ HDL	2.2 ± 0.72	2.3 ± 0.84	4.1 ± 1.38
TC/ HDL	4.0 ± 0.87	4.0 ± 1.05	6.5 ± 1.8

In our present study, we have correlated HbA_{1c} values in the diagnosed cases of Type 2 DM with lipid profile, TC/HDLc and LDLc /HDLc ratios.

In the present study statistically significant difference of HbA_{1c} was observed both in group B (good glycemic control with Z value -17.41) and group C (poor glycemic control with Z value -18.24) compared to group A (Table 2).

Association between HbA_{1c} with various Lipid parameters and lipid ratios (TC / HDLc and LDLc / HDLc) proved the importance of glycemic control in order to control dyslipidemia. The present study showed statistical significance (between HbA_{1c} and FBS (Z value -7.03) TG (Z value -4.30), TC (Z value -5.42), LDL (Z value -8.4) and significant LDLc/HDLc ratio (Z value -7.85) and TC/HDLc ratio (Z value -8.26) between two groups with <8.0% (GroupB) & > 8.0% (Group C) of glycated hemoglobin

In our study HDLc showed negative correlation (-0.15) with HbA_{1c} in Group B (< 8.0% of glycated hemoglobin) but did not show any negative correlation(0.31) with Group C (> 8.0% of glycated hemoglobin).

Table2: Z values of FBS, HbA_{1c}, Lipid profile & Lipid ratios

Parameter	A Vs B	A Vs C
FBS	- 6.15 *	- 7.03 *
HbA _{1c}	- 17.41 **	- 18.24**
TC	- 0.4	- 5.42*
TG	0.14	- 4.29*
HDL	-0.34	- 1.54
LDL	- 0.72	- 8.39*
LDL/HDL	-0.72	- 7.85*
TC/HDL	- 0.19	- 8.27*

*Significant, ** Highly significant,

In our present study, we have correlated HbA_{1c} values in the diagnosed cases of Type 2 DM with lipid profile, TC/HDLc and LDLc /HDLc ratios.

Results of our study showed that HbA_{1c} values of all the three groups had a positive and significant correlation with TG,TC, LDLc, VLDL and a negative correlation with HDLc. A good correlation was observed between HbA_{1c} and lipid ratios (TC/HDLc & LDLc/HDLc ratios) too (Table.3).

In our study HDLc showed negative correlation (-0.15) with HbA_{1c} in Group B (< 8.0% of glycated hemoglobin) but did not show any negative correlation (0.31) with Group C (> 8.0% of glycated hemoglobin)

Table 3: Correlation of HbA1C with Lipid Ratios, TG and HDL

Groups	HbA1C/ R1	HbA1C/ R2	HbA1C/ TG	HbA1C/ HDL
A	0.06	- 0.02	- 0.1	0.18
B	0.086	- 0.003	-0.24	-0.15
C	- 0.05	0.079	0.32	0.31

R1: LDL/ HDL

R2: TC/ HDL

CONCLUSION

The severity of dyslipidemia increased in patients with higher HbA_{1c} value. Improving glycemic control can reduce the risk of cardiovascular events in diabetes^[10].

HbA_{1c} is a significant parameter for early diagnosis of dyslipidemia in high risk diabetic patients. Diabetic patients with elevated HbA_{1c} and dyslipidemia are considered as high risk group for cardiovascular diseases.

In various studies, it shows HbA_{1c} had positive correlation with TC, LDLc and TG in diabetic patients^[11, 12, 13]...Khan *et al.* reported the impact of glycemic control on various lipid parameters and observed significant alterations in all lipid parameters except LDLc with regard to glycemic control^[14]. In our study Serum HDLc levels did not show variation among three groups.

The results of this study clearly showed that glycemic control was proportionally related to degree of dyslipidemia and lipid ratios especially when HbA_{1c} is > 8.0% (GroupC). TC/HDL & LDL/HDL ratios are considered more specific and accurate indices for assessing CAD than considering individual lipid parameters.

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Conflict of Interest: None.

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Ethical Clearance: Received from ASRAM Ethical Committee.

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Pattern of Alcohol Consumption among Adults in Bareilly District

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ABSTRACT

Background: Alcohol consumption is a major public health problem in most parts of the world, responsible for 3.2 per cent of deaths (1.8 million) and four per cent of the disability -adjusted life years (DALYS, 58.3 million) lost. The 32nd World Health Assembly declared that “Problems related to alcohol and particularly to its excessive consumption rank among the world’s major public health problems and constitute serious hazards for human health, welfare and life”. **Methodology:** A community based cross sectional study was done in the areas of UHTC and RHTC of RMC&H, Bareilly in one year and in individuals aged 18 yrs & above. In a sample of 260 individual a stratified random sampling was used (Whole sample was stratified in rural (130) and urban (130).The data was collected using pretested, predesigned schedule and was analyzed using Epi-Info (7.1.0).

Results: Overall, the prevalence of current alcohol use was found to be 36.92% with mean age of initiation was found to be 23.55 years. Prevalence of current alcohol use was more among males (26.15%) as compared to that in females (10.70%). The mean frequency of consumption of alcohol per month was found to be 5.16. Average amount of consumption on single occasion (ml) was more in male (183.68) than females (96.32).Knowledge regarding health hazardous of alcohol consumption was more in males (58.46%) than in females (31.92%).

Conclusion: Prevalence of current alcohol use was more among males than in females and also the average amount of consumption of alcohol on single occasion were more in male than females. This shows that males are consuming more alcohol than female and are at risk of developing disease even being more aware of the hazards of alcohol.

Keywords: Prevalence, Alcohol, DALY’s, Health Hazards, Bareilly.

INTRODUCTION

Alcohol consumption is a major public health problem in most parts of the world, responsible for 3.2 per cent of deaths (1.8 million) and four per cent of the disability -adjusted life years (DALYS, 58.3 million) lost^[1].The 32nd World Health Assembly declared that “Problems related to alcohol and particularly to its excessive consumption rank among the world’s major public health problems and constitute serious hazards for human health, welfare and life”.

The World Health Organization (WHO) estimated that there are about two billion consumers of alcoholic

beverages and 76.3 million people with diagnosable alcohol-use disorders worldwide^[2].Alcohol and its relationship to ill health have been recognized as an important public health challenge even though alcohol use has been part of the cultural traditions in different societies.

In India, the earliest public health oriented report on alcohol can be traced to a chapter in the Bhoré Committee Report of 1946, which showed great foresight by separating out two groups of people who might have been subjected to the ill effects of alcohol: (i) those driven to drinking by misery, poor living conditions and lack of educational and of recreational facilities and (ii)

those that may result by the excesses of folk customs and group habits. The Committee suggestions included a rise in the standard of living accompanied by the provision of education and recreation facility, balanced by health education to bring home to the people the harmful effects of convivial drinking^[3].

In India, the estimated numbers of alcohol users in 2005 were 62.5 million, with 17.4% of them (10.6 million) being dependent users and 20–30% of hospital admissions are due to alcohol-related problems^[4]. A national survey found that the prevalence of current use of alcohol ranged from a low of 7 percent in Gujarat to a high of 75 percent in Arunachal Pradesh and that alcohol use among women exceeded 5 percent only in the north eastern states^[5].

Most of the behavioral risk factors are potentially modifiable ones and long use of alcohol may directly cause certain organic diseases, may contribute to the development of cirrhosis of the liver, cancer of the mouth, pharynx, esophagus and pancreas and result in increased risk of accidents and suicide^[6]. The study was taken to know pattern and prevalence of alcohol consumption among adults in urban and rural areas of Bareilly district.

MATERIAL AND METHOD

The community based study was conducted in both urban and rural population of Bareilly district. Based on previous survey prevalence of Alcohol was taken 41% for the current study. (Sugathan TN and Soman CR et al)^[6] n

Using Formula - $4pq/l^2$

$P=41\%$; $Q=(100-41)=59$; $L=(\text{allowable error})=15\%$

On substituting the values Sample size was 256 taken to 260(approximately taken).

The total sample of 260 size was divided equally first in two strata i.e. rural and urban. Total 130 individuals were included both from urban and rural setting each. Pretested, predesigned Schedule was used.

Multistage random sampling was used in both rural & urban areas for selection of study participants. Villages in rural area and census enumeration blocks in urban area were taken as a sampling unit. In rural area, 12 villages were selected as per probability proportional to

size (PPS). In urban area, 12 census enumeration blocks were selected as per PPS. The list of enumeration blocks and their population was obtained from census office. Individual aged 18 years and above were taken from both urban and rural areas of Bareilly district.

Exclusion Criteria:

1. Individuals below 18yrs of age.
2. Individuals who do not give consent or cooperate.
3. Individuals who are not found after the three consecutive visits to their houses.

Mode of communication was in the vernacular language. Unwilling individuals were counseled and every effort was made to convince them to participate in the study.

Operational definition:

Current alcohol drinkers were defined as those who reported to consuming alcohol within the past one year. One standard drink was equivalent to consuming one standard bottle of regular beer (285 ml), one single measure of spirits (30 ml) or one medium size glass of wine (120 ml).

Data analysis:

The data thus collected has been analyzed with the help of computer software Epi-Info (7.1.0).Prevalence of current alcohol use in different age-groups and sexes were analyzed for both rural and urban areas.

RESULTS

According to table 1, socio-demographic distribution of the total 260 study participants, 61.54% were males while 38.46% females. About 30.38% of the participants were in the age group of 31-40 years followed by 21-30 years (30%). Out of the total participants, 61.15% were from OBC cast followed by General cast (32.31%) and SC/ST cast (6.54%). Majority of study participants were Hindus that is 60.38% followed by Muslim (37.31%). In the total study population, 32.69% were illiterate followed by graduate/postgraduate (29.23%), intermediate (13.85%), high school (13.08%). According to BG Prasad classification, 23.85% of participants belong to class IV followed by class II (21.92%) and class III (20.38%).

Table 2 suggests that the overall prevalence of current alcohol use was found to be 36.92%. The prevalence of current alcohol use was more among males (26.15%) as compared to that in females (10.70%) and also the knowledge regarding health hazardous of alcohol consumption was more in males (64.68%) than in females (35.32%).

Table 3 shows that the mean age at initiation of alcohol was found to be 23.55 years. The mean age of initiation of alcohol in males were found to be 24.50 years while in females it was 22.26 years. The mean frequency of consumption of alcohol per month was found to be 5.16. Frequency of consumption of alcohol per month was found more in male (7.10) than in females (3.21). Average amount of consumption on single occasion (ml) was more in males (183.68) than females (96.32).

Table 1: Distribution of study participants according to their socio-demographic profile

Characteristics	Number Of Subjects (n=260)	Percentage (%)
	Frequency	Percent
Sex		
Female	100	38.46%

Male	160	61.54%
Age		
18-20	13	5.00 %
21-30	78	30.00 %
31-40	79	30.38 %
41-50	42	16.15 %
51-60	34	13.08 %
61=<	14	5.38 %
Cast		
General	84	32.31 %
OBC	159	61.15 %
SC/ST	17	6.54 %
Religion		
Christian	1	0.38 %
Hindu	157	60.38 %
Muslim	97	37.31 %
Sikh	5	1.92 %
Education		
Graduate/Postgraduate	76	29.23%
Intermediate	36	13.85%
High school	34	13.08%
Middle school	20	7.69%
Primary school	9	3.46%
Illiterate	85	32.69%
Socioeconomic status		
Class I	39	15.00%
Class II	57	21.92%
Class III	53	20.38%
Class IV	62	23.85%
Class V	49	18.85%
Total	260	100.00%

Table 2: Distribution of the participants according to consumption of alcohol and health hazard knowledge

Consumption of Alcohol	Sex		Total(n=260)	
	Female	Male		
Current users	28 (28.0 %)	68 42.50 %	96 36.92 %	X ² = 5.5554 p<0.05
Non users	72 (72.0 %)	92 (57.50 %)	164 (63.08 %)	
Knowledge regarding health hazardous of alcohol consumption				
Yes	83 (35.32%)	152 (64.68 %)	235 (90.38 %)	X ² =10.20 p<0.05
No	17 (68.00 %)	8 (32.00 %)	25 (9.62 %)	
Total	100	160	260	

Table 3: Patterns of alcohol use among male and female participants.

	Female	Male	P value
Mean Frequency of consumption (per month)	3.21	7.10	< 0.05
Average amount of consumption on single occasion (ml)	96.32	183.68	< 0.05
Age at the time of first encounter with alcohol	22.26	24.50	>0.05

DISCUSSION

The overall prevalence of current alcohol use in our study was found to be 36.92% which was similar to the multi centric study conducted by Bela shah et al reported that prevalence of current alcohol use was 40 – 50%.^[7] The prevalence of current alcohol use was more among males (26.15%) as compared to that in females (10.70%). At the national level, overall prevalence of alcohol was found to be 32% for males and 2.2% for females by NFHS-3^[5] which was nearly similar our result. The knowledge regarding health hazardous of alcohol consumption was more in males (64.68%) than in females (35.32%).

The mean age at initiation of alcohol was found to be 23.55 years. The mean age of initiation of alcohol in males were found to be 24.50 while in females it was 22.26. The mean age of initiation of alcohol consumption was 18.7 year for males and 19.2 year for females by Khosla et al^[1], which was lower than that study conducted by us this might be due to the cultural difference.

The mean frequency of consumption of alcohol per month was found to be 5.16. Frequency of consumption of alcohol per month was found more in males (7.10) than in females (3.21). Singh **et al.** reported that 87.5% of urban males consumed alcohol daily in Amritsar, Punjab, which is much higher than that in the present study.^[8] The difference might be due to again the cultural difference. Average amount of consumption on single occasion (ml) was more in males (183.68) than females.

CONCLUSION

Overall, the prevalence of current alcohol use was found to be 36.92% the prevalence of current alcohol use was more among males than in females. The mean age of initiation of alcohol was found to be 23.55 years. The mean age of initiation of alcohol in females was early than males. Frequency of consumption of alcohol per month was found more in male than in females. Average amount of alcohol consumption on single occasion (ml) was also more in male than females. Knowledge regarding health hazardous of alcohol consumption was more in males than in females.

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A Study of Cases Suffering from Various Allergic Disorders of Childhood with Special Emphasis on Eosinophil Count and Skin Prick Test

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ABSTRACT

Allergy is a specific, acquired change in host reactivity mediated by an immunologic mechanism and causing an untoward physiologic response. A rise in the eosinophil count is one of the common findings observed in these allergic disorders.

Objectives: The aim of the study was to note the changes occurring in the eosinophil count in the cases of children suffering from various allergic disorders. Besides this, an attempt was made to study the effect of various allergens by using skin prick test (SPT).

Material and Method: The study was conducted at the Department of Pediatrics, Muzaffarnagar Medical College, Muzaffarnagar between February 2015 and December, 2015. A total of 55 children, up to the age of 18 years were taken up in the study which included 38 patients of various allergic disorders & 17 children serving as control. Allergy testing was done by modified prick test method using prick test solution. Saline was used for negative control & histamine for positive control. Besides skin prick test, an absolute eosinophil count was done in each case & stool examination was also done.

Results: A significant eosinophilia, i.e., an absolute count of above 250 cells/cmm was observed in 73.91% of the asthma cases, 66.66% of allergic rhinitis cases, 57.14% of urticaria cases and in 80% cases suffering from rhinitis with asthma. On the other hand, eosinophilia was seen only 11.76% of the control cases. To speak of the SPT, while it was positive in 61.11% cases of bronchial asthma, the same was positive in only 50% cases of urticaria. Positive SPT, interestingly, was seen in 100% in allergic rhinitis cases, while 75% cases suffering from rhinitis with asthma showed positive SPT.

Conclusions: While eosinophilia is seen in allergic disorders, there is no significant difference between various allergic disorders as regards the degree of eosinophilia. Regarding the use of SPT, it is a cumbersome and painful procedure and of little value either for the diagnosis or therapy.

Keywords: *Eosinophil count, Skin Prick Test*

INTRODUCTION

Allergy is a specific, acquired change in host reactivity mediated by an immunologic mechanism and

causing an untoward physiologic response. The terms antigen and allergen are often used interchangeably but not all antigens are good allergens and vice versa. The term allergy was coined by von Pirquet in 1906 to include two different types of immune responses to allergens, the beneficial one called immunity and the harmful one hypersensitivity. Allergy and hypersensitivity are mostly used as synonyms but for induction of hypersensitive reaction, the host should have prior contact to the same antigen/ allergen.

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Asthma, allergic rhinitis, urticaria and other allergic diseases¹ are one of the important causes of morbidity ranging from mild illness to severe form in which there is total incapacitation.

Etiological allergens are different at different places, the environment also playing an important role. The common offending agents are dusts, pollens and fungi etc, pollens and dust allergens comprising 15% of all the respiratory allergens^{2,3} In the past, skin testing has been used in the diagnosis of allergic diseases. Properly used it has been shown to predict immunologic events that are likely to occur in the bronchial, nasal, conjunctival and gut mucosa especially those mediated by IgE.

Eosinophils are multifunctional leukocytes implicated in the pathogenesis of numerous inflammatory processes including infections (by parasitic helminths, bacteria and viruses), non-specific tissue injury, malignancy, and allergic diseases.^{4,5}

In spectrum of such diagnostic difficulties, the present study was designed to study the range of allergic illnesses in children and to confirm their allergic nature by skin prick test using 26 allergens. An approach was made to know about the family history, socio-economic status, eosinophil count, precipitating factors and relation of parasites in allergic disorders. A special emphasis was given on the eosinophil count in the present study

AIMS AND OBJECTIVES

The aim of the study was to note the changes occurring in the eosinophil count in the cases of children suffering from various allergic disorders, viz., bronchial asthma, urticaria, allergic rhinitis and possibly a combination of these. Besides this, an attempt was made to know the causative allergen in these cases by using skin prick test (SPT).

MATERIAL AND METHOD

The present study was done at the Department of Pediatrics, Muzaffarnagar Medical College, Muzaffarnagar (U.P.) between February, 2015 and December, 2016. A total of 55 children up to 18 years of age, comprised the study, including 38 patients suffering from allergic disorders, while 17 children served as control.

The study comprised children having some allergic disorder(s), like bronchial asthma, allergic rhinitis and/or

urticaria. Cases were selected from patients attending the outpatients department (OPD), including those referred from ENT and Skin OPDs. Diagnosis was based on the detailed history, clinical examination and relevant investigations.

A detailed history was obtained from parents or other family members, regarding the present illness with emphasis to the age of onset of the first attack, frequency of attacks, symptom free periods and the precipitating factors for the illness.

Every child had to undergo the following investigations, the peak expiratory flow (liter/minute) by peak flow meter, stool examination for ova and cysts, an absolute eosinophil count and skin testing by modified prick method. Patients were asked to discontinue (at least for 5 days) any medication that they were receiving for their allergic condition prior testing.

For the Skin prick test (SPT), commercially available prick test solutions containing aqueous allergen extracts, were used. The extracts contained 50% glycerol and were preserved in 0.4% phenol. Allergens included those taken from 3 types of commonly available dusts, viz., cotton dust, house dust and wheat dust. Flexor side of the forearm was used as the common site for skin testing.^{6,7} The skin was first cleaned with savlon and alcohol, it was marked, using a felt tip pen, 3-4 cm apart in two rows. Testing solutions (all the available allergen extracts) were subsequently placed at the sites marked with pen. The negative control (saline) was placed near the top of the arm, followed by the allergen extracts, using one small drop of the test solution, further followed by histamine buffer solution, as the positive control. The test sites were approximately 4 cm apart. Subsequent to this, a sterile needle (No. 21) was introduced in the epidermis epicutaneously, through a drop of allergen extract.

The results were read after 20 minutes; a positive reaction would appear as an induration surrounded by wheal and flare. The reactions were graded as under -

Very small wheal and flare

+

Reaction larger but smaller than the positive control

++

Reaction similar to or greater than the positive control, or those with pseudopodia

+++

Chi square test was done for statistical evaluation

and a p value of <0.05 was considered statistically significant.

OBSERVATIONS

Distribution of cases according to age and sex is depicted in table 1. As can be seen there, the majority of patients fell in the age group of 8 – 10 years and there was only 1 child below 1 year of age. Regarding the sex, as can easily be seen in the table, males outnumbered females.

Table 1: Distribution of patients according to age and sex

Age group (years)	Number of cases		Total
	Males	Females	
0 – 1	1	-	1
2 – 4	6	2	8
5 – 7	8	3	11
8 – 10	9	4	13
11 – 13	2	-	2
14 – 16	1	-	1
17 – 19	1	1	2

Eosinophil Count: The absolute eosinophil count of cases of various allergic disorders can be seen in table 2. It is evident that while only 2 out of 17 control cases had a significant eosinophilia with an absolute count exceeding 250 cells/cmm, a vast majority of the study cases showed significant eosinophilia, the maximum percentage of such rise being seen in urticaria cases. The changes were found to be statistically significant ($p < 0.05$)

Table 2: Status of eosinophil count in different allergic disorders

linical groups	No. of cases	Eosinophil count – mean and (range)	No. of cases having eosinophilia > 250/cmm	Percentage of cases of eosinophilia >250/cmm
Bronchial asthma	23	667 (0-2048)	17	73.91
Urticaria	7	446 (100-786)	4	57.14
Allergic rhinitis	4	590 (0-940)	3	75.00
Rhinitis + Bronchial asthma	5	790 (520-1040)	4	80.00
Control	17	168 (0-340)	2	11.76

Skin Prick Test: This is shown in table 3. It can be easily seen that it was positive in 50% to 100% of the cases suffering from various allergic disorders, the maximum cases being seen in urticaria.

Table 3: Cases of different allergic disorders with positive skin prick test

Clinical Groups	Total no. of cases	Cases in which SPT done	SPT positive cases	Percentage of positive cases
Bronchial asthma	23	18	11	61.11
Allergic rhinitis	3	3	3	100
Urticaria	7	4	2	50
Rhinitis + Bronchial asthma	5	4	3	75

Response to different types of dust: Table 4 shows positive SPT cases using different types of dust. It is clear that most of the positive cases were fell in the group of house dust.

Table 4: Positive SPT response to different types of dust

Dust	No of positive SPT cases	Percentage of positive SPT cases
Cotton dust	5	21.42
House Dust	8	35.71
Wheat dust	4	17.85

DISCUSSION

A rise in eosinophil count is a common occurrence in allergic disorders. In the present study, the average eosinophil count in allergic disorders was 69.43% as compared to 11.76% seen in the control group, which is statistically significant ($p < 0.001$). Lowell (1967) and Sharma (1974) & Simon also reported eosinophilia in majority of cases of bronchial asthma.^{8,9} One of the significant observations of the present study was a very high eosinophil count seen in those cases who were suffering both from bronchial asthma and allergic rhinitis. This can be explained by a higher response of the body because of the presence of multiple allergens playing their part.

The use of histamine in skin prick testing was recommended for optimal evaluation of allergen hypersensitivity by a number of workers (Nelson¹⁰).

In the present study, histamine was used for SPT as a positive control. Skassa Brociek proposed that reactivity to histamine increased until adulthood was reached and decreased after 50 years.¹¹ Lessof et al were of opinion that since size of skin prick test reaction to histamine varied with age, the interpretation of skin prick tests should not only take into account the wheal size but rather a ratio between histamine induced and allergen induced wheals.¹² This seems logical and in the present study this ratio was used for interpretation of results.

In present study, 61.11% of asthma cases showed positive SPT. In a study by Sethi et al, this percentage was 41.27%, while Shivpuri and Singh reported a positive SPT response in 32.5% cases of bronchial asthma both in adults and children.^{7,2} Voorhorst also reported almost the same findings.¹³

CONCLUSIONS

While eosinophilia is seen in allergic disorders, there is no significant difference between various allergic disorders as regards the degree of eosinophilia. Regarding the use of SPT, though a positive reaction was seen in all the types of allergic disorders for which it was tested, it is a cumbersome and painful procedure and of little value either for the diagnosis or therapy.

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A Profile of Pyogenic Liver Abscess in Pediatrics Age Group

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ABSTRACT

Aim : As pyogenic liver abscesses are rare in developed countries but have high incidence in developing countries. The aim of this study is to see the profile of pyogenic liver abscess in pediatrics age group.

Material & Method: This retrospective study conducted during Jan 2011 to Dec 2015 at LLRM medical college Meerut and SIMS Hapur, in the NCR region of Delhi. During this period total 76 patients aged up to 19 years were diagnosed with pyogenic liver abscess.

Result: During this period of 5 years pyogenic liver abscess was found in 76 patients, out of which 50(65.58%) and 26 (34.22%) were male and female respectively. Most of the patients 42 (55.26%) were in the age group of less than 10 years. All the patients were having fever and 46 (60.52%) having pain in abdomen. Nausea and vomiting was found in 40 (52.63%) patients. Upper quadrant tenderness present in 65 (85.52%) patients while hepatomegaly was noted in 45(59.21%) patients. Out of 76 patients, 48 (63.16%) were having right lobe abscess and 28 (36.84%) were having left lobe abscess. Most of the abscess were solitary. Most of the abscess 40 (52.63%) were 50-70 mm.

Keyword: *Pyogenic live abscess, clinical sign and symptoms children*

INTRODUCTION

Pyogenic liver abscess, potentially lethal infectious disease¹ is rare in developed countries but common in developing countries especially in South East Asia². In most of the cases pyogenic liver abscesses are polymicrobial and accounts for 80% of all liver abscess in developing world^{3, 4}. In pediatric population, the liver abscesses are associated with immuno compromised state, protein energy malnutrition⁵ and low socio economic status. The most common organism responsible for PLA are Staphylococcus, Streptococci, E coli and Klebsiella^{6, 7, 8}. Approximately 65% of liver abscess are found in right lobe and are solitary. The most common symptoms of PLA are pain in upper abdomen, nausea, vomiting loss of appetite, high grade fever and jaundice. Respiratory

symptoms are less. The common signs are tenderness and guarding in right hypochondrium, hepatomegaly and less frequently respiratory sign in the form of crackles and chest pain. The purpose of this study is to see the profile of pyogenic liver abscess in pediatric patients.

MATERIAL & METHOD

This retrospective study was conducted from Jan 2011 to Dec 2015 at LLRM medical college Meerut and SIMS Hapur, in the NCR region of Delhi. During this period total 76 patients aged up to 19 years were diagnosed with pyogenic liver abscess. The diagnosis was made on the basis of symptoms, Sign, colour of pus, peripheral blood count, blood culture, pus analysis and culture. Apart from these USG whole abdomen, x-ray chest PA view (when required) and HIV test were done. Data were collected in the form of demography, clinical presentation and treatment given. Other causes of live abscesses and hepatobiliary diseases were excluded. All the data were analyzed by using SPSS software.

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Table I: Demographic Data

Gender	n= 76	%
Male	50	65.75
Female	26	34.22
Age		
0 - 5 Years	18	23.68
> 5 years - 10 years	24	31.57
> 10 years - 15 years	18	23.68
> 15 years - 19 years	16	21.06
		100
Symptoms		
Fever	76	100
Upper quadrant tenderness	65	85.52
Abdomen pain	46	60.52
Nausea / Vomiting	40	52.63
Hepatomegaly	45	59.21
Crackles	10	13.16
Jaundice	14	18.42

Table II: Radiological characteristics of abscess

Location of abscess	Single	Multiple
Right Lobe	40 (52.63)	8 (10.52)
Left lobe	26 (34.21)	2 (2.63)
	86.84	13.16
Size of Abscess		
< 50 mm	22	28.95
50 - 70 mm	40	52.63
> 70 mm	14	18.42

RESULTS

In our study total patients were 76, out of which 50 (65.58%) and 26 (34.22%) were male and female respectively. Out of 76 patients 18 (23.68%), 24 (31.58%), 18 (23.68%) and 16 (21.06%) were in the age group of < 5 years, 5-10 years, > 10 - 15 years and > 15 years respectively. All patients were having fever and 46 (60.52%) having pain in abdomen. Nausea and vomiting were present in 40 (52.63%) patients. Right upper quadrant tenderness were present in 65 (85.52%). Hepotomegaly and jaundice were noted in 45 (59.21%) and 14 (18.42%) patients respectively. Respiratory sign

in the form of crackles was noted in 10 (13.16%) patients. Out of total 76 patients 48 (63.16%) were having right lobe abscess and 28 (36.84%) were having left lobe abscess. In right lobe abscesses, 40 (52.63%) were single and 8 (10.52%) were multiple. In left lobe abscesses 26 (34.21%) were single and 2 (2.63%) were multiple. In this study, the size of abscess was < 50 mm in 22 (28.95%), 50 - 70 mm in 40 (52.63%) and > 70 mm in 14 (18.42%) patients.

DISCUSSION

Although pyogenic liver abscess is rare in developed world, but common in tropical and developing countries^{9, 10}. In our study all patients were not having any congenital anomaly of biliary tract. In this study the male children were more than the female. The similar results are also found in other study¹¹. But there were no difference between girls and boys in other studies^{12, 13}. Most of the patients in this study were less than 10 years of age which is similar to other study¹⁴. The most common symptoms and signs in our study were fever, pain, tenderness in right upper quadrant and Hepatomegaly, these are comparable to other studies¹⁵.

In our study, most of the abscesses were single and located in right lobe more than the left lobe. These results are comparable with other study in children as well as in adult^{2, 16}. Regarding size of the abscess about 50% of the abscess were between the size of 50 – 70 mm and about 30% of abscess were < 50 mm. these results are comparable to other study¹⁴. Whether treat medically or surgically, controversies are there about the treatment of pyogenic liver abscess.^{5, 15, 7}. In this study about 43 patients were treated medically with ceftriaxone, metronidazole and amikacin for three weeks followed by oral antibiotic, Rest of the patients required USG guided drainage and antibiotic therapy both according to pus culture and sensitivity.

CONCLUSION

For better management of pyogenic liver abscess clinical suspicion and early diagnosis is must. A combination of broad spectrum antibiotics and USG guided drainage are required for resolution of pyogenic liver abscess.

Conflict of Interest: None

Source of Funding: None

Ethical committee clearance: Taken

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Effectiveness of Comprehensive Intervention Package on Psychological and Bio-Physiological Parameters among Adolescents – A Pilot Study

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ABSTRACT

A remarkable change in growth and development occurs during the adolescence. Changes occur in their capability to understand, judge and appraise situations and informations. School plays an important role in this transition period from childhood to adulthood. Comprehensive interventions provided at school promote physical and psychological well-being. Thus the present study was aimed at assessing the effectiveness of comprehensive intervention package on psychological and bio-physiological parameters among adolescents. Quantitative experimental pre-test and post test control group design was used. Comprehensive intervention package aimed at promoting assertive communication, reducing stress, enhancing coping, peer relationship and self-esteem was found to be more effective on the experimental group compared to the control group with no treatment.

Keywords: Assertiveness, Stress, Coping, Peer relationship, and self-esteem

INTRODUCTION

Adolescence 10-19 years is the phase of growth and development that intersects childhood and adulthood¹. Adolescents are the most valuable wealth of a nation. It is regarded as a period of vulnerabilities, that impinge their health and safety and as a phase that shapes their future². It is characterized by changes in growth and progress towards maturity in physical and psychosocial aspects. The physical changes in growth including the pubescent growth spurt and maturational changes in organ system go hand in hand with the psychosocial changes³. Psychosocial changes involve expansion of cognitive abilities, abstract thinking, social skills, development of a new sense of self and identity⁴. Psychosocial competencies and the social skills facilitates the adolescents' ability to make decisions, tackle troubling situations, think creatively, effectively and assertively communicate with others, build healthy relationships with peers and parents and cope and manage stressful situations in a healthy and productive manner⁵.

BACKGROUND OF THE STUDY

Programs of training on special skills should be organised and implemented periodically by making it as a component of health programs at school sustaining the support of teachers and parents⁶. Interventions aimed towards promotion of health helps in early identification of behaviours that are risky towards health and also enable early adoption of measures that brings about beneficial changes in behaviour⁷. Involvement of adolescents in risky behaviours predisposes them to several untoward effects in future as violence, unsafe sexuality, early pregnancy and under achievement in school. It is advisable to design and implement comprehensive prevention and intervention strategies at the earliest for the adolescents to gain decisive and long lasting effects⁸. Fortunately, school based comprehensive intervention programmes that address multiple domains is an efficient public health approach that alleviates the problems of adolescents who are at the chance of moving towards high risk behaviours. These programmes seek to increase resilience and promote positive parental/family influences and/or healthy school environments supportive

of positive social and emotional development⁹. The aim of the pilot study is to assess the effectiveness of the comprehensive intervention package on Assertiveness, Stress, Coping, Peer relationship, Self-esteem and bio-physiological parameters among adolescents help them to step into a healthier adulthood both physically and psychologically.

MATERIAL AND METHOD

1.1. Objectives

- To assess the effect of comprehensive intervention package on psychological variables and bio-physiological parameters of adolescents.
- To correlate between Psychological variables of adolescents of both the groups.

1.2. Research approach & Research design: Quantitative experimental with pre-test and post test control group design was used for the study.

1.3. Participants: Randomly selected twenty Adolescents between 13 to 15 years of both the sexes 10 for the experimental and 10 for the control group were included in the study.

1.4. Tool for data collection: Section A consisted of items to assess demographic profile. Section B: Assertiveness was assessed by 15 items from Rathus assertiveness schedule. Section C consisted of 8 items to assess the stress of the adolescents from Sun, Dunne, Hou & Xu's, Educational Stress Scale for Adolescents. Section D: Eight modified self-report questionnaires to assess the coping strategies adapted from the Susan Folkman's coping strategies inventory were used. Section E: Peer relationship inventory consisted of 5 items to assess the peer relationship. Section F: It consisted of 10 items from Rosenberg self-esteem scale to measure adolescents' feelings of self worth. Section G: Bio physiological parameters included assessment of heart rate and respiratory rate.

1.5 Procedure of data collection:

Phase 1: Pre-test data collection: During the first week after seating the adolescents comfortably in a room, the demographic information of the participants were obtained by using structured questionnaire. The variables such as the assertiveness, stress, coping, peer relationship and self-esteem were assessed by using rating scales. It took about 40-60 minutes to complete the questionnaire. Bio-physiological parameters such as the heart rate and respiratory rate were assessed.

Phase II: From the 2nd week to 7th week, the comprehensive intervention package was implemented by using various teaching strategies. Home works to practice the behaviours were given for the participants. The sessions were conducted as one session per week for the group for 45-50 minutes with 10-15 minutes for clarification of their doubts and practise. After each session, their doubts were clarified, handed over pamphlets related to the techniques to be practised and explained them regarding the date, time and venue for the next session.

Phase III: Post test data collection: After 7 weeks, post test was carried out on the 8th week in the same manner as the pre-test. The same tool used during the pre-test was used to reassess the effectiveness of comprehensive intervention package. Bio-physiological parameters were also reassessed among the adolescents.

1.6. Data analyses: Pearson's correlation was used to find the extent of association between the variables such as assertiveness, stress, coping, peer relationship and self-esteem. Paired and unpaired 't' tests were used for the comparison of means within and between experimental and control group. The difference in proportions was tested for statistical significance using chi-square test. The analyses were carried out using SPSS 16.0 ver. A 'p' value of <0.05 was considered to be statistically significant for interpretation of the results.

FINDINGS

S.No	Demographic characteristics	Categories	Experimental		Control		χ^2 - value, df, p-value
			No (10)	%	No (10)	%	
1.	Class studying	8 th Standard	1	10	2	20	0.392 df=1 p=0.531
		9 th Standard	9	90	8	80	

2.	Gender	Male	3	30	4	40	0.220 df=1 p=0.639
		Female	7	70	6	60	
3.	Religion	Hindu	8	80	6	60	1.486 df=2 p=0.476
		Christian	-	-	1	10	
		Muslim	2	20	3	30	
4.	Father's education	Middle school	-	-	-	-	3.337 df=2 p=0.185
		High school	5	50	6	60	
		Intermediate/post high diploma	5	50	2	20	
		Graduate /post graduate	-	-	2	20	
		professional	-	-	-	-	
5.	Mother's education	Middle school	-	-	-	-	5.771 df=2 p=0.056
		High school	3	30	2	20	
		Intermediate/post high diploma	1	10	6	60	
		Graduate/post graduate	6	60	2	20	
		professional	-	-	-	-	
6.	Father's occupation	Unemployed	-	-	-	-	1.667 df=2 p=0.435
		Semi Skilled worker	4	40	2	20	
		Skilled worker	5	50	5	50	
		Clerical/shop owner/farmer	1	10	3	30	
		professional	-	-	-	-	
7.	Mother's occupation	Unemployed	6	60	7	70	0.277 df=2 p=0.871
		Semi-skilled worker	1	10	1	10	
		Skilled worker	3	30	2	20	
		Clerical/shopkeeper /farmer	-	-	-	-	
		Semi professional	-	-	-	-	
		professional	-	-	-	-	
8.	Family income	1601-4809	-	-	-	-	1.758 df=4 p=0.780
		4810-8009	2	20	1	10	
		8010-12019	5	50	6	60	
		12020-16019	1	10	2	20	
		16020-32049	1	10	1	10	
		>32050	1	10	-	-	
9.	Type of family	Nuclear	7	70	7	70	<0.001 df=1 p=1.000
		Joint family	3	30	3	30	
		extended	-	-	-	-	
10.	Family's Residential area	Urban	-	-	-	-	1.053 df=1 p=0.305
		Rural	-	-	1	10	
		Semi urban	10	100	9	90	
11.	Birth order	1	5	50	7	70	0.867 df=2 p=0.648
		2	3	30	2	20	
		3	2	20	1	10	
		>4	-	-	-	-	

Table 1 shows that majority of the adolescents were in the 9th standard; 9 (90%) and 8 (80%) in the experimental and the control group respectively ($\chi^2 = 0.392$;NS). Females were 7 (70%) in the experimental and 6 (60%) in the control group and the difference was not significant. Most of the participants were Hindus 8 (80%) in the experimental and 6 (60%) in the control group ($\chi^2 1.486$;NS). The father's education was high school 5 (50%) each in the experimental group and graduate/post graduate 6 (60%) in the control group ($\chi^2 3.337$;NS). Majority of the mothers' were graduate/post graduate 6 (60%) in the experimental group and intermediate/post high diploma 6 (60%) in the control group and the difference was not significant. The occupation of most

of the fathers was under skilled category with the same 5 (50%) in both the groups ($\chi^2 1.667$;NS). 6(60%) of mothers were unemployed in the experimental 7(70%) in the control group ($\chi^2 0.277$;NS). Most of the of adolescents' family income 5(50%) in the experimental and 6 (60%) in the control group were within the range of 8010-12019 rupees ($\chi^2 1.758$;NS). Majority 7 (70%) in both the experimental and control group belonged to nuclear family and the difference was not significant. Almost all 10(100%) in the experimental and 9(90%) in the control group were residing in the semi urban area ($\chi^2 1.053$;NS). 5(50%) of adolescents in the experimental and 7(70%) in the control group were first child in the family ($\chi^2 0.867$;NS).

Table 2. Distribution of adolescents according to their experience, participation in various activities and miscellaneous.

S.No	Characteristics	Categories	Experimental		Control		χ^2 - value, df, p-value
			N(10)	%	N(10)	%	
1.	Experience as class representative in school.	Yes	8	80	9	90	0.392 df=1 p=0.531
		No	2	20	1	10	
2.	Participation in games and sports in school.	Yes	8	80	5	50	1.978 df=1 p=0.160
		No	2	20	5	50	
3.	Participation in cultural activities in school.	Yes	9	90	8	80	0.392 df=1 p=0.531
		No	1	10	2	20	
4.	Attending tuitions after school.	Yes	6	60	8	80	0.952 df=1 p=0.329
		No	4	40	2	20	
5.	Attending extracurricular classes after school.	Yes	5	50	3	30	0.833 df=1 p=0.361
		No	5	50	7	70	
6.	Future career plans	Yes	7	70	9	90	1.250 df=1 p=0.264
		No	3	30	1	10	

Table 2 reveals that majority 8 (80%) in the experimental and 9(90%) in the control group had experience as class representative ($\chi^2 0.392$;NS). 8(80%) in the experimental and 5 (50%) in the control group participated in games and sports in school and the difference was not significant. Most of them 9 (90%) in the experimental and 8 (80%) in the control group participated in cultural activities at school ($\chi^2 0.392$;NS). Majority in the experimental group 6(60%) and 8 (80%) attended tuitions after school ($\chi^2 0.952$;NS). Equal number 5(50%) in the experimental group attended and not

attended extracurricular classes after school (χ^2 0.833;NS). Majority 7 (70%) in the experimental and 9 (90%) in the control group had future career plans (χ^2 1.250;NS).

Table 3. Psychological and bio-physiological parameters of adolescents.

S.No	Parameter	Group	Mean \pm SE	Unpaired 't' test		Paired 't' test	
				ConVsExp Pre-test (pre)	ConVsExp Post-test (post)	Control PreVs post	Experiment PreVs post
1.	Assertiveness	Exp-Pre-test	60.30 \pm 1.795	t=0.52 p=0.609	t=0.200 p=0.843	t=0.895 p=0.394	t=3.404 p=0.008
		Exp- Post-test	62.50 \pm 1.500				
		Con-Pre-test	61.70 \pm 2.000				
		Con-Post-test	62.00 \pm 1.994				
2.	Stress	Exp-Pre-test	27 \pm 1.022	t= -0.631 p=0.536	t= -6.043 p<0.001	t=0.970 p=0.357	t=9.448 p<0.001
		Exp- Post-test	16.20 \pm 1.474				
		Con-Pre-test	27.90 \pm 0.994				
		Con-Post-test	27.30 \pm 1.096				
3.	Coping	Exp-Pre-test	6.60 \pm 0.846	t=0.00 p=1.000	t=7.806 p<0.001	t=1.253 p=0.242	t=-11.403 p<0.001
		Exp- Post-test	15.40 \pm 0.670				
		Con-Pre-test	6.60 \pm 0.846				
		Con-Post-test	6.90 \pm 1.016				
4.	Peer relationship	Exp-Pre-test	3.10 \pm 0.458	t=0.485 p=0.634	t=-3.838 p=0.001	t=-0.557 p=0.591	t=4.243 p=0.002
		Exp- Post-test	1.10 \pm 0.180				
		Con-Pre-test	2.80 \pm 0.416				
		Con-Post-test	2.90 \pm 0.433				
5.	Self-esteem	Exp-Pre-test	16.80 \pm 1.172	t=0.456 p=0.654	t=1.853 p=0.080	t= -3.00 p=0.015	t=-9.487 p<0.001
		Exp- Post-test	20.80 \pm 1.162				
		Con-Pre-test	17.50 \pm 0.992				
		Con-Post-test	18.00 \pm 0.996				
6.	Heart rate	Exp-Pre-test	79.60 \pm 1.572	t=1.306 p=0.208	t=1.437 p=0.168	t=0.361 p=0.726	t=0.208 p=0.840
		Exp- Post-test	79.50 \pm 1.485				
		Con-Pre-test	77.20 \pm 0.952				
		Con-Post-test	77.00 \pm 0.907				
7.	Respiratory rate	Exp-Pre-test	24.40 \pm 0.653	t=-1.069 p=0.299	t=-2.33 p=0.031	t=0 p=1.00	t=1.00 p=0.343
		Exp- Post-test	24.00 \pm 0.422				
		Con-Pre-test	25.40 \pm 0.670				
		Con-Post-test	25.40 \pm 0.427				

Table 4 shows that In the experimental group, the mean assertiveness score in the pre-test was 60.30 as compared to 62.50 in the post-test and the difference in the mean scores was statistically significant (paired t=3.4;P<0.05).

This showed that the application of comprehensive intervention package had a significant effect on assertiveness. The corresponding figures for the control group were 61.70 and 62.0 respectively. The difference was not significant (paired $t=0.90$;NS). The mean stress score in the experimental group, in the pre-test was 27 as compared to 16.20 in the post-test and the difference in the mean scores were statistically significant (paired $t=9.448$; $P<0.001$). This showed that the application of comprehensive intervention package had a significant effect on stress. The corresponding scores for the control group were 27.90 and 27.30 respectively. The difference was not significant (paired $t=0.97$;NS).

The pre-test mean coping scores in the experimental group, was 6.60 when compared to 15.40 in the post-test and the difference in the mean scores were statistically significant (paired $t= -11.403$; $P<0.001$). This showed that the education and training using comprehensive intervention package had a significant effect on coping. The scores of the control group were 6.60 in the pre-test and 6.90 in the post-test. The difference was not significant (paired $t=1.253$;NS). In the experimental group, the mean score in the pre-test was 3.10 as compared to 1.10 in the post-test and the difference

in the mean scores was statistically significant (paired $t=4.243$; $P<0.05$). This showed that the application of comprehensive intervention package had a significant effect on peer relationship. The corresponding figures for the control group were 2.80 and 2.90 respectively. The difference was not significant (paired $t=0.557$;NS).

In the pre-test The mean self-esteem score in the experimental group was 16.80 as compared to 20.80 in the post-test and the difference in the mean scores were statistically significant (paired $t=9.487$; $P<0.001$). This showed that the application of comprehensive intervention package had a significant effect on self-esteem. For the control group the scores were 17.50 and 18.00 respectively. The difference was not significant (paired $t=-3.0$;NS). The difference in the pre-test between the experimental and control group was not statistically significant for all the psychological variables. In the control group post-test there was no significant difference for all the psychological variables except for assertiveness. No significant difference was found in the pre-test and post-test within & between the experimental and control group (paired 't' & unpaired 't' test) in bio-physiological parameters such as heart rate and respiratory rate.

Table 4. Correlation between various variables in pre-test and post-test of experimental and control group

Variables	Assertiveness	Stress	Coping	Peer relationship	Self-esteem
Experimental pre-test					
Assertiveness	-	$r=0.097$ NS	$r=0.119$ NS	$r=-0.207$ NS	$r=0.003$ NS
Stress	-	-	$r=0.514$ NS	$r=0.214$ NS	$r=0.334$ NS
Coping	-	-	-	$r=0.017$ NS	$r=0.0395$ NS
Peer relationship	-	-	-	-	$r=-0.286$ NS
Self-esteem	-	-	-	-	-
Experimental post-test					
Assertiveness	-	$r=-0.156$ NS	$r=0.221$ NS	$r=0.103$ NS	$r=0.153$ NS
Stress	-	-	$r=0.486$ NS	$r=-0.260$ NS	$r=0.612$ NS
Coping	-	-	-	$r=-0.222$ NS	$r=0.839$ $P<0.01$
Peer relationship	-	-	-	-	$r=-0.096$ NS
Self-esteem	-	-	-	-	-

Control group pre-test					
Assertiveness	-	r=0.132	r=-0.408	r=-0.302	r=-0.272
Stress	-	-	r=0.061	r=-0.301	r=-0.400
Coping	-	-	-	r=0.606	r=0.437
Peer relationship	-	-	-	-	r=0.888 p<0.01
Self-esteem	-	-	-	-	-
Control group post-test					
Assertiveness	-	r=0.056 NS	r=-0.395 NS	r=-0.373 NS	r=-0.208 NS
Stress	-	-	r=-0.007 NS	r=-0.367 NS	r=-0.619 NS
Coping	-	-	-	r=0.452 NS	r=0.441 NS
Peer relationship	-	-	-	-	r=0.664 p<0.05
Self-esteem	-	-	-	-	-

Table 4 reveals that in the experimental group correlation between self-esteem and coping was found ($r=0.839$; $P<0.01$). In the control group statistically significant correlation was found between self-esteem and peer relationship in the pre-test ($r=0.839$; $p<0.01$).

DISCUSSION AND CONCLUSION

Assertiveness training provided for adolescents' enhanced the assertive behaviour and self-esteem. Significant changes in the performance were found in the post-test and after three months follow-up¹⁰. Likewise effectiveness in reducing stress and enhancing coping skills was proved among adolescents who attended Programmes aiming at management of stress or coping¹¹. Classroom training targeting the behavioural skills especially the social skills for adolescents over a 3 week revealed an enhancement of skills at the end of the training when compared to pre training level¹². The training provided for the adolescents was found to be effective for the experimental group compared to the control group with no treatment.

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human ethical committee.

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To Compare Efficacy and Safety of Fixed Drug Combination of Salmeterol / Fluticasone and Budesonide / Formoterol on the Lung Functions in Childhood Patients with Moderate Persistent Asthma

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ABSTRACT

Objectives: Asthma is one of the most common chronic diseases in childhood, with increasing prevalence in the recent decades affecting children of all ages, social classes, and ethnic groups. Now day's combinations of inhaled corticosteroids and long acting β_2 agonists are tried in patients not controlled with steroids. In this study we have evaluated and compared the efficacy of two commonly used combinations Salmeterol / fluticasone and budesonide / formoterol on the lung functions and sleep quality in moderate persistent asthma. **Method:** 68 children with moderate persistent asthma were randomized to receive two different treatments i.e. salmeterol/fluticasone and formoterol/ budesonide in an open, randomized, prospective, comparative study of which sixty patients completed the study successfully. Lung functions were measured using spirometry and quality of sleep was assessed using Pittsburgh Sleep Quality Index. Day time sleepiness was assessed by Epworth Sleep Scale. **Results:** Salmeterol / fluticasone and budesonide / formoterol combinations were comparable in many patient-measured outcomes. Salmeterol/fluticasone and formoterol/ budesonide both significantly increased the forced expiratory volume in first second, forced vital capacity and peak expiratory flow rate, quality of sleep and daytime sleepiness from baseline values. But budesonide / formoterol has been found to be slightly superior to Salmeterol/fluticasone combinations in long term controlling the symptoms of asthma in children. **Conclusions:** Salmeterol /fluticasone and formoterol/ budesonide, both caused significant improvement in lung functions, and an overall improvement in quality of sleep. However formoterol/ budesonide were slightly more beneficial in improving symptoms in childhood asthma.

Keywords: Asthma, inhaled corticosteroids, long acting beta2 agonists Pittsburgh Sleep Quality, Index Epworth Sleep Scale Salmeterol / fluticasone and budesonide / formoterol.

INTRODUCTION

Asthma is one of the most common chronic diseases in childhood with increasing prevalence in the recent decades affecting children of all ages, social classes and ethnic groups.¹ Asthma prevalence increased during the last decade. Children had higher rates coming for emergency visits but similar hospitalization rates and

lower death rates as compared to adults.² In the Phase III International Study of Asthma and Allergies in Children (ISAAC), 13.8% of school going children worldwide reported that they had asthma at some time in their lives.³ So, Asthma management and, in particular, early detection of asthma symptoms remain a crucial objective of clinical control for this disease. Recent guidelines focus on the control status of asthma, aiming to control symptoms and prevent exacerbations, and allowing the child to have a normal lifestyle; including normal physical activity.⁴ Anti-inflammatory agents and bronchodilators are the cornerstones for management of asthma. Inhaled corticosteroid improve lung functions

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and reduces asthma symptoms in children with persistent asthma.⁵ Many childhood patients remain symptomatic despite using optimal dose of inhaled corticosteroids (ICS). Continued symptoms, airway inflammation and obstruction lead to distress and limitation of daily activity put children at risk of acute exacerbation and hence increased mortality. Recently it is observed that patients who needs high dose of steroids do benefit by the addition of an inhaled long acting beta2 agonist (LABA).⁴ Global Initiative for Asthma (GINA) and most other asthma treatment guidelines recommend the use of an inhaled corticosteroid (ICS)-long-acting β 2-agonist (LABA) combination inhaler as the first-line choice in controlling chronic asthma in children where control with ICS monotherapy is difficult.⁵ The principal advantage of combining inhaled corticosteroid (ICS) and long acting beta2 agonists (LABA) in one inhaler is the simultaneous delivery of two effective inhaled therapies. This may lead users to adhere better to dosing regimens, especially given concerns over the use of LABA therapy without a regular background steroid.^{6,7} The benefits of ICS/LABA therapy are supported by in vitro research suggesting that, at the molecular level, the two compounds exert a synergistic mechanism of action when suppressing airway inflammation and alleviating bronchoconstriction, respectively.⁸ Many combinations of steroids and beta 2 agonists are available throughout the world for the better management of uncontrolled asthma. The present study intended to evaluate two different combinations available widely and estimate which of the two is better. This study was conducted in a prospective randomized manner to compare the two treatment groups i.e. salmeterol/fluticasone and formoterol/ budesonide in childhood asthma with mild to moderate persistent asthma to evaluate the effect on asthma.

MATERIAL AND METHOD

This was a prospective, randomized, comparative clinical study conducted by the Department of Pharmacology and Department of Paediatrics, B.P.S Government Medical College for women, Khanpur kalan, Sonapat (Haryana). The study protocol was approved by the institutional Ethical committee. 68 patients were enrolled in the study in accordance with the principles of good clinical practice and declaration of Helsinki. An informed consent was obtained from guardians of all the patients enrolled in the study. All patients completed the study successfully over 6 weeks period. **Study sample:** Two groups of 34 patients each of either sex were

randomly allocated to receive two different treatments. The patients were screened according to following inclusion and exclusion criteria. **Inclusion Criteria:** Patients of either gender aged between age group 8-14 years, documented clinical history of asthma of at least 6 months duration, Patients receiving 400-800 μ g/day of beclomethasone or an equivalent. Asthma symptom score (day and night combined) of at least 2 (2 or more episodes of symptoms during the day/night) and willingness of the guardians of patients to give an informed consent were included in the study. **Exclusion criteria:** Patients with respiratory tract infection or acute asthma exacerbation (requiring emergency treatment or hospitalization within last 4 weeks), taking oral corticosteroids within last 4 weeks, Pre-bronchodilator FEV₁ of <50% of predicted value, Any known allergy to the study drugs, Refusal to give informed consent and any co-morbid illness were excluded from the study.

Drug Treatments: After screening, the children were randomly divided into two treatment groups of 34 subjects each and received one of the following treatments:

Group I: Salmeterol (25 μ g b.i.d. by inhalation) + Fluticasone (100 μ g b.i.d. by inhalation)

Group II: Formoterol (6 μ g b.i.d. by inhalation) + Budesonide (200 μ g b.i.d. by inhalation)

Both the groups received the treatment for a period of 6 weeks. Two inhalations were given twice daily. After a run in period of 1 week in which all children underwent haematological check up i.e. haemoglobin, total leukocyte count (TLC), differential leukocyte count (DLC), platelet count, routine urine examination and pulmonary function tests i.e. forced vital capacity (FVC), forced expiratory volume in first second (FEV₁), peak expiratory flow rate (PEFR) and ratio of FEV₁/FVC were measured and recorded. Borg dyspnoea score was also recorded. All the children were also evaluated for the quality of sleep and day time sleepiness. Clinical evaluation was repeated at 3 weeks and at 6 weeks. Primary endpoints were change from baseline values in FEV₁, FVC, FEV₁/FVC, PEFR and improvement in quality of sleep.

Safety assessments:

Safety assessments were made at weeks 3 and 6 after the start of treatment. Adverse events were documented based on spontaneous reporting, patient interview and

diary entries. Clinical laboratory tests (haematology, biochemistry and urinalysis) were performed at screening and 6 week.

DATA ANALYSIS

The data obtained are expressed as Mean ± Standard Error of Mean (SEM) and both descriptive and analytical statistics were applied. The ability of two combinations to cause clinical improvement was assessed by primary comparison of the change in spirometric values from the baseline values. Intragroup analysis was done using Repeated Measures Analysis of Variance (RM-ANOVA) with Bonferroni's correction. Differences among the 2 groups were analysed using one-way Analysis of Variance (one way-ANOVA) followed by post-hoc analysis using Tukey's test. The two questionnaires i.e. Pittsburgh sleep

quality index (PSQI) was analyzed using mann whitney U test for intragroup analysis and intergroup analysis was done using wilcoxon signed-rank test. A p-value of < 0.05 was considered as statistically significant. All statistical calculations were performed with SPSS software package (version 16.0).

RESULTS

Efficacy assessments: The primary objective of the study was to compare the efficacy of fluticasone/salmeterol combination therapy with budesonide/formeterol. Salmeterol/fluticasone and formoterol/budesonide resulted in significant improvement in all the lung function tests i.e. FVC, FEV₁, FEV₁/FVC and PEFR (**Table I**).

Table I - Predicted values of lung function test

	Time	Group I	Group II	P value
FEV1/FVC	0 Week	75.16±0.62	76.2±0.60	0.208 (NS)
	3 Weeks	78.49±0.51*	78.53±0.52*	0.963 (NS)
	6 Weeks	79.27±0.50*#	78.93±0.47*#	0.618 (NS)
PEFR	0 Week	4.06±0.13(69.23±0.94)	3.90±0.15 (67.50±0.98)	0.437 (NS)
	3 weeks	4.71±0.13*(80.50±0.65)	4.54±0.15* (78.53±0.73)	0.392 (NS)
	6 weeks	4.78±0.14*#(81.50±0.58)	4.57±0.16*# (78.83±0.73)	0.313 (NS)

All values are expressed as mean ± SEM and in percentages, * Baseline values compared with values at 3 weeks and 6 weeks in both groups (p<0.05), # Comparison between values at 3 weeks and at 6 weeks in both groups (p>0.05),

The mean predose baseline spirometric values were comparable in both the treatment groups (p > 0.05). Both the treatments were found to be equally effective with regard to lung function tests. Both the treatments produced a comparable improvement in the Borg dyspnoea score showing thereby that they were equally effective in improving the dyspnoea **Table II**.

Table II - Borg dyspnoea score in various groups at different time intervals

Time	Group I	Group II	p value
0 Weeks	2.31±0.14	2.36±0.13	0.799(NS)
3 weeks	0.66±0.08*	0.55±0.09*	0.341(NS)
6 weeks	0.25±0.06*#	0.23±0.5*#	0.831(NS)

All values are expressed as mean ± SEM and in percentages, * Baseline values compared with values at 3 weeks and 6 weeks in both groups (p<0.05), # Comparison between values at 3 weeks and at 6 weeks in both groups (p>0.05),

On intergroup analysis, no significant difference was found between the two groups and the improvement seen was found to be comparable both at 3 weeks and at 6 weeks showing thereby that both the drugs cause comparable improvement in the dyspnoea.

Sleep quality as assessed by pittsburgh sleep quality index (PSQI) improved in both the treatment groups. However budesonide/formoterol combination was found to be superior in improving the quality of sleep than the combination of salmeterol & fluticasone. (Table III)

Table III - Pittsburgh sleep quality index (PSQI)

Time	Group I	Group II	P value
0 week	6.70±0.16	6.23±0.23	0.057(NS)
3 weeks	3.22±0.21*	3.23±0.21*	0.979(NS)
6 weeks	3.04±0.19*#	2.40±0.14*#	0.007(S)

All values are expressed as mean ± SEM and in percentages, * Baseline values compared with values at 3 weeks and 6 weeks in both groups ($p < 0.05$), # Comparison between values at 3 weeks and at 6 weeks in both groups ($p > 0.05$),

Safety assessment: Both combinations were well tolerated. No moderate to serious side effects were seen.

DISCUSSION

The present study compared the efficacy and safety of fixed combination of fluticasone/salmeterol (100µg/25µg) with those of budesonide/formoterol (200 µg/6 µg) in children with moderate persistent asthma. The primary efficacy analysis (FEV1) showed that combination of fluticasone/salmeterol is equally efficacious to the budesonide/formoterol combination. In addition, asthma control was shown to be similar among the two groups, being slightly better in the formoterol/ budesonide group at the end of the study. The PEF at the end of the study was found to be higher in the groups of patients receiving formoterol/ budesonide and that both the classes of treatment are needed for optimal control in most patients with asthma. LABAs enhance intracellular binding of corticosteroids and potentiate the anti-inflammatory action of corticosteroids. Moreover corticosteroids protect against the loss of 2 receptors during long term LABA therapy. The fixed dose combinations of ICS and LABA may be more cost-effective than giving the two drugs separately.⁹ Many randomized controlled trials have shown the influence of the combined ICS and LABA therapy in asthma like Formoterol and Corticosteroids Establishing Therapy (FACET) study¹⁰, the Oxis and

Pulmicort Turbuhaler In the Management of Asthma (OPTIMA) study¹¹ and the Gaining Optimal Asthma Control (GOAL) study.¹² O'Byrne and colleagues (2005) reported that for patients already receiving an ICS, addition of formoterol proved more effective than doubling the dose of ICS alone, reducing the risk of severe exacerbations by 43% and reducing the number of poorly controlled days by 30%.¹³ In this study it was found that in both the groups lung functions showed a definite improvement at the end of the study period as compared to the baseline values. The results may be attributed to the simultaneous delivery of two potent drugs. The patients were assessed for sleep disturbances with the help of (Pittsburgh Sleep Quality Index (PSQI)¹⁴ and Epworth Sleep Scale (ESS)¹⁵. Few studies have been conducted on the pharmacological management of sleep disturbances in asthma. Therapy with salmeterol outperformed that with theophylline in terms of number of awakenings and arousals and in QOL measures.¹⁶ In this study we found that budesonide/formoterol improved night symptoms more as compared to salmeterol/fluticasone while the day time symptoms were improved to the same levels in both the groups. The overall results of the present study show that both the treatments i.e. salmeterol/fluticasone and formoterol/ budesonide were equally effective as far as improvement of the lung functions are concerned while the combination formoterol/ budesonide was found to be better than salmeterol/fluticasone.

CONCLUSION

The combinations salmeterol/fluticasone and formoterol/ budesonide caused a significant improvement not only in the lung functions and Borg's dyspnoea score but also resulted in an overall improvement in the quality of sleep. Since the LABA's and ICS complement the effect of each other pharmacologically, it may be a good idea to use the fixed dose combinations of the β2 agonists and inhalational steroids in childhood asthmatic patients to achieve a better therapeutic control with an improved compliance.

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Assessment of Integrated Child Development Services in Urban Slums of Belagavi City, Karnataka

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ABSTRACT

Background: Integrated Child Development Services (ICDS) is one of the world's largest community based schemes running in India for over three decades. To promote early childhood care frequent evaluations of the scheme have been conducted in the country.

Objective: To assess the services provided under ICDS in urban slums of Belagavi city of Karnataka.

Method: It was decided to study all the 16 Anganwadi centres (AWCs) of slums which are located under Ramnagar, Rukmininagar and Ashoknagar Urban Health Centres of the Belagavi city. The AWCs visited were evaluated with respect to infrastructure facility of the centre, record keeping activity & knowledge of AWWs, availability of essential drugs & logistics.

Results: A total of 16 centers were assessed. 75% (12) centers operated from pucca buildings and toilet facilities were present at only 31.25% (05) of the centers. Unavailability of medicine kits & other logistics, was observed. Poor pay scale, untimely drug supply, poor community support, more of documentation work, increased work burden, lack of supportive staff and no incentives for the increased work were their main difficulties.

Conclusion: Most of the AWCs were lacking in basic infrastructural facilities along with absence of essential drugs, equipment and logistics. Responding to the difficulties is the key in improvement of ICDS services.

Keywords: Assessment, ICDS, Urban slums.

INTRODUCTION

Children are the first call on agenda of human resources development not because young children are the most vulnerable, but because the foundation for lifelong learning and human development is laid in the early years of life.¹ Early years of the life are the most crucial period for the physical, mental, social, emotional, language development and lifelong learning.²

This led to the birth of the Integrated Child Development Services (ICDS) in 1975, which is no doubt recognized as the world's largest early child health scheme. ICDS approaches child health holistically and comprises – education, health and nutrition component for pregnant women, lactating mother and children less than six years of age. The ICDS programme functions through a network of Anganwadi Centers (AWCs) which are the focal points for the delivery of services attached to the scheme and are

managed by the Anganwadi Workers (AWWs).³

The AWW is the community - based voluntary frontline workers of the ICDS Programme. Selected from the community, she assumes the pivotal role due to her close and continuous contact with the beneficiaries. The AWW monitors the growth of children, organizes supplementary feeding, helps in organizing immunization sessions, distributes vitamin A, iron and folic acid supplements, treats minor ailments and refers cases to medical facilities.⁴

Attainment of ICDS scheme goals depends heavily upon the effectiveness of the AWW, which, in turn, depends upon their knowledge, attitude and practice as well as various facilities available at the centre.⁵ After 35 years of the implementation of ICDS, it is the time to look ahead. The vision for tomorrow is to reach all children from disadvantaged groups, so that each of them can realize full

development potential, with learning opportunities in early childhood.⁴ The present study aims at comprehensive assessment of ICDS services provided at the AWCs.

OBJECTIVES

o To assess the infrastructure of the AWC along with availability of drugs, equipments & logistics, record keeping activity and knowledge of AWW related to health.

MATERIAL & METHOD

As the nutritional status of children residing in urban slums is poorer than their counterparts in rural areas,⁶ the AWCs were selected from slums of Belagavi city. 16 AWCs from seven urban slums coming under three Urban Health Centres were assessed. This was a cross sectional study conducted during the period from September to December 2015.

AWWs were interviewed with pre tested, semistructured questionnaire. The aims of the study were clearly explained and anonymous data were collected. No ethical issues were involved as no intervention was carried out; however, verbal and written consent was obtained to proceed with the survey. The response rate was 100% as all the AWWs approached agreed to be a part of the study. Data were entered in excel sheet and analysed.

RESULT

On an average an AWC catered a population of 1022 ± 320. About 78 ± 28 children less than six years were enrolled in an AWC. The mean age of AWWs was 39.5 ± 7.5(mean ± SD) years. They had 11 ± 3 years of schooling and 10 ± 7 years of work experience. Supplementary nutrition was served for 22 ± 5 days in a month.

Table 1: Infrastructure facility at the AWCs

No. of AWCs in own building	04 (25%)
No. of AWCs in rented building	08 (50%)
No. of AWCs in other building	04 (25%)
No. of AWCs in pucca building	12 (75%)
No. of AWCs having sufficient space for the children to sit	10 (62.5%)
No. of AWCs having drinking water facility	14 (87.5%)
No. of AWCs having toilet facility	05 (31.25%)
No. AWCs with adequate lighting and ventilation	12 (75%)
No. of AWCs with separate kitchen	12 (75%)
No. of AWCs having store room facility	06 (37.5%)

Table 2: Availability of drugs, equipments & logistics

Growth chart	14 (87.5%)
Weighing machine	16 (100%)
Thermometer and Shakhir's tape	00
IFA	08 (50%)
ORS	14 (87.5%)
OCP	00
Condoms	02 (12.5%)
Iodized salt	15 (93.75%)
Maintenance of enrollment register	16 (100%)
Maintenance of ration register	16 (100%)
Immunization register	16 (100%)
ANC and PNC register	16 (100%)

Table 3: Difficulties of AWWs

Poor pay scale	14 (87.5)
Untimely drug supply	10 (62.5)
Poor community support	08 (50%)
More of Documentation work	06 (37.5)
Increase work burden	06 (37.5)
Lack of supportive staff	07 (43.75%)
No incentives	04 (25%)

DISCUSSION

On assessing the infrastructure facilities of the AWCs it was found that about 25% of the AWCs were in Kutch buildings and half (50%) of AWCs were in rented buildings. One study revealed that urban areas have pucca type of building, which was 63.6% and 81.8% in Tamil Nadu and Puducherry.⁷ Only 62.5% of the AWCs had sufficient space for the children to sit. Basic facilities like drinking water & toilet facility were available at 87.5% & 31.25% of the centers respectively. Separate room for cooking was available in 75% of AWCs. If we want to improve the health of children residing in slums, their attendance at the AWC is one of the essential pillars. Also an AWC is a centre for creating awareness regarding construction & use of toilets within the households. The AWC would be a poor role model if it itself does not have toilet facility (Table 1).

A study done in Indore and Ujjain divisions of Madhya Pradesh on evaluation of functioning of ICDS showed that out of 45 AWCs evaluated in project areas of Madhya Pradesh there was an apparent shortage of space at 19 of the

centers, separate room for cooking was unavailable at 19 centers, toilet facilities were absent at 13 centers.⁸

A study done in Kerala on performance of AWCs mentioned that 25% of the AWCs did not have even a single spacious airy room & only 30% AWC had toilet facility.⁹

In the present study, all the AWCs had the Weighing machine and maintained the enrollment register, ration register, Immunization, Antenatal care (ANC) and Postnatal care (PNC) registers. No AWCs had thermometers, shakir's tape and OCP.

Since these records indicate the process & output of services provided at AWC they are very essential for monitoring the services. Non maintenance of growth charts at 12.5% of AWCs was hindrance to the tracking of nutritional status of children. The non availability of various drugs & logistics at various AWCs as in the present study could prove to be a big setback for the success of various national programs concerning Maternal & child health (Table 2).

Nidhi Chaudhary et al mentions that after one year of IMNCI training, thermometer was available at none of the AWCs, ORS packets were available at only 18% (6/33) centers & IFA tablets were available at only 57% (19/33) of the AWCs.¹⁰

Expecting an AWC to deliver all the ICDS services in the presence of lack of sufficient logistics, drugs & equipments is questionable.

In the present study, upon asking the difficulties faced by the AWWs it was found that poor pay scale, untimely drug supply, poor community support, more of documentation work, increased work burden, lack of supportive staff and no incentives for the increased work were the hindering factors for the smooth running of the AWCs in achieving the targets of the maternal and child health services. (Table 3) Studies have reported poor skills development of Anganwadi children as against the private nursery school children, which could be attributed to poor stimulating environment including lack of play materials; hence there is a need to improve the preschool environment of the Anganwadis.^{11,12}

In Kerala a study was done on performance of AWCs highlighting the problems of the AWWs which in the order of priority are 1. infrastructural problems, 2. Lack

of sanitary facilities, drinking water, etc. 3. Lack of toys & teaching aid, 4. Inadequacy of proper diet, 5. Problems related to health programs, 6. Inadequate number of AWC, 7. Poor service conditions & lastly 8. Inadequate training.⁹

CONCLUSION

From this study it was evident that most of the AWCs were lacking in basic infrastructural facilities along with absence of essential drugs, equipment and logistics.

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Conflict of Interest - Nil

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Effect of an Educational Intervention on the Knowledge and Practice of Mothers of Children Regarding Dental Care

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ABSTRACT

Objective: To assess the effect of an educational intervention on the knowledge and practice of mothers of children regarding dental care and to find out the association between selected sociodemographic variables and knowledge and practice of mothers of children regarding dental care.

Methodology: A quasi experimental pre test post test control group design was used for the study. The sample size consisted of 100 mothers with 50 mothers each in experimental and control group, from two wards of SAT Hospital, Thiruvananthapuram. For the mothers in both experimental and control group, a pre test was given. After that mothers in the experimental group were given an instructional module. Brushing technique was demonstrated to them and a group teaching was conducted for them. No intervention was given to the mothers in the control group. After one week, a post test was given to both the groups using the same questionnaire.

Results: The results showed that significant improvement was observed in the mean scores of knowledge and practice regarding dental care in the post intervention period in the experimental group. The pretest score on knowledge and practice of mothers regarding dental care was poor in both groups.

There was an association between education of mothers and knowledge regarding brushing, food habits, habits of child and practice of dental care.

Conclusion: Creating good dental habits is the result of a chain of communication from provider to parent to the pediatric patient. Parents and guardians, as well as other care givers, have primary responsibility for daily care and preventive service and are the stewards for creating, maintaining and passing along a good oral health routine to their children.

Keywords: Education, intervention, knowledge, practice, dental care.

INTRODUCTION

Healthy teeth and gums are essential to a child's overall health. Injured diseased or poorly developed teeth can result in poor nutrition, painful and dangerous infections and problems with speech development and self image.¹

Dental care is an important aspect of personal health of an individual. There is evidence that improvement of oral hygiene does improve the general health. The nursing staff have a special contribution in the care of oral hygiene of their patients in hospitals, nursing homes and other residential institutions.² All parents of children should receive oral health counseling particularly on

feeding practices from birth, but certainly before 1 year of age. Children identified at risk for dental disease should be referred for dental care.³ Primary preventive strategies for oral health are an essential public health priority since dental caries is the most common chronic disease among children worldwide. Experts recommend that initiatives begin with very young children to promote positive outcomes during childhood and subsequent adulthood.⁴ Dental caries is a public health problem in India with a prevalence as high as 60-80%.⁵ There is no component of oral health in the present health care system. The grass root level health care workers do not have adequate knowledge about oral hygiene and prevention of orodental problems. The National Oral Health Care Program

was launched in 1999 to combat the ever increasing patient load and reduce the morbidity due to orodental problems in the country. Since the etiology and prevention of most of the dental problems are very simple, prevention seems to be the most practical approach.

Studies have focused on how pattern of care vary with respect to presence of dental coverage and other demographic, socioeconomic and health characteristics of children and their parents. More knowledge about the factors that influence patterns of care may lead to more effective policies focusing on improving dental care and reducing unmet dental needs among low-income children.⁶

Oral health education of the school children and public is the main strategy and use of IEC material for awareness generation is the major component of oral health.⁷

In our country very few people take preventive actions to promote dental health. Studies conducted in India found that the prevalence of dental caries was more among children between 5-10 years of age.^{8,9,10}

Health education of the children about the ill effects of bad oral habits and raising the educational levels of mothers and prospective mothers may contribute towards achieving dental health¹¹.

Even though there are advertisements in mass medias, there is lack of adequate knowledge regarding dental care and dental problems are increasing day by day. Being one of the largest health care professional group in India, nurses can contribute a lot to enhance dental care in children.

Nurses can be active members of preventive educational programmes and serve as counselors to families regarding the importance of regular dental care, oral hygiene and dietary management¹².

There is a strong need to high light the need for proper dental care to enhance the total general health of the child there by reducing a major health problem.

METHODOLOGY

Study design: Quasi experimental with pretest post test control group design.

Study area: Paediatric wards 3 & 4 of SAT (Sree Avittom Thirunal)

Hospital, Thiruvananthapuram.

Population: Mothers of children between the age group 6 months to 6 years admitted in SAT Hospital

Study subjects: Mothers of children admitted in Paediatric wards 3 & 4 of SAT Hospital, Thiruvananthapuram .

Sample size : 100

Sampling technique: Quasi randomization 50 consecutive mothers from ward 4 and ward 3 as experimental group and control group respectively.

Study variables

Dependent variables: knowledge and practice

Independent variable : educational intervention

Sociodemographic variable: religion, place of residence, education and occupation of mothers

Study tools

Structured questionnaire to assess knowledge and practice of mothers of children regarding dental care. It has 8 sections

I –sociodemographic data

II – knowledge regarding teeth

III - knowledge regarding oral hygiene measures

IV - knowledge regarding brushing

V - knowledge regarding food habits

VI - knowledge regarding habits of child

VII - knowledge regarding dental problems

VIII – practice of dental care.

Techniques : Structured interview

Inclusion criteria

Mothers of children between the age group 6 months to 6 years admitted in wards 3 & 4 of SAT Hospital who are able to read & write Malayalam.

Exclusion criteria

1. Mothers of children included in dangerously ill list

2. Mothers who can not read & write Malayalam.

Statistical analysis

Percentage, proportion, mean, median, chi-square test, Wilcoxon's signed Rank Test, Wilcoxon's Rank sum method.

Data collection process

After obtaining ethical clearance from ethical committee, Medical College Thiruvananthapuram, the investigator obtained permission from the Head of the Department of Paediatrics, SAT Hospital, Thiruvananthapuram, prior to the commencement of the pilot study. The study group consists of 100 mothers of children admitted in wards 3 & 4 of SAT Hospital. 50 mothers selected consecutively from ward 3 were placed in the control group and 50 from ward 4 were placed in the experimental group. Informed written consent was obtained from all the participants before starting the study. A pretest was given to mothers in both groups using a questionnaire taking 15 minutes for each mother. An instructional module was given to mothers in the experimental group. Group teaching was also given to the same mothers. Duration of teaching was 15 minutes to a group of 5 mothers at a time. After that, correct brushing technique was demonstrated to them using a model of teeth obtained from Dental college and brush. No instructional module, teaching or demonstration was given to mothers in the control group. Then a post test was given to mothers in both groups using the same questionnaire one week after the pretest.

RESULTS

Among 100 mothers, 73 were hindus, 76 were residing in rural areas. 41 mothers among 100 were having collegiate education and 88 were house wives.

In the experimental group there was significant change in the mean knowledge score regarding teeth from pre test value (4.97) to the post test value (13.42). The median was also high in the post test (13.50) compared to 5.25 in the pre test.

In the control group there was not much increase in the post test mean score (5.49) compared to the pretest

mean score (4.95). The pre & post test median was unchanged (5.5).

Mean post test knowledge score regarding oral hygiene measures was 7.50 compared to a mean pretest score of (2.51) in the experimental group. There was not much increase in the post test mean (3.28) compared to the pre test mean (2.98) in the control group.

In the experimental group, there was significant increase in the post test mean knowledge score regarding brushing (15.13) compared to the pre test mean knowledge score (5.45). In the control group, the post test mean score was 5.69 compared to 5.33 in the pre test.

The mean post test knowledge score regarding food habits was 9.67 compared to 3.30 in the pre test in the experimental group. The post test mean score in the control group was 4.13 compared to 3.83 in the pretest.

The mean knowledge score regarding habits of child in the pre test was 3.76 compared to 11.04 in the post test in the experimental group. In the control group, the pre test mean score was 4.28 compared to 4.68 in the post test. The pre test mean knowledge score regarding dental problems was 5.52 in the experimental group compared to 18.38 in the post test. In the control group, the pre test mean score was 5.96 compared to 6.52 in the post test. The mean pre test score of practice of dental care was 6.34 in the experimental group compared to 17.9 in the post test. The pre test mean score was 6.58 in the control group compared to a mean score of 7.02 in the post test.

There was an association between education of mothers and knowledge regarding brushing, food habits, habits of child and practice of dental care.

When pre and post test comparison was done in experimental and control group using Wilcoxon's signed rank test, Wilcoxon's Z was high in experimental group.

Pre and post test comparison using wilcoxon's signed rank test

Difference (Post- pre) Knowledge regarding	Experimental group				Control group			
	Median of difference	Mean Rank	Wilcoxon's Z	P value	Median of difference	Mean Rank	Wilcoxon's Z	P value
Teeth	8.25	35.50	7.278	0.000	0.00	10.50	3.947	0.000
Oral hygiene	5	32.50	6.970	0.000	0.00	7.50	3.332	0.001
Brushing	9.50	32	6.907	0.000	0.00	7	3.222	0.001

Cont... Pre and post test comparison using wilcoxon’s signed rank test

Food habits	6	30	6.694	0.000	0.00	5	2.81	0.005
Habits of child	8	30.50	6.844	0.000	0.00	5.50	3.162	0.002
Dental problems	13	38.50	7.581	0.000	0.50	13.50	4.505	0.000
Practice of dental care	12	30.50	6.750	0.000	0.00	5.50	2.972	0.003

There was significant improvement in the post test compared to pretest in the experimental group. In the control group even though the p value is significant there is not much improvement in the post test value.

The effectiveness of educational intervention was assessed using Wilcoxon’s Rank sum method. The scores were converted into ranks and the rank sum was calculated. In this study the experimental group had maximum rank sum . So this group had maximum knowledge and practice

DISCUSSION

This study was intended to assess the knowledge and practice of mothers of children regarding dental care using an education intervention.

According to this study 60% of mothers in experimental group and 46% of mothers in the control group had poor knowledge regarding oral hygiene measures.

A study was conducted to investigate the oral health practices and prevalence of dental caries among Libyan pupils (6-12 years) by studying 389 boys and 373 girls selected randomly from 11 public primary schools in 3 different residential areas. Among them 42.1% pupils did not brush their teeth.¹³

According to this study 74% of mothers in the experimental group and 72% of mothers in the control group had poor practice of dental care.

A study was conducted to know the prevalence of dental caries in primary school children in the age group of 3-7 years in Haryana found out that only 3% of children cleaned their teeth once a day with tooth brush and tooth paste¹⁴

This study revealed that there was significant association between religion and knowledge regarding oral hygiene measures and food habits. It was found that Christian mothers had good knowledge.

This study revealed that there was significant association between place of residence and knowledge regarding brushing. It was found that mothers living in rural areas had good knowledge regarding brushing.

This study revealed that there was significant association between education and knowledge regarding brushing and food habits. It was found that mothers who had high education (College and above) had good knowledge .

A study was conducted and found that both caries experience and frequency of sugar consumption was highest among children of less- well- educated mothers.¹⁵

This study showed that there was significant association between education and knowledge regarding habits of child. It was found that mothers with high education had good knowledge regarding habits of child.

This study showed that there was significant association between education and practice of dental care. It was found that mothers with high education had good practice of dental care.

Studies have shown that children who do not have the recommended number of dental care visits are more likely to be Black or Hispanic, to be from families with low incomes and to have a parent who did not attend college.

This study showed that there was significant association between occupation and knowledge regarding food habits. It was found that mothers who were working in Government sector had good knowledge regarding food habits.

A study was conducted to determine the current prevalence and severity of caries in primary dentition in a preschool population in China and to investigate the relationship between caries experience and socio-demographic factors, parental characteristics, dietary

habits and oral hygiene practice. The results indicated that a high proportion of young Chinese children had dental caries and that most decayed teeth were left untreated. The prevalence and severity of caries was associated with socio economic status and dietary factors.¹⁶

This study revealed that the education intervention was highly effective in improving the knowledge and practice of mothers of children regarding dental care .

CONCLUSION

This study was intended to assess the effectiveness of an educational intervention on knowledge and practice of mothers of children regarding dental care. It was found that an education intervention was effective in improving the knowledge and practice of mothers of children regarding dental care. On the basis of this study, the following recommendations were made;

The findings of the study can be utilized while caring children admitted in paediatric wards.

A regular education or counseling programme can be drawn up and can be implemented in various paediatric health care settings.

Parental education programme giving emphasis to dental care can be conducted in Anganwadies.

Oral health education can be included as a part of school health program.

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How Important is the Patient's Privacy From Operating Room Student's Attitude in Zahedan 2016

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ABSTRACT

Introduction: Healthcare providers enter patient's privacy all the time in the hospitals. Considering the privacy is a basic concept in nursing and healthcare ethical issues. It is a certain right for the patients these days. This study aimed to investigate how important is the patient's privacy from operating room student's attitude in Zahedan.

Implementation method: This was a cross sectional study conducted on 50 Operating Room students in Zahedan University of Medical Sciences. The data were collected through a two section questionnaire. The first section was about the demographic information. The second section was about the importance of patient's privacy. After data collection they were analyzed through descriptive statistics and chi-square test by SPSS v.19.

Findings: The mean of age was 22.52 ± 1.66 . 28 respondents were female while 22 were males. There was a significant difference between males and females answers about these questions: "Early morning cares are patient's privacy disturbance" ($p=0.009$), "Patient's unawareness about his disease and treatment is his privacy's disturbance" ($p=0.03$) and "technology development and using it for keeping patient's information safe" ($p=0.003$).

Conclusion: This study suggests to implement programs for increasing the knowledge of patients in different fields of healthcare system specially their rights during getting healthcare services. These programs could lead to better healthcare services and patient's satisfaction.

Keywords: Privacy, Students, Operating Room, Zahedan

INTRODUCTION

Healthcare providers enter patient's privacy all the time in the hospitals. So they should try not to disturb their privacy and respect their rights. Even simple interventions should be completely explained to the patient so he could realize that the healthcare provider is looking at him as a human being ⁽¹⁾. Considering the privacy is a basic concept in nursing and healthcare ethical issues ⁽²⁾. It is a certain right for the patients these days ^(3, 4). Privacy is defined as getting out of the sight of the society,

solitude, calm and comfort in the dictionary⁽⁵⁾. Privacy is a personal need. Under privacy a person could have independency, solitude, safety and personality. Personal environment consideration leads to calm and comfort in people ⁽⁶⁾. It was mentioned in the 1994 declaration of the World Health Organization that considering the dignity of the patient has an important role in increasing their health. It was mentioned that informed consent, access to healthcare services, keeping patient's information as a secret and considering their privacy are certain rights for patients ⁽⁷⁾. Nurses who participated Baillie's study said that they could consider patient's informational and physical privacy by using separate consult rooms and curtains. They believed that they provided services based on patient's dignity ⁽⁸⁾. Not calling patients with his name, entering the room without knocking, refusing to introduce

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yourself to the patient, not using curtains and partitions, touching patient's personal things without permission and telling their information to others are examples of refusing patient's privacy⁽⁹⁾.

Parrott's study said that there are many things could lead to patient's privacy refusal. For example being unclothed before getting examined by the doctor or getting naked in front of healthcare team or unnecessary unclothed part of body which is not related to the examination⁽¹⁰⁾. In different studies patients said that lack of knowledge about the disease, not getting enough information, not getting the answer of their questions, body's unnecessary exposure and entering patient's room without permission are the main disturbances in patient's privacy. According to the progress in technology and using patient's information for research projects it is much more necessary to take a good care about the patient's information today⁽¹¹⁾. Disturbance in patient's privacy could lead to bad results in patient's health and even could lead to problems for the healthcare system. While a patient is admitted to hospital he is not able to defend his privacy rights all the time. So it would be much more important for the healthcare providers to do that for them⁽¹²⁾. All of the studies done on patient's privacy rights had one purpose, to increase the standards of healthcare. The studies had shown that patient's privacy consideration has a relationship with cultural nursing⁽¹³⁾. So it is necessary to do this survey in different cultures. This study aimed to investigate how important is the patient's privacy from operating room student's attitude in Zahedan.

MATERIAL AND METHOD

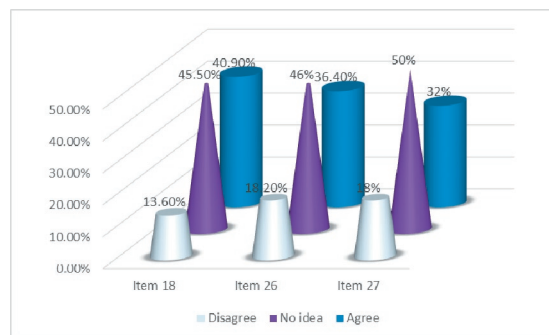
This was a cross sectional study. 50 respondents participated in this survey. They were semester 6 and 8 studying surgical technology. The total surgical technology students were 60 and according to the Morgan's table 50 of them were chosen for this study randomly. Data were collected through a two part questionnaire. The first part was about the demographic information including age and sex. The second part was about the importance of patient's privacy from student's attitude. This questionnaire contained 29 questions about different aspects of patient's privacy. The questions were answered by "I agree", "I have no idea" and "I disagree". This questionnaire was used by Mobarke and colleagues and its validity was proved. The validity was calculated through Cronbach's alpha and it was 0.72⁽¹¹⁾. The aim of the study was explained to the respondents. After getting

the verbal consent the questionnaires were given to them. Just for the records it was mentioned in the first page of the questionnaire that "your corporation in filling this questionnaire is considered as your consent to be a part of this study." And also it was written that "your information would be completely safe". After completing, the questionnaires were given back to the researcher. If any was incomplete the respondents were asked to complete them respectfully. After data collection the data were analyzed through descriptive analytics, and chi-square test (relationship between sex and each of questions in the questionnaire) by SPSS v.19. The significant P value was considered less than 0.05.

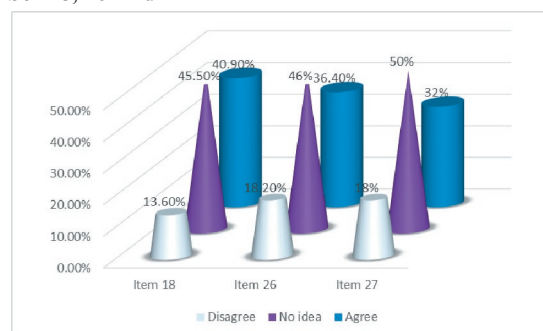
RESULTS

The mean of age was 22.52 ± 1.66 in this study. 28 (56.0%) respondents were female while 22 were male. There was a significant difference between males and females answers about these questions: "Early morning cares are patient's privacy disturbance" ($p=0.009$), "Patient's unawareness about his disease and treatment is his privacy's disturbance" ($p=0.03$) and "technology development and using it for keeping patient's information safe" ($p=0.003$).

The information about male respondents are shown in bar chart 1 and for female respondents are shown in bar chart 2.



Bar chart1. How the male respondents did answer questions number 18, 26 And 27



Bar chart2. How the female respondents did answer questions number 18, 26 and 27

The percentage of responding to the questions by the respondents are shown in table 1

Table 1. The percentage of responding to the questions by the respondents

	Agree (%)	No idea (%)	Disagree (%)
1.I can enter the patient’s room any time I want	36	44	20
2.I can touch every spot of patient’s body that I want	42	40	18
3.I can do interventions and examinations on my patients every were I like	60	32	8
4.After admitting the patient In the hospital I can do any intervention without getting any permission from the patient	70	24	6
5.Considering patients privacy rights is an important task for me	74	18	8
6.Patient’s privacy has three dimensions: physical, social and informational	68	2	6
7.Physical dimension of patient’s privacy is more considered these days	64	34	2
8.Keeping patient’s information as a secret is important in hospitals	68	30	2
9.Unnecessary physical touches could disturb patient’s privacy	58	38	4
10.Entering patient’s room and private space could disturb patient’s privacy	56	40	4
11.It is necessary to give new solutions for preventing patient’s privacy disturbance	70	28	2
12.Changes must be conducted in medical students program for patient’s privacy understanding	58	38	4
13.Personal environment is the environment which surrounded the patient and he has certain rights there	62	30	8
14.Patients have right to be alone in their personal environment	66	32	2
15.If the privacy is considered the patient could feel free to answer the questions	68	24	8
16.The patient is submissive out of his personal environment	66	28	6
17.Patient’s privacy is not mentioned is educational programs	68	26	6
18.Early morning cares are patient’s privacy disturbance	64	26	10
19.Having roommates in hospitals is patient’s privacy disturbance	40	44	16
20.Noocking the door before entering patient’s room is a respect to his privacy	42	44	14
21.Preventing unnecessary touches is a respect to patient’s privacy	56	40	4
22.Not paying attention to the patient’s bathroom’s physical condition is their privacy’s disturbance	60	36	4
23.Same gender healthcare providers should do the examinations for patient’s	72	20	8
24.Patients have certain right to choose the time and location of giving the information to other people or organizations	80	18	2
25. Patient’s information should be kept in computers but not in papers due to installation of computer systems in hospitals.	70	22	8
26.Patient’s unawareness about his disease and treatment is his privacy’s disturbance	56	34	10
27.Using electronic files could put patient’s information in danger	56	36	8
28.Same gender healthcare providers should do the examinations for patient’s	62	24	14
29.Keeping patient’s secret, is considering his privacy	60	26	14

DISCUSSION

Most “I agree” answers went for the question “Patients have certain right to choose the time and location of giving the information to other people or organizations” in this study. The question “Considering patients privacy rights is an important task for me” and “Same gender healthcare

providers should do the examinations for patients” were in second and third place.

Less “I agree” answers went for question “I can enter the patient’s room any time I want” and question “Having roommates in hospitals is patient’s privacy disturbance” was in the second place. In Dehghani

Mubarak's study most of respondents gave an "I agree" answer to the question "Considering patients privacy rights is an important task for me" which shows the importance of patient's privacy consideration to the respondents. The questions "Patient's privacy is not mentioned in educational programs" and "Changes must be conducted in medical students program for patient's privacy understanding" were in second and third place in this study. Nursing students are highly involved in patient's privacy so they think that changes in educational programs about patient's privacy could reduce the quality of the program and don't let them to be good nurses ⁽¹¹⁾.

Parrot's study had shown that unnecessary touches during the examinations is one of the most important factors in disturbing patient's privacy ⁽¹⁰⁾. In Edward's study patients stated that they have no complain about this matter that healthcare providers enter their privacy, but they accepted this because of their illness. They believed that this is a part of the job for the healthcare providers ⁽¹⁴⁾. An independent person has certain right to be free of being watched, being controlled of getting extra securities. A person's personality is defined in his freedom at all ^(2, 15, and 16). Patients have some actual rights that should be considered by healthcare providers all the time. Considering these rights would lead to patient's comfort and calm ⁽²⁰⁾. Considering these rights could lead to patient's satisfaction and Patient's satisfaction is an indicator of good healthcare services from the hospital ⁽¹⁷⁾. In other hand refusing these certain rights of patients could easily expose them to different kind of social problems ⁽¹⁸⁾. Considering the patient's rights act is an important task in medical ethics ⁽¹⁹⁾. In fact patient's right act is protecting the patient's rights in the hospitals. This act could make a better communication between patients and healthcare providers and increased the quality of healthcare services ⁽²⁰⁾. Considering the patient's private environment is one of the basic goals of healthcare system ⁽²¹⁾. Patient's privacy consideration leads to calm and health in them ⁽²²⁾.

Increasing the knowledge of patients and healthcare providers about patient's privacy is a good way to improve patient's privacy consideration. While the patient's know their rights they will expect the hospital to meet all of them ⁽²³⁻²⁸⁾. About this Matiti believes that knowledge about the science, practice and attitude is the prerequisite of considering patient's dignity ⁽²⁴⁾.

CONCLUSION

Authorities could use the results of this study for implementing the becoming and lightening sentences of Islam about privacy to cure the patients. This study suggests to implement programs for increasing the knowledge of patients in different fields of healthcare system specially their rights during getting healthcare services. These programs could lead to better healthcare services and patient's satisfaction.

This article was extract from a student research project and got the approval of ethical committee of the zahedan University of Medical Sciences.

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Conflict of Interest - Nil

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Socio-economic Factors affecting Birth Weight of the Newborn: A Study among Muslim Women in Urban Slum, Meerut

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ABSTRACT

Background: weight of the baby at birth is considered to be a major determinant of future health and survival of the child. Many maternal socio-economic factors influence birth weight of newborn. **Objective:** To find out the socio-economic factors affecting birth weight of newborn among Muslim women.

Methodology: A total 150 study subject recently delivered mothers and data was collected on semi-structured interview schedule to know various variables such as mother's age, education, occupation, socio-economic status, and use of fuel in kitchen influencing the low birth weight of newborn. Chi-Square test and Z - test applied to observe the significance of association. **Results:** The overall proportion of LBW came out to be 34.00%. Factors which came out to be statistically significant were education, occupation, socio-economic status. The factors which were not statistically significant were age of mother, type of family and use of fuel in kitchen. **Conclusions:** It was concluded that illiteracy, lower social class, occupation, and use of wood for cooking in kitchen are unfavorable predictors of birth weight of newborn babies.

Keywords: Socio-economic factors, LBW, Mother's age, education, occupation, , use fuel in kitchen .

INTRODUCTION

Each year, 26 million infants are born in India. Of these, nearly 1.2 million die during the neonatal period. India, thus contributes 30% of the 3.9 million neonatal deaths worldwide. ^[1]

Low birth weight (LBW) is defined as a birth weight of a live born infant of less than 2,500 g (5 pounds 8 ounces) regardless of gestational age. In India prevalence of low birth weight (LBW) newborns is 28% of all live births and more than half of these are born at term. LBW is one of the global indicators and the target was to reduce LBW births to less than 10% under "Health for All by 2000AD." ^[2]

LBW is a multi-faceted problem; with some known and few unknown reasons. Weight at birth is directly influenced by general level of health status of the mother. These causes can be enlisted as demographic, nutritional, reproductive, and socio-economic factors, maternal

Haemoglobin (Hb) level, hard manual work during antenatal period, maternal nutrition, economic condition, antenatal care, parents' education, tobacco use, maternal age, and parity. ^[3]

Maternal environment is the most important determinant of birth weight, and factors that prevent normal circulation across the placenta cause poor nutrient and oxygen supply to the fetus, restricting growth.

As per the WHO estimation about 25 million low birth weight babies are born each year, nearly 95% of them in developing countries. Across the world, neonatal mortality is 20 times more likely for LBW babies compared to heavier babies (≤ 2.5 kg). ^[4]

To find out the socio-economic factors affecting birth weight of newborn among Muslim women.

MATERIALS AND METHOD

This present community based cross-sectional study

was conducted in Muslim urban slum area of Meerut. This area was randomly selected for the interview. A house to house survey with the help of traditional birth attendants was conducted to identify women. The study was carried out from February 2015 to July 2015. All 150 recently delivered mothers were interviewed. Proper informed regarding the purpose of study and their consent was obtained before conducting the interview. A predesigned, pretested semi structured interview schedule was prepared. Statistical analysis was done to find out the association between independent variables like birth weight of newborn, mother's age, education, occupation, socio economic status, type of cooking fuel such as LPG includes fuel wood, coal, crop residue, and cattle dung cake etc. was collected.

Data was analyzed using SPSS 19.0 software. Chi square test and Z test was used to study the association between discrete variables. Two tailed p value less than 0.05 was considered significant.

RESULTS

In this study, overall prevalence of LBW(<2.5 Kg) among newborn was found to be (34.00%) and (66.00%) newborn were normal birth weight (>2.5 Kg). The difference was found to be statistically significant (**Z- Value=5.54, p Value =<0.001**).

Considering the family type, it was observed that (46.67%) belonged to nuclear families whereas (59.33%) to joint family. LBW was higher in mothers belonging to nuclear families (40.00%) as compared with those belonging to joint family (38.00%). The association between mother's age and birth weight of new born was not found to be statistically significant (**$x^2=0.098$, =p-Value 0.754**).

To examine the effect of maternal age on birth weight of newborn. It was observed that low birth weight was more among mothers in two extremes of ages i.e. <20 years of age (33.33%) and ≥ 30 years of age (40.00%) whereas only (32.5%) of mothers between age of 20-30 years delivered low birth weight. The association between mother's age and birth weight of new born was not found to be statistically significant (**$x^2=.378$, p Value 0.827**).

Education of mother came out to be a favorable factor for birth weight of newborn. Among the mothers who delivered low birth weight almost (42.22%) were illiterate, (33.34%) were primary educated while only

(17.77%) of mothers with high school and above. The association between mother's education and birth weight of new born was found to be statistically significant (**$x^2=7.99$, p Value 0.018**).

According to Modified Kuppaswamy classification, (46.66%) of mothers belonged to lower class, (32.5%) of mothers belonged to upper lower class, (22.85%) of mothers belonged to lower middle class, (13.33%) of mothers belonged to upper middle class. The prevalence of birth weight increased with decrease in the per capita income. The association between Socio-economic status and birth weight was found to be statistically significant (**$x^2=9.12$, p Value 0.027**).

Highest low birth weight of newborn (30.00%) was observed in housewives and lowest birth weight of newborn (1.33%) in working women and (2.66%) in labourer women was observed. The association between mother's age and birth weight of new born was found to be statistically significant (**$x^2=9.22$, p Value 0.01**).

(63.33%) mothers used LPG (liquefied petroleum gas), (16.66%) used wood, (13.33%) used wood and LPG both, while 10 (6.75%) were kerosene oil. To find out the effect of various kitchen fuels on birth weight, LBW was highest in wood fuel users (52.00%) and lowest in LPG users (26.32%) and wood along with LPG users (45.00%). The association between used of fuel in kitchen and birth weight of new born was found to be not statistically significant (**$x^2 = 7.35$, p Value 0.062**).

DISCUSSION

Birth weight is a very important indicator for both mortality and morbidity of the neonate. Birth weight is affected by various factors. In the present study, the overall prevalence of LBW(<2.5 Kg) among newborn was found to be (34.00%). In a study Kaur S et al. (2014) revealed that the overall proportion of LBW was found to be 35.06%.^[5] In a study Agarwal K, et al. (2011) revealed that the overall proportion of LBW was found to be 40.00%.^[6] An another study conducted by Khatib et al, (2009) found similar percentage comparable with present study.^[7]

In this study LBW was higher in mothers belonging to nuclear families (40.00%) as compared with those belonging to joint family (38.00%). Another study conducted by Padda P et al (2011) revealed that LBW was higher in mothers belonging to nuclear families

(38.6%) as compared with those belonging to joint family (30.9%) .^[8]

It was observed that the highest prevalence of LBW was found among mothers aged <20 years (33.33%) and those ≥ 30 years (40.00%). The association between mother's age and birth weight of new born was not found to be statistically significant. ($\chi^2=0.378$, **p Value 0.827**).

This finding corroborates finding from other studies done by Mumbare et al, Mavalankar et al, Acharya et al found no association between age of mother and birth weight of baby.^[9,10] Agarwal K., et al (2011) reported that mothers aged below 20 years had significantly greater chance to deliver low birth weight baby than the mothers of 20 years of above age group.^[6] This may be explained by high incidence of pre maturity among the very young and very old mothers. At both extremes of age, the associated risk of maternal complications also increases which adversely affects the birth weight.

Education plays a important role in improved social and nutritional status of women resulting into improved birth weight of the newborn. In this study, maximum prevalence of LBW (42.22%) was found among illiterate mothers. Deshpande JD.et al, (2011) and Das JC. et al, (2008) found similar findings in their studies. ^[11,12] Whereas study done by Deswal BS. et al,(1999) reported that there was no significant association between education of mother and birth weight. ^[13]

It was found that percentage of LBW was inversely proportional to socio-economic status of mothers. The statistical association between Socio-economic status of mother and birth weight of new born was also statistically significant ($\chi^2=9.12$, **p Value 0.027**). Similar findings were suggested by Mumbare SS et al,(2012) and Deshmukh JS et al, (1998). ^[14,15] Elshibly EM et al (2008) found that women with low socio-economic status are more likely to have inadequate food intake, unhygienic

housing and lack of sanitation and reduced ability to seek medical care etc., which then affects the birth weight of their infants.^[16]

In our study, (93.33%) were housewives, (2.00%) were self-employed and (4.66%) were labourers women. Highest low birth weight of newborn (30.00%) was observed in housewives and lowest birth weight of newborn (1.33%) in working women and (2.66%) were labourer women . An another study done by Kadam Y.R. et al. (2013) revealed that (96.95%) were housewives, (1.21%) were in service, (0.91%) were self-employed and (0.91%) were farmers.

In this study, frequency of LBW was significantly high in wood users (52.00%) among women. Mothers using both LPG and wood (45.00%) had frequency of LBW higher than only LPG users (26.32%) but less than only wood user. An another study done by Kadam Y.R. et al. (2013) revealed that frequency of LBW was significantly high in wood users (44.68%) among women.^[17]

A study done by Rehfuess et al. (2006) suggested that up to 70% of households use wood, biomass, and/or crop residues as cooking fuel, whereas 53% of households use wood alone as cooking fuel .^[18] Women spend considerable time in kitchen, where they are exposed to fumes of various fuels used in kitchen stove.^[19] Half of world's population uses solid fuel for cooking. Two-thirds of households in developing countries still rely on bio fuels and it is women of childbearing age who perform most cooking tasks.^[20] Women, particularly during their childbearing years, carry by far the greatest burden of cooking duties and exposure to indoor air pollution. Wood fuel is still widely used, especially in rural areas and semi urban areas. Maternal exposure to kitchen fuel smoke may lead to impaired fetal growth through hypoxia. ^[21]

Table 1: Socio- demographic factors of women and effect of confounders on Birth Weight

	Socio- demographic factors	Low Birth Weight	Normal Birth Weight	Total	Significance
1	Prevalence Birth Weight				Z-Value=5.54, p-Value =0.001 Significant
	Prevalence Birth Weight	51 (34.00)	99 (66.00)	150(100.00)	
2	Type of Family				($\chi^2=0.098$, p-Value 0.754)
	Nuclear Family	28 (40.00)	42 (60.00)	70 (46.67)	
	Joint family	30 (38.00)	50 (62.00)	80(53.33)	
3	Age wise distribution of Mothers				($\chi^2=.378$, P-Value 0.827).
	Below 20 years	30 (33.33)	60 (66.67)	90 (60.00)	
	22-30 years	13 (32.5)	27 (67.5)	40(26.66)	
	30-45 years	08 (40.00)	12 (60.00)	20 (13.33)	
4	Education of Mothers				($\chi^2=7.99$, P-Value 0.018).
	Illiterate	38 (42.22)	52 (57.78)	90 (60.00)	
	Up to Primary	05 (34.33)	10 (66.66)	15 (10.00)	
	Up to High School and above	08(17.77)	37(82.23)(45 (30.00)	
5	Socio-economic Status				($\chi^2=9.12$, P-Value 0.027).
	Upper Middle class	02 (13.33)	13 (86.66)	15 (10.00)	
	Lower middle Class	08 (22.85)	27 (77.14)	35 (23.33)	
	Upper lower class	13 (32.5)	27 (67.5)	40 (26.66)	
	Lower class	28 (46.66)	32 (53.33)	60 (40.00)	
6	Occupation of Mothers				($\chi^2=9.22$, p Value 0.01).
	Housewife	45 (32.15)	95 (67.85)	140 (93.33)	
	Self employment	02 (1.33)	01 (0.66)	03 (2.00)	
	Laborer	04 (2.66)	03 (2.00)	07 (4.66)	

Table 2: Distribution of newborn according to Birth Weight and used of fuel of mothers

	Type of Fuel	Low Birth Weight <2.5 Kg	Normal Birth Weight >2.5 Kg	Total	Significance
	LPG	25 (26.32)	70 (73.68)	95(63.33)	$\chi^2 = 7.35$, p Value 0.062 Not Sig
	Wood	13 (52.00)	12 (48.00)	25 (16.66)	
	LPG & Wood	09 (45.00)	11(55.00)	20 (13.33)	
	Kerosene oil	04 (40.00)	06 (60.00)	10 (6.75)	

CONCLUSION

This study suggested that the incidence of low birth weight is still high in the area. It was concluded that age of mother, illiteracy, socio-economic status, occupation, and type of family are unfavorable predictors of birth weight of newborn babies. Cooking with wood fuel is a significant risk-factor for LBW. In urban slum area mainly wood, crop residue or cattle dung cakes are used for cooking as they are available. The present study clearly indicates that solid biomass fuel affects birth weight adversely. Even today, use of LPG and biogas in slum areas is not much prevalent or it is used as an additional source of energy, where most of the cooking is carried out on an open chulha. These key mediating factors that need to be considered to improve birth weight of infants and targeted public health interventions are needed to improve these factors.

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Attention Paid by Nurses to Patient's Privacy- A Study on Nurses Working in Operating Rooms of Educational Hospitals in Zahedan 2016

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ABSTRACT

Introduction: Privacy is the most important right for the patient. Lack of privacy could lead to so many other problems. So this study aimed to investigate that how much do the nurses think they pay attention to patient's privacy?

Implementation method: This was a cross-sectional study. Respondents were 70 nurses working in Operating Rooms of educational hospitals of Zahedan University of Medical Sciences. They were chosen randomly for this study. The data was collected through a two part questionnaire. The first part was about the demographic information. Second part was the patient's privacy questionnaire. Data were analyzed through descriptive statistics, Pearson correlation and T-Test by SPSS v.19.

Findings: The mean of age was 26.99 ± 6.95 in this study. 55 respondents were female while 15 were male. The total score of patient's privacy consideration was 41.05 ± 7.33 which shows a medium consideration. 5 respondents stated that the patient's privacy consideration is poor, 35 said its moderate and 30 said it's good. Patient's privacy consideration from nurse's attitude was good in physical dimension, moderate in informational dimension and good in social dimension. There wasn't any significant relationship between age, sex and attitude toward patient's privacy consideration. But females had a more positive attitude toward the patient's privacy consideration

Conclusion: The results of this study had shown that the level of the patient's privacy consideration is moderate from nurse's attitude. Also it was moderate in physical dimension and good in informational and social dimension.

Keywords: Patient's privacy, Operating Room, Zahedan.

INTRODUCTION

Privacy is the most important right for the patient. Lack of privacy could lead to so many other problems such as anxiety and stress, lack of confidence among health care providers, anger, hiding the facts of the medical history and physical examinations refusal⁽¹⁻³⁾. Patient's privacy has a direct relationship with his personality⁽⁴⁾. Despite

the importance of privacy there isn't an accurate definition for it yet. So many researcher are trying to find one for that⁽⁵⁾. Privacy should be considered without looking at religion, race, thoughts, color, age, sex or social level⁽⁶⁾. The definitions of privacy may be different in every hospital, country and culture. Despite all of these privacy means the right or will of patient in controlling or limiting the access to himself⁽⁷⁾. Privacy has three dimensions. Physical dimension, informational dimension and social dimension. Physical dimension is about physical contacts such as keeping the personal distance, patients clothing and touch. The physical dimension is highly considered in healthcare environments with activities

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such as covering the patient with appropriate clothes, unnecessary exposure prevention, and considering the ethical rights for the patient in physical examinations. The informational dimension is mostly about keeping patient's personal information safe. The social dimension is about controlling the environment which patients are there. This dimension contains activities such as separating the patients with curtains or giving personal rooms to patients⁽⁸⁻¹³⁾. Unfortunately patient's privacy rights are not considered at all these days. Bad looking in appearance, nurses with different sex, using inappropriate words for naming the patient and inappropriate communication could lead to privacy disturbance and dignity⁽¹⁴⁾. Almost a quarter of patients hospitalized in hospitals stated that their privacy rights were not considered by the healthcare providers⁽⁴⁾. Violation of patient's privacy rights could lead to so many problems. Some patients may hide their medical histories and some would refuse their physical examinations⁽¹⁾. Meeting the patient's will is one of the most important concepts in nursing. Nurses and other healthcare providers have to pay attention to the importance of Silence, Independence, Identity and Territory-seeking behavior of patients as the aspects of privacy. When the patients feel that they have their privacy rights in the hospital they start to treat the staff in a good way, they feel safe and the hospitalization days would reduce⁽¹⁵⁾. According to the above mentioned importance of the privacy rights, this study aimed to investigate that how much do the nurses think they pay attention to patient's privacy?

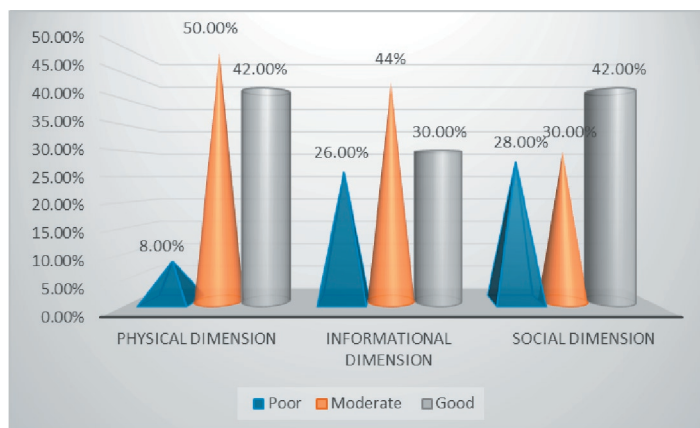
MATERIAL & METHOD

This was a cross-sectional study. The study was conducted on nurses working in educational hospitals of Zahedan University of Medical Sciences. 85 nurses were working in these hospitals. According to the Morgan's table we picked 70 of them randomly. Data were collected through a two part questionnaire. The first part was about the demographic information including age and sex. The second part was "patient's privacy consideration from nurse's viewpoint" questionnaire. The second part of this questionnaire contained 18 questions which were evaluated in three levels (Poor (1), Moderate (2), Good (3)). This part had three dimensions. 14 questions for the physical dimension, 2 questions for the informational dimension and 2 questions for social dimension. The scores varied from 18 to 54. Scores 18 to 30 were considered as poor privacy consideration, 30 to 42 were considered as moderate privacy consideration

and more than 42 were considered as Good privacy consideration. In the physical dimension scores 14 to 23 were considered as poor privacy consideration, scores 23 to 32 were considered as moderate privacy consideration and scores more than 32 were considered as good privacy consideration. In the informational and social dimensions scores 2 to 3.5 were considered as poor privacy consideration. Scores 3.5 to 5 were considered as moderate privacy consideration and scores over 5 were considered as Good privacy consideration. This questionnaire was used by Nourian and colleagues and its validity was proved. The reliability was calculated through Cronbach's alpha in this study and it was 0.81⁽¹⁶⁾. After ethical approvals were done in Zahedan University of Medical Sciences researchers went to the hospitals. After getting the approval of hospital security the aim of the study was explained to the respondents. After getting the verbal consent the questionnaires were given to them. Just for the records it was mentioned in the first page of the questionnaire that "your corporation in filling this questionnaire is considered as your consent to be a part of this study." And also it was written that "your information would be completely safe". After completing, the questionnaires were given back to the researcher. If any was incomplete the respondents were asked to complete them respectfully. After data collection the data were analyzed through descriptive analytics, Pearson's correlation (the relationship between age and privacy consideration) and T-test (relationship between sex and privacy consideration) by SPSS v.19. The significant P value was considered less than 0.05.

RESULTS

The mean of age was 26.99 ± 6.95 in this study. 55 (78.6%) respondents were female while 15 were male. The total score of patient's privacy consideration was 41.05 ± 7.33 which shows a medium consideration. 5 respondents (7.1%) stated that the patient's privacy consideration is poor, 35 (50%) said it's moderate and 30 (42.9%) said it's good. Patient's privacy consideration from nurse's attitude was good in physical dimension, moderate in informational dimension and good in social dimension. There wasn't any significant relationship between age ($p=0.06$), sex ($p=0.089$) and attitude toward patient's privacy consideration. But females had a more positive attitude toward the patient's privacy consideration. Frequency distribution of considering the privacy rights in different dimensions from nurse's attitude is shown in bar chart 1.



Bar chart 1. Privacy rights in different dimensions from nurse's attitude

Frequency distribution of assessing questions in patient's privacy from nurse's viewpoint is shown in table 1.

Table 1. Frequency distribution of assessing questions in patient's privacy from nurse's viewpoint.

	Poor	Moderate	Good
1. Patients cloths while entering the hospital	1.4	28.6	70.0
2. Personal and patient are the same sex	28.6	25.7	45.7
3. Anesthesiologist explanations before surgery	11.4	20.0	68.6
4. Limited exposure due to need of surgeon	10.0	31.4	58.6
5. Prepping after the anesthesia	2.9	20.0	77.1
6. Brief explanation from surgical team before surgery	17.1	31.4	51.4
7. Preventing unnecessary touches and examinations	18.6	28.6	52.9
8. Doing the examinations in private	24.3	45.7	30.0
9. Patient's clothes design due to the surgical site	47.1	32.9	20.0
10. Doing the genital surgeries in private	27.1	38.6	34.3
11. Closing the doors in genital and urological surgeries	28.6	40.0	31.4
12. Clothing the patient after surgery	17.1	30.0	52.9
13. Using a blanket for patients in the recovery room	4.3	34.3	61.4
14. Separate male and female patients in recovery	44.3	28.6	27.1
15. Keeping patients information safe	15.7	40.0	44.3
16. Not asking unnecessary questions from the patient	11.4	48.6	40.0
17. Silence in the waiting room	14.3	54.3	31.4
18. Silence in the recovery room	14.3	38.6	47.1

DISCUSSION

The results of this study had shown that patients privacy consideration is was moderate from nurse's viewpoint. This was consistent with Rasti and Jahanpour's study ⁽¹⁵⁾. But in Barlas's study about the respect of healthcare providers to the emotional rights of patients most of patients said that their rights are not being considered ⁽¹⁷⁾. Schap's study conducted that nurses in five European countries said that they consider their patients privacy but the patients believed that their rights and privacy are not respected ⁽²⁾. Joulaei and colleagues stated that staff shortage is one of the most important

reasons in respecting or not respecting patient's privacy ⁽¹⁸⁾.

The Operating Room is an important ward in the hospital. Dangerous and sensitive procedures done in the ORs. So the workers there should highly consider the patient's privacy rights. They should know that they could easily hurt the patient's emotions. If they respect the patient's privacy so the patients would have independency and feels valuable ^(16, 19). In this study mostly it was conducted that the patient's privacy was in a good level in physical dimension. This was consistent with Dehghanniri and Aghajanie's study ⁽²⁰⁾. But Edward's

study says something else about the patient's privacy. He believes that unnecessary physical touches and disturbing patients calm is the main factor of refusing patients privacy⁽²¹⁾. About the questions in the questionnaire in physical dimensions mostly it was said that prepping after the anesthesia was done good. This was consistent with other studies^[16].

In informational and social dimensions most of respondents conducted that they were considered and they gave a good score to them. But Aghajani's study showed that the information of patients were not safe^[22]. In Nourian and colleagues study also just 11% of patients said that their privacy in social dimension was considered by the staff^[16]. These differences between this study and mentioned studies could be cause of this that the respondents and the wards were different.

CONCLUSION

The results of this study had shown that the level of the patient's privacy consideration is moderate from nurse's attitude. Also it was moderate in physical dimension and good in informational and social dimension. The researcher suggests that putting professional ethic concepts and the importance of ethical codes and especially in patient's privacy consideration in the In-service training program of healthcare providers could help the results of this study work for the hospitals.

This articles was extract from a student research project and got the approval of ethical committee of the zahedan University of Medical Sciences.

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Conflict of Interest - Nil

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Health Care Waste Management in Warangal City

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ABSTRACT

Health care waste is produced from a number of activities performed in different areas of health care facilities. If it not disposed properly, poses serious threat to public health and to the environment. Hence an attempt is made to study the present state of health care waste management in Warangal and to determine awareness level, practices and the attitude towards it. This study was done in Warangal city. Category 1,4,7 wastes were segregated by 35%, 43%and 30% of the health care centres respectively. The final disposal options were present only in medical college teaching hospital. the management of category 8 waste, the underground drainage system was observed in 55% health care centres. Most of the health care centres not practiced disinfection before final disposal. Out 40 health care centres, 70% were manually transporting the waste to the site of final disposal. Only 30% centres were using containers and trolleys for transportation of waste. 35% health care centres burn the waste in the open field and 42% centres throw the waste indiscriminately around their premises. Only 8% health care centres use incineration as disposal option and another 5% use burial as disposal option. 20% centres dump the waste in public bin.

Keywords- *Health Care Centres, Health Care Waste, Transportation, Disposal.*

INTRODUCTION

Over the years there have been tremendous advancements in the health care system. However it is ironic that the health care settings, which restore and maintain community health is also threatening their well-being. Poor waste management practices pose a huge risk to the health of the public, patients, professionals and contribute to environmental degradation.¹ It is reported that for the first time the biomedical waste management issue was discussed at a meeting convened by the WHO regional office for Europe at Bergen, Norway in 1983. With the passage of time the problem has evolved as a global humanitarian issue.² In our country, The Bio-medical waste (Management and handling) Rules 1988 lay down clear methods for disposal of bio-medical waste, defined as “any waste generated during the diagnosis, treatment or immunization of human beings or animals or in research activities used in the production or testing of biologicals.” Pollution control boards of every state have been given the

task of authorising and implementing the rules.³ Health care waste (HCW) is a special category of waste, which needs to be handled appropriately with precautions because it carries a higher potential for infection and injury than any other type of waste. Currently it is being managed casually.⁴ With a rapid increase in the number of hospitals, clinics and laboratories in the country, the generation of health care waste has been increasing considerably. It is estimated that patients in India generate between 0.5 to 1kg of waste/person/day.^{1,5} Warangal is heading towards providing a medical hub for the region of North Telangana in Andhra Pradesh. Hence an attempt is made to study the present state of health care waste management in Warangal and to determine awareness level, practices and the attitude towards it.

AIM AND OBJECTIVES

Know the existing system of Health Care Waste Management (HCWM) in Warangal to determine the

factors influencing the efficiency of HCWM, provide recommendations and developing an integrated HCWM system model.

MATERIAL AND METHOD

The present study was observational, descriptive and cross-sectional study done in The health care establishments of Warangal city from June 2010 to May 2011. Out of 196 functional health care establishments (HCE) in the Warangal city, 40 centres were selected for the study By using the stratified method from those HCE who were willing to provide us information was selected for this study and grouped into five different groups (i.e., group 1 to group 5). (table-1)

The prepared questionnaire mainly addressed the issues of:

- a) types of generated medical wastes
- b) sources of medical waste
- c) existing waste management practices.

The data collected by questionnaire survey was analysed mainly with simple descriptive statistics and compared with available data.

LIMITATIONS OF THE STUDY

- Out of 196, 40 health care centres (HCC) were taken up for the present study due to time constraint.
- No base line data with respect to health care waste management was available for this area.
- Adequate comparative analysis could not be done, as there were no studies available for this area in the said subject.

RESULTS

Out of 40 HCC, the segregation of human anatomical waste is being done only by group 1, group 2 and group 5 i.e., 14 (35%). segregation of waste sharps is being done by group 1, nine HCC of group 2, two of group 3, four of group 4 and only 1 of group 5 i.e., 17 (43%) . segregation of category 7 waste was observed in 12 (32%) HCC i.e., group 1, four of group 2, two of group 3, four in group 4 and only 1 in group 5 (TABLE-2).

The underground drainage system was observed in 22 (55%) HCC. The management of liquid waste was inappropriate in many HCC. 28(70%) HCC were manually transporting the waste to the site of final disposal. Only in 12 (30%) HCC the containers and trolley were being used for transportation of waste. 14(35%) HCC burn the waste in the open field and 17(42%) HCC throw the waste indiscriminately within and around their premises. Only 3(8%) HCC i.e. one medical college teaching hospital and two private speciality hospitals using incineration as disposal option and another 2(5%) HCC use burial as disposal options. 8(20%) HCC dump the waste in public bin. 8 (20%) HCC i.e., one in group 1, six in group 2 and one in group 5 used aprons as personal protective measures, masks were used by 12 (30%) HCC i.e., one in group 1, six in group 2 and two in group 3, two in group 4 and one in group5 and gloves were used by 23 (58%) HCC i.e., one in group 1, nine in group 2, eight in group 3, two in group 4 and three in group 5. The soap and water were provided by 34 (85%) HCC. Immunization (against TT and Hepatitis B) was observed in 29 (73%) HCC. it is observed that only 3 (8%) health care centres i.e. one medical college teaching hospital and two private speciality hospitals had both infection control committee and waste management committee.

Table: 1- Health care centres in Warangal studied under various groups

Groups	Type of health care centre	Number	Studied
Group-1	Government and Teaching hospitals	6	1
Group-2	Private hospitals (Speciality and Nursing homes)	62	12
Group-3	Clinics (Allopathic,AYUSH,Physiotherapy and Dental)	81	16
Group-4	Diagnostic centres	22	
Group-5	Supportive services (Blood bank, Pharmacy, Mortuary, and Veterinary hospitals)	25	6
	Total	196	40

Table: 2- Mode of management of health care waste by the various groups of health care centres

Category 1 waste (Human anatomical waste)

Category 4 waste (Waste sharps)

Category 7 waste (Disposable items other than waste sharps)

DISCUSSION & CONCLUSION

HCW, If it not disposed properly, poses a serious threat to public health and to the environment.⁶ The paper has attempted to assess the status of HCWM in Warangal city by taking 40 HCC. The generation of medical waste in Warangal has been increasing in quantity and variety, due to the wide acceptance of single-use disposable items.

There has been an improper procedure of medical waste management in Warangal city. No HCC segregated their generated wastes, except medical college teaching hospital and few private speciality hospitals. Medical wastes need to be segregated separately according to their characteristics at the point of generation.⁷ In some HCC, all the infectious wastes were found to be separated from the non-infectious waste stream at the site of production, but during disposal in the WMC dustbins the wastes were then mixed together. The intermingling of infectious wastes with general waste in the HCC is a threat to environmental health. The present study found that a few private HCC used to segregate their sharps and infectious wastes in separate bins and send them to the MEDCLEAN services Warangal for the final disposal of waste. The clinics, diagnostic centres and few private hospitals in Warangal city generally were found to be disposing of their wastes into the WMC bins without segregating them. This poses serious health risks to the personnel handling the waste, to the scavengers and to the public at large. The consequences of this practice extend to the possibility of polluting both surface water and groundwater resources in the vicinity of dumpsite.⁸ Internal and central storage facilities are important to store the collected waste for certain period until safe disposal. Some small HCE do not have any temporary storage and they simply used to dispose the waste directly into the nearest WMC bin. The present study shows that all of the surveyed HCE dispose of their domestic waste at the same site as the municipal waste.

The management of category-1 was not appropriately done in any HCC except group 1, medical college teaching hospital. Anuroopa S.M. and Ramakrishnagowda B, in their

studies have also observed that the management of human anatomical waste was not being appropriate.^{9,10} The poor management of this waste could be related to inadequate facilities existing in the HCC. There was no system of destroying needles from used syringes in the HCE in Warangal city. To protect resale and reuse of syringes, both manual and electric needle destroyers have recently been introduced to different HCE to cut needles from syringes to protect against HIV and Hepatitis viruses. These sterilized materials are mixed up with the general civic waste for disposing in WMC dumping area. Organic infectious waste and sharp items are sent to the final disposal sites. There are reports of needles and waste sharps being collected in red bags (meant for anatomical/infectious waste) resulting in large number of needle stick injuries to waste handlers during process and transportation. Data from CDC Atlanta suggests that in USA alone, there are approximately 5000 HIV infected needle stick injuries annually to health care personnel.¹¹ In some places the nursing staffs were observed to have attempted mutilating sharps by bending them against hard surface and in some places by partially recapping the needle and then bending, which may result in injury to the health care workers. According to OSHA, (occupational safety and health administration), health workers alone experience an estimated 800,000 needle stick injuries annually.¹² It was also seen that category-7 was segregated because of the economic value i.e., as this waste was collected by a vendor and the same was sold to the contractor who reclaimed the hospital waste for recycling purposes.

Most of the time, disposable equipment was discarded without disfiguring and thus got recycled by rag pickers in collaboration with hospital staff. They are recycled and repacked under standard company brands. In addition to the problem of recycling of hospital disposables, sharps injuries sustained by rag pickers also lead to spread of infectious diseases like hepatitis B virus, hepatitis C virus and human immunodeficiency virus.¹³ All hazardous materials except plastic and polymer materials can be incinerated. Our study found that manually operated incinerator present in group 1. Patil & Pokhrel¹⁴ are in favour of incineration; while Bakoglu et al¹⁵ and Karademir¹⁶ assess health risk of Polychlorinated Dibenzodioxin and Dibenzofuran (PCDD/F) emissions from a medical waste incinerator in Turkey. Mao et al¹⁷ also advocate against the incinerator because of its mass emission of particulate matter (PM_{2.5}/PM₁₀) and particle-bound polycyclic aromatic hydrocarbons (PAH), which is considered to be health risk. Although

there have been a number of criticisms of incinerators regarding their impact on the environment, If it is operated properly, it will not incur excessive risks and it can be affordable alternative technology in destroying infectious medical wastes.

All the HCE discharge their liquid pharmaceutical and chemical waste into the general sewers or drains in Warangal city because none of them have any proper liquid waste management facilities. Liquid waste generated from HCC is genotoxic and is normally polluted with Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), faecal coliform, and total coliform content above tolerable limits.¹⁸The liquid waste when let into sewers can also lead to water pollution, and may spread the disease causing agents if not properly and adequately treated.

It was observed that transportation of HCW was done manually in 28(70%) of HCC. Safe transportation of high-risk HCW items such as sharps and infectious wastes is needed to prevent accidental injuries and infection to anyone who comes into contact with it during transit. Dedicated and purpose built vehicles are required. These vehicles must be fully enclosed, seamless and easy to clean. The drivers, according to WHO (undated), who transport HCRW (Health Care Related Waste) must at all times carry consignment documents detailing the HCRW being transported. According to McLean et al there is insufficient training of staff that are handling and transporting HCRW.¹⁹

It is observed that only 3 (8%) HCC had both infection control and waste management committees. It was noted that the majority of public clinics do not have a system for dealing with HCW. Oweis et al note that the health care waste management team plays a pivotal role in the successful implementation of a HCW management plan.²⁰In majority of the HCC staff members did not received training HCWM compared to 40% reported in the study conducted in Iran.²¹ Training in HCW reduces the negative impact that can be caused by poor HCW management. Lack of training of personnel in HCW poses a serious risk to patients, the public, and the environment.²²

RECOMMENDATIONS

1. Practice of basic hygiene and cleanliness in all HCC .
2. All facilities need to designate an appropriate area

for waste storage .

3. A waste management plan is essential for all health facilities and effective implementation of rules by surprise visits and inspection by appropriate authorities

4. The persons handling the waste should use protective gears like apron, thick rubber gloves long boot and face mask. They should be immunized against communicable diseases.

5. Various regulatory agencies, Hospitals, Medical Association & Municipal Corporation should work together for proper management of Bio-medical waste.

6. A compulsory training programme should be conducted for all new staff in hospital.

7. Bio-Medical Waste Management programme cannot successfully be implemented without the willingness, devotion, self-motivation, cooperation and participation of all sections of employees of any health care establishment.

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Opportunities and Challenges of Using Big Data Analytics in Indian Healthcare System

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ABSTRACT

The current Indian Healthcare system is in need of a radical reinvention. In India, increase in income levels, aging population, rising health awareness and changing attitude towards preventive healthcare is expected to boost healthcare services demand in future. The massive growth of the volume, velocity, and variety of digital health data creates both manageability issues and opportunities for greater patient insights. Finding a way to successfully manage Big Insights to eventually “predict, personalize, and prevent” could lead to early detection of potential problems, which means healthier people, as well as fewer complications and admissions. This paper provides an overview of Big Data, applicability of it in Healthcare system, opportunities that it hold to improve Indian healthcare, challenges in this journey, some of the work in progress and a future outlook on how Big Data Analytics can help lower healthcare costs in India while providing better health care access to the priceless human resources.

Keywords: *Big Data Analytics, Indian Healthcare, Telemedicine, Personalized Medicine, Clinical Decision Support system*

INTRODUCTION

The healthcare industry is one of the most critical and fastest growing industry in India. It is expected to grow at a Compound Annual Growth Rate (CAGR) of 17 percent during 2011-2020 to touch US\$280 billion^[1]. With this growth in healthcare systems, the vast amount of data can be anticipated from different health science data sources. In India, even if digitization of medical records is in its infancy stage, still the health care data is growing exponentially. Analyzing the data reveals trends and knowledge that may run contrary to our assumptions causing a shift in ultimate decisions that in turn will better serve both patients and healthcare enterprises. This is where Big Data Analytics has emerged victorious. Though this technology is still new but it has already shown signs of maturity. Big Data Analytics provides clinical decision support through large amounts of data, personalized care by early detection and diagnosis

before a patient develops disease symptoms, clinical operations with great accuracy, fraud management in the health sector. Big Data Analytics concepts are described in Section 2. Section 3 discusses its role in Healthcare system. Section 4 focuses on the opportunities of improving Indian healthcare system using Big Data Analytics. Section 5 explains some of the challenges of achieving these goals.

WHAT IS BIG DATA?

Datasets that stretches the limits of traditional data processing and storage systems is often referred to as Big Data. As stated by IBM^[2], every day we create 2.5 quintillion bytes of data. The “Big” part of big data may be defined in terms of the Four Vs^[3, 4] as shown in figure 1.

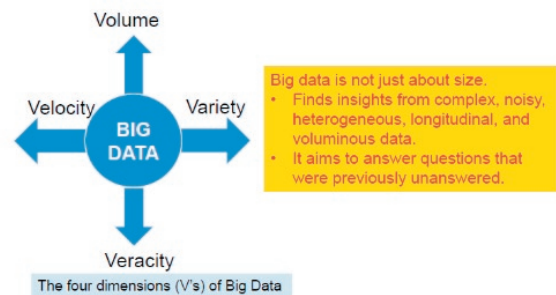


Figure 1 Four V's of Big Data^[5]

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The word “Big Data Analytics” means the systematic discovery of meaningful patterns and unknown correlations in large amounts of data to support decision-making. With the help of big data analytics, meaningful insights can be extracted from big data which is heterogeneous in nature comprising of structured, unstructured and semi-structured content^[6]. Using advanced analytics techniques such as text analytics, machine learning, statistics, Natural Language Processing, data mining, and predictive analytics, businesses can study big data to understand the current state of the business and track evolving aspects such as customer behavior, disease prediction, and treatment outcome^[7].

ROLE OF BIG DATA IN HEALTHCARE

Data is the new natural resource. Data is growing and moving faster than healthcare organizations can ingest it. The human body is a big source of Big Data as shown in figure 2. The amount of data generated by the various EMR systems, Claim systems and medical equipments are larger in size compared to traditional data. It suffices the first V (Volume) of Big Data. The speed of healthcare data created from patient encounters and patient monitors is increasing, in and out of the clinic - second V (Velocity). Over 80% of medical data resides in unstructured formats, such as doctors’ notes, images, and charts from monitoring instruments – third V (Variety). Fourth V (Veracity) deals with unsure or vague data. Most healthcare data from clinic and hospital records is afflicted with errors, as while entering data technicians frequently attach information to the wrong person’s record or copy information incorrectly.

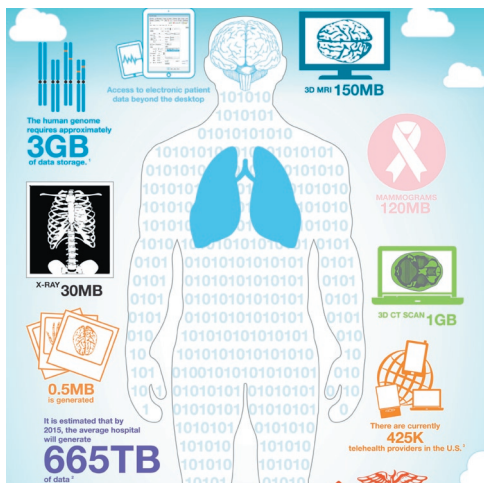


Figure 2: The Body as a source of Big Data^[8]

The new wave of digitizing medical records has seen an ideal model change in the healthcare industry^[9]. Several initiatives in this area like Battling the Flu for flu predications, 23andMe project to understand genetic health

risks, White House Big Data Research and Development Initiative, MD Anderson’s Moon Shots Program to Fight Cancer have shown inspiring results^[10]. The McKinsey Global Institute estimates a \$100 billion increase in profits annually if big data strategies are leveraged to the fullest potential^[11].

OPPORTUNITIES FOR IMPROVING INDIAN HEALTHCARE SYSTEM USING BIG DATA

Most Indian Healthcare organizations are now embarking on the analytics journey. Information management systems and EMRs have been integrated by certain tertiary care hospitals to create a central repository of historical data in the form of data warehouses and subsequently, use it to mine data, to do research and analytics to make smarter decisions for improved quality of healthcare^[13, 14]. Big Data Analytics is opening up many avenues and opportunities in Indian healthcare system. As shown in figure 3, these are:



Figure 3 Opportunities of Big Data Analytics in Healthcare

a) Clinical Decision Support Systems

Big Data analytics technologies that scrutinize large amounts of data, make them understandable, do categorization and extract knowledge from it. These then predict outcomes or recommend interventions and alternative treatments to doctors and patients at the point of care^[15]. This will help in making correct and timely decisions about right diagnosis, treatments and prevention plans and for the elimination of errors. SMARTHealth India, a Clinical Decision Support System for cardiovascular diseases, is one such example^[16]. Duggal et al.^[17] attempts to study the problem of matching patient records from disparate systems and proposes a solution by using Big Data Analytic techniques like Fuzzy Matching algorithms & MapReduce for better clinical decision support.

b) Predict spreading of epidemic

When the infectious disease outbreaks, data which is collected through health institutions and government reporting institutes may not be available for weeks, which can delay early epidemiologic assessment. Social media can be helpful to get it in near real-time. Google showed that it is possible to track the outbreak of Flu in USA and Dengue fever in Brazil and India using nothing more than archived search queries. The notion behind this is to see whether an increase in the frequency of certain search terms – such as headache or fever – correlates with the country's official Flu/Dengue statistics^[18]. Global IT major IBM has already channeled its efforts with university researchers to use big data and related analytics capabilities to possibly predict the outbreak of deadly diseases such as Dengue fever and Malaria^[19] which are prevalent in India.

c) Preventive Healthcare

One of the earliest uses of big data to generate new insights has been around “predictive analytics”. In addition to the typical administrative and clinical information, incorporating additional information about the patient and his or her surroundings may give better expectations and help target medications to the right patients. Their health provider can then prescribe effective preventive action plan to them.

d) Telemedicine

With telemedicine, hospitals hope to lower the cost of patient care and increase the effectiveness of chronic disease management in remote locations equivalent to the services rendered by the city hospitals^[12]. It collects all possible patient information to create thorough Electronic Health Records (EHRs) for each patient^[20]. Many major hospitals (Apollo, AIIMS, Narayana Hrudayalaya, and Dr. Balabhai Nanavati Hospital) have already adopted telemedicine services and entered into a number of Public Private Partnerships^[1, 21, 22, 23, 24]. HP Company has introduced eHealth Centers wired for telehealth technologies and cloud-based electronic medical records and analytics and are designed to fit in a shipping container, making them easily portable to rural parts of India^[25]. The Indian government has also issued recommendations on Guidelines, Standards & Practices for Telemedicine in India^[26].

e) Personalized Medicine

The integration of EMRs, medical claims, videos,

medical images, scanned documents, and physicians' notes enables organizations to create a rich, 360-degree view of each patient. Treatment can be prescribed based on activity recognition using Cell Phone Accelerometers of patients^[27]. Analysis on all of this collected data will help determine the exact amount and type of medicine that an individual patient would require, then further reducing healthcare costs^[28]. More personalized medicines that use patient-specific data such as genomics and proteomics can be created based on the profiling of similar patients and their responses to such approaches^[10, 29]. According to National Biotechnology Development Strategy, 2014 by Dept. of Biotechnology, Govt. of India, genome-based prescription and treatment will be the top priority in next few years^[30]. One such initiative to study genomics data is the Indian Genome Variation (IGV) Consortium^[31], a government-funded collaborative program among six laboratories of the Council of Scientific and Industrial Research (CSIR).

f) Healthcare Fraud Management

In India, it is estimated that the number of false health insurance claims in the healthcare industry is approximately 15 per cent of total claims and approximately INR 600-800 crores losses incurred on fraudulent claims annually^[32]. Big Data Analysis enables auditors and fraud examiners to analyze healthcare organization's huge data to gain insight into how well internal controls are operating and to identify transactions that indicate fraudulent activity or the heightened risk of fraud in real-time^[33].

CHALLENGES

India being the second most populous country in the world and having healthcare infrastructure that is overburdened with this ever-increasing population, there are a set of challenges in implementation of Big Data Analytics:

a) Lack of Digitization

Currently, in India, many healthcare organizations and their managements appreciate the advantages of electronic medical records but seldom use them. The current drive for universal health coverage in India highlights the importance of implementing information technology as a means of cutting costs and improving efficiency in the healthcare field. But, at present, only a few hospital like MAX Healthcare and Sankara Nethralaya are maintaining EMRs, mainly because of cost, privacy issues, and the lack of one compatible, easy-to-use infrastructure^[34, 35].

b) Heterogeneity, Complexity and Incompleteness of data

Inferring knowledge from complex heterogeneous patient sources and leveraging the patient/data correlations in longitudinal records is a big challenge. To handle clinical notes full of grammatical errors, short phrases, abbreviations & misspellings is a tedious job. Also to understand these unstructured clinical notes in the right context is a big task.

c) Interoperability/Sharing of data

In healthcare, another challenge is the fragmentation and dispersion of data among the various stakeholders, including payers, providers, labs etc. Payers, providers, research centers and other constituents all have their own silos of data. These are fundamentally difficult to integrate because of concerns about privacy and propriety, the complex and fragmented nature of the data, as well as the different schemas and standards underlying the data and lack of metadata within each silo^[36].

d) High investment Cost and Access

Indian Healthcare organizations are wary of technology integration due to the additional cost burden caused by the requirement of IT infrastructure and technical expertise. Harnessing the power of Big Data can be costly.

e) Establishing standards and governance

Health care data is rarely standardized. It is often fragmented or created in legacy IT systems with incompatible formats^[4]. Standards need to be defined and implemented to promote consistency in data across the healthcare system to eliminate discrepancies and increase the usefulness of data. Some of these standards (EHR/EMR) have been recommended by Indian Government^[37], but until unless implementation of these become mandatory, it is very difficult to correlate this data.

f) Data Privacy & Security

While the healthcare industry harnesses the power of big data, security and privacy issues become crucial as emerging threats and vulnerabilities continue to grow. As data gets bigger, de-anonymity becomes difficult. Gosain and Chugh^[38] suggest using 3 important methods to guarantee privacy & safeguard security in Big Data - Data Anonymity, Notice and Consent and Differential Privacy.

CONCLUSION AND FUTURE WORK

Healthcare is a data-rich domain. As more and more data is being collected, there will be increasing demand for Big Data Analytics. Unravelling the "Big Data" related complexities can provide many insights about making the right decisions at the right time for the patients using Clinical Decision Support systems. Efficiently utilizing the colossal healthcare data repositories can yield some immediate returns in terms of Preventive Healthcare, Telemedicine, Personalized Medicine and Fraud Management which will significantly lower healthcare costs. But, there exists huge challenges to be overcome by Indian Healthcare industry such as Digitization, Heterogeneity, Cost and access of data, establishing standards and governance, Data Privacy and Security & system user-friendliness in Indian Healthcare industry. These are significant challenges as we strive to achieve results comparable with (or better than) human experts through automated techniques. Systems will never be able to replace human expertise but they will definitely become important decision support systems in healthcare in near future!

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The Survey of the Relationship between the Exam Anxiety and the Academic Performance in the City of Urmia Medical Sciences University Students in 2016

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ABSTRACT

Introduction: Nowadays, education and training play significant parts and roles in an individual life. Success in passing exams is usually of a great importance and it plays a determinative role in the university students' lives. Due to the same reason, they are usually found to be causing stress and anxiety in the individuals, thus, according to the effect that the exam anxiety can have on the academic achievement the present study aims at the survey of the relationship between the exam anxiety and the academic achievement in the city of Urmia's medical sciences university students.

Implementation method: In the present analytical-descriptive study, 460 individuals from Urmia's medical sciences university were selected randomly and they were asked to participate in the survey in 2016. The information were raked by taking advantage of a two-part questionnaire the first part of which was related to the demographic characteristics (gender, age, and academic total mean score); besides, the second part pertained to the test-anxiety questionnaire designed by Pintrich et al. In the end, the data were analyzed by making use of SPSS ver.19 and descriptive statistics, Pierson correlation test, independent t-test and variance analysis.

Findings: the results obtained in the current study indicated that 291 participants were male and the participants' average age was estimated to be 21.71 ± 2.94 . The relationship between the test anxiety and age was not found to be statistically significant but the relationship between the respondents' age and academic performance was significant. The relationship between the gender and the academic performance was shown to be statistically significant but its relationship with the test anxiety was not found to be significant. The relationship between the academic performance and the test anxiety was analyzed through the use of Pierson correlation test and it was demonstrated to be statistically significant.

Conclusion: In the current research paper, there was figured out an inverse and significant relationship between the test anxiety level and the academic performance. Since the test anxiety is a multifactorial phenomenon there is a need for a full-scale effort from the parents, professors and officials' sides to help the students effectively manage their test anxiety.

Keywords: test anxiety, academic performance, University students, Urmia

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INTRODUCTION

Nowadays, education and upbringing play a very critical role in the individuals' lives. Assessing the academic achievement rate and identification of the factors effective thereon are among the issues which

have been highly focused on by the psychologists [1].

Success in passing the exams and tests is usually of a great importance and it plays a determinative role in the students' lives [2, 3] and it is an essential part of the modern life especially in the academic and enhancement field which, accordingly, is most often accompanied with stress and anxiety [4, 5]. Therefore, one of the major concerns the university students are usually trying to cope with is the success in passing exams and tests. In some of the cases, such concerns and worries are usual, balanced and useful and cause an increase in the students' motivation, learning competency and personal efficiency in academic-related issues. But a group of the individuals finds itself so distressed and anxious when sitting for exams and at the time of evaluation and valuation that they seem to have lost their analytical and critical thinking potentials and learning potency. Such university students are diagnosed to have test anxiety [2]. Although academic achievement and progress is influenced by numerous factors, but the role of test anxiety cannot be neglected in the academic performance area. The highest rate of the school dropout occurs among the students who have been found with test anxiety. Also, the studies indicate that about 10% of the university students with test anxiety are in need of treatments and this risk is increasing day in day out [6]. The problem of test anxiety, academic achievement and students' creativity are among the concerns and the challenges that the education systems and the professors and the teachers and instructors are usually faced with [7]. Test anxiety includes phenomenological, physiological and behavioral responses in relation to the fear of failure and defeat and in a great many of the cognitive and concentration and focus processes they have been realized to interfere with the individual's effective functioning and performance. Test anxiety adverse effects on the academic achievement have been confirmed [8, 9]. Under threatening conditions, the anxiety reactions are usually of a general type. However, more extreme cases of anxiety and stress may render an individual unable and it may middle with the individual's effective performance [21]. Many of the university students suffer from test anxiety. Such a stress is so intense and severe that brings about a condition for disruption and interference in test passing performance [10, 11]. However, when the anxiety and stress influence the test performance of the individual they cause a great many of students a lot of problems and difficulties and

they may have negative effects on the students' academic abilities [12, 13].

According to the idea that the students who are found to have a higher level of test anxiety consider passing the exam and test success as a personal threat and therefore they do not seem to have the power to adapt and be creative and consequently their academic achievement is reduced and they attribute their academic achievement to external factors such as chance and they have come to the understanding that their failure is a result of internal factors such as their lack of talents and competencies. Subsequently, they gain a negative image of themselves which ruins their position and situation amongst their counterparts of the same age group [14, 15]. Thus, according to the effect that the test anxiety can exert on the academic performance the present study aims at the survey of the relationship between the test anxiety and the academic performance in the city of Urmia's medical sciences university students.

Implementation method:

In the current descriptive-analytical study, 460 individuals of the city of Urmia's medical sciences university students were selected based on a randomized sampling method and they were asked to respond to the questionnaire in 2016. The information required for the current study was gathered by means of a two-part questionnaire the first part of which was related to the demographic characteristics (age, gender and academic total mean score), and the second part involved test anxiety questionnaire designed by Pintrich and his colleagues. The questionnaire contained 5 questions which are a subgroup of Pintrich's learning strategies questionnaire. The measurement scale was ordinal MSLQ. According to the questionnaire guideline instructions, the respondents provided their answers based on Likert's 7-point scale ranging from 1 (is not true about me at all) to 7 (is completely true about me). Every item's score was its constituents mean score. Therefore, in the present study the minimum score was 5 and the maximum score obtainable was 35. The questionnaire reliability score was obtained by Pintrich et al as being equal to 0.80 and it was also again measured in the present study by taking advantage of Cronbach's alpha method which was found to be 0.78. The academic performance measurement scale in the students evaluated in the current research paper has been the individuals' total mean score of the lessons and it

is ranging from 0 to 20 in Iran. In the present study the scores below 14 are regarded as weak, scores between 14 and 17 are favorable and the scores between 17 and 20 are considered as very good marks.

To collect the data, firstly, the objective of the study plan was explained to the students and after an oral consent was received from them the questionnaires were distributed. At the beginning of the questionnaire there was a section to inform the individuals of their consent for participating in the study which read “your cooperation in the current research paper means that you are fully aware of your cooperation with the current study. Also, the respondents should know that the information provided by them remain highly confidential and they are not exposed to any risk”. After the data were collected they were analyzed by taking advantage of SPSS ver.19 and descriptive statistics, Pierson correlation test, independent t-test and variance analysis.

FINDINGS

The results obtained in the present study indicated that 291 participants (63.3%) were male and the respondents' average age was 21.71 ± 2.94 . The relationship between the age with the academic performance and test anxiety was assessed through the use of Pierson correlation tests and the results showed that the relationship between the age and the test anxiety was not found to be statistically significant ($P=0.173$), but the relationship between the age and the academic performance was statistically significant ($P=0.003$). The relationship between gender and academic performance and test anxiety was also evaluated via the independent t-test and the results demonstrated that the relationship between the gender and the academic performance is statistically significant ($P=0.001$) but the relationship between the test anxiety and the gender was not shown to be significant ($P=0.55$).

The specifications related to the relationship between the test anxiety and the students' academic performance has been inserted into table (1).

Table 1: the specifications related to the relationship between the test anxiety and the students' academic performance

	Number of the individuals	Mean test anxiety score	Std.Deviation test anxiety score	minimum test anxiety score	Maximum test anxiety score	P Value
Weak performance	70	25.45	4.79	14.00	35.00	0.001
Medium performance	320	22.70	6.39	7.00	35.00	
High performance	70	22.24	5.66	10.00	34.00	

DISCUSSIONS

The results obtained from the current study indicated that the relationship between the test anxiety and academic performance is statistically significant and the higher the test anxiety the weaker the academic performance would be. Exam anxiety is one of the situational anxiety types which is in a close relationship with the academic achievement and performance of millions of students and university students. The subject matter of the current study dates back to the time when the first tests and exams were designed to evaluate the academic performance [16]. Chamberlain in his qualitative study which was conducted on obstetrician university students indicated that the test

anxiety is not consistent with cases such as instruction and inspection and it can cause a weak relation when learning and it also may cause the obstetrician students to feel weakness and inability in their performances and acquisition of skills [17]. Also, the results obtained in the study performed by Schaefer et al regarding test anxiety and academic achievement showed that the students with higher rates of test anxiety had longer periods of education accomplishment ad far longer periods of graduation and they were found to suffer to a great extent of the social worries and concerns; psychological and psychotic disorders were more apparent in this group [13] and it is worth mentioning that the results obtained in the aforementioned studies conform to what

has been figured out by the current study.

The emotional arousal does not seem to have a stable relationship with the intelligence or cognitive performance, while worrying and having extreme extents of concerns is in a negative and stable relationship with the performance since the worries and concerns seem to inhibit from proper assignment accomplishment and distract the attention from appropriately carrying out the assignment and tasks. On the other hand, emotional arousal may, in practice, facilitate the assignment accomplishment unless the learnt materials direct the attention towards certain manifestations of the arousal [18, 19]. The individual who is found with a high level of test anxiety will be plunged into negative thoughts and such thoughts focus the individual on comparing one's own performance with those of the others, failure results and lack of success, low levels of confidence in performance, the satisfied extremely high concerns and worries, feeling of not being prepared for the exam and the absence of self-value [20]. Some of the other theoreticians believe that test anxiety is associated with improper and inadequate study habits and concentration problems, specific anxieties and stress, social phobia and also the presence of a high level of test anxiety is correlated with far more increasing cognitive errors, more negative thoughts and low self-esteem [22]. The youngsters who feel that they have a proper understanding and imagination of their own selves and capabilities will be less likely found to have test anxiety. Moreover, they can find more reasonable methods for solving their problems and resolving bottlenecks of their lives [23]. Therefore, it is suggested that all of the students should be requested to participate in emotions and anxiety management skills workshops.

CONCLUSION

In the present study an inverse and significant relationship was found between test anxiety and academic performance. Since the test anxiety is a multifactorial phenomenon there is a need for the parents, professors and the officials and authorities to help the students effectively manage their anxiety. Since exams and tests are the inseparable and integral parts of the instruction and if the university students are anxious sitting for exams they will surely not exhibiting a good performance.

This articles was extract from a student research project and got the approval of ethical committee of the zahedan University of Medical Sciences.

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Conflict of Interest - Nil

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Giant Lumbar Hernia and Review of Literature

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ABSTRACT

Lumbar hernias are among the rare hernias and account for less than 1.5% of all abdominal hernias. They occur spontaneously and may be acquired. They are increasingly being reported after motor vehicle collisions however the spontaneous variety is still rare and a review of literature yielded around 310 cases. If large they present with a bulge in the lumbar region

We present a case of a giant lumbar hernia from the superior lumbar triangle on the right side in a 42 year old lady who presented with features of irreducibility and pain. She underwent open mesh hernioplasty and is well at one year of follow up

Keywords: Giant Lumbar hernia, Superior lumbar triangle, Inferior lumbar triangle, Hernioplasty open and laparoscopic

CASE REPORT

42 years old postmenopausal lady presented with a large increasing lump in the right lumbar region of 03 years duration and had become painful and irreducible for the last 02 weeks, there were no associated features of intestinal obstruction. She also was a known hypertensive and a diabetic on irregular treatment. There was no history of trauma, previous surgery, hematuria, or altered bowel habits

Examination revealed large obese lady short statured height of 148 cms, weight: 86 kgs, BMI of 38.34 (calculated) Class II obesity

Local examination revealed a large lump 35 cms by 15 cms in the right lumbar region soft partially reducible and an expansile cough impulse with a palpable defect of the posterior abdominal wall measuring 12cms x 07 cms with bowel sounds heard over the lump clinically suggestive of a lumbar hernia. The examination of rest of the abdomen, right flank, back and hernial orifices was normal (Figure1,2)



Figure 1 Clinical photograph Figure 2 Clinical photograph

Plain radiograph of the abdomen did not reveal any gas shadows within the swelling. Ultrasonography revealed a 12x10 cm ill-defined mass in the left lumbar region with areas of mixed echogenicity within the swelling.

Computed tomography (CT) scan of the abdomen was carried out which confirmed the presence of left lumbar hernia containing part of the ileum and omentum [Figure 3].

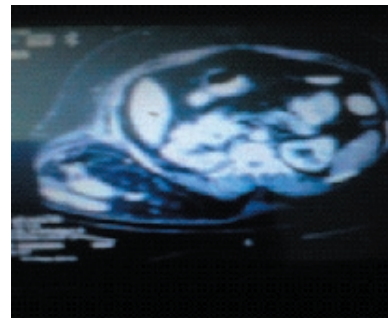


Figure 3 CT scan showing lumbar hernia

A diagnosis of a Right sided partially reducible giant lumbar hernia with associated comorbid conditions of obesity class II, T2 DM and Hypertension. She was planned for surgery after stabilization of her glycemic status and optimization of blood pressure and a complete workup.

Under General anesthesia patient underwent an open preperitoneal mesh hernioplasty after complete reduction of contents in the right lateral position. [Figures-4, 5].

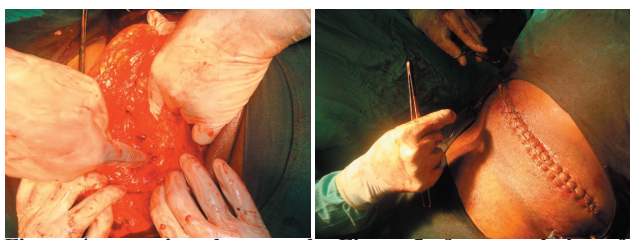
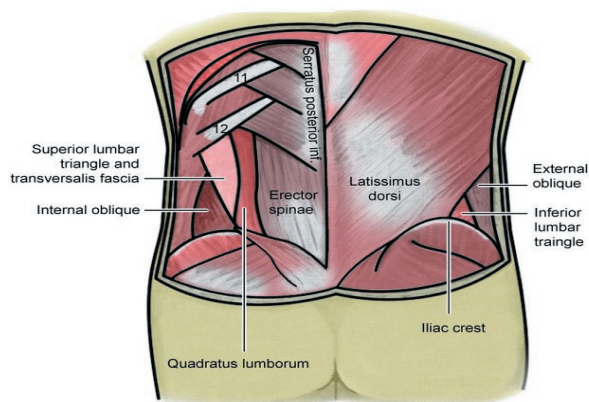


Figure 4 operative photograph. Figure 5 after completion of surgery

Sac was isolated and opened omentum and portion of the right colon and coils of ileum were found as contents partial omentectomy was done necessary adhesionolysis was carried out and the contents were reposed into the abdominal cavity; edges of the opened sac were closed and space around 5 cms all around the defect which was arising from the superior lumbar triangle was created and a prolene mesh was fashioned to be placed in the preperitoneal space as an inlay with a 5 cm overlap all around the defect and the incision was closed with multiple drains. Postoperatively patient did well and was discharged on the 11th postoperative day after suture removal. Follow up at 1 year she was well.

DISCUSSION

Lumbar hernias are rare hernias and review of literature puts it around 310 cases so far and account for less than 1.5 % of all abdominal hernias. Barbette was the first to report the existence of a lumbar hernia.^{1,2} Lumbar hernias by definition originate from the superior lumbar triangle (Grynfeltt Leshaf triangle) or the inferior lumbar triangle (Petit triangle) (Figure 6)⁵



© By Behrang Amini, based on Fig. 1 from Circuit TW. Hernia of the superior lumbar triangle. Ann Surg. 1971 Feb;173(2):294-7.

Figure 6 The anatomical landmarks of the superior and inferior lumbar triangles

Superior Lumbar triangle or the Grynfeltt -Lesshaft triangle

Larger and more constant probably the most common

location for spontaneous hernias. It is an inverted space bordered at the base by the 12th rib and lower edge of the serratus posterior inferior muscle; the posterior side is formed by the sacrospinalis muscle; the anterior is formed by the internal oblique muscle; the roof is formed by the external oblique and latissimus dorsi ; and the floor consists of the transversalis fascia and aponeurosis of the transversalis muscle of the abdomen.

Inferior Lumbar Triangle or the Petit triangle

Is smaller and bordered by the crest of the iliac bone at the base, the external oblique muscle laterally, and the latissimus dorsi muscle medially; the floor is formed by the lumbodorsal fascia adjacent to the aponeurosis of the internal oblique and transversalis muscle

It is not easy to classify lumbar hernias owing to their uncommon nature, variable location, and difficult diagnosis. Classifications proposed in the literature have a unifactorial, epidemiological nature

According to location:

Superior lumbar (Grynfeltt Lesshaft triangle, lumbocostal, or costoiliac of Larrey);

Inferior lumbar (Petit triangle, suprailiac of Huguier ,or lumboiliac); and

Diffuse (postoperative, costal incisional, or traumatic).

According to contents:

Extraperitoneal (with no peritoneal sac)

Paraperitoneal (peritoneum sliding and adhering to the viscera)

Intraperitoneal (with a complete peritoneal sac around the visceral contents)

According to etiology: congenital or acquired; and traumatic, infectious, or surgical.

A proposed classification with a therapeutic aim, which identifies 4 types of hernia based on 6 criteria: size, location, contents, muscular atrophy, origin, and existence of previous recurrence (Table 1).⁴

The presence of 2 criteria is sufficient to define the type of hernia

Table 1. Classification of Lumbar Hernias into 4 Types Based on 6 Criteria*

Characteristic	A	B	C	D (Pseudohernia)
Size (cms)	<5	5-15	>15	
Location	Superior	Inferior	Diffuse	
Contents	EP fat	Visceral	Visceral	
Etiology	Spontaneous	Incisional	Traumatic	
Muscular atrophy	No(minor)	Mild	Severe	Severe
Recurrence	No	Yes (open)	Yes (laparoscopy)	
Surgical approach	Open approach EP, TEP laparoscopy	IP laparoscopy	Open approach	Open approach (double mesh)

Abbreviations: EP, extraperitoneal; IP, intraperitoneal; TEP, total extraperitoneal.

***The presence of at least 2 criteria is necessary for defining a type**

The most common clinical manifestation is as a slowly increasing lump in the posterolateral abdominal wall with or without pain and abdominal symptoms; the mass will be initially reducible with a cough impulse; reports are there when lumbar hernias have grown to a very large size as was in this case altering the torso⁷. Can present as low backache and lumbago. According to Light it is a diagnosis to be considered in young women and athletes with back pain⁷. May manifest as bowel obstruction but strangulation is rare⁸. Rare forms of manifestations reported in literature are as symptoms of urinary obstruction, pelvic mass retroperitoneal and gluteal abscesses⁴.

Differential diagnosis includes a lipoma, fibromas from the muscle which are not reducible and do not have a cough impulse, cold abscess which will be cystic and fluctuant.

Muscular Atrophy (Pseudohernia) special situation arises in muscular atrophy due to parietal thinning the clinical manifestations are akin to a lumbar hernia however imaging clinches the diagnosis⁴

Diagnosis can be relatively clear with history clinical findings and a supportive ultrasound it is worthwhile to do a CT in majority of the cases as it delineates the exact anatomy and in large longstanding hernias it gives the size of the defect contents rules out a tumor and also is able to diagnose a pseudohernia. The use of CT has been popularized by Baker et al since 1987⁹.

Treatment is in almost all cases a surgical repair a mesh hernioplasty with the mesh placement being preperitoneal or onlay mesh placement. The repair conventionally have

been done by the open repair but laproscopic repairs are also being done.

CONCLUSIONS

Lumbar hernias a rare entity and all types of repairs have been done. Currently the standard of practice is a mesh hernioplasty done both by the open method and the laparoscopic method. CT imaging should be done in all cases unless a life threatening emergency deters from doing the investigation. The classification included in this report will help type the hernia with a therapeutic inclination

Source of Funding: Self

Conflict of Interest: Nil

Ethical Clearance: Written consent after explaining in the language the patient understands has been taken to publish her case including the case photographs

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The Survey of the Self-efficacy among Urmia Medical Sciences University Students in 2016

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ABSTRACT

Introduction: Self-efficacy is a highly effective individual behavior and the person enjoying a high level of self-efficacy is found more successful and more hopeful in fulfilling duties and tasks. Thus, the present study aims at the survey of the self-efficacy among the city of Urmia medical sciences university students.

Implementation method: The present study is an analytical-descriptive research which was conducted on 349 medical sciences university students in the city of Urmia in 2016. The data collection tool has been a two-part questionnaire the first part of which pertained to the demographic characteristics and the second part was related to an academic efficacy scale which was proposed by Pintrich et al. In the end, the data were analyzed by taking advantage of SPSS 19 and descriptive statistics, Pierson correlation, independent t-test and variance analysis.

Findings: the results obtained by the present study indicated that the individuals' average age was 21.83 ± 3.12 years of age and that 141 individuals were girls. There was a significant relationship found between the department place of education and the individuals' self-efficacy mean score, but it was also discovered that there existed no significant relationship between the self-efficacy and the students' age. The students' self-efficacy total mean scores were found to be in a range of 41.83 ± 8.54 which is regarded as optimum. Also, 14 individuals scored a weak level of self-efficacy, 122 individuals enjoyed medium self-efficacy and 243 individuals had a high level of self-efficacy.

Conclusions: It was shown in the present study that the students' self-efficacy is in an optimum level but it still has rooms to be farther improved.

Keywords: self-efficacy, student, Urmia

INTRODUCTION

In the present era, the authorities and the experts believe that the education should be laid upon the foundation of not confronting the learner with the materials and concepts; rather, the learner should be confronted with the problems and situations in order for him or her to be able to figure out the relationships existing between the materials and learn the problem-

solving strategies. Based on this notion, the instructional methodologies should be designed in such a manner that the learner is propelled to stay active in order for him or her to enhance his or her learning capacity and also to elevate his or her self-efficacy level [1]. Introspection or self-thought is the most unique capability every human being is equipped with by means of which the human beings are supposed to revolutionize their thoughts and their behaviors, as well. Such evaluations and assessments involve self-efficacy perceptions, to wit the belief in one's own competencies and abilities for organizing and implementing actions which are required for the future situations set-ups. In fact, self-efficacy is a fundamental construct made of the individual's self-concept [2].

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In Bandura's idea, every individual's self-concept is the collection of beliefs and expectations the person forms regarding his or her abilities and capabilities in effectively fulfilling assignments and meeting whatever the goal is envisaged to be accomplished. He believes that the individual's particular expectations regarding his or her competencies and qualifications in accomplishing specific deeds influence the individual's efforts spent in fulfilling an action and stability in getting the task done and the creation of appropriate motivations. Inefficient mental representation and negative cognitive structures take place when a negative incident activates and triggers the inefficient schemata. The negative schemata keep on existence due to the reason that the individuals apply incorrect logics. For instance, they are habituated to over exaggerated generalization of small cases or they are more attentive to the negative points [3]. Therefore, self-efficacy is highly influential on the individual's behavior and the individual with a higher level of self-efficacy is found more successful and more hopeful in accomplishing tasks [4]. The individuals with strong self-efficacy beliefs look at assignments as challenges which should be taken over and not as threats that should be avoided. Such individuals are more subtly engaged in the activities and they make a greater use of their capabilities and spend far more efforts in times of failure. But the individuals with weak self-efficacy beliefs see things a lot more complicated and difficult than what they really are and this is why such individuals are usually found with stress, depression and short-sighted view of the issues and problems [5]. In line with the abovementioned idea, it can be concluded that lack of success in fulfilling an action and performance does not necessarily result from performance weakness, but the low self-efficacy in the individuals is per se a factor behind ineffective use of the learnt skills [6]. The university students with high self-efficacy make a greater use of numerous self-regulatory cognitive and metacognition strategies which facilitate their goal achievement [7].

Also, one should know that the self-efficacy theory is rooted in Bandura's social cognitive theory [8]. Social cognitive theory offers a comprehensive paradigm for the human beings' social behavior conception and elucidation of their performances [4]. It is stated by Bandura in this theory that "the individual, the environment and the individual's behavior interactively influence one another [9] and there is delineated an image of the human behavior the most important element of which is self-efficacy

[2]. Self-efficacy can also exert positive and negative influences on the individual's psychological health [10]. Thus, the present study aims at the survey of the self-efficacy among the city of Urmia medical sciences university students.

IMPLEMENTATION METHOD

The current study is an analytical-descriptive research which has been undertaken in the city of Urmia's medical sciences university in 2016. The study population includes 349 university students who have been busy schooling in various medical sciences university departments in the city of Urmia including medicine, dentistry, nursing, hygiene, paramedic and pharmacy. The study sample volume has been selected based on a randomized clustering method in a way that the colleges and departments were considered as clusters and the individuals in each of the departments were studied stochastically and the main condition for getting the green light to enter the study was that the individual had to have passed at least one curriculum term. Information raking tool has been a two-part questionnaire the first part of which was related to the demographic attributes (age, gender and the college place of education) and the second part pertained to the self-efficacy scale which was designed by Pinrich et al. This latter part of the questionnaire contained 8 questions which was a subsystem of Pintrich's learning strategies questionnaire. Measurement scale was ordinal motivated strategies for learning questionnaire (MSLQ). The testees' answers were scored based on likert's 7-point scale from 1 (not true about me at all) to 7 (completely true of me) according to the questionnaire guidelines. The score obtained for each scale is considered as the constituent items mean of the scale. Therefore, in the present study, the minimum score is 8 and the maximum score is 56. The mean scores between 8 and 24 are considered as weak, between 24 and 40 as medium scores and between 40 and 56 are regarded as optimum. The questionnaire reliability score was obtained 0.93 by Pintrich et al and it was also again evaluated via making use of Cronbbach's alpha method and it was found to be 0.90.

To collect the data, a class was randomly selected in each of the aforementioned colleges and after attending the concerned class, firstly, the objective of the research plan was explained to the students followed by acquiring an oral consent of the study population and then the questionnaires were administered. In the end, the data were analyzed by making use of SPSS 19

and descriptive statistics, Pierson correlation test (the relationship between the individuals' mean scores and their age through taking advantage of the self-efficacy questionnaire), independent t-test (the relationship between the individuals' gender and their mean scores obtained by means of the self-efficacy questionnaire) and variance analysis (the relationship between the college place of education with the individuals' mean score obtained by means of self-efficacy questionnaire) and the significance level was considered as being lower than 0.05.

FINDINGS

In the present study, 63 nursing and obstetrician college students (16.6%), 57 dentistry college students (15%), 67 medicine college students (17.7%), 72 paramedic college students (19.0%), 54 hygiene and sanitation college students (14.2%) and 66 pharmacy college students (17.4%) had participation. Also, the result of the current study indicated that the individuals' average age was 21.83 ± 3.12 years of age and 141 individuals

(37.2%) were women. The variance analysis tests indicated that there is a significant relationship between the college place of education and the individuals' self-efficacy mean score ($P < 0.001$) (Table 1). Independent t-test indicated that the relationship between the gender and the students' self-efficacy is statistically significant ($P = 0.027$) and it was also found out that the men enjoy a greater portion of self-efficacy in respect to the women. The relationship between the age and the self-efficacy was assessed through the use of Pierson's correlation tests and the results suggested that there is no significant relationship between self-efficacy and the students' age ($P = 0.333$). Self-efficacy total mean score among all of the students was 41.83 ± 8.54 which is considered as optimum. Also, 14 individuals (3.7%) showed weak self-efficacy, 122 individuals (32.2%) had intermediate self-efficacy and 243 individuals (64.1%) had a high self-efficacy.

The individuals' response rates to the self-efficacy questionnaire items have been given in table (2).

Table 1: The relationship between the college place of education and the self-efficacy mean score

	Mean	Std. Deviation	Minimum	Maximum
Nursing College	41.64	7.94	15.00	56.00
Dentistry College	41.68	9.63	15.00	55.00
Medicine College	40.49	8.25	24.00	55.00
Paramedic College	39.41	8.66	16.00	53.00
Hygiene College	40.31	9.99	15.00	56.00
Pharmacy College	39.04	7.95	20.00	56.00
Total	40.45	8.77	15.00	56.00

Table 2: The individuals' response rates to the self-efficacy questionnaire items

7(%)	6(%)	5(%)	4(%)	3(%)	2(%)	1(%)	Questionnaire Items
12.1	23	15.3	23.5	11.1	8.4	6.6	I believe that I would take great score in exam.
28.2	25.9	20.3	14	6.6	1.6	3.4	I'm sure that I can learn most provided difficult subjects.
33.2	26.9	15.8	7.4	7.9	4.5	4.2	I'm sure that I can learn basic concepts which are taught.
27.4	28.5	15	11.3	8.4	4.5	4.7	I'm sure that I can learn the most complicated subjects provided by teacher.
27.4	22.4	19.8	14	7.4	3.2	5.8	I'm sure that I can do my best in tasks and exams.
26.9	25.9	16.9	14.8	6.9	1.1	7.7	I expect to have good performance in the exam.
29.6	25.6	22.4	12.4	4.5	3.4	2.1	I'm sure that I can take mastery over taught skills.
26.9	28.5	28.5	9.8	3.7	1.6	1.1	Considering problems of class, trainers and my skills, I think I will have good performance in the class.

DISCUSSION

The results of the present study indicated that academic self-efficacy is in an optimum level among the city of Urmia medical sciences university students. The judgments about the self-efficacy are of a great importance and sensitivity due to the role they play in the individual's internal motivation development. The internal motivation develops when the individual endeavors to gain exciting scales. In such a case, there is created a potential self-efficacy perception in the individual to acquire access to such scales and it is under such circumstance as getting to the result that the individual finds a positive self-assessment. This internal craving or desire causes the individual to not to cease struggling and striving even if s/he is not awarded instrumentally by the periphery which finally leads to the individual's academic achievement [11]. In fact, the self-efficacy beliefs are the determinant factor making clear that how much does the individual spend time for fulfilling the tasks and duties, how long does the individual resist and show endurance in confrontation with the difficulties and how flexible the individual is in the face of various situations; Furthermore, the self-efficacy beliefs influence the individuals' mindset patterns and emotional actions. Thus, the individuals enjoying a lower level of self-efficacy may believe that the problem is insolvable and this is the belief which fosters stress, depression and narrow-mindedness in seeking to find a solution. On the other hand, high level of self-efficacy in approaching a difficult job and actions contributes to the emergence of feelings of easiness and lightness of the task [12]. Therefore, since the university students constitute every society's active force and they are enumerated among the development capitals of every nation nurturing self-efficacy in them is deemed as a necessary issue and also as the most important objective pursued by the higher education system. The results of the present study indicated that the students' academic self-efficacy is in an optimum level but there is still for its improvement. Accordingly, it is more appropriate that the officials and the authorities having a hand on this issue take steps in designing programs and proposing solutions in order for the students' self-efficacy to be enhanced to a greater extent and also to pave the way for a better exploitation of the young and specialist and educated workforce knowledge within the work environment through creating fundamental changes in the academic majors and fields of studies' contents and lesson plans adjustment and modification in a way proportionate to

the work market requirements and needs [13-16].

The positive relationship between the self-efficacy and social support has been highlighted in a great majority of the studies [17-19]. The study performed by Rostami et al also emphasized on the direct and significant relationship between the self-efficacy and social support perceived by the university students. These findings prove that self-efficacy possibly contributes to the social support [17]. Therefore, it can be asserted that social support causes an increase in the university students' self-efficacy via positive corroboration when accomplishing assignments and tasks, observatory learning through pattern-modeling, providing for opportunities for social comparisons and verbal encouragement. So, it can be taken into consideration for the purpose of improving the self-efficacy variable efficiency.

CONCLUSION

It was found out in the current research paper that the university students' academic self-efficacy is in an optimum level but it can still be further improved. Therefore, it is suggested that the professors aided by their students elevate the learning motivation to a higher level and enhance the students' performance level through decomposition of the tasks and duties into smaller work chunks and pieces and providing them with appropriate feedbacks in such a way that it results in the augmentation of the self-efficacy feeling.

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Prevalence and Risk Factors for Diabetes Mellitus among Tuberculosis Patients- A Study in Tamil Nadu

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ABSTRACT

Background: An increased co morbidity of Tuberculosis (TB) and Diabetes (DM) has been observed in recent times globally. India too is likely to face the full impact of these growing co-epidemics.

Objective: The objective of this study was 1. To estimate the prevalence of DM among TB patients.
2. To find out the risk factors existing among TB –DM cases.

Methodology: A facility-based cross-sectional study was done in 4 randomly selected Government Medical Colleges in Tamil Nadu, India from January to June 2014. Data was collected using the WHO-STEPS Questionnaire from 728 TB patients who were on DOTS treatment. For screening Diabetes, a fasting glucose level of >126mg/dl was considered. Analysis of data was done using SPSS version 16.0

Results: Out of the 728 patients studied 244 (33.5%) were found to be diabetic. Majority of the cases were males (516, 70.9%). There were 161 (22.1%) who were known diabetics and 83 (11.4%) were newly diagnosed diabetics. There were 117(48.7%) of DM with TB patients who had family history of DM. Risk factors for occurrence of Diabetes in TB cases was found to be family history of Diabetes ($p<0.001$), older age group ($p=0.003$) and sputum positive cases on Cat I treatment ($p<0.001$).

Conclusion: High prevalence of DM (33.5%) in TB patients. There is an urgent need to include screening of DM among TB patients. The National Non Communicable Disease Control Programme and RNTCP should work together to tackle this co- epidemic.

Keywords- Tuberculosis, Diabetes Mellitus, Prevalence, Risk Factors, Medical Colleges

INTRODUCTION

The converging Tuberculosis and Diabetes epidemic is projected to hit South Asia.^{1,2} Type 2 Diabetes Mellitus (DM) has affected approximately 230 million persons worldwide, and is expected to reach 366 million by the year 2030, by which time 80% of those affected

will be living in the middle and low income countries where active Tuberculosis (TB) is widespread.^{3,4,5} The consequences of these two converging epidemics are likely to be catastrophic in India, with a high TB burden and rapidly growing rate of DM.⁶

The role of medical colleges in TB control has been significant and have been providing diagnostic and curative services for both TB and DM. They account for about 25% of all new TB cases reported in India each year, it is unknown how many patients have both TB and DM in this setting. Successfully addressing the DM-TB problem is the need of the hour.⁷

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The World Health Organization has developed

a framework for the care and control of diabetes and tuberculosis.¹

Screening of all TB patients for DM will ensure early case detection and a better management of DM. TB patients being diagnosed at Medical colleges can be easily screened for DM and if found to be Diabetic, can avail existing facilities for the management of DM alongside the treatment for TB. There have been no studies on the prevalence of DM in TB patients done in Medical Colleges.

The objective of this study was to estimate the prevalence of DM and its risk factors among TB patients over the age of 15 years in 4 Medical Colleges in Tamil Nadu, South India.

MATERIALS AND METHOD

This facility-based cross-sectional study was conducted in Tamil Nadu during January to June, 2014, in 4 randomly selected government medical college hospitals out of 19 medical colleges. The 19 Medical college hospitals were selected randomly.

All persons with TB who were over 15 years of age were eligible for study. This included new, re-treatment, sputum positive, sputum negative and extra-pulmonary cases who were currently on treatment in the 4 selected medical college hospitals were eligible for inclusion in the study. Also included in the study were previously diagnosed DM patients who had been diagnosed by a medical professional as being diabetic and who was currently on anti-diabetic medication.

The total number of TB patients currently on treatment during the study period was found to be 795. Those who were willing to participate in the study were screened for DM using the diagnostic criteria of -fasting plasma glucose level of ≥ 126 mg/dl.⁷ A total number of 728 TB patients consented for the study.

Ethics issues: Institutional review board approval was obtained from each of the medical colleges, written informed consent was obtained from the patients before interviews. All patient information was kept confidential.

All the TB patients who were currently on DOTS in the 4 medical college hospitals was listed. Out of a total of 795 patients, 728 patients consented for study. They were interviewed using WHO- STEPS questionnaire which contains questions to assess risk factors of DM

like age, gender, family history of diabetes, smoking and alcohol consumption. Additionally physical parameters like height, weight, body mass index (BMI), waist circumference, hip circumference and waist-hip were recorded.⁸

All previously known diabetic patients were asked about time of diagnosis and treatment details.

Patients were weighed to the nearest 0.5 kg. Their height was measured on a vertical scale to the nearest 0.5 cm. The waist circumference (WC) and hip circumference was measured. Cut off for WC to quantify abdominal obesity was taken as 90 cm for men and 80 cm for women. The waist-hip ratio (WHR) was calculated = (waist circumference in cm)/ (Hip circumference in cm). A WHR of more than 0.85 in women and 0.95 in man was considered as abdominal obesity. The BMI was calculated by the formula = (weight in kg)/ (height in metres)². As per the recommended cut-offs for Asian Indians. (Normal BMI: 18.0-22.9 kg/m²; Overweight: 23.0-24.9 kg/m²; Obesity: >25 kg/m².⁹

After overnight fasting, patients underwent Fasting blood sugar estimation. Those whose blood glucose level was abnormal ≥ 126 mg/dl were referred to medicine department. All TB related information was collected from the TB treatment cards.

Data was entered in Microsoft Excel 2010, analysed using Statistical Package for Social Sciences software version 16.0

Categorical variables were expressed as proportions and Chi square analysis was performed to compare proportions. P value of < 0.05 was taken as statistically significant. Continuous variables were summarized as mean with standard deviation (SD) and t-test was used to compare means.

FINDINGS

Out of the 795 TB patients who were eligible for the study, only 728 (92%) consented for the study. There were 212 (29.1%) females and 516 (70.9%) males. Mean age for males and females was 48.8 ± 12.9 and 40.2 ± 9.1 years respectively. Occupation wise, 165 (32%) of the males were unemployed and 227 (44%) were unskilled or semi-skilled workers while 121 (57%) of the women were homemakers.

TABLE 1: Sex-wise distribution of certain characteristics of the study population

VARIABLE		Female (N=212)		Male (N=516)		Total (N=728)	
		No.	%	No.	%	No.	%
Age groups (in years)	15-20	4	1.9	7	1.4	11	1.5
	21-30	10	4.6	23	4.5	33	4.5
	31-40	40	18.9	128	24.8	168	23.1
	41-50	101	47.6	234	45.3	335	46
	51-60	43	20.3	72	14	115	15.8
	>60	14	6.7	52	10	66	9.1
DOTS* Treatment	Category – 1	169	79.7	385	74.7	554	76.1
	Category- 2	43	20.3	131	25.3	174	23.9
Classification of TB patients	Positive	174	82.1	314	60.9	488	67
	Negative	33	15.6	41	7.9	74	10.2
	Extra-pulmonary	5	2.3	161	31.2	166	22.8
Diabetic status	TB+DM patients	49	23.1	195	37.8	244	33.5
	TB+ Non DM patients	163	76.9	321	62.2	484	66.5

DOTS*-Directly observed treatment short course; TB-Tuberculosis; DM-Diabetes Mellitus

Prevalence of DM among TB patients was 244(33.5%), of which 161(22.1%) were known Diabetics and 83(11.4%) were newly diagnosed. Prevalence of DM was more in males (195, 37.8%) as compared to females (49, 23.1%). There were 126(17.3%) of TB patients who had impaired fasting glucose. Amongst the known diabetics, diabetes predated TB by a mean duration of 43.2 months.

The risk factors of DM in TB patients was analysed. About 117(16.1%) of TB patients had family history of DM. Also 154 (30%) of the men smoked. The average number of cigarettes per day was 11 and 169 (32.8%) of the men were consuming alcohol, the average daily consumption being 180 ml/day.

There were 413 (56.7%) of TB patient who were underweight with a mean weight of 46.2 ± 11.1 Kgs. The mean BMI was 18.9 ± 4.8 Kg/m². The mean BMI for males 17.9 ± 3.8 Kg/m² and females 18.6 ± 5.4 Kg/m². BMI of TB patients with DM was higher than for those without DM (19.95 ± 5.44 vs 18.42 ± 4.47). However this was not statistically significant.

The prevalence of overweight and obesity amongst TB with DM was 21 (31.8%) which was more than that

observed among TB patients (66, 9.1%), however this was not statistically significant. Prevalence of overweight and obesity was more in females than males (15.4% vs 11.2%).

Abdominal obesity, was seen even amongst those with a low BMI. High WC was seen in 361(49.6%) and high WHC was seen in 367 (50.4%) of the TB patients. Amongst the TB with DM patients, high WC was seen in 110 (30.5%) while a high WHR was seen 125 (34%). This was however not statistically significant. Also, high WC and WHR was seen more amongst female patients compared to their male counterparts (16.7% vs 11.4% and 54.2% vs 42.7% respectively).

There were 554 (76.1%) patients who were new cases on Category 1 treatment. There were 488(67%) who were sputum positive at initiation of treatment.

Univariate analysis was done for the prevalence of DM and its risk factors in TB patients.

A significant association was seen with respect to older age, family history of DM and sputum positive status at initiation of treatment.

TABLE 2: Risk factors for DM in TB patients

Risk Factors	DM+TB co-morbid N=244		P value
	No.	%	
Male gender (n=516)	195	37.7	<0.05
Family history of DM* (n=117)	57	48.7	0.006
Currently smoking (n=154)	59	38.3	0.003
Current drinkers (n=169)	64	37.9	0.443
Overweight/ Obese (n=66)	21	31.8	0.079
Abdominal Obesity (high WC) (n=361)	110	30.5	0.806
Abdominal Obesity (High WHR) (n=367)	125	34.1	0.740
Category 2 (retreatment cases) (n=174)	36	20.7	0.076
Sputum positive at initiation of treatment* (n=488)	206	42.4	0.929
Mean age of TB with DM* (n=244)	46.5±10.6		<0.001
			0.001

DM: Diabetes Mellitus, WC: Waist circumference; WHR: Waist Hip Ratio.

Those variables which were found to be significant in the univariate analysis were included for the binary logistic regression.

Age of the subject, family history of DM and sputum positive status were all found to be independent risk factors for DM in TB patients in the binary logistic regression analysis (Table3)

TABLE 3: Comparison of risk factors for DM in TB patients by multivariate analysis

VARIABLE	CATEGORY	OR	95% CI	P VALUE
Mean age	Older	1.036	1.029-1.081	0.003
	Younger			
Family history of DM	YES	3.193	1.765-6.689	<0.001
	NO			
Sputum positive at initiation of treatment	YES	3.05	2.13-4.38	<0.001
	NO			

DISCUSSION AND CONCLUSION

A study done from 2008-2010 done in different regions of India which estimated age standardized prevalence of DM (type 2) to be 12.1%.¹⁰ Two studies done in Tamil Nadu showed a prevalence of DM to be 10.4% and 25%, with prevalence of pre diabetes to be 24%.^{11, 12} In our study, prevalence of diabetes in TB patients was found to be 33.5% (22.1% were known Diabetics and 11.4% were newly diagnosed DM cases) which was higher than the prevalence seen in general population. Similar prevalence rates were reported from studies done in Puducherry and Kerala in South India and also from countries with high prevalence of DM like

Saudi Arabia.^{13, 14, 15}

This study has also found a significantly higher prevalence of DM in TB patients who were of older age group (>40 years of age) which was similar to studies done in India, Malaysia and Saudi Arabia.^{13, 14, 15, 16} This study has found a significant association between sputum positivity status and DM ($p < 0.001$), and patients with a family history of DM and prevalence of DM ($p < 0.001$) which is similar to studies done in Saudi Arabia and Puducherry.^{13, 14}

Furthermore our study picked up 126(17.3%) TB patients with impaired fasting glucose. This is particularly

important as this is the group who require regular blood sugar monitoring alongside lifestyle modification.

This indicates that there is an urgent need to include screening of DM among TB patients so that the growing dual epidemic can be dealt with effectively.

It is now time that the National Non Communicable Disease Control Programme and RNTCP works in co-ordination to tackle this public health challenge.

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Conflict of Interest- None Declared

Source of Funding- Self Funded

Ethical Clearance- This study was initiated only after approval was obtained from Institutes' Ethical Committees. Each patient was administered a written informed consent in the local language prior to the interview and examination. All patient related information were kept confidential.

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A Study of Knowledge Regarding HIV/AIDS among the High School Teachers in Tumkur Taluk, Karnataka

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ABSTRACT

Introduction: Human immunodeficiency virus is one of the greatest challenges faced by the mankind. The adolescent cohort is one of the most vulnerable groups as far as risk of HIV/AIDS is concerned. Logically teachers are the ideal sources of imparting the information to the students.

Aims and Objectives: 1) To estimate the knowledge regarding HIV/AIDS among high school teachers.

2) To compare the knowledge regarding HIV/AIDS of the science teachers with the knowledge of the non-science teachers.

Material and Method: The study was done using a pretested structured questionnaire. The number of teachers participated in the study were 168 from 20 schools that were selected. The study was done in 3 months.

Statistical Analysis: Percentages and Chi-Square test.

Result: There is no statistical difference in the knowledge parameters between science and non science teachers.

Keywords: HIV/AIDS, Knowledge.

INTRODUCTION

HIV has rapidly established itself throughout the world over the past 3 decades. The first case of AIDS was reported in the early 1980s. In 2009, an estimated 33.3 million people (adult and children) are living with HIV/AIDS and 1.8 million people have already lost their lives due to HIV/AIDS across the world. In India, more than 2.4 million people are living with HIV/AIDS. The adult (15-45years) HIV prevalence is estimated at 0.27% in 2011. Adult HIV prevalence among males and females is estimated at 0.32% and 0.2% in 2011 respectively ¹

Although infection and death rates of HIV/AIDS have slowed down considerably in the developed countries, the pandemic continues in much of the developing world. Sub Saharan Africa currently has the biggest burden, but the disease is spreading quickly in India, Russia and China and much of the rest of Asia ²

There continues to be a considerable amount of research on HIV in the areas of preventive vaccines, sexually

transmitted diseases (STD) control and antiretroviral therapy. As effective forms of these interventions are in many cases not yet available, there is a critical need to focus on initiating and maintaining the behaviour change in the population². There should be community awareness about its dynamics. School systems provide an ideal situation to impart this awareness to these adolescents and young adults. Logically teachers are the ideal sources of imparting this information to the students. Hence, this study on awareness was conducted among the high school teachers.

AIMS AND OBJECTIVES

1) To estimate the knowledge regarding HIV/AIDS among high school teachers.

2) To compare the knowledge regarding HIV/AIDS of the science teachers with the knowledge of the non-science teachers.

MATERIALS AND METHOD

STUDY DESIGN: The study was conducted in Tumkur Taluk. All the high schools were listed and arranged in the alphabetical order. 20 schools were randomly selected by lottery method. There were 108 non science and 60 science teachers in these 20 schools.

STUDY PERIOD: The study was conducted for a period of three months.

METHODOLOGY : The data was collected with a pretested structured questionnaire. It was analysed using appropriate statistical methods.

DATA ANALYSIS: Data analysis was done using percentages and chi square test.

RESULTS

In the study population of 168 teachers, the questions that evoked maximum right responses were, Measures to prevent the spread of HIV – 148 teachers (88.09%), HIV cannot be completely cured – 146 teachers (86.90%), Expansion of AIDS -145 teachers (86.39%), Expansion of HIV – 133 teachers (79.16%). The questions that evoked minimum right answers were, Diagnostic test for HIV – 28 teachers (16.66%), The period to develop full fledged AIDS was known by 45 teachers (26.78%),Those who are at risk of acquiring HIV –69 teachers (41,07%), The routes not involved in the transmission of HIV was known by 82 teachers (48.80%) as shown in the Table.

DISCUSSIONS

Out of the 168 teachers, the knowledge of the science teachers seems to be greater than the knowledge of the non science teachers. But after applying the chi square test it was seen that only for a few questions like ,expansion of terms –AIDS and HIV, and the measures to prevent the spread of HIV were found to be statistically significant. Our study shows that 86.90% of teachers knew that HIV cannot be completely cured. In a similar study by Agarwal etal ³ shows that majority 93,7% of the teachers knew that HIV cannot be completely cured.

The present study shows that 52.97% knew that sexual contact is the most common source of transmission of HIV. Chatterjee et al also showed that only 16.2% of teachers had a clear knowledge about HIV transmission⁴

The data suggests that the awareness for HIV/AIDS was moderate in teachers, but because of their central role in educating young people, the teachers must be as well informed as possible. In a study of Malawi, teachers believed that they had an important role to play in educating the students as well as the community regarding AIDS and other STDs⁵.Our results are in agreement with a study of teachers by Jha etal which showed that the awareness about HIV/AIDS was fairly good. Routes not responsible for the transmission of of HIV like kissing, by touching and mosquito bites were known by 48.8%. In a study of Madagascar, most participants thought that mosquitoes could transmit HIV/AIDS⁶

Table Showing Knowledge of HIV /AIDS among the School Teachers

***Statistically Significant**

Knowledge regarding HIV/ AIDS	Non-Science Teachers n = 108		Science Teachers n = 60		Total no. of teachers		X2 value	P value
	No.	Percentage	No.	Percentage	No.	Percentage		
Expansion of AIDS	87	80.55	58	96.66	145	86.30	8.47	0.035*
Expansion of HIV	79	73.14	54	90.00	133	79.16	6.64	0.001*
Infective source of HIV	70	64.81	41	68.33	111	66.07	0.21	0.644
Routes responsible for transmission of HIV	63	58.33	43	71.66	106	63.09	2.95	0.086
Route not responsible for the transmission of HIV	48	48.44	34	56.66	82	48.80	2.30	0.128

Cont... Table Showing Knowledge of HIV /AIDS among the School Teachers***Statistically Significant**

Most common route for transmission of HIV is by sexual route	58	53.70	31	51.66	89	52.97	0.064	0.799
Meaning of sexual contact	84	77.77	53	88.33	137	81.54	2.85	0.091
Identification of sexually transmitted diseases	49	45.37	30	90.00	139	47.02	0.331	0.561
Those who are at risk of acquiring HIV	41	37.96	28	46.66	69	41.07	1.207	0.271
Average time taken to develop AIDS	25	23.14	20	33.33	45	26.78	2.040	0.153
HIV cannot be completely cured	90	83.33	56	93.33	146	86.90	3.389	0.065
Measures to prevent the spread of HIV	88	81.46	58	96.99	146	86.90	12.61	0.0003*

CONCLUSION

School teachers, irrespective of whether they teach science or arts are well informed about some aspects of HIV/AIDS, but they are ignorant about most. For, eg. they know how HIV is transmitted, but they are generally in the dark about how the virus is not transmitted. They know what AIDS stands for but they do not know the diagnostic test for HIV.

Hence to achieve success, it is important that teachers' knowledge has to be taken into consideration for both the development and implementation phases of school based programmes. Finally there should be a professional development for all the teachers for educating adolescents about HIV/AIDS.

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Conflict of Interest: None.

Source of Support: Nil

Ethical Clearance: Was taken from the institutional ethical committee

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To Study the Prevalance of Occult Adrenal Insufficiency in Patients of Septic Shock

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ABSTRACT

Septic shock remains the most common cause of death in non coronary Intensive Care Unit (ICU). A study was conducted in ICU department of Fortis Escorts hospital Faridabad in the year July 2004-Dec 2005 in order to evaluate the prevalence of occult Adrenal Insufficiency in 25 cases of septic shock using the short ACTH stimulation test. Basal cortisol level at admission followed by I/V injection of 250µg ACTH and another sample at 60min after I/V ACTH was taken. Out of 25 patients, 3 {12%} had baseline cortisol less than 20µg/dl and were therefore classified as having Adrenal insufficiency. Of the remaining 22 patients, 8 patients had baseline cortisol $\geq 20\mu\text{g}$ and $\Delta\text{max} \leq 9\mu\text{g/dl}$, were categorized into Functional Hypoadrenalism and rest of 14 pts baseline cortisol $\leq 20\mu\text{g/dl}$ and $\Delta\text{max} \geq 9\mu\text{g/dl}$ thus demonstrating preserved adrenal function in response to critical illness. The overall mortality was 48%. However it was 100% in AI group. Sepsis can cause occult AI in the presence of normal/even elevated serum Cortisol.

Keywords: Septic shock, Sepsis, ACTH, Cortisol

INTRODUCTION

Severe illness and stress activate the hypothalamic pituitary adrenal axis and stimulate the release of corticotropin (also known as adrenal corticotrophic hormone ACTH), from the pituitary, which in turn increases the release of cortisol from the adrenal cortex. This activation is an essential component of the general adaptation to illness and stress and contributes to the maintenance of cellular and organ homeostasis. It has been seen that an increase in tissue corticosteroid levels during acute illness is an important protective response. Many diseases and their treatments interfere with normal corticosteroid response to illness and induce tissue corticosteroid insufficiency.^[1] Even minor degrees of adrenal insufficiency increase the mortality of critically ill / injured patients.

Septic shock remains the most common cause of death in non coronary Intensive Care Units. One important conclusion is that hypotension in patients with adrenal insufficiency may mimic either hypovolemic/ septic shock, a conclusion that emphasizes the need to include adrenal insufficiency in the differential diagnosis of both. ^[2]

During critical illness the hypothalamic pituitary adrenal axis is activated, as demonstrated by increased serum corticotrophin and cortisol concentration.

Acute adrenal insufficiency is a rare disorder associated with morbidity and mortality if allowed to progress unrecognized. Early awareness / recognition and intervention remain significant steps in altering the course of acute adrenal insufficiency. ^[3]

There is increasing evidence of HPA insufficiency in critically ill septic patients which appears to result from circulating suppressive factors released during systemic inflammation.

AIMS AND OBJECTIVES

The aim of this study was to assess the basal serum cortisol levels and cortisol response to corticotropin in

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patients with septic shock, irrespective of the time of the day, since critically ill patients requiring intensive therapy circadian rhythm is lost. The purpose of this study was to evaluate the prevalence of occult adrenal insufficiency in 25 cases of septic shock.

MATERIALS AND METHOD

The study was conducted on 25 cases i.e. in patients with septic shock (community/ hospital acquired sepsis). The study protocol was approved by the institutional Ethical committee. Sepsis was defined according to the definition of American college of chest physicians/ society of critical care medicine consensus conference report (1992).^[4]

1) Basal cortisol levels at admission (To) was measured using (VIDAS KIT) on minividas equipment method with final fluorescent detection.

2) An intravenous injection of 250 µg of ACTH (Synacthen) was given following collection of serum sample for the basal cortisol level (To) and another sample for cortisol estimation taken after 60 minutes of ACTH injection (T60).

- Patient's with baseline serum cortisol concentration < 20µg/dl have been categorized into Adrenal insufficiency (AI) group.^[5]

- Patient's with baseline serum cortisol concentration $\geq 20\mu\text{g/dl}$ and $\Delta\text{max} \leq 9 \mu\text{g/dl}$ have been categorized into Functional hypoadrenalism (FH) group and the remaining have been categorized into Preserved adrenal function (PAF) group.^[5]

Data analysis

- All results were reported as the mean and the standard deviation. Analysis of variance (ANOVA) has been used with **Tukey's method** of multiple comparisons. The **Kruskal-Wallis** test and the **Wilcoxon nonparametric** test have been used to identify differences in the ranks of data between the three groups (AI/FH/PAF) studied. Statistical significance was defined by a p- value less than 0.05.

INCLUSION CRITERIA ^[6]

1. Age > 17yrs.
2. Those who fulfill criteria according to definition of American college of chest physicians/society of critical care medicine consensus conference /report (1992).

EXCLUSION CRITERIA ^[6]

Patient's age < or = 17yrs, Pre-existing adrenal disease, Adrenalectomy, Known malignancy, Tuberculosis that might have involved adrenal gland, Burns, Hemorrhagic shock or received steroids within 3 months before admission

INVESTIGATIONS

Following investigations was done on every patient at the time of admission and /or required.

1. Basal cortisol levels at the time of admission (To)
2. ACTH stimulation test/intravenous 250µg ACTH(synacthen)
3. Plasma cortisol level at 60 minute following ACTH test (T60)
4. Complete Haemogram
5. Urine routine examination
6. Random blood sugar
7. Renal function test
8. Liver function test
9. Coagulation profile – prothrombin time/ activated partial thrombo plastin time (PT/APTT)
10. Arterial blood gas analysis (ABG)
11. Blood culture – Enteric / pyogenic
12. Urine culture
13. Chest x-ray
14. Computed tomography (CT) / ultrasound / Magnetic Resonance Imaging- MRI

OBSERVATIONS

Table 1 : Serum Cortisol Concentrations and Adrenocorticotrophic hormone (ACTH) stimulation test.

Adrenal Functional Status	Serum Cortisol (µg/dL) ± SD			
	n (%)	Baseline	60 min	Δ(Delta)
Adrenal Insufficiency	3 (12%)	11.57 ± 7.3	17.64 ± 5.93	6.07±7.32
Functional hypoadrenalism	8 (32%)	61.98 ± 30.63	65.25 ± 28.28	3.26 ± 2.65
Preserved adrenal function	14 (56%)	51.84 ± 20.56	68.94 ± 23.82	17.10 ± 12.58
p- value		0.739	0.344	< 0.001

Table 2 : Demographics

Adrenal Functional Status	Gender			Age (Years) ± SD
	n	Female	Male	
Adrenal Insufficiency	3	2 (66.7%)	1 (33.3%)	48 ± 11
Functional hypoadrenalism	8	4 (50%)	4 (50%)	53 ± 20
Preserved adrenal function	14	7 (50%)	7 (50%)	60 ± 21

Table 3: Vital Signs : Mean ± SD.

Adrenal Functional Status	Blood pressure(mmHg)									
	Temperature (° F)		Heart rate (Beats/min)		systolic		diastolic		MAP	
	n		n		n		n		n	
Adrenal Insufficiency (AI)	3	98.7 ± 1.2	3	86 + 31	3	73 ± 15	2	48 ± 11	2	58 ± 12
Functional hypoadrenalism (FH)	8	97.6 ± 0.7	8	101 + 21	7	83 ± 11	5	60 ± 10	5	69 ± 10
Preserved adrenal function (PAF)	14	99.7 ± 2.3	14	104 + 28	13	79 ± 15	7	53 ± 11	7	62 ± 11
p- value		0.034		0.404		0.585		0.341		0.459

DISCUSSION

In our study, A total of 25 patients were enrolled. These patients had septic shock, due to community acquired sepsis, at the time of study. Sepsis was defined according to the definition of American College of chest Physicians/ Society of critical care consensus conference report (1992) [4] and all the patients in the study group met the inclusion criteria. In our study, basal cortisol level at admission (T₀) was measured, followed by an intravenous injection of 250µg of ACTH (synacthen) and another serum sample for cortisol level was collected at 60 min after the ACTH injection. Out of 25 patients, three (12%) had a baseline cortisol less than 20µg/dl and these patients were therefore classified as having Adrenal Insufficiency (AI). Of the remaining 22 patient’s, 8 patients had baseline cortisol of ≥20µg/dl and delta max ≤ 9µg/dl and were categorized into Functional Hypoadrenalism (FH) group and the remaining 14 patients had a baseline serum cortisol ≤ 20µg /dl and Δ max ≥ 9µg/dl, thus demonstrating preserved adrenal function (PAF) in response to critical illness. The results are listed in table 1. Serum cortisol values at 0 min (baseline) and at 60 min, post ACTH stimulation test in the 3 different groups of patients were compared (Table I). It was noticed that mean serum cortisol values did not differ significantly at

baseline (p = 0.739) and at 60 min (p = 0.344). However the Δmax differed significantly (P< 0.001) across the different categories of adrenal functional status. Serum cortisol levels from baseline to 60 min along the group did not differ significantly (p= 0.109) in the AI group but the difference was statistically significantly in the FH group (p =0.018) and also in PAF group (p< 0.001).On analysis of the demographic data, the patients in FH and PAF groups had equal sex distribution i.e. out of 8 patients in the FH group, 50% were males and 50% were females. The same was true for PAF group also. Whereas out of 3 patients in AI group, 2 out of 3 patients (66%) were females and there was only one male patient (33.3%). Over all, it was noted that there was no difference in the gender distribution among AI/FH/PAF. However, the patients in PAF group were slightly older than patient in AI and FH group & similar results have been documented in the study of Rivers EP etal[5]. p Value between (AI/ FH) group was 0.931, between (AI/ PAF) group was 0.577 and (FH/ PAF) group was 0.646 which means that subjects are comparable with difference to age and sex under different categories of adrenal functional status.(Table 2)

However while comparing the vital signs at admission among different groups of adrenal function status, there was no significant difference in different

vital parameters namely. Temperature (T), pulse (P), Systolic blood pressure (SBP), diastolic blood pressure (DBP) and mean arterial blood pressure (MAP). The p values for Temperature is 0.09, Pulse 0.298, SBP 0.585, DBP 0.341, MAP 0.459 Table 3 / Graph 4. The findings of the vital parameters and laboratory tests in our study were consistent with the study of Rivers EP et al^[5].

Cortisol is needed for effective endogenous catecholamine pressor action; It was hypothesized that a subset of patients who are in shock and require vasopressor support may have occult adrenal failure not previously identified. That was indeed the case in 12% of our patients, contrary to 14% in the study of Rivers, EP, et al. ^[5] Yildiz, O et al ^[6] & Moran JL et al ^[7]. Our study also noted a positive correlation with decreased response to ACTH stimulation and increased mortality. It was seen that basal cortisol levels correlated with severity of illness, and very high cortisol levels signify a poor prognosis. However some investigators Rothwell, PM et al ^[8], Reincke, M et al ^[9] Sibbald, WJ et al^[10] showed that patients with sepsis and high baseline cortisol levels had a lower response to ACTH stimulation test.

The prevalence of adrenal insufficiency in our study of 25 patients of septic shock has been seen to be 12% in AI group and 32% in FH group. However the prevalence of adrenal insufficiency was 50% in a study of Annane, D^[11] in patients with severe sepsis and septic shock. The prevalence of Occult AI in severe sepsis was estimated to be 50% in the study of Yildiz et al^[6].

Thus the prevalence of occult adrenal insufficiency in this study was the same as that in Western literature and there is no statistically significant difference between the two.

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Awareness and Satisfaction about Employees' State Insurance Scheme among the Beneficiaries of Gulbarga City

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ABSTRACT

Background: The promulgation of Employees' State Insurance Act, 1948 envisaged an integrated need based social insurance scheme that would protect the interest of workers in contingencies and implemented as comprehensive and multi-pronged social security ESI Scheme. **Aims & Objectives.** The study aimed to find out awareness and satisfaction about Employee State Insurance Scheme Among the beneficiaries Of Gulbarga City. **Materials & method:** This is a cross sectional study conducted on Insured persons those who were willing to participate in the study over the period of three months from December 2015 to February 2016. For this purpose, 450 beneficiary employees were selected interviewing 10 respondents each from each of the selected establishments under the main groups as shops, educational institution, hotels, hospitals, transport, cinemas, factories and others. A structured interview schedule was used for the data collection. **Results:** The findings of the study showed that the most of the beneficiaries were aware about medical benefits and contribution paid towards ESIC to get the benefits. For rest other cash benefits the awareness was poor. Only 38% of beneficiaries had utilized the services and out of those only 45.6% were satisfied. Most common reason for non utilization was unawareness regarding the Scheme. The study reveals that ESI Dispensaries/ Hospitals were not functioning up to the expected level of the insured persons.

Conclusion: Low utilization of services which are provided under ESI Scheme due to low awareness.

Keywords: ESI, Employee Satisfaction, Social Security.

INTRODUCTION

Health Insurance represents the insurance taken out to cover the cost of medical care and a mechanism for gaining access to health care. Most important to note is that value of insurance for coverage of unaffordable care is derived from the value of the medical care that insurance makes accessible.

The promulgation of Employees' State Insurance Act, 1948 envisaged an integrated need based social insurance scheme that would protect the interest of workers in contingencies such as sickness, maternity, temporary or permanent physical disablement, death due to employment

injury resulting in loss of wages or earning capacity. The Act also guarantees reasonably good medical care to workers and their immediate dependants. Following the promulgation of the ESI Act the Central Govt. had started the Employees' State Insurance Scheme which was first implemented at Kanpur and Delhi on 24th February 1952. The Act further absolved the employers of their obligations under the Maternity Benefit Act, 1961 and Workmen's Compensation Act 1923.¹

This comprehensive and multi-pronged social security programme is administered by an apex corporate body called the **Employees' State Insurance Corporation**. It comprises members representing vital interest groups, including, employees, employers, the Central and State Government, representatives of Parliament and medical profession. The Corporation is headed by the Union Minister of Labour, as its Chairman, whereas the Director General, appointed by the Central Government functions as its Chief Executive Officer. The broad based corporate

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body is, primarily, responsible for coordinated policy planning and decision making for growth, development and efficacy of the scheme. A **Standing Committee**, constituted from among the members of the Corporation, acts as an Executive Body. The **Medical Benefit Council** constituted by the Central Government, is yet another Statutory Body that advises the Corporation on matters related to effective delivery of medical services to the Beneficiary Population.¹

The Corporation with its Central Headquarters at New Delhi, operates through a network of 52 Regional, Sub-Regional and Divisional Offices located in various States. The administration of Medical Benefit is taken care of by the respective State Government except in case of Delhi and Noida/Greater Noida area in Uttar Pradesh where the Corporation administers medical facilities directly. The Corporation has taken over the administration of 23 ESI Hospitals in various States for developing them as ESIC Model Hospitals. E.S.I. Scheme being contributory in nature, all the employees in the factories or establishments to which the Act applies shall be insured in a manner provided by the Act. The contribution payable to the Corporation in respect of an employee shall comprise of employer's contribution and employee's contribution at a specified rate. The rates are revised from time to time. Currently, the employee's contribution rate (w.e.f. 1.1.97) is 1.75% of the wages and that of employer's is 4.75% of the wages paid/payable in respect of the employees in every wage period. Employees in receipt of a daily average wage upto Rs.100/- are exempted from payment of contribution.²

The ESI Scheme was implemented in the State of Karnataka on 27.7.1958 under Section 2 (12) of the Act covering about 48,000 workers. The Scheme was first implemented in Bangalore and thereby extended to other geographical areas over the years in the State. The establishments were brought under the purview of the ESI Act under Section 1. As on date, the Scheme has been implemented in 26 revenue districts spread over 160/758 centres/sub centres of the 29 revenue districts and Gulbarga is one of them and a major city of the North Karnataka region.³

Although ESIS has grown in both size and scope, many have been critical of the scheme. One criticism is that most beneficiaries, or members, of the scheme do not utilise the services for a variety of reasons, the primary one being a perception of the poor quality of care.⁴⁻⁵

Thus, in the absence of a systematic study on awareness and satisfaction of beneficiaries towards ESI in Gulbarga city, Karnataka. The present paper is a humble attempt fill this knowledge gap.

Aim: To Study Awareness And Satisfaction About Employee State Insurance Scheme Among The Beneficiaries Of Gulbarga City.

OBJECTIVES

- 1) To study sociodemographic profile of beneficiaries under ESI Scheme.
- 2) To assess the level of awareness and satisfaction of the beneficiary employees towards ESI schemes.
- 3) To study utilization rates among the beneficiaries under ESI scheme
- 4) To give study based recommendations

MATERIALS & METHOD

This study is a Cross Sectional study conducted during during Dec 2015 to Feb 2016. Study allowed to include IP holders residing in Gulbarga city as well as willing participants and excluded unwilling participates. In Gulbarga city, there are approximately 9000 IP holders as per the data provides a by administrative office in the city. All IP Holders are listed. We have grouped them in gross eight groups for convenience, according to type work. The groups are Hospitals, Educational Institutes, Shops, factories, Hotels, Cinemas and theaters, Transport services and others. We have enlisted the total establishments and IP holders of that group. Out of total number of IP Holders, we had selected 5% of samples from each group proportionate to total population of respective group. To get that 5% ,From each main Group, we have selected establishments for data collection by simple random sampling method using a lottery method. We had interviewed 10 IP Holders from every establishment till we get the desired sample of that group . hence the total sample size is 450. All employees were interviewed with the help of predesigned, self administered which included information Demographic Data, Socio –economic data, information regarding awareness and utilization of the services under ESI Scheme, satisfaction from the services provided under the scheme and reasons for dissatisfaction. Results were analyzed by using SPSS 17 using percentages.

RESULTS

Total 450 beneficiaries were included in the study. Table 1 depicts that maximum 193(42.9%) participants were in the age group of 25-35 years followed by 35-45 years of age group. Out of total 271(60.2%) were male and 179(39.8%) were females. Most of them 364(80.95%) were hindu by religion. Out of total, 126(28%) of the study participants were graduate and 221 (49.1%) were belonging to upper middle class of B.G.Prasad Classification. Most of the 276(61.3%) beneficiaries were living in nuclear type of family and 142(31.6%) IP holders were having 3 dependants on them.

Maximum beneficiaries 438 (97.3%) were aware that they were paying contributions towards ESI Corporation. Regarding the awareness of benefits under the scheme, 380(84.4%) were aware about the medical benefits under the scheme and 57(12.7%) were aware about the sickness benefit. Awareness regarding other benefits like extended sickness benefit 8(1.7%), enhanced sickness benefit 8(1.7%), dependant benefit 8(1.7%), temporary and permanent disablement benefit, funeral expenses was poor. Out of total, only 45(10%) were aware about the maternity benefit. None of the participant was aware of unemployment allowance and rehabilitation benefits. Total 6(1.3%) were aware about ESIC Management Quota according to table 2.

Fig 1 showed that among all the beneficiaries, only 171(38%) had utilized one or other type of benefits with 279(68%) who had not utilized it. Table 3 reveals the reasons for nonutilization of the services. Among those who had not used it, most common reason was lack of awareness among 214(76.7%) IP holders. Total 22(7.9%) did not get a chance to avail for any of the services. Some other reasons are long distance 17(6%), inconvenient timings 14(5.1%), preference to private sector 12(4.3%). According to fig 2, Out of total those who had utilized, only 78(45.6%) were satisfied with the services provided under the scheme. Most common reason for dissatisfaction was late reimbursement of cash in 27(29.3%). Total 16(17.4%) had given reason as nonavailability of medicines and 12(13%) had perceived quality of drugs as poor. Only 2(2.2%) had faced the problem of nonavailability of doctors and behavior of them according to table 4.

DISCUSSION

Maximum study participants were in the age group of 25-35 years of age group. In a study done by Divya. M, Dr. B.Vijayachandran Pillai(2014), findings of the study showed the same age distribution among the participants and beneficiaries of educational institutions are more aware about ESI scheme than other two classes. In the present study satisfaction rate is 45.6% which is comparable to study done by Sharma, A.K., which revealed that overall satisfaction of beneficiaries from ESI dispensary services was only 45 percent. Sixty percent of employers felt that their employees were not satisfied with ESI services.⁵ The study reveals that ESI Dispensaries/Hospitals were not functioning up to the expected level of the insured persons.⁶ In another study by G.Muthulakshmi conducted in Tuticorin district, Tamil nadu, it is found out that ESI dispensaries/hospitals were not functioning up to the satisfaction of insured persons. The study also reveals the scope to improve its functions and turn into a highly trustful and reliable corporation, implementing better services.⁷ Dash U and Muraleedharan VR conducted a study showed that the overall utilization level is very low due to, perceived low quality drugs, long waiting periods, insolence of personnel, long waiting spells to unusual delays in reimbursement of money spent on treatment outside, lack of or low interest of employers and low awareness of ESI procedures.⁸ A study done by Shariff also reveals the same findings.⁹

CONCLUSIONS AND RECOMMENDATIONS:

ESIC social security organization in the country which provides insurance coverage for exigencies related to health, maternity, disablement, death and employment. The findings of the study showed that the most of the beneficiaries were aware about medical benefits and contribution paid towards ESIC to get the benefits and for rest other cash benefits the awareness was poor which most probably the reasons for nonutilization of services. Findings of the study, the following suggestions are offered to improve the performance of ESI as well as there is need to increase the awareness about the ESI Scheme. The working time of the hospitals may be arranged according to the convenience of the employees. Procedures in connection with the reimbursement should be simplified to the extent possible as it was the most common reason for dissatisfaction.

Table 1: Sociodemographic profile of the study participants.

	Variables	Number	Percentage
Age group	15-25	48	10.7
	25-35	193	42.9
	35-45	148	32.9
	45-55	61	13.6
Sex	Male	271	60.2
	Female	179	39.8
Religion	Hindu	364	80.9
	Muslim	80	17.8
	Christian	6	1.3
Education	Illiterate	63	14
	Primary	59	13.1
	Secondary	100	22.2
	Higher Secondary	45	10
	Graduation	126	28
	Postgraduate	57	12.7
Socioeconomic class	Upper	99	22
	Middle	93	20.7
	Upper Middle	221	49.1
	Lower Middle	29	6.4
	Lower	8	1.8
Type Of Family	Nuclear	276	61.3
	Joint	174	38.7
Total Number Of Dependants	1	17	3.8
	2	94	20.9
	3	142	31.6
	4	113	25.1
	> or equal to 5	84	18.7

Table 2: Awareness about the various benefits under ESI Scheme

Type of Benefit	Aware Number (%)	Unaware Number (%)
Contribution paid towards ESIC	438 (97.3)	12 (2.7)
Medical Benefit	380 (84.4)	70 (15.6)
Sickness Benefit	57 (12.7)	393 (87.3)
Enhanced Sickness Benefit	8 (1.7)	442 (98.3)
Extended Sickness Benefit	8 (1.7)	442 (98.3)
Temporary Disablement Benefit	10 (2.2)	440 (97.8)
Permanent Disablement Benefit	13 (2.8)	437 (97.2)
Maternity Benefit	45 (10)	405 (90)
Dependant Benefit	7 (1.5)	443 (98.5)
Funeral Expenses	8 (1.7)	442 (98.3)
Rehabilitation Benefit	0 (0)	450 (100)
Unemployment Allowance	0 (0)	450 (100)
ESIC Management Quota	6 (1.3)	444 (98.7)

Table 3. Reasons for nonutilization of the services

Reasons for nonutilization	Number	Percentage
Not aware	214	76.7
Did not get the chance	22	7.9
Long distance	17	6.0
Inconvenient Timings	14	5.1
Prefers private sector	12	4.3
Total	279	100

Table 4. Reasons for Dissatisfaction from the services used.

Reasons for dissatisfaction	Number	Percentage
Late reimbursement	27	29.3
Limited Services	17	18.5
Long distance	16	17.4
Poor Quality Drugs	12	13
No medicines	16	17.4
No doctor	2	2.2
Behaviour of Doctor	2	2.2
Total	92	100

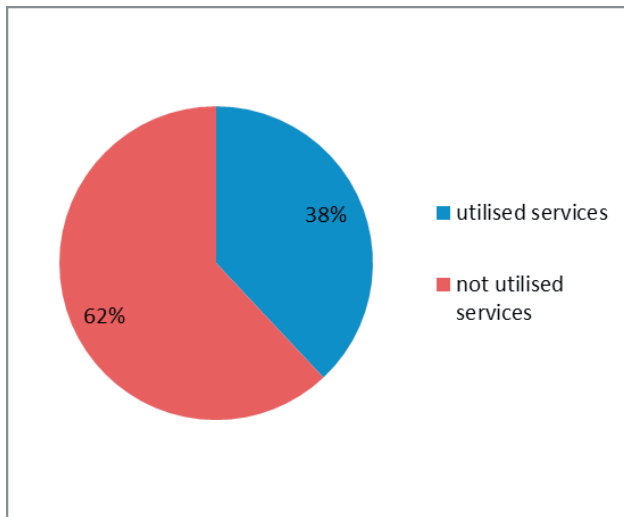


Fig 1.Utilisation Rates of the services under ESI Scheme

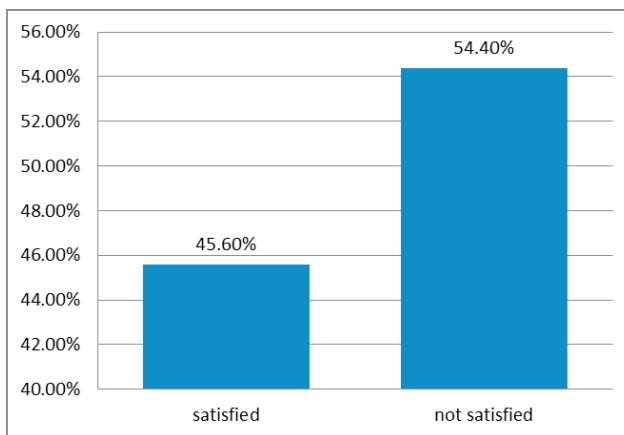


Fig 2 Satisfaction rates of the services under ESI Scheme

Limitations: Limited study period .

Source of Support: Self

Ethical Clearance: Obtained from the institution's "Ethical Committee".

Conflict of Interest : The authors alone are responsible for the content and writing of the research paper. They declared "No conflict of interest".

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Source of Financial/other Assistances, drugs or al. of these: Self

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Association of Fasting Blood Glucose Level with Hypertension & Obesity: A Cross Sectional Study among Urban Population in Varanasi

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ABSTRACT

Introduction: Diabetes Mellitus (DM) is increasing due to the population growth, aging, urbanization, low physical activity, and high prevalence of obesity. Worldwide, the number of people with Impaired Glucose Tolerance is estimated to be 280 million and projected to become 398 million individuals will have IGT by 2030. Diabetes Mellitus and associated complications are a major cause of morbidity and mortality in the developing countries. The present study was a community based cross sectional study with the specific objectives to assess the prevalence of pre diabetes and diabetes in urban population and find out its association with hypertension and obesity .

Methodology: The study was based on a sample of 700 people of age between 20-65 years, out of which 359 were males and 347 were females. Applying a multistage cluster random sampling technique, a sample of 706 persons was taken. Known cases of diabetes (6) were excluded from the analysis. Thus, finally 700 respondents were interviewed by using pretested semi structured interview schedule. Fasting Capillary blood glucose level was measured according to WHO-2006 criterion with the help of Glucometer. Blood pressure and weight was checked with the help of automatic blood pressure and weighting machines respectively. Height was measured with standard anthropometric rod with parallel bar.

Results: Study shows that 11.9% of the respondents were pre-diabetic and 7.2% were diagnosed as diabetes. 27.1% of the total respondents were in pre-hypertension and 15.4% in hypertension category while 18.4% respondents were found over-weight and only 1.3% was obese. Diabetes was observed nearly five times more among obese as compared to the respondents having normal weight. Hypertension was observed more than two times significantly more likely in respondents with pre-diabetes and about two times more likely in diabetes as compared to those having normal fasting blood glucose level.

Conclusion: The present study shows significant association of pre diabetes & diabetes with obesity and hypertension. Findings suggest that there is a strong need of inclusion of screening of all the three major non-communicable diseases in primary health care delivery system in urban areas.

Keywords: Cross-sectional, Diabetes mellitus, Hypertension, Obesity, Pre-diabetes.

INTRODUCTION

Diabetes mellitus is the third most common health disorder worldwide and fourth leading cause of death. The incidence and prevalence of type-2 diabetes mellitus are rapidly increasing worldwide in both developing and developed countries. According to recent analysis the number of adults with diabetes from 2010 to 2030 would increase 20% in developed countries and 69% in

developing countries¹. India has the largest number of diabetics in the world with a 3.8% in rural and 11.8% in urban adults. Main reasons are population growth, ageing, urbanization, increased prevalence of obesity and physical inactivity².

Worldwide, the number of people with IGT is estimated to be 280 million; by 2030, projections are that 398 million individuals will have IGT. Pre-diabetes

is a relatively new term coined by the American Diabetes Association (ADA) and the Department of Health and Human Services in 2002³. It includes both “impaired glucose tolerance” and “impaired fasting glucose” and was designed to bring attention to the significance of the disease⁴.

WHO further projects that by 2015, at least 2.3 billion adults will be overweight and more than 700 million will be obese. Overweight and obesity are associated with an increased risk of developing hypertension and diabetes⁵. Obesity can be general or central (abdominal). Waist circumference measures the central obesity⁶. Many epidemiologic studies have shown that body Mass Index (BMI) which is a measure of general obesity, is a powerful predictor of type-2 diabetes. The prevalence of these chronic disorders has been reported to be increasing in India.

The prevalence of hypertension has been reported to range between 12% and 17% among rural and 20% and 40% in urban⁷. Thus screening for obesity followed by health education of obese persons for weight reduction may be useful for early prevention of its co-morbidities like hypertension and type-2 diabetes. The specific objectives of this study are to assess the prevalence of diabetes and pre-diabetes and to understand the association of them with hypertension, obesity.

METHODOLOGY

A community based cross-sectional study was conducted in an urban area of Varanasi between July-December, 2012. A sample of 706 respondents was taken by using multistage cluster random sampling technique. 6 known cases of diabetes were excluded from the analysis. The basic instrument of data collection was a personal interview method with the help of semi-structured pretested questionnaire. Detailed information has been taken on the demographic and socio-economic characteristics at both the individual and household level. Informed consent was taken from all the respondents.

Glucometer (Accu-check) was used to measure the fasting blood glucose level of the respondents. House to house visits were made one day prior to inform the respondent to remain empty stomach overnight (at least 8 hours) and get their blood sugars checked on the following day. Next day morning, between 6:00 AM and 8:00 AM, blood samples were collected to estimate fasting capillary blood glucose level. Results were informed to all the

respondents along with the education on prevention of diabetes and place of treatment. Blood pressure was checked with automatic blood pressure machine (Omron) thrice at an interval of 10 minutes at the study site in a sitting position. For recording weight, the machine was checked for zero error before taking the weight. Height was measured with standard anthropometric rod with parallel bar.

Following standard definitions and criterion were taken into consideration in the study.

WHO-2006 criteria-to measure fasting glucose blood level between 110 mg/dl to 125 mg/dl are considered pre-diabetic and those with equal and above 126 mg/dl are diabetic.

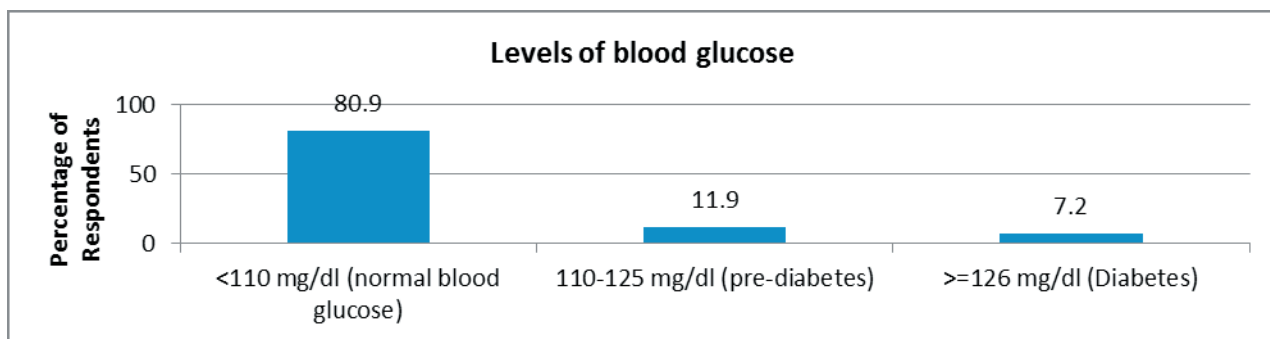
According to Joint National Committee (JNC-7, 2003) people with less than 120 mmHg systolic blood pressure and less than 80 mmHg diastolic blood pressure normal, 120–139 mmHg systolic or 80–89 mmHg Diastolic are pre-hypertension, 140–159 mmHg systolic or 90–99 mmHg diastolic are Hypertension Stage-1 and ≥ 160 mmHg systolic or ≥ 100 mmHg diastolic are Hypertension Stage-2. Stage 1 and 2 were clubbed for analysis purpose in the study & only systolic blood pressure has been taken to report the hypertension.

According to WHO (2008) people who have BMI <18.5 are underweight, 18.5–24.9 are normal weight, 25–29.9 are overweight, BMI of 30 or greater are obese.

Chi-square test was applied to find out any association between the variables. $p < 0.05$ was considered to be statistically significant and in order to identify the contribution of influencing factors for pre-diabetes and diabetes, logistic regression was carried out.

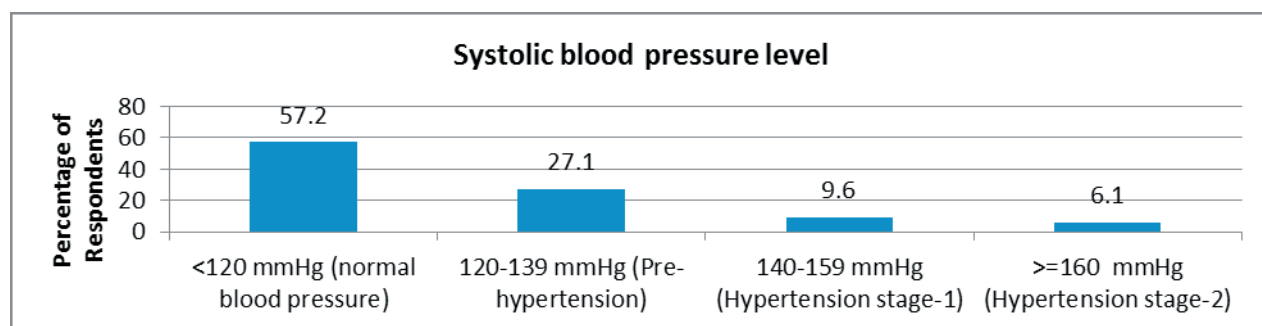
RESULTS

Out of 700 interviewed respondents, diabetes was observed more among both age groups 40-50 years (21.1%) and 51-65 years (21.1%) followed by age group 31-40 years. Diabetes was observed more in males (22.3%) as compared to females (14.2%). Marital status wise analysis shows that it was observed more in widow/widower (26.4%) as compared to married (21.0%) and unmarried (4.5%). With regard to occupation, diabetes was more in farm-owner (36.8%) followed by labourer (20.5%). So far as type of family wise concern, diabetes was observed more in joint family (23.1%) as compared to nuclear family (14.1%).



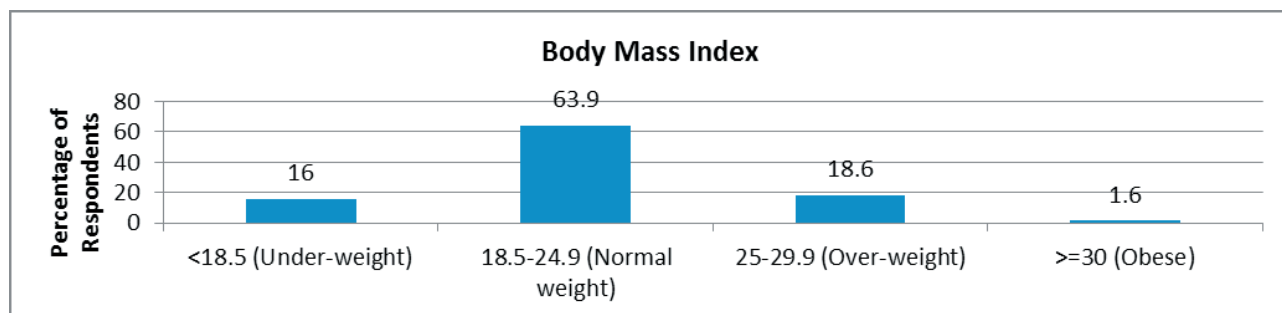
Graph 1: Distribution of Respondents with their blood glucose levels.

The proportion of respondents with different blood glucose level, blood pressure (only systolic) and BMI was depicted in Graph-1. It shows that 11.9 per cent of the respondents having blood glucose level between 110-125 mg/dl were considered as pre-diabetes followed by 7.2 per cent equal and above to 126mg/dl diagnosed as diabetes. Majority (80.9%) of the respondents were found with normal blood glucose level.



Graph 2: Respondents according to the Systolic blood pressure level.

The proportion of respondents with systolic blood pressure from normal to hypertension stage 2 was shown in Graph. 2.27.1% respondents were found in pre-hypertensive stage (120-139mmHg) while 9.6 per cent of the total respondents having systolic blood pressure levels between 140 to 159 mmHg (stage 1 hypertension) and only 6.1% were equal and above 160 mmHg (stage 2 hypertension).



Graph-3: Distribution of the Respondents according to BMI.

Graph-3 illustrates the Body Mass Index (BMI) of the respondents as under-weight, normal, over weight and obese. Around one-fifth of the total respondents having BMI above 25 & 16 per cent were below 18.5.

Table-1: Association of Respondents Fasting Blood Glucose level with Systolic Blood Pressure & BMI

Variables (N)	Fasting Blood Glucose level			Group difference
	< 110 mg/dl (Normal Status) N (%)	110-125 mg/dl (pre-diabetes) N (%)	≥126 mg/dl (Diabetes) N (%)	
Systolic blood pressure				
Normal (402)	358 (89.0)	24 (6.0)	20 (5.0)	x ² =46.49 d.f.=4 p =0.000
Pre-hypertension (190)	145 (76.3)	33 (17.4)	12 (6.3)	
Hypertension (108)	68 (63.0)	26 (24.1)	14 (13.0)	
BMI				
Under-weight (113)	105 (92.9)	7 (6.2)	1 (0.9)	x ² =28.09* d.f.=4 p =0.000
Normal weight (449)	371 (82.6)	52 (11.6)	26 (5.8)	
Obesity (138)	95 (68.8)	24 (17.4)	19 (13.8)	

*For chi-square test, over-weight and obese categories were merged

Association between fasting blood glucose level with systolic blood pressure and BMI are discussed and result are given in Table-1. It was found that about 13 per cent and 24 of hypertensive respondents have their blood glucose level ≥126 mg/dl and 110-125 mg/dl respectively and this association was found to be statistically significant (x²=46.49, d.f.=4, p=0.000), BMI of the respondents was also found to associated with fasting blood glucose level (x² =28.09, d.f.=4, p=0.000), About 14 and 17 per cent of the respondents were belonging to the obesity category(BMI≥ 25) found suffering from diabetes (13.8%) and pre-diabetes (17.4%). Interestingly, it was found that only about 1 per cent of respondents among under-weight had their blood glucose level ≥126 mg/dl, whereas about 6 per cent of normal weight respondents had their blood glucose level ≥126 mg/dl.

Table-2: Logistic regression analysis of likelihood of Fasting Blood Glucose level and BMI with Diabetes and Systolic Blood Pressure:

Variable	Diabetes				Hypertension (Systolic)			
	Unadjusted		Adjusted		Unadjusted		Adjusted	
BMI status+	B (S.E.)	OR (95% CI)	B (S.E.)	OR ⁺ (95% CI)	B (S.E.)	OR (95% CI)	B (S.E.)	OR ⁺ (95% CI)
Normal status		RF		RF		RF		RF
Under-weight	-1.01 (0.38)	0.38 (0.17-0.77)**	-0.87 (0.41)	0.41 (0.18-0.94)**	-1.68 (0.52)	0.18*** (0.06-0.52)	-1.55 (0.56)	0.21*** (0.07-0.63)
Obesity	0.73 (0.22)	2.08(1.34-3.22)***	0.72 (0.25)	2.05 (1.24-3.38)***	0.34 (0.24)	1.40 (0.87-2.26)	0.23 (0.29)	1.26 (0.71-2.23)
Levels of blood glucose++								
Normal status	--	--	--	--		RF		RF
Pre-Diabetes	--	--	--	--	1.21(0.27)	3.37*** (1.98-5.72)	0.89 (0.32)	2.44** (1.29-4.63)
Diabetes	--	--	--	--	1.17(0.34)	3.23*** (1.64-6.37)	0.62 (0.41)	1.86 (0.82-4.18)

Note: +,++ Adjusted for respondents age, gender, marital status, education, occupation. *p< .05; **p<0.01; ***p<0.001, S.E-standard error, CI-confidence interval, OR-odd ratio.

Table-2 displayed the results of logistic regression analysis for predicting the likelihood of having diabetes (blood glucose level- $110 \geq 126$ mg/dl) and hypertension (systolic blood pressure- ≥ 140 mmHg). BMI was found to be one of the important contributing factors in explaining the likelihood of having diabetes and hypertension. In the present study, the respondents who were having obesity were significantly more likely to be suffering from diabetes. Interestingly, the individuals who were under-weight as compared to those having normal weight status were found significantly less likely to have blood glucose level above 110 mg/dl and blood pressure above 140 mmHg. Obese respondents had 1.26 increased odds of developing hypertension. In the analysis fasting blood glucose level was also taken as individual predictor for the likelihood of having hypertension. Hypertension was observed more than two times significantly more likely in respondents with pre-diabetes and about two times more likely, although it is not significant, in diabetes as compared to those having normal fasting blood glucose level after adjusting the other variables in the study.

DISCUSSION

The present study reveals that 11.9% respondents were pre-diabetes and only 7.2% with diabetes. This is almost similar with the study reported by Akhter et al⁸ where prevalence of diabetes was 7.2% and pre-diabetes found to be 6.5% while lower than reported by Ramachandran et al. (2000)⁹ where prevalence of diabetes and pre-diabetes were 14.0% and 12.1% respectively.

Regarding association of fasting blood glucose level with systolic blood pressure and BMI of the respondents, systolic blood pressure is significantly associated with blood glucose level & this is coherent with the findings of study conducted by Abdulbari (2009)¹⁰. Another similar findings of the study conducted by Zaiton et al., (2013)¹¹ found that hypertension was significantly associated with Diabetes. Analysis also shows that fasting blood glucose level was significantly increases with BMI which is coherent with the study conducted by Doreen (2006)¹².

Logistic regression analysis shows that respondents who were having obesity were significantly more likely to be suffering from diabetes. This is consistent with the findings of study done by Ibrahim (2015)¹³ reported that obesity increases the risk of diabetes twice. Respondents who were under-weight as compared to those having normal weight status were found significantly less likely

to have diabetes and hypertension. Respondents who were obese as compared to normal weight status were found more likely to have hypertension. This is coherent with the study done by Amira et al, (2012)¹⁴ revealed that obese respondents had 2.59 increased odds of developing hypertension. Hypertension is significantly more likely in the respondents who were suffering from pre-diabetes and diabetes status. Which is coherent with the study conducted by Klein (2016)¹⁵.

Age wise association shows that risk of diabetes increasing by age which is almost similar to the study conducted by Imam et al (2012)¹⁶. Significantly diabetes was observed more in males as compared to females. Which is consistent with a study conducted by Imam et al (2012)¹⁶ where males were more likely to develop diabetes as compared to females. Regarding marital status of the respondents diabetes was observed more in widow/widower as compared to married and unmarried ($p < 0.000$). Which is almost similar to a study conducted by Ibrahim (2015)¹³. Statistically significant difference was observed with occupation & type of family of the respondents.

CONCLUSION & RECOMMENDATIONS

The present study shows the significant association of pre diabetes & diabetes with obesity and hypertension. Findings suggest that there is a strong need of inclusion of screening of all the three major non-communicable diseases in primary health care delivery system in urban areas.

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Ethical Clearance: This article was approved by ethical committee of IMS, BHU.

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A Policy of Informed Consent for Biobanking in Tropical Disease Research Projects, Using the Delphi Technique: Principles for Good Practice

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ABSTRACT

A policy of informed consent was developed to standardize guidelines for biobanking in tropical disease research projects. A four-rounds Policy Delphi was carried out with a panel of clinical trials and policymaking experts who are currently working in clinical research, and are part of the Mahidol-Oxford Tropical Medicine Research Unit (MORU), n=30. A master policy narrative was derived through the consensus results. Thematic content was analyzed using NVIVO 10 software in round one. Descriptive statistics were used to evaluate levels of agreement, including the mean, the percentage of agreement, and the interquartile deviation (IQD) in round two. Consensus was established in round two if the mean rating was 3.5, the level of consensus by percentage of agreement among experts who agree or strongly agree was equal to or more than 70%, and IQD was equal to or less than 1.00. The response rates were used in the analytical process in rounds three and four to confirm maximum validity of the results of the Delphi method for improved confirmation of consensual decision-making. From the results, a policy of informed consent for biobanking in tropical disease research was developed, and a consent form and patient information sheet for biobanking studies were designed. These tools will reduce the burden placed on research staff responsible for the projects and the biobank, while at the same time maximize the protection of clinical trial participants through principles of good practice for affiliates MORU.

Keywords: *Biobank, Informed consent, Patient information sheet, Delphi technique, Policy*

INTRODUCTION

Before any clinical research can be conducted, informed consent must first be obtained from clinical participants, who must also be provided with a patient information sheet. The Council for International Organizations of Medical Sciences (CIOMS) terms informed consent as the process of getting agreement before performing any healthcare intervention on a person/ participant. Informed consent form should contain a separate part for clinical-trial participants who are invited to provide biological specimens for research [1]. The informed consent form should be signed and dated by the participant or their legal representative, and by the medical professional who conducted the informed consent interview [2].

Recent years have seen an increasing interest in the development of biobanks that facilitate medical researchers' access to biological samples and the data associated with them for both basic and clinical research

[3]. Biobanking is new in Thailand and few research projects utilize sample sharing. The document for informed consent for patients participating in biobanking trials currently used in MORU is taken from different sources and therefore lacks a structure and content appropriate for the local context. This study develops a standardized policy of informed consent for biobanking with MORU study sites and collaborations across Thailand, Asia and Africa [4].

METHOD

Study design

The study uses a four-round Policy Delphi design.

Study participants and sampling

The study uses a panel of thirty experts who are affiliate MORU staff, based at the Shoklo Malaria Research Unit in Tak, the MORU in Bangkok, and

Sappasitthiprasong Hospital in Ubonratchathani. They work in clinical research in the field of tropical medicine. The panel included six Principal Investigators, six Co-Investigators, six Project managers/ Study coordinators, six Lab technicians, and six Study nurses who satisfied the inclusion criteria. The participants were selected based on their experience and expertise in order to increase the content validity of the survey^[5,6]. The sampling technique was purposive and convenient as the participants were selected for their professional knowledge, availability, and willingness to participate.

The Delphi process

Round I: An open-ended questionnaire was used to collect opinions from the experts. An email was circulated among experts, inviting them to participate and respond to the questionnaire, in the privacy of the individual's own time and work space (laptop or desktop computer) to avoid bias or coercion. All responses of the expert panel were anonymized prior to collation. The responses were then used to determine different issues in order to develop the contents of the questionnaire for the next round^[7].

Round II: A second round survey was developed by using the data collected from round I. Duplicate data were removed. The new questionnaire was then used with the same experts. A five point Likert scale was used to identify the areas of disagreement and agreement. Consensus began on this round to form and the actual results can be represented among the experts^[8].

Round III: The delphi method does not purpose to achieve consensus; it somewhat explores the several opinions with a view to informing processes^[9]. The experts were enquired to evaluate an Informed Consent Form (ICF) and Patient Information Sheet (PIS) developed by the researcher. The experts received an online survey included the items and ratings summarized by the researcher from the previous round, and they were asked for their opinions.

Round IV: This is the final round. Generally, when using the Delphi technique, the differences of opinion of participants in rounds III and IV are minimal^[8]. The experts received an online questionnaire again in this round and they were asked to reconsider their judgments. If the data collected in this round is consistent then the process ends and the data can be summarized.

DATA ANALYSIS

Round I: For this study NVIVO software is used

for thematic content analysis was used to analyze the qualitative data. All statements were coded individually, and key themes emerged. Patterns of priorities were identified, which helped configuration the subsequent development of the study. The themes and their most commonly occurring examples were then used to build the surveys for round II and round III^[10,11].

Round II: Descriptive statistics were used to evaluate levels of agreement, including the mean, the percentage of agreement, and the interquartile deviation (IQD). Consensus was established in round II if the mean rating was 3.5, the level of consensus by percentage of agreement among experts who agree or strongly agree was equal to or more than 70%, and IQD was equal to or less than 1.00. Items with an IQD equal to or lower than 1.00 are indicators of consensus^[12]. Consensus percentages were calculated for individual statement according to the ratings on each side of the Likert scale using the following criteria^[9]:

1. High consensus: 70% of ratings in one category, or 80% in two contiguous categories.
2. Moderate consensus: 60% of ratings in one category, or 70% in two contiguous categories.
3. Low consensus: 50% of ratings in one category, or 60% in two contiguous categories.
4. No consensus: less than 50% of ratings in one category, or 60% in two contiguous categories.

Formula

Interquartile deviation (IQD) = $Q3 - Q1 / 2$

Rounds III and IV: Response rates were used in the analytical process to confirm maximum validity of the consequence of the Delphi method for improved evidence of consensual decision-making^[13]. As the panel had reached the preset levels for consensus, there was no need for another round. An initial consensus is positive outcome, the high levels reflecting appropriate stability in the participants' viewpoints, avoiding a problem inherent in other Delphi studies^[14].

RESULTS

High response rates of 100% (30/30), 93.3% (28/30) and 92.9% (26/28) were reached for rounds I, II, III and IV respectively. Panelists who did not respond to round II were not authorized to participate in round III and IV, as they would have been informed the final outcome with

each round prior participation to the next round. Each round of the Delphi technique took approximately ten days to complete.

Table 1: Experts' demographics of study participants by level of experience

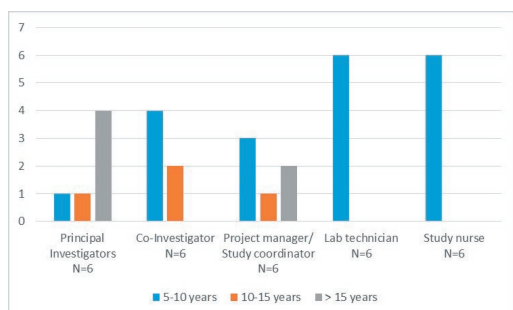


Table 1 shows the experts' demographics of study participants by level of experience

Result I: Policy of informed consent for biobanking in tropical disease research projects: principles for good practice

Biobanking

A biobank is defined as “a repository that stores biological samples (usually human) and associated data for medical/scientific research and diagnostic purposes, and organizes them in a systematic way for use by others” [15].

The advantages and benefits of biobanking

Biobanks store samples that can be valuable in clinical research. The remaining of left-over samples from clinical trials can store on Biobank for future studies use and they can reduce the time and costs and involved in collecting samples for similar studies. They reduce subsequent duplicate sampling, and they can facilitate the study of rare diseases. They allow valuable samples to be used by organization in related fields of research and more than one researcher in similar study.

Concerns with biobanking

There are important concerns surrounding biobanking, such as samples expiring or being used up, ethical issues, confidentiality of personal data, and the need to ensure the quality of storage processes. There were specific comments from the panel regarding ways to ensure the quality of future research, protection against personal interests being derived from the biobank, ensuring consent was obtained for each subsequent study, and the problems of duplicate samples.

The best ways to explain the process of biobanking

A pre-consent interview with questions and answers

between the medical professional and the clinical participant is the best way to explain the process of biobanking. Patient information sheets, information brochures/handouts and videos can be used. The education level of the clinical participants is one factor that influences the choice of the best way to explain the biobanking process. Participants may be unfamiliar with some medical terminology, including the word biobanking itself, and some terms may be difficult to explain in plain language.

Confidentiality

The most important aspect of informed consent for biobanking is confidentiality, because it influences the patient's decision to donate a sample. Information must be kept confidential and secure, and samples must be labelled with a code and anonymized. In the biobank database sample codes are linked to individual patients but researchers should not have access to this information.

Sample for biobank

Researchers should follow the requirements of their local ethics committee and should not collect samples left over from the original protocol. Only left-over samples from an original study can be stored in a biobank and used for future research.

Factors influencing the decision to donate

Altruistic reasons and perceived benefits to society are the main factors influencing patients' decisions to donate a clinical sample. In addition, confidentiality and consent regarding future commitments (re-consent, and legal ramifications) are important. Direct benefits to the patient, such as consultation with a doctor, or increased knowledge about the disease, also influence the decision-making of clinical participants.

Specific information in the consent form

Consent forms should include all relevant information regarding the use of clinical samples. This information should be explicitly mentioned in the consent form rather than just explained to the clinical participant. Consent forms should include information on:

- ensuring confidentiality;
- whether the sample will be shared with other researchers;
- clinical participants' right to withdraw consent and have their sample destroyed at any time;
- the researcher's commitment to notify the clinical participant about what kind of data from their

sample is used in research;

- the researcher's commitment to notify the clinical participant if their sample is used abroad in collaborative research by, for example, pharmaceutical companies;
- the researcher's commitment to notify the clinical participant in case the sample is used in clinical research related to DNA;
- the time period for which the sample will be kept.

Re-consent

The re-consent process depends on the requirements of the relevant ethics committee or Institutional Review Board (IRB) for each subsequent study, on the type of study (e.g. a genetic study on disease carriage, or a commercial study), and on whether a study produces new data on a patient which could influence their health or treatment.

The best way to contact patients for re-consent

Ideally, the researcher should contact clinical participants for re-consent by letter or email because it can be used as documentary evidence.

Use of biobank samples by commercial organizations

Permission should be sought from clinical participants when sharing samples and data with other researchers or pharmaceutical companies in collaborative research. When samples are used by commercial organizations who make a profit out of the research, clinical participants should receive compensation.

Result II: Designing a Patient Information Sheet for use in clinical research in the tropical disease network

Mahidol-Oxford Tropical Medicine Research Unit
Patient Information Sheet

Donating blood sample for clinical research in Tropical disease

affiliate Mahidol-Oxford Tropical Medicine Research Unit

We are inviting you to take part in a biobank research study. Before you decide whether to participate or not it is important for you to understand why the research is being done and what it will involve. Your decision will not affect your care in anyway. Please take time to read the following information carefully and to decide whether or not you wish to be involved. Thanking for reading it.

1. What is biobanking?

The word of Biobanking as “A biobank is a repository that stores biological samples (usually human) and associated data for medical/scientific research and diagnostic purposes, and organizes them in a systematic way for use by others”

2. What is the purpose of this study?

Mahidol-Oxford Tropical Medicine Research Unit (or affiliate) collects blood sample for use in the future for clinical research in tropical disease.

3. Why I have been chosen

You have been chosen because you are involving for clinical research in Tropical disease. As this studies will be performed using sample that have already been taken during the process of your part of clinical research.

4. Do I have to take part?

It is up to you to decide whether or not to take part. You are free to withdraw at any time and without giving a reason.

5. What will happen if I take part

If you agree, we will ask you to donate your samples of blood collected during research study will be kept at the Mahidol-Oxford Tropical Medicine Research Unit Biobank by management and processing by MORU biobank center. This center will provide the service related to collecting, storage, use and distribution of biobanking blood sample inside the affiliate of “Mahidol-Oxford Tropical Medicine Research Unit”. Your sample will be stored in ≤ 10 years and will use in subsequent or future study in tropical disease. Your sample will only be used in ethically approved research with send the notification letter to you every time we use your blood sample.

6. Will my taking part be kept confidential?

Yes, your blood sample, data and information about you will be treated confidentially. We will use the code for your blood sample. We will not give your information to researchers in subsequence and future study that could identify you.

7. What if I change my mind about taking part?

If you decide to withdraw from the study your standard of care will not be affected. You are free to withdraw from the studies at any time and without giving a reason. If you withdraw, you can ask for your blood samples to be destroyed or made irreversible anonymous.

8. How will the information I provide be used?

We plan to publish the results in a health journal so others can read about and learn from the results of the study. Every time that your blood sample data will

launch, we will send the result to you via letter.

9. Further Information

If you require more information about this study please call one of the telephone numbers provided to speak to a clinical member of the research team or, alternatively look at Mahidol-Oxford Tropical Medicine

Research Unit website <http://www.tropmedres.ac/home>

Thank you for reading this

Please keep this information sheet for your records.

If you agree to enter the study, please sign the enclosed consent form and we will return a copy to you.

Result III: Designing an Informed Consent Form for use in clinical research in the tropical disease network

Mahidol-Oxford Tropical Medicine Research Unit
 Informed Consent Donating blood sample for clinical research in Tropical disease
 affiliate Mahidol-Oxford Tropical Medicine Research Unit

1	I have read and understood the Patient Information sheet (version number).	Yes Initial _____	No Initial _____
2	I have received, and having had the opportunity to ask question and my question have been answer satisfactorily.	Yes Initial _____	No Initial _____
3	I know how to contact the research team.	Yes Initial _____	No Initial _____
4	I agree to donating my blood sample for this research, subsequent study and future research that affiliate to Mahidol-Oxford Tropical Medicine Research Unit in Tropical disease.	Yes Initial _____	No Initial _____
5	I agree that my blood sample will be collected, stored, used and distribution, management and processing by Mahidol-Oxford Tropical Medicine Research Unit Biobank center.	Yes Initial _____	No Initial _____
6	I understand the MORU Biobank center will keep my information confidential. Information will only passed to researchers in an anonymous way that protect my identity.	Yes Initial _____	No Initial _____
7	I agree that my blood sample may be used by researchers for scientific publication, education purpose and for exploring new treatment related to my currently disease.	Yes Initial _____	No Initial _____
8	I agree that if my blood sample will use in commercial organization, I should get notification from researcher and ask me to permit and will get the profit financial from such a product.	Yes Initial _____	No Initial _____
9	I understand result from my blood sample in subsequent study and future research will send to me via letter that contact address provided by me.	Yes Initial _____	No Initial _____
10	I agree that for re-consent process is depend on the requirements of Ethic committee / IRB for each subsequent study and it depend on type of study (eg. Genetic study on disease carriage, commercial study) and where a study procedure new data on my blood sample which could influence my health or treatment.	Yes Initial _____	No Initial _____

I agree to donate blood sample for use in clinical research for Tropical disease affiliate Mahidol-Oxford Tropical medicine Research Unit:

Name and Surname of donor/ clinical participant

Initial

Signature

Date

Time

You will be given a copy of the information sheet and this signed consent form to keep

I have discussed the study with this donor/ clinical participant who has agreed to give informed consent:

Name and Surname of person taking consent

Initial

Signature

Date

Time

Patient Information sheet and Informed consent form: original to research notes, 1 copy to donor/ clinical participant and 1 copy to Mahidol-Oxford Tropical Medicine research unit biobank center

Ethical Considerations: Ethical permission to perform this study obtained from the Central Ethics Committee (equivalent to an IRB) of Chulalongkorn University Faculty of Tropical Medicine, Mahidol University, and OxTREC, Oxford University.

DISCUSSION

This study sought to explore the opinions of researchers with the aim to inform the development process of a policy of informed consent for biobanking in Thailand using decision-facilitating tool processing by four rounds of Delphi technique. While the Policy Delphi does not purpose to reach consensus but advising the decision-making processing and explores different opinions on different view policy options^[9,16]. In this study sought to explore and determine an appropriate policy of informed consent for biobanking of tropical diseases based on the opinions and consensus among experts. In a previous study, the attitudes of clinical participants themselves was explored. The inclusion of the latter is in line with Colledge F. & Persson K., 2014^[17], who state that the content of guidelines and recommendations can be helpful for a better justified perspective of biobanking stakeholders and ethics committee members.

A strength of this research is that it represents the opinions of policymakers with expertise and qualifications in the area of tropical disease research with a policy of informed consent for biobanking. They have received education and training on good clinical practice. The Delphi procedure uses two iterations of a questionnaire in rounds I and II, and a different questionnaire in rounds III and IV to design an informed consent form and patient information sheet. In each round participants submitted their responses to the researcher via email. An open-ended questionnaire was used in round I, and sent to the experts via email, while in rounds II, III and IV a link to an online survey (SurveyMonkey), similar to Gill FJ et al

2014^[18].

A weakness of the study with Delphi technique is that it may not produce replicable outcomes. For instance, if a group of other experts were asked to respond to the same questions in rounds II, III and IV, their answers would not be exactly the same^[19].

This study has identified the top priorities in the development of a policy for informed consent regarding tropical disease biobanking: confidentiality, and the advantages and benefits of biobanking.

CONCLUSION

A policy of informed consent for tropical disease biobanking can contribute to the standardization of processes and information for obtaining informed consent from medical research participants and donors. In this study I have presented some issues that should be considered when using biobanks in tropical disease research, consent forms and information sheets. To our knowledge, this is the first time the Delphi method has been successfully used to inform a policy of informed consent relating to tropical diseases. This is an important first step towards establishing a framework of best practice.

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Conflict of Interest: The authors declare no conflict of interest.

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A Study on Anthropometric Measurements Association with Hypertension in Urban Population of Eluru

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ABSTRACT

Background: Hypertension is a major public health problem in India. World-wide, prevalence estimates for hypertension is about 1 billion individuals. It causes about 7.1 million deaths per year and 4.5 % of the disease burden which translates to 64 million disability adjusted life years (DALYs). **Objectives:** 1. To find the demographic variable associated to hypertension among the urban population. 2. To study the anthropometric measurements associations to hypertension among the urban population. **Materials & Method:** The present community based cross sectional study was conducted at urban area of Eluru, Andhra Pradesh, during the period from June 2013 to June 2014. A total of 533 individuals were selected randomly from the urban field practice area of Alluri Sita Ramaraju Academy of Medical Sciences. Results were analyzed and necessary statistical tests were applied. **Results:** Out of 533 study population, 52.1% were males and 47.9% were females. In the present study overall prevalence of hypertension was found to be 24.9%. There was statistically significant association was found between high body mass index and more waist hip ratio in females were significantly associated with hypertension respectively ($P < 0.01$, $P < 0.001$) **Conclusions:** Based on the above study results, prevalence of hypertension was more in above 30 yrs of age group. We can advocate the study population that is adoption of some life style modifications like ideal body weight, normal BMI as far as possible.

Keywords: Age, Sex, Height, weight, BMI, Waist hip ratio.

INTRODUCTION

World-wide, prevalence estimates for hypertension is about 1 billion individuals. It causes about 7.1 million deaths per year and 4.5 % of the disease burden which translates to 64 million disability adjusted life years (DALYs) ¹. The latest WHO Statistics report 2013 reveals that worldwide prevalence of hypertension is 29.2% for males and 24.8% for females. Hypertension is a major public health problem and greatest challenge of 21st century. Hypertension was reported to be fourth contributory to premature death in developed countries and the seventh in developing countries.

Uncontrolled hypertension will lead to cardiovascular complications such as myocardial infarction, heart failure, peripheral arterial diseases and aortic aneurysm. It may lead to renal complications like chronic renal failure, end

stage kidney diseases etc and neurological complications like cerebrovascular accidents such as stroke. Most of these complications will occur without obvious signs and symptoms. Hence this disease, hypertension is called as “silent killer”².

Epidemiological studies shows that there is significant geographical difference in the occurrence of hypertension and its complications both between and within the countries: this is considered to be influenced by the interaction of nutritional, anthropometric and environmental factors with the subjects genetic predisposition/susceptibility to hypertension³. Rising affluence has modified the dietary pattern characterized by increased consumption of diets rich in fat, sugar and calories. Furthermore, increasing population growth at the current rate of about 2% in each year and technological advances have shrunken the employment opportunities particularly among adult generation – leading to stress and hypertension in adults⁴.

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Hypertension is an iceberg disease and the many studies were conducted on hypertension prevalence in

many urban areas mainly in metro cities. As per my knowledge there is not much studies conducted in and around Eluru city regarding prevalence of hypertension more than 30 years age group and also association with anthropometric measurements. Hence, I have taken this particular study to find hypertension prevalence among 30 years and above age group and how the risk factors like anthropometric measurements associated with hypertension.

Objectives:

1. To find the demographic variable associated to hypertension among the urban population.
2. To study the anthropometric measurements associations to hypertension among the urban population.

MATERIALS AND METHOD

This was a community based cross-sectional study conducted among the adult individuals (aged ≥ 30 years) residing in the urban field practice area of a ASRAM Medical College, Eluru. The study has been conducted from June 2013 to June 2014 (including 6 months of field work) individuals above 30 years of age residing in the field practice area of ASRAM Medical College were included in the study. Systematic random sampling method was used for collecting the data. Based on JNC VII (3) criteria, a person was considered hypertensive if SBP ≥ 140 and/or DBP ≥ 90 mmHg and Persons already on anti-hypertensive treatment. A pilot study was undertaken by considering 50 subjects above 30 years of age in one of the urban field practice area and the prevalence of hypertension was found to be 25%. Based on the prevalence of hypertension in pilot study and also previous studies conducted in urban area sample size was calculated. Necessary statistical tests like simple proportions, Chi square tests and Z tests were used with 95% confidence intervals.

Table 1: Age and sex wise distribution of study population.

Age in yrs	Male	Female	Total
30-40	138 (52.5%)	125 (47.5%)	263 (100%)
41-50	76 (53.1%)	67(46.9%)	143 (100%)
51-60	37(52.8%)	33 (47.2%)	70 (100%)
>60	26 (45.6%)	31(54.4%)	57 (100%)
TOTAL	278 (52.1%)	255 (47.9%)	533 (100%)

In the present study, out of 533 sample 52.1% were males and 47.9% were females. 49.3% (263/533) of the study population in the age group of 30-40 years remaining 50.7% were in 40 years and above age group.

Table 2: Status of blood pressure and gender.

Sex	Hypertension	Normotension	Total
Male	74(26.6%)	204(73.4%)	278(100%)
Female	59(23.1%)	196(76.9%)	255(100%)
Total	133(24.9%)	400(75.1%)	533(100%)

$$\chi^2 = 0.861, df=1, p=0.35$$

The above table shows the percentage of hypertension among male subjects is 26.6% and female participants 23.1%. The association between hypertension and gender was not statistically significant.

Table 3: Distribution of study subjects according to blood pressure status with Body Mass Index (BMI)

BMI	Hypertension	Normotension	Total
< 18.5 under weight	12(13.3%)	78(86.7%)	90(100%)
18.5 to 25 normal weight	45(17.9%)	206(82.1%)	251(100%)
> 25-29.99	41(47.6%)	79(52.4%)	120(100%)
More than 30	35(48.6%)	37(51.4%)	72(100%)
Total	133(24.9%)	400(75.1%)	533(100%)

$$\chi^2 = 40.1, df=3, p=0.0001$$

Above table shows that prevalence of hypertension is increasing with increased BMI, in the present study hypertension was more in obese (48.6%) followed by those who were in overweight range (47.6%).

Table 4: Quantitative BMI estimation in relation to sex

Body mass index	Male	Female
Mean BMI	26.89 (N-278)	25.14 (N-255)
Standard deviation	5.71	5.7
Standard error	0.34	0.35

$$Z\text{-value} = 3.53, P < 0.004.$$

In the study population, the mean body mass index among males was 26.8 and females it was 25.14. The observed difference between the two means of sex and body mass index was statistically significant.

Table 5: Distribution study subjects according to blood pressure status with waist hip ratio (WHR) in Females.

Waist-Hip ratio	Hypertension	Normo-tension	Total
More than 0.85	38(64.4%)	21(35.6%)	59(100%)
Less than 0.85	19(9.6%)	177(90.4%)	196(100%)
Total	57(22.3%)	198(77.7%)	255(100%)

$\chi^2 - 40.1, df=3, p=0.0001$

The Above table shows association of hypertension with waist hip ratio in females ,of the total 255 females, 64.4% were found to be having hypertension with waist hip ratio more than 0.85 when compare to waist hip ratio less than 0.85 it was 9.6%. A statistically significant association was found between hypertension and waist hip ratio.

Table 6: Distribution study subjects according to blood pressure status with waist hip ratio in Males

Waist-Hip ratio	Hyper-tension	Normo-tension	Total
More than 1	26(26.8%)	71(73.2%)	97(100%)
Less than 1	44(24.3%)	137(75.7%)	181(100%)
Total	70(25.1%)	208(74.9%)	278(100%)

$\chi^2 - 0.209, df=1, p=0.648$

Above table shows in 278 males, 26.8% with WHR more than 1 were hypertensives and in WHR less than 1 in that 24.3% were hypertensives, as there was no much difference in males in relation to WHR and hypertension.

DISCUSSION

The present study was conducted to study the prevalence of hypertension in urban field practice area of ASRAM Medical College and to study some risk factors associated with hypertension. A total of 533 study subjects were selected comprising of 278 males and 255 females. Most of the study population belonged to age

group 30-40years.

In our study the overall prevalence of hypertension was found to be 24.9% These results were comparable to the rates obtained by shymal kumar etal ⁴ in his study titled ‘prevalence of hypertension in urban population of west Bengal, representing eastern India, where the prevalence of hypertension has been reported to be 24.9 in urban adults and also similar rate was obtained by renu rani etal ⁵ in his study titled prevalence of hypertension among adults in urban area of jammu in 30 years and above age group.

In the present study the prevalence of hypertension was found to increase steadily with age. In our study prevalence of hypertension was 11.4% in age group 30- 40.The prevalence in our study in age group 30-40 was compared to the Renu rani ⁵of hypertension in titled prevalence of hypertension among adults in urban area of Jammu reported a prevalence of 11.3% amongst 30-40 yrs age group. Study done in Delhi and adjoining rural areas of Haryana ⁶ showed the prevalence to be 4.1% (Males) and 2.84% (Females) in the age group 25-34 yrs which increased to 22.9% (Males) and 32.9% (Females) in the age group 55-64 yrs. The Jaipur urban study ¹⁷ reported a prevalence of 15.4% amongst <40 yrs age group, 34.7% between 40-49 yrs and 58% in the age group ≥50 yrs. Increase of prevalence with age is well documented, and this could be attributed to the accumulated effects of various risk factors.

The present study did not reveal any difference in the prevalence of hypertension between males and females (26.6%, 23.4%). Our findings were comparable to the studies by Hazarika et al in assam ⁷ Hussain S.A ⁸ in North-West Rajasthan, Anand M.P⁹ in Mumbai and Zachariah ¹¹ in the Urban population of Kerala, who found no difference in the prevalence between males & females. Study done by shyamal kumar das et al ⁴ in madala district kolkata shown high prevalence rate among males compare to females.

In our study, it was found that 48.6% of hypertensives had a BMI of ≥25 kg/m² compare to that of those who have less than 25kg/m². Framingham study showed that for every 10% increase in weight there was a rise of 6.5 mmHg in systolic pressure. The Jaipur urban (both sexes) and rural studies (only males). The Chennai urban population study¹⁰ as well as Bombay executive study¹³ have all shown a higher weight and BMI amongst hypertensive groups.

Wamala JF et al in their study on hypertension in Uganda found that Odds of subjects having BMI ≥ 30 developing hypertension was 5.07 times more than that of subjects having BMI < 25 . Shihab HM et al¹⁵ findings underscore the importance of higher weight and weight gain in increasing the risk of hypertension from young adulthood through middle age and into late life. S. Yadav, R. Boddula et al¹⁴ Study has found a high prevalence of pre-hypertension and hypertension was noted in affluent urban north Indians.

High WHR indicates central/abdominal obesity which is an important risk factor for hypertension, especially among the south-east Asian region.¹⁵ Central obesity raises blood pressure by increasing renal tubular reabsorption, impairing pressure natriuresis, and causing volume expansion due to activation of the sympathetic nervous system and renin-angiotensin-aldosterone system, and also by physical compression of the kidneys.

The findings of the current study are comparable to a study done by Mahmood SE et al in Bareilly where they found a WHR of more than 0.9 for males and 0.8 for females to be significant risk factor for hypertension. Similar results were also obtained by Prashant KR et al¹⁶ in Karimnagar where they inferred hypertension to be more prevalent in people whose WHR was more than 1 for males and 0.85 for females. In the present study a significant difference was found between waist hip ratio and hypertension in females where as in males it was not found. Study conducted by r guptha et al in jaipur¹⁷ found a significant relation of waist hip ratio with hypertension

SUMMARY AND CONCLUSIONS

A total of 533 adults above 30 years age group participated in the study. Of the total study participants, males were 278(52.1%) and females were 255(47.9%). The overall prevalence of hypertension in the study population was found to be 24.9%. With increase in age, increase in prevalence of hypertension was noticed ($p < 0.05$). The prevalence of hypertension was found to be highest (63.7%) in those between 40-50 years followed by the age group above 60. The association between hypertension and BMI was found to be statistically significant ($p = 0.001$). A significant difference was found between waist hip ratio and hypertension in females, where as in males it was not found. The prevalence of hypertension in this study was found to be 24.9%. BMI ≥ 25 in both males and females and increased waist-

hip ratio in females were identified as risk factors for hypertension.

RECOMMENDATIONS

The prevalence of hypertension in this study (24.9%) speaks about the alarming condition which needs to be effectively controlled by proper public health measures. In light of the finding of the present study the following recommendation are made regarding prevention and control of hypertension.

1. High risk screening is preferable to mass screening of population for early diagnosis of hypertension.

2. Primordial prevention can play a very crucial role in preventing the occurrence of hypertension. This can be achieved by inculcating healthy habits in children such as maintenance of ideal body weight according to their height and sex, normal BMI and maintenance of normal waist hip ratio. Primordial prevention should be a part of school health services involving active participation of teachers to prevent emergence of risk factors of hypertension.

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Efficacy of Inhalation Therapy in Bronchial Asthma in Children between (6-18 Years) of Age

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ABSTRACT

Asthma is a chronic disorder of the bronchial tree, characterized by completely or partially reversible airway obstruction, which may improve spontaneously or may subside only after specific therapy.

The aim of this study was to evaluate the efficacy of inhalation therapy in bronchial asthma in Children between (6-18 yrs) of age to find the frequency of its use, role of practitioners in prescribing inhalation therapy, role of inhaled steroids and B2 agonists, technique of using inhaler devices, & its continuances.

Material and Method : The study was conducted at the Department of Paediatrics, Muzaffarnagar Medical College & Hospital, Muzaffarnagar. A total of 150 children (6-18 yrs), presenting with bronchial asthma from June 2014 to December 2015 were taken up for the study. Detailed clinical history was taken, and general and systemic examination was done. All patients underwent relevant investigation.

Results : 127(84.6%) children were on inhalation therapy. Out of 127 we found 74 (58.3 %) children were regular using & 53 (41.7 %) were using only on demand. All patients were on beta-2 agonist inhalers at the dose of 400 mcg. The concurrent use of oral short acting B2 agonist and steroids was seen in 107 (84%) and 41 (32.2%) children respectively. Metered dose inhalers (MDIs) were most

frequently used inhaler devices in 100 (78.7%) cases, dry powder inhalers (rotahalers) in 27 (3.9%) cases and spacers by 11 (8.6) and Nebulizer by 5 (8.6%) cases respectively.

Conclusions: inhalation therapy was being prescribed in large number of asthmatic children.

The main reasons for ineffective inhalation therapy were, underuse of inhaled steroids, overuse of B2 agonists and incorrect use of inhaler devices. There is an urgent need to educate in regards to usefulness of inhaled steroids, as on demand use of B2 agonists, demonstration of correct inhalation technique to patients, use of spacer devices and peak flow monitoring.

Keywords : Bronchial asthma, Metered dose inhalers (MDIs), dry powder inhalers (rotahalers), Nebulizer.

INTRODUCTION

Asthma is a chronic disorder of the bronchial tree, characterized by completely or partially reversible airway obstruction, which may improve spontaneously or may subside only after specific therapy. Asthma is a chronic disorder of both children and adults, with 300 million

individuals afflicted worldwide (Global Initiative for Asthma (GINA) guidelines)^[1]. Although the prevalence of asthma has increased over the last decades, especially so in children^[2], there is still no sound explanation for this increase. Asthma symptoms include recurrent wheezing, coughing, chest tightness, and dyspnea, with nightly and early morning symptoms being more prevalent, whereby quality of life is often reduced^[3]. Symptoms of asthma may already occur early in life, with approximately a third of children wheezing during their first three years of life. In asthma and recurrent respiratory symptoms are

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variable with significant impact on quality of life. The interaction between clinical, functional and biological symptoms causes clinical manifestations of asthma severity and response to treatment [3]. The cornerstones of asthma management are drug therapy, in the form of inhaled B2 agonists as relievers, inhaled corticosteroids in variable doses as preventers and patient education, as has been recommended by various guidelines.^{1,2} Since airway inflammation plays a central role in the pathogenesis of asthma,³ the most effective long-term control medications for asthma are those that reduce inflammation. Inhaled steroids are the most potent anti-inflammatory medications currently available.^{4,5} General physicians, who still have reservations about prescribing inhaled steroids, initially manage most patients with asthma. The reasons for these reservations include simple lack of information about the role of inhaled steroids in asthma and “corticosteroid phobia”.⁷ Since inhaled B2 agonists provide quick relief the asthmatic patients tend to use it on a regular basis leading to its overuse and this coupled with underuse of inhaled steroids are the main causes of poor control of asthma.^{8,9} Unlike most forms of drug therapy, the success of inhalation therapy depends on the correct use of inhaler devices. The incorrect inhalation technique leading to suboptimal delivery of drug is an important cause of uncontrolled asthma. There have been very few studies from our country regarding the role of inhalation therapy in bronchial asthma.¹⁰⁻¹³ The present study was undertaken to assess the current status of inhalation therapy in asthma in Children.

AIMS & OBJECTIVE

Objective : The aim of this study was to evaluate the status of inhalation therapy in bronchial asthma in terms of frequency of its use, role of general physicians and general practitioners in prescribing inhalation therapy, role of inhaled steroids and B2 agonists, concurrent use of oral drugs, technique of using inhaler devices, use of spacer devices and peak flow monitoring.

MATERIAL AND METHOD

One hundred and fifty Children between 6-18 years of age coming in pediatrics OPD for Diagnosis & Treatment were enrolled in the study. The diagnosis of bronchial asthma was confirmed by history, clinical examination, chest radiograph and spirometry with reversibility test (12% increase in post bronchodilator FEV1 and 200ml increase in either FEV1 or VC). The subjects with insignificant reversibility were excluded

from the study. All the subjects were administered a questionnaire which included age, sex, user or nonuser of inhalation therapy, initial prescriber, drugs used, dosages and frequency of administration of B2 agonists and inhaled steroids, the reasons for discontinuation of inhaled steroids, concurrent oral administration of short acting B2 agonists and steroids, inhaler device used and its technique of administration, the source of learning the inhalation technique, the use of spacers and peak flow meters. The inhalation technique was checked personally by the authors and defined as correct or incorrect. The information provided by the patients was counterchecked from prescriptions, which was available with most of the subjects.

RESULTS

We enrolled 150 children for this study. Out of this 76 were boys and 74 were girls. The age group selected for this study was 6-18 yr.

Table 1: Use of β_2 agonists (n-127)

Using β_2 agonists	127 (100%)
Regular use	74 (58.3%)
As on demand use	53(41.7%)

There were 150 children (Male -76, Female- 74) with age groups between 6-18 yrs.

127(84.6%) subjects were using inhalation therapy, which was initially prescribed by treating physicians in 103(81%), general practitioners in 19 (15%) and chest physicians in 5 (4.85%) cases. All cases were on inhaled B2 agonist (salbutamol), out of which 74(58.3%) cases were taking it on regular basis and 53 as on demand basis (Table 1).

Table 2: Use of inhaled steroids (n-127)

Using inhaled steroids	72 (56.6%)
Discontinuation	26 (36%)
Reasons for discontinuation	
Not effective	20 (76.1%)
Contains steroids	6 (23%)

Inhaled steroids were prescribed in 72 (56.6%) cases, out of which 62 (86.1%) cases were taking it in the low dosage range. After using it for a period varying between 2-4 wks, inhaled steroids were discontinued in 26 (36%) cases. The reasons for the discontinuation were ‘not effective’ in 20 (76.1%) and ‘contains steroid’ in 6(23%)

cases (Table 2).

Table 3: Use of inhaled devices

Metered dose inhalers	100 (78.7%)
Dry powder inhalers	27 (39%)
Spacers	11 (8.6%)
Nebulisers	5 (3.9%)

Concurrent use of oral short acting B2 agonists and steroids was seen in 107 (84%) and 41 (32.2%) cases respectively. Regarding the use of inhaler devices, metered dose inhalers (MDIs) were used by 100 (78.7%) cases, dry powder inhalers (rotahalers) by 27 (3.9%) cases, spacers by 11 (8.6%) and nebulisers by 5 (8.6%) cases (Table 3).

Table 4: Source of learning inhalation technique

Peramedical staff	70 (55%)
Doctors	34 (26.7%)
Package insert instruction	23 (18%)

Technique of using MDIs was incorrect in 64 (64%) cases and rotahalers was being used incorrectly in 7 (25.9%) cases. The source of learning the inhalation technique was from paramedical staff (nurses and pharmacists) in 70 (55%) cases, from doctors in 34 (26.7%) cases and 23 (18%) from package insert instructions (Table 4). Only two patients (1.5%) were using spacers and all of the patients were using peak flow meters.

DISCUSSION

Asthma is one of the most common respiratory disorder and contributes to significant morbidity and mortality. A diagnosis of asthma should be suspected in patients with recurrent cough, wheeze, chest tightness and dyspnea, and should be confirmed using objective measures of lung function (spirometry preferred). Allergy testing is also recommended to identify possible triggers of asthma symptoms.

In most patients, asthma control can be achieved through the use of avoidance measures and appropriate pharmacological interventions. ICSs represent the standard of care for the majority of asthma patients. For those who fail to achieve control with low-to-moderate ICS doses, combination therapy with a LABA and ICS is the preferred treatment choice. The inhalation therapy

was being used by majority of asthmatic patients (86%) in our study and was prescribed most frequently by the treating physicians (87%) and general practitioners (15%). This reflects that over a period of time there has been an increased awareness regarding use of inhalation therapy amongst treating physicians and general practitioners who, most of the time manage asthma patients, before referring them to specialty clinics. All cases in the present study were on inhaled short acting B2 agonists (salbutamol) and amongst them a large number of patients were taking it on regular basis. The regular use of short acting B2 agonists does not benefit patients with any degree of asthma severity as compared with as on demand use.¹⁴ Moreover, the regular use of B2 agonists may enhance early and late response to allergens leading to decreased control of asthma.¹⁵ The appropriate use of inhaled steroids in long-term control of bronchial asthma has long been established in all levels of severity except for mild intermittent asthma.^{1,5,6} In the present study there were 72 cases (56.6%) on inhaled steroids and out of which 62 cases (86.1%) were taking it in the low dosage range, less than 500µgm/day, and 36% of patients discontinued inhaled steroids after using it for periods varying between 2-4 weeks for reasons being “not effective” and “containing steroids”. This signifies the underuse of inhaled steroids. The regular and more frequent use of B2 agonists, coupled with underuse of inhaled steroids are the main causes of poor control of asthma,^{8,9} and the same has been brought out in the present study.

The concurrent use of oral short acting β2 agonists along with inhaled B2 agonists has got no beneficial role in long-term control of asthma and instead will increase the side effects. A large number of cases, 107 (84.1%) were on oral short acting B2 against in the present study. Oral steroids in bronchial asthma are used for controlling moderate to severe acute exacerbation and some cases of severe persistent asthma which is unresponsive to maximal doses of inhaled steroids.^{1,2}

The commonly used inhalation devices in asthma are MDIs with or without spacer, dry powder inhalers which are single dose or multidose and nebulisers. The most frequently used inhalation device in the present study was MDIs followed by rotahalers with sparse use of spacers and nebulisers. Although MDIs have been the most popular inhaler devices, yet its effective use is limited by improper inhalation technique ranging from 24-67 percent in reported series.¹⁶⁻¹⁸ The technique of

using MDIs was incorrect in majority of cases (64%) in the present study. In comparison to MDIs, rotahalers are relatively simpler to use since these overcome the main hand- lung incoordination encountered in MDIs. The efficient use of rotahalers depends upon the generation of sufficient inspiratory flow so that the drug reaches the lungs in therapeutic amounts. In absence of inspiratory peak flow meters, a good inspiratory effort can be determined simply by observing the sound of rattling. Since the incorrect use of rotahalers, especially with regards to generation of adequate inspiratory flow, was found only in 25.9% cases in the present study, it may be suggested that rotahalers are more likely to be used correctly by patients than MDIs in India. Singh *et al*¹³ in a study of randomized comparison of rotahalers with MDIs with spacers in children, also observed that rotahalers are as effective as MDIs with spacers in view of its easier handling, low cost and equal efficacy. 55% cases learnt the inhalation technique from paramedical staff (nurses and pharmacists) and only 26.7% learnt the technique from doctors. The fact that most of the patients had improper inhalation technique,

Using MDIs with spacers overcomes the problem of hand-lung incoordination, increase the delivery of drug and decrease the unwanted drug deposition in oropharynx. Spacers use is especially recommended for inhaled corticosteroids in order to decrease the systemic side effects and reduce the risk of oropharyngeal candidiasis. In acute severe asthma, using MDIs with spacers is as effective as using nebulisers. The general physician must utilize the usefulness of using spacers with MDIs. However, there was an infrequent use of spacers in the present study. Peak flow monitoring provides objective assessment of the severity of bronchial asthma and has been recommended in assessment of moderate to severe persistent asthma.² all of the patients in the present study was being monitored by peak flow meter.

CONCLUSION

In conclusion, although inhalation therapy is being used in a large number of asthmatic patients, yet it has not been effective in controlling bronchial asthma. The main reasons for this ineffective control are underuse of inhaled steroids, overuse of B2 agonists and incorrect use of inhaler devices. Since majority of asthma patients are first seen by general physicians, there is an urgent need to educate them about the appropriate use of inhaled steroids, as on demand use of short acting B2 agonists,

avoiding the use of concurrent oral short acting B2 agonists, correct technique of using inhaler devices especially MDIs, usefulness of spacer devices and peak flow monitoring.

Ethical Clearance : Taken

Conflict of Interest : None

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Sonography in Dengue Fever: An Adjunct to Clinico-laboratory Profile

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ABSTRACT

Introduction: Dengue viral infection has emerged as a serious international public health threat with almost half of the world's population at risk. The objective of the following study was to describe the sonographic findings in dengue fever and to determine the role of ultrasound as an adjunct to clinical and laboratory profile in diagnosis of dengue fever (DF).

Methodology : Clinical, laboratory and sonographic findings of 126 patients who fulfilled standard serological diagnostic criteria for DF were collected, compiled and analyzed.

Result: Out of the 126 patients, 92 had gall bladder (GB) wall thickening (73.01%), 81 had ascites (64.28%), 32 had bilateral pleural effusion (25.39%), 25 had isolated right pleural effusion (19.84%), only 4 had isolated left pleural effusion (3.17%), 49 had hepatomegaly (38.88%), 27 had splenomegaly (21.42%), 2 had pericardial effusion (1.58%) and 12 had perinephric collection (9.52%). The sonographic abnormalities were significantly higher in patients with decreased platelet count with GB wall thickening seen in 96.55% of patients with platelet count of less than 50,000 along with ascites (84.48%) and pleural effusion (70.68%).

Conclusion: Sonography is a reliable tool for the diagnosis of plasma leakage signs in dengue viral infection before serological investigations become available, and may also predict the severity of the disease.

Keywords: *Dengue fever, Gall bladder wall thickening, Sonography in Dengue fever.*

INTRODUCTION

Dengue is the most important mosquito-borne viral disease affecting humans, with an estimated 3.97 billion people at risk in 128 tropical and subtropical countries.¹ Although the full global burden of the disease is uncertain; there are estimated 50–100 million cases every year with 500,000 people requiring hospitalization annually and about 2.5% of those affected die.² Dengue is one disease entity with different clinical presentations and often with unpredictable clinical evolution and outcome. The resurgence of dengue has been observed in India and dengue outbreaks have been frequently reported.

Despite two fifths of world population living in endemic areas, radiologic findings of DF have not yet been clearly elucidated in relation to clinical and serological findings.³

The aim of our study was to describe various sonographic findings in patients with DF, and to find out whether ultrasound is an adjunct to clinical and laboratory profile in the diagnosis and assessment of severity of DF by correlating sonographic features with platelet count.

METHODOLOGY

The present study was conducted prospectively at Sharda Hospital, School of Medical Sciences and Research, Greater Noida, during a dengue outbreak occurring between the months of June to November 2015. Patients above the age of 15 years, with clinically and serologically confirmed dengue virus infection, admitted in the medical wards of the hospital were included in the study. A positive serology was defined as the presence of IgM antibodies by ELISA at 5 or more days from the onset of fever with or without IgG antibodies. A structured proforma of detailed clinical and laboratory findings was filled in, including documentation of

platelet counts in each sero-positive patient. All patients underwent ultrasound scanning of both abdomen and thorax. The equipment used was Logiq P3 and Logiq 5Pro sonography machines using 3.5 MHz and 5 MHz probes as required for optimal evaluation. The spectrum of findings were recorded and analysed.

Gallbladder(GB) wall thickening was measured by placing the callipers between the two layers of the anterior wall(Figure 1) and wall thickness of >3mm in a well distended bladder was considered to be a positive finding. Thoracic scanning was done in either sitting or supine posture with both the pleural spaces being evaluated through an intercostal approach (Figure 2) . Liver measuring more than 15 cm and exceeding the lower pole of right kidney was taken as hepatomegaly. Spleen measuring more than 12 cm with rounded margins was taken as splenomegaly.⁴ Any free fluid in the Morrison's pouch, bilateral paracolic gutters and pelvis was labelled as ascites (Figure 3). Fluid in the retroperitoneal space was labelled as positive when visualized as perinephric anechoic rim of fluid on either side(Figure 4). Pericardial space was also evaluated for effusion subcostally.

All categorical variables were expressed as numbers and percentages.

RESULTS

240 patients were admitted to the hospital with a clinical diagnosis of DF, but only

126 patients have been included in this study as these cases fulfilled the standard serological criteria for the diagnosis of dengue infection.

Table 1: Incidence of different sonographic findings in patients with DF

USG findings	Number of patients	Percentage
GB wall thickening	92	73.01
Ascites	81	64.28
Bilateral Pleural effusion	32	25.39
Right Pleural effusion	25	19.84
Left Pleural effusion	4	3.17
Hepatomegaly	49	38.88
Splenomegaly	27	21.42
Pericardial effusion	2	1.58
Perinephric fluid	12	9.52
Normal	09	7.14

In our study, the commonest finding encountered on sonography was GB wall thickening which was present in 92 patients out of 126 included in the study, amounting to 73.01%, followed by ascites (64.28%) and pleural effusion (48.41%). Other common findings were hepatomegaly found in 38.88% and splenomegaly in 21.42% of patients. The less commonly seen findings were perinephric fluid (9.52 %) and pericardial effusion (1.58%). There were 9(7.14%) patients in our study who had normal sonographic evaluation.

Table 2 : Sonographic findings in different age groups

USG findings	Group I(15-30yrs)	Group II (31-45 yrs)	Group III (> 45 yrs)
Total	56 (44.44 %)	49 (38.88%)	21 (16.66 %)
GB wall thickening	39 (69.64 %)	38 (77.55 %)	15 (71.42 %)
Ascites	34 (60.71%)	39 (79.59 %)	8 (38.09 %)
Pleural effusion	29 (51.78 %)	23 (46.93 %)	9 (42.85 %)
Hepatomegaly	29 (51.78 %)	15 (30.61 %)	5 (23.8 %)
Splenomegaly	14 (25 %)	9 (18.36 %)	4 (19.04 %)
Pericardial effusion	0	1 (2.04 %)	1 (4.76%)
Perinephric fluid	3 (5.35%)	5 (10.2 %)	4 (19.04 %)
Normal	2 (3.57%)	5 (10.2 %)	2 (9.52 %)

We also mapped the various sonographic abnormalities as per different age groups as seen in Table 2. Note was made of pericardial effusion and perinephric fluid being commoner in older age groups when present.

Table 3: Distribution of sonographic findings with platelet count

USG findings	≤ 50,000/ cu mm	50,000-100,000/cu mm	>100,000/ cu mm
Total	58 (46.03 %)	49 (38.88%)	19 (15.07 %)
GB wall thickening	56 (96.55 %)	31 (63.26 %)	5 (26.31 %)
Ascites	49 (84.48 %)	27 (55.10 %)	5 (26.31 %)
Pleural effusion	41 (70.68 %)	17 (34.69 %)	3 (15.78 %)
Hepatomegaly	29 (50.00 %)	16 (32.65 %)	4 (21.05 %)
Splenomegaly	14 (24.13 %)	12 (24.48 %)	1 (5.26 %)
Pericardial effusion	2 (3.44 %)	0	0
Perinephric fluid	11 (18.96 %)	1 (2.04 %)	0
Normal	0	2 (4.08 %)	7 (36.84 %)

In our study, we saw clustering of ultrasound findings as the platelet count dropped. Also, the uncommon and grave findings like pericardial effusion and perinephric fluid were commoner with platelet counts \leq 50,000/ cu mm. There was no normal sonographic report in this group of patients.

DISCUSSION

In the last 50 years, incidence of DF has increased many fold. In developing countries, the risk of DF has increased due to rapid urbanization, life-style changes and poor water management. Poor water management is often coupled with lack of awareness in the general public about the breeding of mosquitoes and protection from their bites.⁵ DF starts during the rainy season when breeding of vector mosquitoes is generally abundant. Dengue cases are more during September to November in the post-monsoon season.⁶

Infection by any of the four dengue virus serotypes may be asymptomatic or lead to classic DF or more severe forms of the disease namely dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS).² The 2009 WHO revised criteria classify dengue virus infections into dengue with or without warning signs and severe dengue (dengue with severe plasma leakage, severe bleeding, or organ failure).⁷ Classical DF clinically manifests with sudden onset of high fever with chills, intense headache, muscle and joint pain, retro-orbital pain and severe backache. Fever usually lasts for about 5 days and rarely for more than 7 days. Severe form of DF is caused by infection with more than one serotype because the first infection probably sensitizes the patient while the second infection with a different serotype appears to

produce an immunological catastrophe.⁸ Early detection of DHF/DSS can go a long way in managing these patients and reducing morbidity and mortality, especially in DHF and DSS cases.⁹

Serology is the mainstay in the diagnosis of DF; however ultrasound can be of great value in the assessment of severity.

Ultrasound findings in DF include GB wall thickening, minimal ascites, pleural effusion and hepato-splenomegaly. Severe forms of the disease are associated with the collection of fluid in the perirenal and pararenal regions, hepatic and splenic subcapsular fluid, pericardial effusion, pancreatic enlargement and hepato-splenomegaly.¹⁰ However, in our study, we did not find hepatic and splenic subcapsular fluid and pancreatic enlargement even in severe forms of DF. In this regard, our findings corroborated with the study done by Santhosh *et al*¹¹.

GB wall thickening also occurs in association with other conditions such as ascites, hypoalbuminemia, congestive cholecystopathy and in patients with cirrhosis of liver and portal hypertension. It is a very non-specific finding when considered in isolation and is therefore a major limitation of this study.

Imaging features of DF such as GB wall thickening, ascites, pleural effusion, hepatomegaly and splenomegaly put together are reasonably accurate in the diagnosis of DF. This helps in starting appropriate management of the patient as soon as ultrasound is done, especially in centers where high end laboratory facilities may not be available for serological confirmation.

In a similar study conducted by Venkata Sai *et al.*, GB wall thickening was the most common finding (100%), followed by pleural effusion (93.1%) and ascites (53.2%).¹² Likewise, in our study GB wall thickening was encountered as the commonest finding (73.0%). But it was followed by ascites (64.2%) and pleural effusion (48.4 %). Thus our findings were more like that of the study done by Santhosh *et al* where they found GB wall thickening in 66.7% patients, 64.5% patients showed ascites and 50% patients had pleural effusion.

Furthermore, GB wall thickening, ascites, and pleural effusion were more common in patients with platelet count less than 50,000 in our study which too corroborated with the study done by Vedaraju *et al.*¹³ The severity of the course of the disease, which is directly linked to the platelet count, can also be fairly assessed by sonography. If a patient shows all ultrasound features associated with DF, there is a high probability that the platelet count is likely to be low.

The appearance of sonographic findings across age groups was also studied. Though we made a note that pericardial effusion and perinephric fluid were commoner findings in older age groups when present; the studies with bigger sample volumes need to be undertaken to better demonstrate the distribution of positive radiological findings in patients in different age groups.

So far not many studies have been done elucidating the role of sonography in dengue viral infection and thus more research is required for further validation.



Figure 1. GB wall thickening as measured by placing the callipers between the two layers of the anterior wall



Figure 2. Right sided pleural effusion (white arrow)

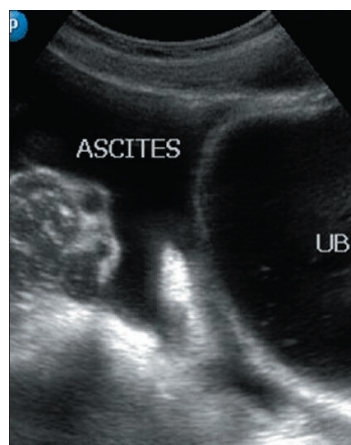


Figure 3. Ascites as seen in a patient with dengue fever

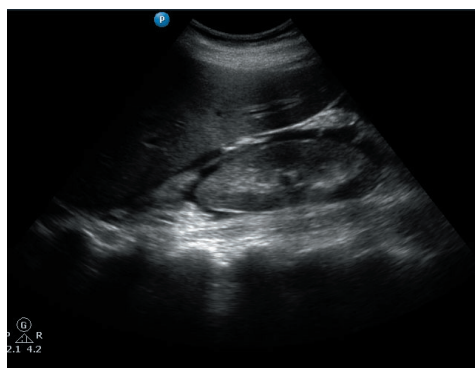


Figure 4. Perinephric fluid visualized as a thin anechoic rim around the right kidney

CONCLUSION

Ultrasonographic evidence of GB wall thickening, pleura-pericardial effusion and ascites are non invasive markers of DF and can be helpful before standard serological investigations become available. They can strongly favour the diagnosis of DF particularly during an epidemic and thus ensure timely intervention in order to reduce morbidity and mortality.

Furthermore, ultrasound also helps to assess the severity of the disease. The abnormal ultrasound features have a significant direct relationship with the degree of thrombocytopenia.

Conflict of Interest: None

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Reliability of Empowerment Module for Authorities, Community Leader, House Leader and Individuals in Action for Integrated Flood Disaster in Malaysia

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ABSTARCT

This research discussed the reliability of Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia. The study involved two phases of studies, Phase I: Development Module based on constructs Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster, and Phase II: Getting reliability value of Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster. Modular construction construct managed to build 10 strategies of Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster in Malaysia. 50 respondents were selected among authorities officer (Police, Army, health department, first aid department, community works, social workers from the relevant organizations of Kelantan, Malaysia for the reliability testing. The reliability showed high values which is .951. Results indicated that this research was successful generate the Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster with good reliability for the use in the flood management in Malaysia.

Keywords: *Analysis of content reliability; Empowerment Module Authorities (Police, Fire Brigade, Civil Defence Department, Rela and Army), Community Leader, House Leader and Individual; disasters; flood.*

BACKGROUND RESEARCH

Floods are the among the most frequent and costly natural disaster, conditions that cause floods include heavy or steady rain for several hours or days that saturates the ground. Flash floods occur suddenly due to rapidly rising water along a stream or low-laying area. [1] Flood disaster management shall address all aspects of loof management focusing on prevention, protection, preparedness, iculdingflood forecast and early warning system. Disaster management can be regarded as the reaction on an event, which is indicated by the response and recovery phase [2]

Floods have also occurred in areas, which were earlier not considered flood prone. The rivers bring heavy sediment load from catchments. These, coupled with inadequate carrying capacity of rivers are responsible for causing floods, drainage congestion and erosion of river-banks. Continuing and large-scale loss of lives

and damage to public and private property due to floods indicate that we are still to develop an effective response to floods. [3]

The use of an unstructured mesh enabled a detailed simulation of water flow within the narrow and winding alleyways of the village. The results of the simulations indicate agreement with the field observations. The implemented approach is suitable for simulating flash floods in similar contexts and, therefore, may be used to predict potential future events. [4]

Flood may be induced by a variety of factors, most notably heavy precipitation (intensity, duration, amount, or snow). In urban areas, flooding is induced by inadequate drainage, incompatible land-use practices, weak controlmechanism and high concentration of impervious surfaces which lead to remarkable increases in the volumes of runoff even at the instance of a little downpour of a short duration. [5]

Learning to live with flood requires learning to manage flood recovery. While in the United Kingdom much attention has been given to improving preparedness to flood events – from more sophisticated warning systems to the development of flood event planning – we bring attention to in-depth research on the processes of recovery and the challenges of addressing what we call the flood ‘recovery gap’. A growing body of research has documented the social, economic and health impacts of flooding, and the relationship between social and physical parameters of community resilience and preparedness.^[6]

STATEMENT OF PROBLEM

Flooding is a serious problem because it can impact the loss of habitat, destruction of property, disruption of daily activities and may also cause accidents or death due to drowning. Incidents often occur when heavy rains and monsoon floods that occurred tiba. In December 2014 in the state of Kelantan is one of the worst compared to 1967 and 1971. Flood victims left homeless and floods swept away. The daily routine was also disrupted and had to move to temporary shelters. Therefore, the issue of flooding is an issue of national security.

The impacts of major floods in Europe may increase considerably in the future, since society is becoming more vulnerable to the damage and disruption caused by floods, and because floods may become more serious and more frequent due to climatic changes.^[7]

In Malaysia, there are many parties involved in the mission to provide assistance to flood victims. Although many programs managed by the National Security Council (NSC) and non- governmental organizations (NGOs) but it’s still not enough. Thus, the module Empowerment Authorities, Community Leader, House Leader and Individuals In Action Integrated Flood Disaster Malaysia is complementary to existing approaches. Furthermore, this study is an empirical to find the reliability.

RESEARCH METHODOLOGY

The study design was descriptive quantitative study. The aim of the study is to obtain the descriptive of Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia reliability. The study involved two phases:

Phase 1 : Construction Sub Module

Phase 2 : Getting Value Analysis Reliability

Phase 1 : Construction Sub Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia

Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia, is developed based on in-depth study of literature through reading books, previous studies, articles and journals related. Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia built by Digital Disaster Management in Malaysia by the National Security Council (NSC) . Collection and retranslation of relevant information was done in this phase.

Phase 2: Getting Value Analysis Reliability

After getting the validity of Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia, reliability testing carried out to obtain the reliability that has been built for the purpose of effective flood nmanagement strategies. Davidshover and Murphy (1998) noted that the reliability is used to measure the effects and psychological inconsistency of enlightened greater.^[8] The researchers distributed questionnaires to 50 respondents, consisting of officials from agencies such as the police authorities, civil defense. Data retrieval is then analyzed using SPSS for Alpha value for the reliability of Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia

RESEARCH TOOLS

A questionnaire was designed to obtain reliability of the module. The questionnaire contains a joint strategy executed activities. Statements submitted are different and more focused on the objectives of each of the strategies and activities undertaken. The questionnaire consists of 29 items have options to use a four-point Likert scale of Strongly Disagree (1) Disagree (2) Disagree (3) and Strongly Agree (4) to measure the participant’s consent to the activities carried out .

The questionnaire is divided into two parts. The first part, part A related personal information of participants. This section contains questions relating to personal

information manager that needs to be answered. The personal questions related to gender. The second part of section B related to inventory in accordance with a scale of four points likertlikert Strongly Disagree (1) Disagree (2) Disagree (3) Strongly Agree (4). This inventory consists of 87 items and participants only need to mark (/) in the field provided by simply selecting an answer based on a Likert scale was prepared .

LOCATION OF STUDY

Site selection is made based on the stage of feasibility study population contained in these locations to meet the requirements of the study. At the level of reliability, Holiday Villa Hotel, Kota Bharu , Kelantan.Lokasi have been based on the facilities available in the area. With comprehensive facilities available, the process for carrying out activities based on KPPBB be carried out to foster the development of the group and each member of the joint. The subject of the treatment groups can attend easily and voluntarily according to a predetermined schedule

SURVEY RESPONDENTS

Respondents reliability study consisted of participants peseta involving officials from agencies such as the police authorities, officer (Police, Army, health department, first aid department, community works, social workers, respondents were 50 people selected for the reliability of the module selected respondents ini.Kesemua is made up of officials in each agency are classified as simple demographics .

STUDY RESULTS

Findings of Phase 1 : Construction Sub Module

The results are shown in Table 1 of Reliability;

Table No: 1- The coefficient of reliability of sessions and activities of Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia;

STRATEGY	ACTIVITY	RELIABILITY COEFFICIENTS
ORIENTATION AND BULIDING NETWORK	Orientation and building network to	0.915
	Developing gosls toghater and knowing the common goals.	0.849
	Identify the agencies	0.883
INTRODUCTION FOR FLOOD ISSUES	Raising issues related flood. Definiation, concept and cases in situation	0.884
	experiences with agencies in flood disaster; agency authority and support agencies	0.929
	Coodination and and disaster management in Malaysia.	0.865

Construction of Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia based on the literature review and information from reference materials such as articles, books, journals, and previous studies from inside and outside the country to get in-depth information relating to the definitions and concepts. So from that source, then have built Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia, containing 10 key strategies and involve 27 events.

Findings of Phase 2: The Reliability of Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia.

The second phase was carried out to find out the reliability. Data obtained from the pilot study were analyzed using SPSS software. Reliability is often referred to for stability and consistency in a construct. The reliability obtained by using the subject of a total of 50 respondents among officials from agencies such as the authorities; police authorities, ATM, Fire and Rescue Department, Civil Defence and community workers, social works, respondents to obtain data reliability. Reliability refers to the degree of consistency of a certain instrument when used repeatedly on the samesubject. Mohd Majid stated that the alpha Cronbach method is a widely used statistical tool tostudy the reliability of a certain research questionnaire. The alpha value indicates the direction to thedegree of the reliability of a questionnaire. [9]

Cont... Table No: 1- The coefficient of reliability of sessions and activities of Empowerment Module for Authorities Community Leader, House Leader and Individuals in Action Integrated Flood Disaster Malaysia;

PROGRAM WARENESS AND PRE FLOOD PRAPERDNESS	introducation related the significant about pre flood praperdenss	0.887
	corrination of special invloved agencies.	0.863
	Basic set up for flood disaster risk issues, and early action and solution guide.	0.898
WORKSHOP RELATED PRE-FLOOD SUPPLIES	workshop to invloven Special Task agency preparation of Pre-flood:	0.891
	workshop on risk assessment and general set up iessues in early action and guide for handling and settlement.	0.905
INTERAGTED ACTION DURING FLOOD	Interagted action during flood between, Ancy Authority and Support agency	0.835
	coordination of the National Security Council and the specific responsibilities	0.917
	preparation against risk overview and current issues in flood with agency solution guide	0.855
	Guide to handle the issues and current risk of the situation	0.918
WORKSHOP TO FACE FLOOD ISSUES IN MALAYSIA	introduction of flood disaster issues in Malaysia	0.919
	Workshop on coordination of among all agencies during flood disater in Malaysia	0.902
	Flood disaster prepardness in Malaysia	0.936
POST FLOOD ACTION,WELFARE MONITORING OF FLOOD VICITMS	Post flood actions and Welfare monitoring of flood victims	0.914
	Workshop of post flood action and welfare monitoring of flood victims	0.930
	Early action for related post flood issues and flood victims welfare monitoring	0.941
POST-FLOOD ACTIONS: CLEANING, RESORATION, PSYCHOLOGICAL HEALTH AND PARPORTIES ISSUES	introducation of Post-Flood issues and action for cleaning, resoration, rehabilitation, psychological health and financial issues	0.917
	Workshop on Post-Flood action;l cleaning, restoration, psychological health and financial issues	0.905
	Preparatory action of Post-Flood; cleaning, restoration, psychological health and financial issues	0.891
SIMULATION OF FLOOD PREPAREDNESS	Introduction of Flood Simulation Setup	0.880
	workshop on Flood Simulation Supplies	0.915
	Flood Recovery Setup	0.925
STANDARD MONITORING AND EVALUATION OF THE EFFECTIVENESS OF MEASURES FLOOD	Introduction Standard Monitoring and Assessment of Effectiveness of Flood Disaster.	0.900
	find out the Standard Flood Management Level Monitoring and Assessment of Effectiveness of Flood Disaster Action ;	0.919

The comparison is made between these activities, the results of the analysis showed that the highest reliability coefficient is 0.941 for Activity 3: Setup Post-Flood Action; Welfare Monitoring Flood Victims contained in the Strategy 7 : Post-Flood Action ; Welfare Monitoring Flood , followed by Activity 3 : Disaster Preparedness Floods in Malaysia which recorded the coefficient of 0.936 . These activities are set forth in Strategy 6 : Workshop on Flood Disaster in Malaysia . The third highest value of the coefficient is 0.930 for Activity 2: Workshop on Post-Flood Action; Welfare Monitoring Flood Victims on the Strategy 7 : Post-Flood Action ; Welfare Monitoring Flood Victims .

While the lowest coefficient is 0.835 for Activity 1: Introduction Integrated Action During Flood Authority and the Agency on the Agency Support Strategy 5: Integrated Action During Floods and followed by Activity 2: Build on the goal of the Joint Strategy 1 : Familiarization and aim to have a coefficient of 0.849 . In summary, both these activities have a high reliability value and not less than 0.60. This suggests that both of these activities have a fairly good level of consistency. However, both these activities can still be improved and streamlined in terms of reliability.

Results revealed the high reliability of the module content and formulation. The research indicates that the module meet the current need of Malaysian issues related flood disaster management.

DISCUSSION

Study module Empowerment Authority could pose major implications for flood management in Malaysia. This module is suitable and can be used as a tool that can assist agencies in managing floods kerajaan sera find solutions that are more integrated.

Present evidence suggests that Modular instruction should meet the needs of today's sociality more adequately than traditional instruction both with respect to the quality of management and the content. ^[10] Based on the findings, module Empowerment Authority have good reliability and value received. This proves that the module can be used in the actual field. According to Majid, ^[11] the reliability coefficient of 0.60 or more is good and acceptable as is Cohen 's Kappa coefficient 0.70-0.89 value is set high .

STUDY IMPLICATIONS

The implications of this research focus on theoretical and practical aspects of flood management in Malaysia, the module Authority Empowerment, Community Leader, House Leader and individuals in Action Integrated Flood Disaster in Malaysia. In addition, this module of Empowerment Authority has shown to have a high reliability.

Thus , the implication of this study is to provide a module for theoretical and practical studies on behalf of the Ministry of Education , Science and counseling and empowerment of local authorities (Police , Fire Brigade, Civil Defence Department, community worker social worker, and Army), Community Leaders , Chairman and Individual Houses Action in Integrated Flood Disaster Malaysia to obtain a significant effect and lead to success on flood management in Malaysia.

CONCLUSION

Overall, this study successfully built and successfully tested module Empowerment Authority gain credibility with the good reliability and acceptable. Thus, module Empowerment Authority can be adopted by local authorities in coordinated action to deal with the floods in Malaysia.

Ethical Concern: Research has been reviewed by ethical committee of Psychology and counseling department. Research was done under Fundamental research grants in Malaysia.

Conflict of Interest: No Conflict

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A Study of Seizures in Children and their Correlation with Various Types of Ring Lesions found on Cranial Computed Tomography

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ABSTRACT

Introduction: A ring enhancing lesion in brain imaging is a common feature in the Indian subcontinent. The size, shape, wall thickness of ring-enhancing lesions and extent of surrounding edema, and importantly, clinical history and age of the patient may help to distinguish the etiology.

Objective: To study the clinical profile of children having seizures and their correlation with ring lesions including their type, number and size.

Material & Method: The study was conducted at the Department of Paediatrics, Muzaffarnagar Medical College & Hospital, Muzaffarnagar. A total of 117 children (1-18 yrs), presenting with different types of seizures from April 2014 to June 2015 were taken up for the study. Detailed clinical history of seizures was taken, and general and systemic examination was done. All patients underwent hematological & biochemical investigations, chest xray, Montoux test and cranial computed tomography.

Results: There was male predominance in the study(51.15 %). Complex partial seizures was the most common type (53.27%). Majority of the lesions were single(37.38%) with the parietal lobe being the commonest site of occurrence(33.64%). The commonest etiology was neurocysticercosis (51.41%) followed by tuberculoma(6.55%).

Conclusion: We can conclude that the most common cause of ring enhancing lesion on cranial CT in 1-18 yrs of children is neurocysticercosis followed by tuberculoma.

Keywords: Partial seizures, Ring enhancing lesions, Neurocysticercosis, Tuberculoma

INTRODUCTION

Seizures are quite frequently encountered in Pediatric practice, about 5% of children experiencing seizures up to age of 5 years¹. The incidence is highest in children younger than 3 years of age, with a decreasing frequency in older children². Epidemiologic studies reveal that approximately 1,50,000 children will sustain a first-time, unprovoked seizure each year, and of those, 30,000 will develop epilepsy³. Seizures are caused by a number of

conditions, and in such cases, a clinician, often has to get several investigations done to determine the cause of seizures. Cranial computed tomography (CT) is one of the common investigations in an attempt to arrive at an etiological diagnosis in such a case^{5, 6}. While in several cases of seizures no cause is ascertained, in an appreciable numbers of cases, ring lesions can be detected on cranial CT. These lesions may be more than one in number but are often seen as a single, small well defined ring lesion in the supratentorial region of brain⁷. These lesions are often enhancing on contrast but some may be non-enhancing too. These ring lesions may be caused by a variety of diseases, which include neurocysticercosis (NCC)⁷⁻¹¹ and tuberculoma¹²⁻¹³. Some other uncommon causes are pyogenic abscess¹⁴, histoplasmosis, blastomycosis,

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sarcoidosis¹⁵, post infectious vasculitis, primary & secondary brain tumors¹⁶ & vascular malformations⁸. The present study is aimed to study the clinical profile of the children coming with various types of seizures. Besides this, our endeavor was to find a correlation between various types of enhancing and non-enhancing ring lesions detected on cranial CT and childhood seizures in this part of the western Uttar Pradesh.

MATERIAL AND METHOD

The study was conducted at the Department of Pediatrics, Muzaffarnagar Medical College & Hospital, Muzaffarnagar. A total of 117 children ranging between 1 year and 18 years, presenting with different types of seizures from April, 2014 to June, 2015 were taken up for the study. The cases were taken from the outpatients as well as from the inpatients department of the hospital. Known epileptics already on antiepileptic drug prophylaxis and patients with known neurological diseases like congenital malformations of CNS, pre-existing hydrocephalus, cerebral palsy, neurodegenerative disease, meningitis encephalitis and head injuries etc. were excluded from the study.

A detailed history of the patients was taken with emphasis on seizure related events. Details of the seizures with regard to the type, frequency, duration, evolution & sequence were noted along with any visual or auditory symptom, other focal deficits or behavioral abnormalities preceding and following the seizures. Other CNS symptoms like nausea, vomiting, headache and other motor and sensory symptoms were also noted. A detailed general and systemic examination including a complete neurological examination with fundoscopy was conducted

in each case and abnormality if any was noted. Patients were then investigated to screen cases to rule out any pre-existing disease. Besides the cranial C.T., following investigations were done in each case: complete blood examination, urine routine and microscopic examination, tuberculosis screen (Montoux test, chest x-ray-PA view) and stool test.

OBSERVATIONS & RESULTS

Observations of the present study are depicted in the tables given below -

Table : 1 -General variables of the cases

Variables		Number of Cases	(%)
Age distribution	< 5 years	19	17.76
	5 – 12 years	64	59.81
	> 12 Years	24	22.43
Sex distribution	Male	59	51.15
	Female	48	44.85
Religion	Hindu	60	56.07
	Muslim	47	43.93
Dietary habits	Vegetarian	62	57.94
	Non-vegetarian	45	42.06

Age distribution as shown in table 1, shows that majority (59.81%) of the patients were between 5 and 12 years of the age, while only 19 (17.76%) patients were below 5 years of age. Male & female patients were almost equal in number. Though Hindu patients outnumbered Muslim patients, the latter constituted a significant part. Majority (57.94%) of patients were vegetarian but there is no history of pork eaters among the non-vegetarian group.

Table: 2 – Symptomatology of cases

		Number of Cases	%
Seizure frequency in patients	1	49	45.79
	2	26	24.31
	3-5	28	26.16
	> 5	04	3.74
Type of seizure	Simple partial	12	11.22
	Complex partial	57	53.27
	Partial with sec. gen.	06	05.61
	Generalized	30	28.04
	Absence	02	01.86
Duration of seizures	< 5 minutes	15	14.02
	5 – 15 min.	88	82.24
	> 15 min.	04	3.74
Other symptoms	Fever	14	13.08
	Headache & vomiting	68	63.55
	Loss of consciousness	13	12.15
	Frothing from mouth	12	11.22

Single episode of seizure occurred in 45.79% of patients enrolled in this study. Complex partial seizures was the most common type of seizure, observed in 53.27% of the patients, while generalized seizures was the second commonly observed type, seen in 28.04% of the patients enrolled in our study. Majority of the cases had a duration of the seizures between 5-15 minutes, observed in 82.24% of the patients. Other symptoms observed in the patients were headache & vomiting (63.55%) followed by fever and loss of consciousness; frothing from mouth was found only in a few patients.

Table 3: Examination findings of cases

		Number of Cases	(%)
General examination	Pallor	58	54.20
	Lymphadenopathy	6	5.61
	Hepatomegaly	8	7.48
	No findings	35	32.71
CNS examination	Nerve palsy	01	0.93
	Papilledema	38	35.52
	Brisk reflexes	06	5.60
	Extensor plantar	02	1.89
	Motor weakness	00	00
	No findings	60	56.09

On general examination as shown in table 3, pallor was the most frequently observed sign (54.20%). On CNS examination, 35.52% of the patients had papilledema, but majority of the cases showed no central nervous system (CNS) abnormality.

Table 4: CT findings of the patients

		Cases	(%)
Number of lesions	01	40	37.38
	02	18	16.82
	> 2	04	3.74
Location	Frontal lobe	16	14.96
	Parietal lobe	36	33.64
	Frontoparietal lobe	01	00.93
	Temporal lobe	04	03.74
	Occipital lobe	03	02.81
	Periventricular	01	00.93
	Cerebropontine angle	01	00.93
	No findings	45	42.06
Other features	Edema	54	50.47
	Calcification	19	17.76
	No findings	34	31.77
Etiology	Neurocysticercosis	55	51.41
	Tuberculoma	07	06.55
	Brain Tumour	02	01.87
	Obstructive hydrocephalus	01	00.93
	Schizencephaly	01	00.93
	Undetermined etiology	41	38.31

As shown in table 4, 37.38% of patients had a single enhancing lesion on CT. Majority of the patients had a lesion reported in the parietal lobe followed by frontal lobe. Other features of lesions were surrounding edema followed by calcification. Most of the patients were diagnosed as a case of neurocysticercosis followed by tuberculoma.

DISCUSSION

The present study focused mainly on two aspects, viz. profile of children having seizures and secondly, the ring lesions found on radiological imaging, along with their correlation with the types of seizures. The finding of the study are discussed below.

Age of onset of seizure in our study was 5-12 years (59.81%). In a study by Adhikari et al¹⁷, maximum cases of seizures were seen in an age group of 11-15 years. Another study by Bhaskar et al¹⁸, of 50 cases of the seizures found that the most number of children were encountered in the age group of 6 to 10 yrs. Shrestha et al¹⁹, Duggan et al²⁰, also reported similar age of onset of seizure. This shows that the age distribution in our study was not much different from the other studies on this subject.

Our study like most of other previous studies (Jain et al²¹, Adhikari et al¹⁷, Shrestha et al¹⁹) finds that the seizures were more commonly seen in male sex as compared to females. Majority of the patients in our study were Hindu (56.07%) though the Muslims were in sizable number. A study done in North India by Kumar et al²², also stated that most of the patients belonged to Hindu religion.

In our study, none of the patients had a history of pork consumption. Vegetarian were 57.94% with 42.06% patients being non-vegetarian. In a study by Kumar et al²², out of 79 children with seizures, vegetarians were 73.4% and non-vegetarian 26.6%.

Majority of the patients in our study had a single episode of seizure (45.79%). Patients having more than 5 seizures were only 3.74% of the total patients. Duggan et al²⁰ studied 440 seizure patients, among these, 23% had single episode of seizure while 8% had more than two seizures per day. Complex partial seizures were the most common seizures in our study (53.27%). Previous workers (Kumar et al²², Puri et al²³, Thakur et al²⁴, Jain et al²¹) also found that partial seizures were the most common type.

Majority of the patients had a single lesion (37.38%) on cranial CT in our study. In another study on Indian patients by Bhaskar et al¹⁸, out of all patients with ring enhancing lesions, 81.25% presented with single lesion, 9.38% presented with 2 lesions and 9.37% had multiple lesions. Lesions were located in parietal lobe in 33.64% of the cases followed by frontal lobe in 14.95% of cases in our study. Shrestha et al¹⁹, found that most of the lesions were single, predominantly in the parietal region (40.8%). Three other Indian studies done by Garg et al²⁵, Barnwal et al²⁶ and Singhal et al²⁷, have also reported the same findings that parietal lobe is the most common site of involvement.



Figure 1: CT Cranium showing a ring enhancing lesion with eccentric nidus and surrounding edema in left parietal region.

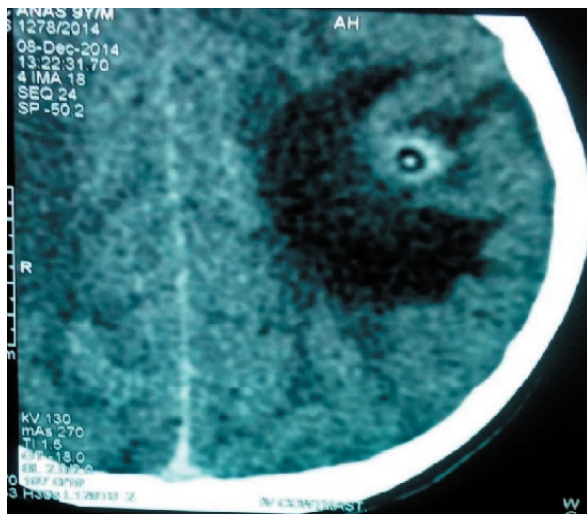


Figure 2: CT Cranium showing two ring enhancing lesion with surrounding edema in frontal region.

The most problematic work in the present study was the labeling of etiological diagnosis of the lesions found on brain imaging. While it may be relatively easier in

some cases to differentiate between the lesions of NCC and tuberculoma, this may not always be so easy. The size, shape, wall thickness of ring-enhancing lesions, the extent of surrounding edema, and importantly clinical history and age of the patient taken into consideration may help to distinguish the condition. In neurocysticercosis, the radiological findings are suggestive of cystic hypointense lesions, without surrounding edema or enhancement correspond to viable cysts. Cystic hypointense lesions with surrounding edema or enhancement correspond to early degenerating phase and calcified nodules to the residual phase. Of these findings cystic lesions with visible scolex and multiple punctuate calcification are the most characteristic of NCC.

In tuberculoma, the ring enhancing lesion on CT appears as solid enhancing, ring enhancing or mixed lesions. On occasion there is a central calcification surrounded by a hypointense area with peripheral ring enhancement (target sign). This pattern is highly suggestive although not pathognomonic of tuberculoma. Other pathological & radiological investigations to differentiate the tuberculoma from NCC are chest x-ray, Mantoux test and erythrocyte sedimentation rate (ESR) along with a detailed clinical and family history. In majority of the patients in our study we found that commonest cause of seizure with ring enhancing lesion in our studied population was neurocysticercosis (51.41%), followed by tuberculoma. In a study by Rudresh et al²⁸, 52% of the cases were neurocysticercosis and tuberculoma in 20% of the cases, brain tumors constituted 8% and brain abscesses made up 6.6% of the cases. This study also found ring lesions in a few cases of vascular lesions and toxoplasmosis. In study by Bhaskar et al¹⁸, 82% children had a single ring enhancing lesion on the CT scan brain with NCC in 63.41% and tuberculoma in 9.75% of cases. In a study by Mathew et al²⁹, of small single enhancing lesions, the diagnosis done by biopsy showed that 25% were NCC, 20% non specific parasitic granuloma and 52% showed nonspecific inflammatory changes. Prasad et al³⁰ also concluded that NCC is the most common parasitic infection of CNS and identified as the most important cause of acquired active epilepsy.

CONCLUSION

We can conclude that the most common cause of ring enhancing lesion on cranial CT in 1-18 years of children is neurocysticercosis followed by tuberculoma.

Conflict of Interest: None

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Ethical Clearance: Taken from ethical committee of the institute

Acknowledgement: Nil

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Assessment of Patient Satisfaction with Various In-Patient Services at a Tertiary Care Facility in Amritsar

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ABSTRACT

Objective: As the patients become more aware of their rights and desire a higher quality of care, hospitals need to assess the levels of patient satisfaction with various services. Realizing the need, this survey was conducted to find the lacunas within various in-patient services at a tertiary-care corporate hospital.

Material and method: A cross-sectional descriptive survey was conducted using a structured questionnaire. Percentage scores and weighted averages were calculated for individual parameters and total overall experience.

Results: Amongst all the in-patient services, overall satisfaction was highest (99%) for admission services and lowest (88%) for accommodation and physical facilities. It was found that level of satisfaction for the different nursing services was higher than for the physician services. It was also seen that demographic factors like age, sex, income and education had an influence on patient satisfaction.

Conclusion: Quality improvement in a healthcare organization is possible only if we are aware of the various deficiencies that exist in relation to the provision of services. This study has highlighted various shortcomings across a variety of services, which can act as a springboard to initiate positive change.

Keywords: *Patient satisfaction, quality, person-centered, deficiencies, positive change.*

INTRODUCTION

“The customer’s perception is your reality”¹, this is as true for healthcare services as it is for any other service sector. Since patient or ‘customer’s’ expectations about healthcare are antecedents to patient satisfaction², ignoring this very important aspect could be akin to performing corporate hara-kiri.

‘Patient satisfaction’ is a very subjective and elusive concept, and therefore quite hard to define, measure and interpret³⁻⁴. This term can be interpreted in different ways by patients and its meaning can differ for one patient at different times⁵⁻⁶. Linder-Pelz, in her review tried to define patient satisfaction as, “positive evaluations of distinct dimensions of the health care”⁷.

Plato recognized significance of patient satisfaction about two millennia ago when he said that since a doctor “cuts us up, and orders us to bring him money... as if he were exacting tribute... he should be put under ridged

control” and in order to do this an assembly of people should be called to give their opinion about “disease and how drugs and surgical instruments should be applied to the patients”⁸.

Financial survival and patient satisfaction have become indivisible today⁹. Javetz and Stern have attributed the growing attention towards quality improvement to three trends: increase in competition (a shift from competition based on price to competition based on quality¹⁰); growth of private health services; and a growth in consumers’ awareness of their rights¹¹. Patient is no longer a passive receiver of healthcare, but has become an equal partner in the planning, development and assess of care, and this is the reason why person centered approach has gained ground¹². It is well known by now that organizations that lay emphasis on customer satisfaction are able to build loyal clients who then promote the organization through positive word-of-mouth¹³.

Evaluation of patient satisfaction is a valuable tool

to significantly and continuously improve the quality of care, augment strategic decision-making, reduce cost, meet patients' expectations, develop programs for effective management, manage performance and standardize services¹⁴. Probably the primary reason to conduct such surveys is that they provide a means to identify and resolve potential deficiencies before they become serious.

This study was conducted focusing on gathering and analyzing patient satisfaction data regarding various aspects of services delivered to the in-patients. The study was conducted in a corporate multi-specialty hospital with super-specialty in cardiac care. The hospital emphasizes on critical care, which is crucial to patients' recovery through advances dedicated ICUs for all specialties.

MATERIAL AND METHOD

Research model: A cross-sectional descriptive survey was conducted to assess the level of satisfaction regarding the different aspects of in-patient services.

Target Population: The target population for this research paper comprised of patients admitted to a more than 150 bed, super-specialty healthcare facility located in Amritsar. A total of 100 patients were chosen randomly for the study based on pre-determined inclusion criteria. Inclusion criteria comprised of four elements: patients above 15 years of age; patients who can understand Punjabi, Hindi and English; patients of sound mental health; and those admitted to the hospital for at least 3 nights.

Instrument of data collection: The instrument used was a questionnaire, hand delivered to the patients. It incorporated 47 items under 8 different categories. Most items were scored on a five-point Likert Scale with responses ranging from completely satisfied (1point) to completely dissatisfied (5 points).

Data Analysis: Satisfaction survey data based on Likert scale from 1 to 5 was collated and percentage scores and weighted average for individual parameters and total overall experience was calculated. Weighted average (WA) was calculated using the formula $X_1W_1+X_2W_2+\dots+X_nW_n$ divided by the total number of responses (n); X here represents weight of the answer choice and W represents the response count for each answer. Lower the value higher is the level of satisfaction.

FINDINGS

Table1 about here?

In the present study data analysis was done for 100 patients. Majority (90%) of the patients were above 45 years of age and 65% were males. Almost half (48%) of the patients were secondary school graduates. Most of the patients (78%) had a family income between 1-6 lakh rupees.

Figure1 about here?

The level of overall satisfaction with various in-patient services, as depicted in figure1, was highest (99%) for admission services, followed by discharge, nursing and nutrition services. Accommodation and physical facilities fared somewhat lower (88%).

Table2 about here?

Patients were quite satisfied with almost all the admission services, however, the level of satisfaction with wait time was highest (97%) and was somewhat lower (92%) for the intra-mural transportation services to the room. The level of Satisfaction with the discharge services was 98% for the clarity and understandability of the bill and 94% for aftercare instructions.

Table3 about here?

More than 10% of the patients were not quite satisfied with nurse's response to patients' needs and call light. However, levels of satisfaction with different physician services were, on an average, found to be lower than that for the nursing services.

Table4 about here?

Among the nutrition services patients were highly (92%) satisfied with dietary counseling and less so with the temperature of the food. As represented in table4, 10% and more patients were somewhat dissatisfied with comfort, cleanliness and quietness of their surroundings.

Figure 2 and 3 about here?

Demographic factors had some bearing on the overall satisfaction levels of the patients. Younger patients, less than 30 years of age, were more satisfied with hospital's in-patient services than patients in the older age groups. Males were more satisfied than females. The levels of satisfaction amongst people who had attained higher education and

who had a higher income were lower than others.

Figure 4 and 5 about here?

DISCUSSION

Patient satisfaction surveys are objective methods to understand the patient’s perception of quality. They help to reveal how diligent is the healthcare organization in providing its many services and give a valuable insight into the kind of changes required to close the gap between ‘care provided’ and the ‘care that should be provided’¹⁵.

As is evident from the results, most of the patients were poorly educated, middle-aged men and women belonging to middle-class backgrounds who availed the expensive services. This could be either because of the popularity of the specialists in and around Amritsar or the state-of-the-art facilities.

It is believed that the unnecessary delays in discharge, although seldom, could be due to a lack of coordination among pharmacy, ward and billing staff, which could further lead to a delay in generation of the bill. Intramural transportation services for non-ambulatory in-patients,

chiefly carried out by General Duty Attendants, seemed inconsiderate.

Nurses were quite efficient with their work, but administrative duties made them a little less attentive to the patients’ needs, which could possibly result in a delay to respond to the call light. The physician services were not rated as highly as the nursing services due to the doctor’s indifference to the patient’s presence and queries, which either remained unanswered or were answered in a rather vague and hasty manner.

The major reasons for dissatisfaction with food services could be the limited choices and inappropriate temperature. It was observed that the cleanliness of walls, curtains and windowpanes received less attention and the corridors were often abuzz with trainees, which could effect the patient’s experience.

As is quite evident from the study and as suggested by the literature, variables such as gender, age, education and income do have an impact upon the levels of satisfaction of the patient.

Table 1 Shows the Demographic characteristics of Patients that participated in the study

The Total 100 patients participated in the study

Demographics		Percentage (%)
Age	15-30	4
	30-45	6
	45-60	41
	>60	49
Sex	Male	65
	Female	35
Education	Illiterate	19
	Secondary school	48
	Diploma	7
	Graduation	19
	Post-graduation	7
Income	<50,000	0
	50,000-1lakh	18
	1lakh-6lakhs	78
	6lakhs-12lakhs	4
	>12lakhs	0

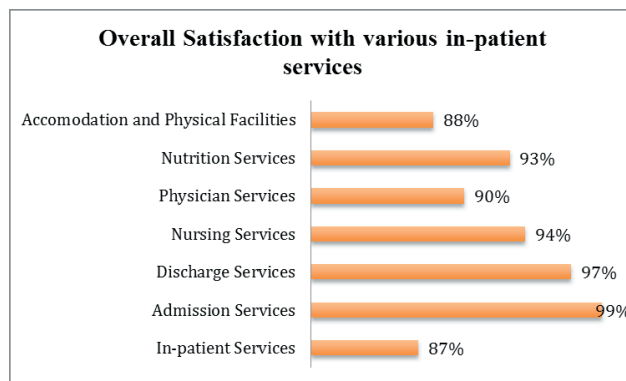


Figure1. Bar graph depicts overall satisfaction of the patients with various hospital services.

Table2. Levels of satisfaction with admission and discharge services

Services	Completely satisfied (1)	Somewhat satisfied (2)	Neutral (3)	Somewhat dissatisfied (4)	Completely dissatisfied (5)
Admission Services					
Staff attention	73	24	1	1	1
Wait time	76	21	1	1	1
Transport to room	62	30	4	3	1
Discharge Services					
Clear and understandable bill	71	27	0	2	0
Explanation of the aftercare instructions	68	26	1	5	0

Table3. Levels of satisfaction with nursing and physician services

Services	Completely satisfied (1)	Somewhat satisfied (2)	Neutral (3)	Somewhat dissatisfied (4)	Completely dissatisfied (5)
Nursing Services					
Responsiveness and attention	59	24	3	14	0
Wait time on call light	61	26	1	12	0
Consideration for family and visitors	65	27	1	7	0
Physician Services					
Responsiveness to queries	53	25	8	12	2
Explanation of tests, and treatment procedures	51	24	9	15	1
Courtesy and respect	55	33	3	7	2

Table 4. Level of satisfaction with nutrition services and physical facilities

Services	Completely Satisfied (1)	Somewhat Satisfied (2)	Neutral (3)	Somewhat dissatisfied (4)	Completely Dissatisfied (5)
Nutrition Services					
Temperature of food	48	37	8	7	0
Variety of food	51	39	5	5	0
Dietary counseling	58	34	4	3	0
Physical Facilities					
Comfort	49	34	2	10	5
Cleanliness	46	33	4	12	5
Quietness	48	30	5	12	5

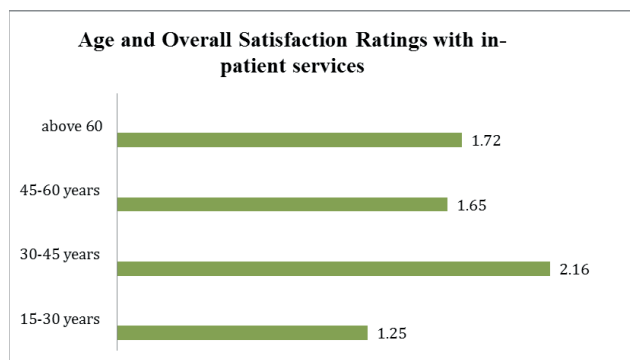


Figure2. Bar chart shows weighted averages representing the relation between age and level of satisfaction with in-patient services

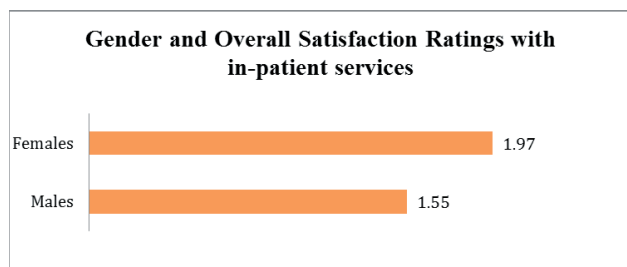


Figure3. Bar chart show weighted averages representing the relation between gender and overall satisfaction with in-patient services

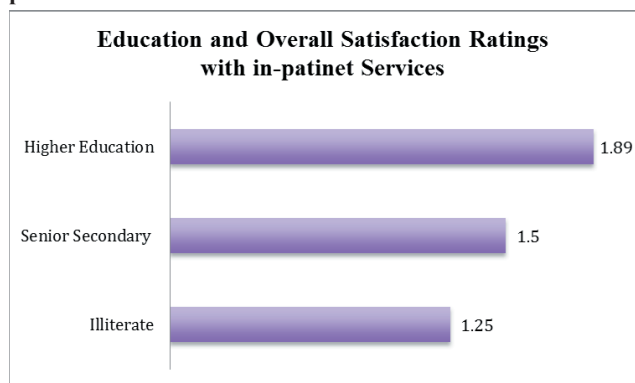


Figure4. Bar chart show weighted averages representing the relation between education and overall satisfaction with in-patient services

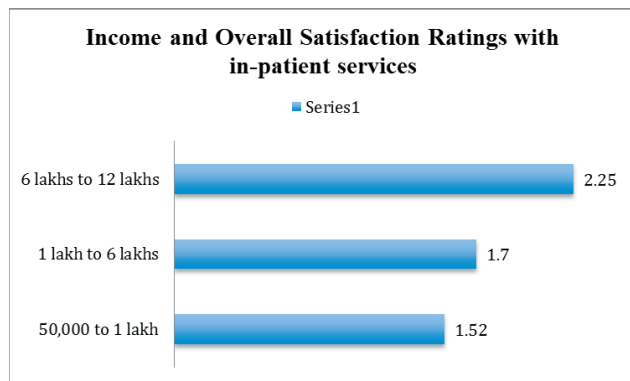


Figure5. Bar chart show weighted averages representing the relation between income and overall satisfaction with in-patient services

CONCLUSION

Results of the study show that patient satisfaction is a complex phenomenon, which is multi-dimensional and subjective in nature, and is driven by an individual's needs and desires. Satisfaction is an integral component of service quality; therefore it becomes important to understand that regular assessment of patient satisfaction can act as a beacon to highlight shortcomings in the service delivery. Since patient is also a 'customer', it would do us good to remember, "your most unhappy customers are your greatest source of learning"¹.

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Conflict of Interest: Nil

Source of Funding: Self

Ethical Clearance: Not required

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Gender-based Self-efficacy Evaluation among the City of Urmia's Medical Sciences University Students in 2016

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ABSTRACT

Introduction: Self-efficacy beliefs can be influenced by the internal factors such as gender-specific differences. Thus, the present study has been conducted with the objective of the investigation of the relationship between the self-efficacy and gender in Urmia medical sciences university students.

Implementation method: The present study is a descriptive analytical research which has been conducted on 378 individuals from Urmia medical sciences university students in 2016 all of whom have been selected based on a random method. To gather the information required for the current study there is made use of a two-part questionnaire the first part of which is related to the demographic characteristics and the second part pertains to Pintrich's self-efficacy questionnaire. The data extracted through the application of such an abovementioned method were analyzed by means of SPSS ver.19 software, descriptive statistics, Pierson correlation test and independent t-test.

Findings: It has been shown in the present study that the participants' average age was 21.78 ± 3.0 and that 202 individuals were male and 190 individuals were female. The self-efficacy total mean score was 42.04 ± 8.56 among the university students which is regarded to be in an optimum level. The relationship between the age and the self-efficacy total mean score was not found to be statistically significant. The relationship between the gender and the self-efficacy was not statistically significant.

Conclusion: In sum, the results obtained in the present study indicated that the university students' gender is in a meaningful association with their self-efficacy and it can be deployed for the students' future accomplishments and advances.

Keywords: *self-efficacy, gender, Urmia*

INTRODUCTION

The universities accept new students every year and there are other students who graduate from these universities and the instruction and education quality is of a significant importance in this continuous cycle. Learning and academic achievement and the factors effective thereon have always been under the focus of the psychologists and the education and upbringing specialists. Every individual's learning is subjected to various cognitive and affective processes. The individual differences in this regard not only include the intelligence quality and discrepancies but they have also been considered as a function of the beliefs, judgments,

thoughts, affective tendencies, propensities, values and prior experiences. In line with this, some of the most important factors and variables related thereto can be outlined here including self-efficacy, critical thinking, thinking styles and spiritual intelligence^[1-5]. One of the theories that can be utilized to assess the confidence degree of the students in exercising their clinical skills is the theory of self-efficacy proposed by Bandura^[6]. Self-efficacy is defined as the individual's general confidence and trust in oneself for the purpose of successfully accomplishing assignments and tasks^[7]. Self-efficacy construct is of a particular importance in educational environments, since, according to Bandura's theory, such environments are envisaged to be appropriate and

convenient for growth and formation of self-efficacy [8]. In educational environments and also within the realm of health sciences, self-efficacy has mostly been evaluated for the determination of the educational programs and the rate to which the students and the health-seekers have access to the educational outcomes and results [9, 10]. The results of the studies have shown that the human success in confrontation with the challenges originates from having a clear-cut optimized understanding of the individual self-efficacy. The individuals with a higher level of self-efficacy perception seem to be equipped with greater potential for enduring the barriers and failures in heavy duty tasks and assignments. The higher the individual's self-regulation and the self-efficacy, it can be highly predictable that they will demonstrate better occupational performances [11]. On the other hand and according to the theory posed by Bandura, self-efficacy influences the result expectations, to put it differently, the results which have been predicted by the individuals depends on their judgment regarding the ability to carry out a certain behavior in a special situation. Based on this, the individuals with higher self-efficacy levels are more inclined to imagine positive outcomes. In line with this, the study undertaken by Walker with the objective of forecasting the behaviors of 115 university students who were members of general instruction classrooms in a state university in the US, it was demonstrated that self-efficacy has a great, positive and direct effect on the behavioral intentions and it has been also evidenced to be indirectly effective on behavioral intentions [12]. Self-efficacy plays an intermediating role between knowledge and behavior [13]. Self-efficacy beliefs and the cognitive processes relevant attitudes which focus on the gender-specific differences in the cognitive processes are dependent on the internal factors which are discussed as reasons behind the differences among the girls and boys [14]. Therefore, according to the importance of self-efficacy and the differences residing in both of the male and female genders, the current study aims at the survey of the relationship between self-efficacy and gender among Urmia medical sciences university students.

IMPLEMENTATION METHOD

The present study is a descriptive-analytical research which has been conducted on 378 individuals from Urmia medical sciences university all of whom have been selected in 2016 based on a randomized method. To collect the information required for the current study, there is made use of a two-part questionnaire the first

part of which was related to demographic characteristics (age, gender) and the second part of the questionnaire pertained to self-efficacy questionnaire which was designed by Pintrich et al. This part of the questionnaire included 8 questions which were a subgroup of Pintrich's learning strategies. The measurement scale was ordinal MSLQ. The participants provided answers based on the questionnaire guideline and the responses were subsequently scored based on Likert's 7-point scale from 1 (it is not true about me at all) to 7 (it is completely true about me). Every scale's score was consisted of the constituent items means. Therefore, in the present study the minimum and the maximum obtainable scores were 8 and 56, respectively. The mean scores from 8 to 24 were considered as weak and the scores from 24 to 40 were regarded as medium and the scores from 40 to 56 were taken as being optimum. The reliability score of the questionnaire was calculated 0.93 by Pintrich et al and it was also again calculated via Cronbach's alpha method and it was found to be 0.90.

After the data were extracted from the collected questionnaires they were analyzed by taking advantage of SPSS ver.19 software, descriptive statistics, Pierson correlation tests (the relationship between the age and the individuals' mean scores obtained from self-efficacy questionnaire) and independent t-test (the relationship between gender and the individuals' mean scores obtained from self-efficacy questionnaire) and the significance level for the current study data analysis was considered to be 0.05.

FINDINGS

In the present study, the results indicated that the individuals' average age was 21.78 ± 3.0 . 202 individuals (51.5%) were male and 190 individuals (48.5%) were female. The self-efficacy score among the university students was 42.04 ± 8.56 which is enumerated as being in an optimum level. There was not found a significant relationship between age and the students' self-efficacy scores ($P=0.064$).

The specifications related to the relationship between the gender and the self-efficacy mean scores have been presented in table (1) and the relationship between the gender and the self-efficacy level has been illustrated in table (2).

Table 1: Specifications related to the relationship between gender and self-efficacy mean scores (t-test)

	Gender	Mean	Std. Deviation	P-value
Self-efficacy	Man	43.24	7.97	0.005
	Woman	40.78	8.98	

Table 2: Specifications related to the relationship between the gender and self-efficacy level (Chi-Square test)

		Gender	
		Man	Woman
Self-efficacy	Weak	21.4%	78.6%
	Medium	44.4%	55.6%
	Optimum	56.7%	43.3%

DISCUSSION

The results of the present study indicated that there is a statistically significant relationship between gender and self-efficacy in the individuals and self-efficacy was found to be in a higher level among the men. In the study conducted by Seegers et al, the results demonstrated that self-efficacy is stronger among men in contrast to the women [15]. Of course, in the study performed by Jamali et al, the boys showed a lower level of self-efficacy in comparison to the girls [16]. It has to be kept in mind that the development of one's self confidence in is highly dependent on being protected by the others in the girls. Therefore, the girls have been realized to be more sensitive to the environmental feedbacks. So, it can be stated that in university girl students the most significant source of self-efficacy is via modeling and the verbal encouragements made by the instructors and teachers and this sort of support is of a great influence on their competency and self-confidence development and it is also reflective of the necessity of the attention that has to be paid by the professors to the university boy students lesson consultations. In other words, in order to enhance self-efficacy and upgrade academic accomplishments in the boy students, the lesson consultation for this group of the university students requires more attention [16]. In the study performed by Hosseini et al, the general self-efficacy mean score in the girls was significantly lower in contrast to the boys and it is through providing for appropriate instruction and creation of supportive social environments that we can improve the girl's self-efficacy in a parallel line to their considerable

academic and scientific and cultural advances achieved during the recent years. Self-efficacy is the result of the past successes and failures, now if there can be an opportunity to get the individuals reach to success and accomplishment through devising and utilizing some specific solutions then there would be made this hope that the students themselves take major steps to move to more challenging tasks and manage to conquer them successfully. It has been proved in the studies that the university students find themselves more confiding in their capabilities and competencies through learning cognitive and meta-cognitive strategies and this brings about an increase in self-efficacy [17-20].

Of course, in some of the other studies there was no difference between the social support and self-efficacy mean scores obtained for both of the genders [21, 22]. The results of the studies conducted by Chajaras and Graham showed that the gender differences have no effects on the self-efficacy beliefs [23]. Academic self-efficacy is subject to numerous factors as a criterion variable and it cannot be elaborated within the format of individual psychological variables and it is necessary to pay attention to all of the individual, familial, interactional aspects and so forth to be able to compile and codify a subjective or theoretical model to reach to a comprehensive perspective; and it has to be confessed that the present and the previous studies have focused on limited aspects and factors and unfortunately there is not taken purposeful measures in codifying a subjective model [24]. Self-efficacy bases have been experimented in various fields of study and in different environments, as well, and it has found increasing number of findings. Many of the human behaviors are stimulated and controlled through self-contemplation mechanisms and among such mechanisms the personal self-efficacy beliefs are the most important and most pervasive ones. If an individual believes that s/he cannot reach the expected outputs and results or if the individual comes to the belief that s/he cannot prevent unacceptable behaviors then s/he will lose his or her motivation to accomplish certain tasks and consequently s/he will find himself or herself deprived of the motivation for performing a job. Although there are other factors which act as the stimulators inciting certain behaviors in the human being they are all a function of the individuals' beliefs [25]. Bandura believed that self-efficacy beliefs form in various areas in the process of human growth and in connection to the environment and the others.

Family as the first and foremost educational center for the children plays a considerable role in developing the children's self-efficacy beliefs. The parents can play a remarkable role through creating a healthy and encouraging pattern in the children and providing for a stimulating and driving environment [26]. Efficient educational styles, reasonable authority as regarding the children and cordial and sincere relations concomitantly accompanied with decisiveness are among the factors effective on the self-efficacy beliefs development in the children [27-29]. Therefore, it is suggested that the future research should take the university students familial relationships into consideration.

CONCLUSION

In a nutshell, the results of the current study indicated that the university students' gender is in a relationship with the self-efficacy and it can be exploited for the university students' future progresses and achievements. So, it is suggested that the future researches focus on the professors' type of behavior and treatment style effects on the individuals' self-efficacy.

This article was extract from a student research project and got the approval of ethical committee of the zahedan University of Medical Sciences.

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The First Source of Knowledge about Condoms is Vital to Understand Condom Use for Brothel based Female Sex Workers

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ABSTRACT

Introduction: Knowledge about condom use among FSWs is one of the important predictor that influences condom use among FSWs. Educational videos, pictorial education materials, television, peer FSWs and health workers are some of the source of information about condoms to FSWs. This particular study throws light on the different sources of information about condom use among brothel based FSWs in India.

Method: Mixed methods were used. 80 FSWs were selected by two stage cluster sampling method, followed by purposive selection of 20 FSWs for qualitative study.

Results: Targeted Interventions, (TI) NGOs' peer educators, colleague FSWs from the brothels was found to be the first source of information about condoms to FSWs.

Keywords: Knowledge, TI, NGO Peer educators, Colleague FSWs

INTRODUCTION

With advent of HIV/AIDS and its progression in the population of Female Sex Workers (FSWs), promotion of consistent condom use to prevent HIV/AIDS among FSWs gained considerable significance. Knowledge about condom use among FSWs is one of the important predictor that influences condom use among FSWs ⁽¹⁾. In India, Targeted Interventions (TI) HIV prevention programs implemented by the National AIDS Control Program (NACP) promotes condom use among FSWs, distributes free condoms and also ensures imparting of knowledge about correct use of condoms by "Peer Educators," who are involved in peer education which is defined as "sharing HIV/AIDS information in small groups or one-to-one by a peer matched, either demographically or through risk behavior, with the target population." ^(2,3). Studies have revealed different sources of information of condom use to FSWs; educational videos, pictorial

education materials, television etc ^(4,5). In Kenya, leaflets, posters, radio was the most cited source of information about use of condom among FSWs whereas in Kampala, Uganda, peer FSWs and health workers were found to be primary source of information about condoms to FSWs ^(6,7). As part of a doctoral research, the current study explores various determinants of condom use among brothel based FSWs and knowledge about condom use. The study throws light on the different sources of information about condom use in FSWs.

METHOD

Mixed methods were used to understand holistic context of condom use/non-use among FSWs. The calculated sample size for the quantitative data collection was 80 FSWs. The quantitative data collection tool was a semi-structured questionnaire. A subset of 20 FSWs was selected purposively for qualitative data collection, from the total 80 FSWs that were included in quantitative data collection. Two-stage sampling methodology was used; selections of clusters (brothels) with systematic random sampling method followed by selection of FSWs from each selected cluster by convenient sampling. Ethics approval for the study was taken from Savitribai Phule

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Pune University's ethics committee. Written informed consent (signature/thumb impression) was obtained from all FSWs and for some FSWs consent was administered in presence of a witness (witness to the consent process).

DATA ANALYSIS

Qualitative interviews were audio recorded, which was further translated into English. Using grounded theory, qualitative data were analyzed using inductive approach. Transcripts were read and re-read to develop an initial coding scheme and emerging themes were consolidated. Statistical package of SPSS 20 was used for quantitative analysis. Quantitative data were analyzed by descriptive statistics; chi square test was applied for significant association between variables.

RESULTS

Socio Demographic profile of respondents

The Table 1 reflects that the mean age of FSWs was 29.8 years. A majority i.e. 78.8% were illiterate. As regards marital status; 33.3% FSWs were married, one fourth i.e. 25% were deserted, separated, or divorcees, a small percent i.e. 8.8%, of respondents were widowed. These FSWs came from different states of the country such as 30% of FSWs were from West Bengal and Karnataka each, 22.5% were from Andhra Pradesh and remaining, 8% from Maharashtra and 6.3% included FSWs from Uttar Pradesh, North East and Madhya Pradesh.

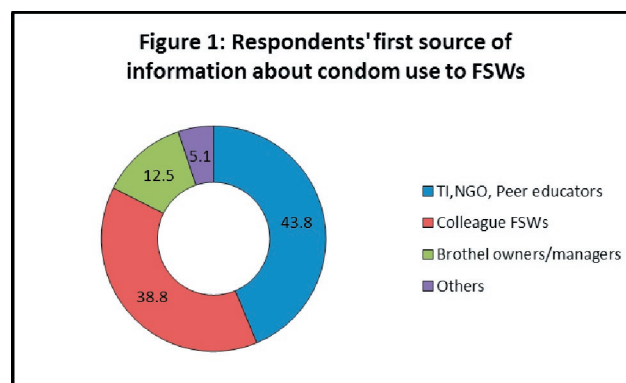
Table 1: Distribution of respondents by social demographic profile (N= 80)

Variable	N	Percent
Literacy level		
Illiterate (cannot read and write)	64	78.8
Literate (can read and write)	16	20
Marital status		
Unmarried	15	18.8
Married	27	33.3
Deserted/Separated /Divorcee	20	25
Widow	7	8.8
Devdaasi	11	13.8
Native background		
Maharashtra	7	8.8
Nepal	2	2.5
West Bengal	24	30
Karnataka	24	30
Andhra Pradesh	18	22.5
Others	5	6.3

* Devdasi system is a religious practice in parts of southern India, whereby the girl is married to God for worship and service of a deity or a temple for the rest of her life the girl then becomes a prostitute for upper-caste community members⁽⁸⁾.

First source of information about condoms

The Figure 1 below shows that a little less than half 43.8% FSWs have reported that TI NGOs' peer educators were the first source of information about condoms; followed by 38.8% that reported colleague FSWs from brothels (colleague FSWs are FSWs sharing the same residence/brothel with FSWs) and 12.5% reported that brothel owners/managers were the first source of information. A very small percentage that is just about 1.3% reported that others including counselors and doctors from the clinics of local TI non-governmental organization (NGOs) were the first source of information. A small percentage, 3.8% FSWs did not remember the first source of information about condoms.



All FSWs in the in depth interviews (IDIs) shared that colleague FSWs from brothels after the TI, NGO peer educators were the point of contact for receiving information about condom use. Other sources of information about condoms to FSW were clients, health workers from FSW's natives and local area's chemists. Brothel owners also confirmed that after peer educators' colleague FSWs gives information about condoms to FSW. Colleague FSW plays crucial role especially if FSW are naïve about sex work business the information is passed to them by colleague FSWs.

DISCUSSION

A novel finding that emerged through this study is about colleague sex workers as first and most important source of information for FSWs especially on condom use. Considering the fact that the study area was exposed to HIV prevention programs through TIs;

FSWs might have witnessed peer education for more than ten years, that included, information about condom use, demonstration of condom use on dummy penis model, explaining prevention properties of consistent condom use in keeping away STI/HIV. It was found that colleague FSWs from the brothels are acting as first point of information about condom use to FSWs. In the quantitative study, peer educators were selected as first source of information about condom use, but the qualitative study clearly states that colleague FSWs provide the first point of information about condoms to FSW. Another important issue was the phase at which the FSWs were getting information about condoms. The study tried finding out at what point FSWs get to know about condoms. FSW's first interaction in brothels is with colleague FSWs. Similar to other studies, colleague FSWs were chosen as first source of information about condoms and condom use by brothel based FSWs.

CONCLUSION

The study concludes that for brothel based FSWs, their colleagues are the first source of information about condoms and use of condoms. They are the first point of contacts to brothel based FSWs who imparts information about condoms. If it is true for condom use, it is very likely to be true for all other information too and hence if any educational programs are to be implemented, it is very important that FSWs themselves are involved effectively.

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Clinical Profile of Scrub Typhus Patients in a Tertiary Care Hospital in Kerala

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ABSTRACT

Introduction: Scrub typhus is one of the reemerging Rickettsial diseases in India. The disease is spread to people by the bite of a mite infected with larval trombiculid mite. The objective of this study was to study the clinical profile and outcome of Scrub Typhus patients. Since scrub typhus was newly reported disease from this part of the country, the providers may not be familiar with the clinical pictures. **Materials and Method:** This study retrospectively reviewed the clinical records of patients admitted to government medical college, Kozhikode, a tertiary care centre in Kerala, during 2011 with positive Weil-Felix test and / or presence of eschar. **Results:** Thirty-two scrub typhus patients were admitted to the hospital during one year period (2011). Maximum number of patients were in the age group of 46-60 yrs. Major symptoms include fever(100%), headache(50%), myalgia (47%), vomiting(28%), cough(25%) and decreased urine output(22%), yellow coloured urine(15.6%) & breathlessness(12.5%). Eschar alone was present in a total of six patients(18.8%). Weil-Felix test alone was positive in a total of 25(78.1%) subjects. One patient had both eschar and Weil-Felix positivity. Common complications were ARDS(6/32), Meningoencephalitis(5/32), Myocarditis(4/32) Renal involvement and many patients developed multisystem involvement (6/32). One patient with multiorgan involvement died. **Conclusion:** Scrub typhus should be considered in the differential diagnosis of patients with acute febrile illnesses with a wide range of symptoms. Scrub typhus should be considered in the differential diagnosis of Leptospirosis, Typhoid, Dengue, Malaria. Empirical therapy with Doxycycline may be life-saving when clinical suspicion is high.

Keywords: Scrub Typhus, Eschar, Weil-Felix, Leptotrombidium, Complications.

INTRODUCTION

Scrub typhus is an acute, zoonotic, undifferentiated febrile illness of humans¹. It is one of the commonly reported Rickettsial diseases in India. It is caused by *Orientia tsutsugamushi* (formerly called *Rickettsia tsutsugamushi*)². The disease is spread to people by the bite of a mite infected with larval trombiculid mite. After the

bite, it begins to multiply at the bite site and produces a sore on the skin with a “punched out” appearance (skin ulcer) called eschar. Symptoms usually appear within 10-12 days after the exposure, but may appear between 6-21 days after the exposure. The infection manifests with a wide range of symptoms including chills and fever, headache, malaise, cough, loose motion, redness of the eye, macular rash, lymphadenopathy, and lymphocytosis. Severity varies from subclinical to severe which can be serious enough to be fatal, unless diagnosed early and treated in time³.

Scrub typhus is well-known disease, extending from Japan to Australia and from India to the Pacific. The disease has been reported from seashores, mountainous regions, rainforests, river banks and terrains with secondary

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vegetation growth. Most cases occur during agricultural activities⁴.

It is known to be endemic in the South East Asian countries and the western Pacific region⁵. In India, the disease had occurred among troops during World War II in Assam and West Bengal, and in the 1965 Indo-Pak war. There was a renaissance of the disease in 1990 in a unit of an army deployed at the Pakistan border of India⁶. It has been reported in the east, south and the Himalayas¹. There have been outbreaks in areas located in the Sub-Himalayan belt, from Jammu to Nagaland. There were also reports of scrub typhus outbreaks in Himachal Pradesh, Sikkim and Darjeeling (West Bengal) during 2003-2004 and 2007. Recently outbreaks of scrub typhus were reported in southern India during the cooler months of the year⁷. Because of the International trade, tourism, and migration the disease is a re-emerging infectious disease in India.

Weil-Felix test is not a very sensitive test for diagnosis of scrub typhus but due to lack of availability of definitive tests in India, it can be a useful tool when used and interpreted in the correct clinical context⁸. The case fatality rate of scrub typhus ranges from 1%-35% depending on the virulence, host factors and the availability of treatment facilities⁹.

In Kerala, Since scrub typhus was a newly reported disease in the recent past. This study was conducted to understand the epidemiological and clinical features to prevent the complication and death due to Scrub Typhus among the hospitalized patients.

METHOD

Hospital record based study was done in Government Medical College, Kozhikode during Feb 2012- May 2012. This medical college provides medical care with a bed strength of more than 2000 for the people from northern five districts in the state. Following the index case of confirmed scrub typhus reported from medical college in the month of January 2011, the District Integrated Disease Surveillance Project authorities alerted all the hospitals. So all the fever cases with suspected scrub typhus were closely monitored. Records of clinically and serologically confirmed cases of all the scrub typhus [The diagnosis was based on the presence of the characteristic eschar and / or positive Weil-Felix test ($\geq 1:80$ titer)] patients admitted from during 2011 were studied. Data collection was done from medical records library by using a proforma which included variables pertaining to clinical features and

outcome of scrub typhus.

RESULTS

During the period of one year (2011), there were 62 patients suspected to have scrub typhus and finally thirty-two patients were diagnosed to have scrub typhus. All the patients were from four districts in the northern part of Kerala. The mean(SD) age was 37.9 ± 19.7 years. Majority of the patients (75%) were in the age group of (16-60 yrs) (Table 1). There were 19 males (59.4%). All the thirty-two patients were from Below Poverty Line families. Mean(SD) duration of hospital stay was found to be 7.3 ± 3.5 days and among the patients treated with doxycycline 5.6 ± 2.5 days. More cases reported during the rainy and cooler months in the state. Maximum number of cases reported in January(31.3%), in September (18.8%) and in October (25%). There were no cases reported during the warmer season.

All the patients presented with fever (Fever of <1 week duration-34.4%, Fever of 1-2 weeks duration-53.1%, and > 2weeks-12.5%). Mean(SD) duration of fever was found to be 11.7 ± 9.7 days and among patients treated with doxycycline, it was found to be 10.4 ± 4.7 days. Other common symptoms include Headache, myalgia, nausea and vomiting, cough and decreased urine output, yellow urine & breathlessness. Common signs seen were hepatomegaly, lymphadenopathy, rashes and altered sensorium. Eschar was seen only in seven patients(21.9%) over the abdomen, axilla & groin. Altered sensorium was present in five patients(15.6%) (Table 2).

In our study, it was found that more than 50% of patients showed increased Leucocyte count and also we found 43.8% with elevated aspartate aminotransferase levels, 78.1% with elevated alanine aminotransferase. Many patients showed albuminuria (40.6%) and urine occult blood (28.1%). Weil-Felix test was positive in 26 (81.2%) subjects (Table 3).

A total of 30(93.8%) patients had, at least, one complication during the course of illness. Common complications seen among the subjects were Acute Respiratory Distress Syndrome(18.8%), Meningoencephalitis (15.6%), Renal involvement (15.6%), Myocarditis(12.5%) and, many patients had life-threatening multisystem involvement (18.8%)(Table 4).

The majority of the study subjects were treated with Doxycycline alone or in combination with other antibiotics.

The majority (96.9%) recovered from the disease. Mortality was noted in a patient with multi-organ involvement with an overall mortality rate of 3.1%. If there is multisystem involvement the mortality increased to 16.7%.

DISCUSSION

In our study 53% of patients were from Kozhikode district. It mainly affects the economically productive age group (16-60 yrs) who involves in outdoor activities. As reported in other studies^{7,10}, the majority of the cases have occurred in rainy (South West Monsoon, North East Monsoon) and cooler seasons in the state. Rainy season in Kerala extends from May month to November and winter season extends from later part of November to middle of February. But however there was an outbreak of scrub typhus in 2002 during summer months in Maldives in the Indian Ocean¹¹.

As reported in other studies^{7,12,13}, Fever was the common manifestation noted among all the patients. Headache was found in 50% of scrub typhus patients. In another study by Liyanapathirana et al¹⁴, Headache was found to be 39-88%. Myalgia was seen among 46.9% of the study subjects. A study by Mathai E et al⁷, also noted myalgia was the one of the commonest symptoms.

Eschar was not seen in all the patients. It was found in seven among seven patients (21.9%). Other reports from India also found very few patients to have presented with an eschar^{7,12,15}. But, an eschar was found in 46% and 60% of patients reported from South Vietnam and Taiwan respectively¹⁵. This low level of presence of eschar recommends a thorough examination of the patients so that not even a single lesion will be missed. Eschar is usually associated with regional adenopathy and sometimes generalized lymphadenopathy. In our study, nine patients (28%) had generalized lymphadenopathy and, 34% had Hepatomegaly (Table 2). Generalized lymphadenopathy and lymphocytosis were commoners than either eschar or rash¹⁶. Hepatic involvement in scrub typhus was found to range from 2.1%-42.8%^{12,15,17}.

In our study, Six patients (18.8%) had multi-system involvement with predominantly Acute Respiratory Distress Syndrome (ARDS), Meningo-encephalitis & Myocarditis (Table 4). In a study by Wang CC et al¹³, eight out of 72 patients with scrub typhus had ARDS. Myocarditis was found to be high compared to a study by Kim DM et al¹⁸, in Korea, it was found to be 2.4%. It was found that, in scrub typhus, the involvement of the five major systems

including central nervous system, cardiovascular system, respiratory system, hepatic and renal involvement. In a recent study by Varghese GM et al¹⁹, in South India, the involvement of multisystem was found to be 34%.

Leucocytosis was seen in 53% of patients (17/32 patients showed WBC of >11,000). All the six patients who developed multiple organ involvements had leucocytosis. Others studies also have detected the increase in the leucocyte count^{20,21}. But however, in a study by Vivekanandan M et al¹⁵, found to have a normal leucocyte count in the majority (68%) of the scrub typhus patients. The majority of the subjects had an abnormal AST and ALT value in the study. This finding is in accordance with other studies conducted across the world^{15,22}.

One patient (3.1%) who had multisystem involvement expired in spite of intensive management. Scrub typhus is known to produce serious complications and has a mortality rate of 7-30%^{7,13,15,23,24}. Patients treated with doxycycline showed reduced duration of stay in the hospital. As suggested by other studies^{24,25} doxycycline is the treatment of choice for scrub typhus. So the drug, doxycycline can be used as a presumptive treatment of PUO in low-resource settings. Other antibiotics useful for the treatment of this infection are chloramphenicol^{7,25}, azithromycin²⁶.

In this study, 30 more patients (a total of 62 patients) were admitted with similar clinical features, but without eschar or positive Weil-Felix tests during the year 2011. All these patients responded promptly to Doxycycline therapy. Case fatality rate was found to be low compared other study by Lee CS et al., (6.1%)²⁷.

Table 1: Demographic characteristics of the patients

Characters	N (%)
Age category (in yrs)	
15 yrs	5 (15.6)
16-30 yrs	7 (21.9)
31-45 yrs	8 (25.0)
46-60	9 (28.1)
≥ 61	3 (9.4)
Sex	
Male	19 (59.4)
Female	13 (40.6)

Table 2: Clinical features of study subjects

Symptoms	N	%	Signs	No	%
Fever	32	100.0			
Myalgia	15	46.9	Lymphadenopathy	9	28.1
Headache	16	50.0	Hepatomegaly	11	34.4
Cough	8	25.0	Splenomegaly	2	6.3
Breathlessness	4	12.5	Eschar	7	21.9
Nausea, Vomiting	9	28.1	Maculopapular rash	7	21.9
Abdominal pain	4	12.5	Altered sensorium	5	15.6
Pedal edema	3	9.4	Jaundice	3	9.4
Dysuria	4	12.5	Conj. Congestion	2	6.3
Decreased urine output	7	21.9	Dyspnoea	2	6.3
Yellow urine	5	15.6	Hematuria	2	6.3
Diarrhea	2	6.3	Bleeding manifestation	3	9.4
Giddiness	1	3.1			
Loss of appetite	2	6.3			
Itching	2	6.3			

Table 3: Clinical and serological confirmation

Criteria	N (%)
Weil-Felix	25 (78.1)
Eschar	6 (18.8)
Eschar + Weil-Felix	1 (3.1)
Total	32 (100)

Table 4: Complications of Scrub Typhus among thirty patients

Complication	N (%)
Hepatorenal	3 (9.4)
Renal	6 (18.8)
Cardiovascular (Myocarditis)	4 (12.5)
Central Nervous System (Encephalitis)	5 (15.6)
Respiratory (ARDS)	6 (18.8)
Multisystem involvement	6 (18.8)

CONCLUSION

Scrub typhus is a recent reemerging disease in the state in south India. According to our study findings, scrub typhus should be considered in the differential diagnosis of patients with acute febrile illnesses with a wide range of symptoms. From the clinical feature, it will be difficult to differentiate from Leptospirosis, Typhoid, Dengue, Malaria. So a high index of suspicion of scrub typhus is needed in the differential diagnosis of all these diseases. Since the disease is curable and the recovery rate is high, immediately hospitalise the patient when the disease is suspected and start antibiotic therapy such as doxycycline. Empirical therapy with doxycycline may be life-saving

when clinical suspicion is high, even if Weil-Felix test is negative and, eschar is not present. Preventive measures like wearing long sleeves / clothes to prevent mite bite can be advised. Chemoprophylaxis may be considered with doxycycline once in a week, till the risk exist.

Conflicts of Interest: None

Source of Funding: Nil

Ethical Issues: Patient's identity was not revealed at any stage of the study and strict confidentiality was maintained.

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Linguistic Validation of Chronic Obstructive Pulmonary Disease Self Efficacy Scale in Hindi

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ABSTRACT

Background: COPD is one of the major causes of health care burden worldwide. The clinical manifestations of COPD have negative influence on the self efficacy of COPD patients. Objective measurement of the impact of underlying condition on the self efficacy is of great importance in pulmonary rehabilitation. This can be achieved by the COPD Self Efficacy Scale (CSES). In present study our objective was to translate and validate a language relevant tool i.e. the Hindi version of the CSES for evaluating the self-efficacy of Hindi speaking COPD patients in India.

Methodology: Forward translation of the CSES to Hindi was done & the backward translation of the same was done back to English. New Hindi version of the CSES was then subjected to a field test where it was administered to 50 COPD patients with mean age of 56.12 ± 8.7 years, of which 37 were male & 13 female. The Hindi version of St.George's Respiratory questionnaire, FEV1 and FEV1/FVC values were used to validate the translated version of the COPD Self Efficacy scale.

Results: Strong correlation existed between the total scores of the CSES (Hindi) & 5 factors of the CSES. Weak to moderate correlation existed between the CSES & St.George's Respiratory Questionnaire, FEV1, FEV1/FVC & age. No difficulty was experienced in understanding the translated version of CSES.

Conclusion: The Hindi version of CSES has demonstrated acceptable levels of feasibility, internal consistency, face & construct validity & is conceptually equivalent to the original.

Abbreviations: COPD: Chronic obstructive pulmonary disease

CSES: COPD self efficacy scale **FEV1:** Forced expiratory volume in 1 second,

FVC: Forced vital capacity, **SGRQ:** St.Georges Respiratory Questionnaire.

Keywords : COPD, Linguistic Validation, Hindi

INTRODUCTION

COPD is a major cause of health care burden worldwide.¹ By 2020, COPD is expected to rise to the 3rd position as a cause of death. According to the baseline projection it will rise to the 5th position as a cause of Disability Adjusted Life Years (DALYs)² WHO, has

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published the worldwide prevalence of COPD at 0.8%.³ In India; the prevalence rates in male subjects was observed to be 2.12 % to 9.4% in North India. The respective ranges for females vary from 1.33% to 4.9% in north India and 2.55% to 2.7% in south India.⁴

COPD is a lung disease characterized by chronic obstruction of lung airflow that interferes with normal breathing & is not fully reversible. Dyspnea, cough & sputum production are some symptoms associated with COPD.⁵ These symptoms have a negative influence on activities of daily living & quality of living of individual. These symptoms also have a negative influence on the perception of well being & self efficacy. Surgical intervention, pharmacotherapy & pulmonary rehabilitation help improve the self efficacy of the individual which would have been affected by the chronicity of the disease.⁶

The theory of self efficacy proposes that patients confidence in their ability to perform certain health behaviors influences their engagement in & actual performance of those behaviors (e.g., diet & exercise adherence), which in turn influence health outcomes.^{7,8} The measurement of self-efficacy, is an important aspect in the management of diseases like COPD, it helps in identifying the areas with low self efficacy & thus helps in determining a patient education program in the form of self management strategies. The change brought about by the impact of patient education programs can be determined by measuring changes in self efficacy. COPD self efficacy scale (CSES) is a self efficacy scale that is administered in patients with COPD to measure their self efficacy. CSES is a 34 item scale categorized onto 5 domains, namely 'negative affect', 'intense emotional arousal', 'physical exertion', 'weather/environment' & 'behavioural risk factors in CSES'. The CSES has good test retest reliability ($r=.77$), internal consistency (Cronbach's alpha = 0.95) & five factor structure (negative effect, intense emotional arousal, physical exertion, weather/environmental behavioral risk factors).¹⁰ It has been utilized by various populations around the world & was first developed in English. It would be beneficial if a Hindi version of CSES is made available for the Indian population. Hindi version of CSES would give better understanding of the questions & patients would give more appropriate answers for the same. Thus the objective of present study was to translate & validate the Hindi version of COPD self efficacy scale (linguistic validation).

MATERIALS AND METHOD

Ethical clearance in order to conduct the study was sought. A convenience sampling of 50 COPD subjects with in the age group of 35 – 70 years of age was done from L.R.S Institute of T.B & respiratory diseases. It was an observational study with exclusion criteria being cognitive impairment that would hinder the understanding of the questionnaire. Primary outcome measure was self efficacy that was measured by the CSES-Hindi version.

Phase 1: Forward translation of the CSES questionnaire was done. Two local professional translators, native target language speakers, bilingual in the source language were recruited. Investigator was also involved. Production of 2 forward versions: each of the translators independently produced a forward translation of the original items, instructions and response choices. A combined version was developed by both translators & the local project manager/investigator /translation committee discussed the translations and agreed on a single reconciled version. The aim was to produce a conceptually equivalent translation of the original questionnaire & that the language used should be colloquial & easy to understand.

Phase 2: Backward translation of CSES questionnaire was done. Local professional translator, native speaker of English & bilingual in the target language (Hindi) were recruited. The translator translated the first version of the questionnaire produced in phase 1 back into English. Comparison of the backward version with the original source version was done by the local project manager during a meeting with the "backward" translator in order to detect any misunderstandings, mistranslations or inaccuracies in the intermediary forward version of the questionnaire. The development of a consensus & the translation by committee methodology helped reduce the cultural & social bias that may result when only one or two translators are responsible for the translation.

Phase 3: The translated questionnaire was administered to a sample of respondents to determine whether the translation (instructions, items and response choices) is acceptable, whether it is understood in the way it is supposed to be, & whether the language used is simple & appropriate. Two main aspects were tested:

- The conceptual equivalence of items & response choices/ratings in the translation with the original; The patients' understanding of the instructions and items, and any problems in the administration of the translated

questionnaire.

The Hindi version of CSES was developed. The Hindi version of the St. George's Respiratory questionnaire was used for the linguistic validation. The scores obtained from the final version of the translated CSES questionnaire when administered to the subjects & the scores obtained by the Hindi version of St. George's Respiratory questionnaire were used to validate the translated version of the COPD Self Efficacy scale questionnaire. Also CSES scores were correlated with age, FEV1 and FEV1/FVC.

Statistical analysis :

The data analysis was done by using SPSS version 16.0. Level of significance set at $p < 0.05$. Descriptive statistics was done to analyze the demographic characteristics of the subjects recruited in the study. Spearman's correlation coefficient test was done to validate the CSES.

FINDINGS

Results

Among 50 COPD subjects recruited for study, 13 were female & 37 were male. The mean age group of patients was 56.12 ± 8.7 years. Out of 50 patients, 36% patients ($n=18$) were in stage 2a of the GOLD criteria, 58% ($n=29$) were in stage 2b of the GOLD criteria & 6% ($n=3$) were in stage 3 of the GOLD criteria. On administration of the CSES scale to all the subjects, the mean CSES score obtained was 45.06 ± 8.8 and mean SGRQ scores obtained was 46.77 ± 18.63 . The internal consistencies for different CSES scale (Hindi) were determined using the Cronbach's alpha. The correlation between the CSES total scores & five factors of CSES resulted in r values ranging 0.72 to 0.95. The construct validity was determined by correlating the CSES (Hindi) scores as well as factors of the CSES (Hindi) with FEV1, FEV1/FVC, age and the SGRQ scores. The CSES (Hindi) score was weakly correlated with the FEV1 and FEV1/FVC ratio values, the r values obtained were 0.34 and 0.31 respectively (Table no. 2). The CSES (Hindi) total scores were correlated with the SGRQ total scores (Table no: 3). Also the 5 components of the CSES (Hindi) were correlated with the SGRQ total score. The correlation between the SGRQ total score and the CSES (Hindi) total score resulted in r value of -0.32. The correlation between the SGRQ total score and the five factors of the CSES resulted in r values ranging from 0.22 to 0.52 representing weak to moderate negative correlation.

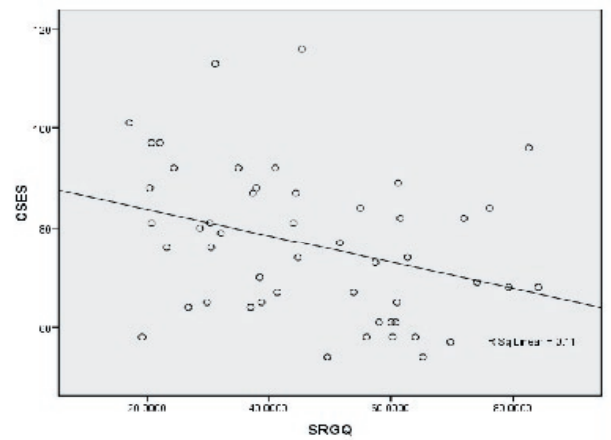


Fig.1: Scatter plot diagram to show correlation between CSES (Hindi) and SGRQ scores. ($r = -0.32$)

Discussion:

Behaviour change is seen as dependent on one's perceived capability to cope with stress & boredom and to mobilize one's resources and courses of action required to meet the situational demands. Efficacy beliefs affect the intention to change risk behaviour, the amount of effort expended to attain this goal, and the persistence to continue striving in spite of barriers and setbacks that may undermine motivation. Thus the success in coping with high-risk situations depends partly on people's beliefs that they operate as active agents of their own actions and that they possess the necessary skills to reinstate control should a slip occur.¹¹ Although COPD is a nonspecific term that refers to a set of conditions that develop progressively as a result of a number of different disease processes, it most commonly refers to chronic bronchitis and emphysema & a few patients with asthma.^{5,12} These symptoms have a negative influence on the activities of daily living and the quality of living of the individual.

The perception of well being and self efficacy are affected by the negative impact of the symptoms.. As a result of long impact of the negative influences caused by the symptoms of COPD, the individuals suffering from COPD lack confidence in managing their symptoms during certain activities.

Symptoms affect the self efficacy of the individual & may hinder with the ability of the individual in managing his symptoms. Rehabilitation helps in the improvement of the self efficacy of the individuals suffering from any underlying condition whether it is cardiac or pulmonary. It has been seen that even small interventions like stair climbing can improve the self efficacy in post cardiac surgery patients.¹³

CSES is one such instrument used to measure the self efficacy of the COPD patients. The CSES was developed specifically for COPD & had shown good test-retest reliability & internal consistency. There are 32 items categorized onto 5 domains, namely 'negative affect', 'intense emotional arousal', 'physical exertion', 'weather/environment' and 'behavioral risk factors in CSES'.¹⁰

Once problem areas or activities are identified via the CSES; patient's self-efficacy in those situations may be increased through procedures such as systematic desensitization or self-management training. In addition, the information will provide health care providers with a basis for directing further intervention or be used as monitoring tools in the management of COPD patients. In CSES, the respondents are asked to rate, on a five point scale, their confidence in their ability to manage or avoid breathing difficulties in a variety of situations. A high score indicates high self-efficacy.

A pragmatic instrument that can help identify and assess self-efficacy would augment clinical judgment and thus provide further evidence to underpin the assessment of a patient's level of self-efficacy by health personnel.¹⁴ As most COPD patients are elderly and generally not well educated in the northern region of India. They may be unable to understand or comprehend the questions in CSES. Some of the situational description may not be social or cultural relevant. Therefore, a Hindi version is more appropriate for local COPD patients.

Linguistic validation of the Hindi version of COPD Self Efficacy Scale was done. The Hindi version of the St. George's Respiratory questionnaire was used for the linguistic validation. The scores obtained from the final version of the translated COPD Self Efficacy scale questionnaire when administered to the subjects and the scores obtained by the Hindi version of St. George's Respiratory questionnaire were used to validate the translated version of the COPD Self Efficacy scale questionnaire. The CSES was also correlated with the individual factors of the questionnaire as well as with the FEV1 and FEV1 /FVC ratio. The accepted procedures for translation and adaptation of self-report questionnaires were followed. In the field test, administration of the CSES (Hindi) to all the subjects, obtained the mean CSES score of 45.06 ± 8.8 . Good correlation existed between the total CSES (Hindi) scores and the five components of the questionnaire.

The CSES (Hindi) score was weakly correlated with the FEV1 and FEV1/FVC ratio values; the r values obtained were 0.34 and 0.31 respectively. Also weak to moderate correlation existed between the CSES (Hindi) factors and the FEV1 and FEV1/FVC ratio. Negative correlation existed between the age and the factors of the CSES (Hindi) scale. There existed a weak to moderate correlation between the total scores of the CSES (Hindi) and the SGRQ total scores. Also the 5 components of the CSES (Hindi) and the SGRQ scores demonstrated weak to moderate negative correlation. Thus the summarization of the study is done as follows.

For the forward translation of the CSES to Hindi, general guidelines for transcultural adaptations were followed with no major problems encountered. In order to ensure the quality of the transcultural adaptation, professional health care workers experienced in COPD care and patients suffering from COPD took part in the development of the Hindi version of the CSES. In order to evaluate the CSES(Hindi) in COPD patients, it was administered to 50 subjects was easy to understand and contained no irritating or annoying items. All the questions were answered although, the subjects were little hesitant in answering the question related to sexual activity. The internal consistency of the CSES (Hindi) was determined by the cronbach's alpha.

The Cronbach's alpha was found to be excellent with the range from 0.72 to 0.95. The Cronbach's alpha was found to be highest for the negative affect component and the least for the physical exertion component. A very high cronbach's alpha may indicate that several items in the questionnaire are approximately equivalent.

On the other hand, the CSES (Hindi) is a long questionnaire and also the negative impact factor of the questionnaire which may be one of the cause for the high cronbach's alpha value. Also, high cronbach's alpha values may indicate item homogeneity within the CSES (Hindi). To assess the construct validity of the CSES (Hindi), we examined correlations of the total score and all CSES (Hindi) subscales with age, FEV 1, FEV1/FVC ratio and the SGRQ scores.

The results in present study showed negligible to weak correlation between the total score and all CSES (Hindi) subscales with age, FEV 1, FEV1/FVC ratio and the SGRQ scores. Negative correlation existed between CSES (Hindi) scores and the age and the SGRQ scores.

CONCLUSIONS

The Hindi version of the COPD Self efficacy scale has demonstrated acceptable levels of feasibility, internal consistency, face and construct validity. Thus it can be concluded that the translated version of the COPD self efficacy scale is conceptually equivalent to the original version.

Conflict of Interest: None

Source of Funding: it was a self funded research

Ethical Clearance: it was in accordance with ethical guidelines and was approved by the institutional ethical committee

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A Study of Lipid Profile in Hypertension

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ABSTRACT

With increasing prevalence of hypertension, obesity, diabetes mellitus and dyslipidemia in the general population due to life changes, the risk factor for heart disease, renal disease and cerebrovascular accidents is on the rise. Dyslipidemia and hypertension are the commonest risk factors for coronary artery disease (CAD). **Aim:** The aim of this study is to evaluate the association of lipid profile in hypertensive patients. **Methodology:** The study was conducted as a case control study. The patients attending the OPD of medicine department of Santosh Medical College and Hospital, Ghaziabad Uttar Pradesh included in the study, in duration of January 2014 to January 2015. A written informed consent was taken from the patients inducted into the study. A copy of patient information sheet was also given to the patient, and ethical clearance was taken.

Keywords: Lipid Profile, Hypertension

INTRODUCTION

Hypertension is a major health problem worldwide and it continues to be one of the most common diseases treated by the physicians. Ongoing research has better defined the mechanisms and clinical characteristics for this condition and enlarged the score of therapeutic options. It is increasingly clear that high blood pressure although an independent risk factor for adverse clinical events frequently exists as a part of a syndrome of cardiovascular, neuroendocrine and metabolic abnormality.¹

Essential hypertension has been appropriately called the silent killer because it is usually asymptomatic and undetected. Uncontrolled hypertension can cause damage to all organs of body.² Dyslipidemia and hypertension are the commonest risk factors for coronary artery disease (CAD). Persons with combination of risk factors are particularly at high risk of CAD. Hypertensive subjects frequently have higher cholesterol levels than normotensive subjects.³ The proportion of elderly individual is on the rise and hypertension is extremely common in this age group. In addition, cardiovascular and cerebrovascular risks commonly seen in elderly subjects can be attributed to atherosclerosis induced stiffening of aorta and major arteries.⁴ Atherosclerosis is more extensive and severe in hypertensive persons than in normotensive. Hypertension in adults is defined

as systolic pressure of ≥ 140 mm Hg and/or diastolic pressure of ≥ 90 mm Hg.⁵ It is the most common risk factor of CVD which increases the risk of stroke, myocardial infarction, heart and renal failure.⁶ According to the WHO report of 2003, cardiovascular disease will be the largest cause of deaths and disability by 2020 in India.⁷ In 2020, 2.6 million Indians are predicted to die due to coronary heart disease which constitutes 54.1% of all cardiovascular disease deaths.⁸ Though no specific pattern of dyslipidemia has been consistently reported among hypertensive individuals, many studies have shown that total cholesterol, triglycerides and virtually all fractions of lipoproteins tend to be more frequently abnormal among hypertensive patients than in the general population.^{9,10} Recent investigations have clearly demonstrated that atherosclerosis and left ventricular hypertrophy are major factors linking hypertension and lead to myocardial infarction.^{11,12}

MATERIALS AND METHOD

The study has been conducted in the department of General Medicine, Santosh Medical College, Ghaziabad, Uttar Pradesh during period of January 2014 to January 2015. A written informed consent was taken from the patients inducted into the study. A copy of patient information sheet was also given to the patient, and ethical clearance was taken. Serum cholesterol will be estimated by CHOD-POD enzymatic colorimetric

method. HDL was measured by enzymatic clearance assay using phosphotungstate method, LDL was measured by Friedwald's formula, TG was measured by GPO-PAP method, VLDL was measured by WT formula.

Study Design

The study design was conducted as a case control study. The patients attending the OPD of medicine department of Santosh Hospital are included in this study.

Study Population

The patients included in the study group were adults of either sex having dyslipidemia. 100 subjects were selected as cases and 25 as controls.

Study period

January 2014 to January 2015

Inclusion criteria:

A total of 100 subjects of essential hypertension whether previously diagnosed or recently diagnosed, with or without complications of hypertension were included in the study. According to JNC 7 criteria, systolic blood pressure ≥ 140 mmHg and diastolic ≥ 90 mmHg. Based on average of two reading or one in case of known hypertensive, and on antihypertensive medication.

Exclusion criteria

1. Secondary hypertensive patients were excluded from the study.
2. Patients with diabetes mellitus, hypothyroidism, chronic kidney disease were excluded from the study.
3. Those receiving lipid altering drugs or antihypertensive medications which affect lipid metabolism were excluded.
4. Smokers and alcoholics.

DISCUSSION

The present study was conducted to determine the abnormality of lipid profile (TC, TG, HDL, LDL, VLDL) in hypertensive patients and healthy subjects and to know the incidence and types of hyperlipidemia in hypertension subjects. It is a case control study with 100 cases and 25 controls.

Patients were evaluated with detailed history, meticulous examination (blood pressure measurement) and laboratory investigations. Laboratory investigations included lipid profile (TC, TG, HDL, LDL, VLDL) fasting blood glucose, post prandial glucose levels, serum TSH level, blood urea, serum creatinine, ECG and chest x-ray to rule out secondary hypertension.

The finding of our study revealed a significant increase in BMI in cases (26.0 ± 1.73) as compared to controls (22.3 ± 1.73). It was significant as $p=0.000$.

Positive relation was seen for total cholesterol between hypertensive and normotensive subjects. Total cholesterol was higher among hypertensive subjects (189.6 ± 55) than normotensive subjects (153.7 ± 34), it was significant as $p=.003$. The results of our study were in concordance with the study conducted by Srinivas Pai K, Sanjay Bhagoji et al¹³ which showed positive relation of hypertension with total cholesterol.

Table 1: Correlation between Mean Blood Pressure (MBP) and total cholesterol (TC)

		MBP	TC
MBP	Pearson Correlation	1	.254
	Sig (2 tailed)		.011
	N	100	100
TC	Pearson Correlation	.254	1
	Sig (2 tailed)	.011	
	N	100	100

In this study, we also compared LDL-C Levels with mean blood pressure. When LDL-C Level of hypertensive (104.8 ± 40.5) patients was compared with normotensive (91.6 ± 17.1) patients, there was a positive relation between the LDL cholesterol and hypertension. The result was similar to study conducted by Golnoosh Ghooshchi, Mahdi Masoomian et al which showed increased levels of LDL-C in hypertensive subjects compared to normotensive subjects.¹⁴

Table 2: Correlation between Mean blood pressure (MBP) and Low density cholesterol (LDL-C)

		MBP	LDL-C
MBP	Pearson Correlation	1	.521**
	Sig. (2-tailed)		.000
	N	100	100
LDL-C	Pearson Correlation	.521**	1
	Sig. (2-tailed)	.000	
	N	100	100

** Correlation is significant at the 0.01 level (2-tailed)

In our study there was a significant correlation between mean blood pressure and HDL cholesterol levels. When HDL levels of hypertensive (45.0 ± 6.7) patients was compared with HDL levels of normotensive (48.08 ± 5.83) patients, there was significant fall in HDL levels of hypertensive patients as compared to normotensive patients. The study was similar to the study done by Gulab Kanwar, Neelam Jain et al which concluded that HDL-C levels were decreased in patients with hypertension compared to control.¹⁵

Table 3: Correlation between mean blood pressure (MBP) and high density cholesterol (HDL-C)

		MBP	HDL-C
MBP	Pearson Correlation	1	-.780**
	Sig. (2-tailed)		.000
	N	100	100
HDL-C	Pearson Correlation	-.780**	1
	Sig. (2-tailed)	.000	
	N	100	100
** Correlation is significant at the 0.01 level (2-tailed)			

In the study, we also compared triglyceride levels with mean blood pressure. When triglyceride level of hypertensive patients was compared with normotensive patients, there was a negative relation between the triglyceride level and hypertension. It was found to be insignificant ($p>0.05$).

Table 4: Correlation between mean blood pressure (MBP) and triglycerides (TG)

VLDL-C levels were also compared w

		MBP	TG
MBP	Pearson Correlation	1	.261**
	Sig. (2-tailed)		.009
	N	100	99
TG	Pearson Correlation	.261**	1
	Sig. (2-tailed)	.009	
	N	99	99
** Correlation is significant at the 0.01 level (2-tailed)			

ith mean blood pressure and was found to be insignificant ($p>0.05$), unlike other study conducted by Gulab Kanwar, Neelam Jain et al¹⁵ and Bini N.E., Adu E.M. et al¹⁶ in which it was found to be significant.

Table 5: Correlation between mean blood pressure (MBP) and very low density cholesterol (VLDL-C)

		MBP	VLDL-C
MBP	Pearson Correlation	1	.280**
	Sig. (2-tailed)		.005
	N	100	100
VLDL-C	Pearson Correlation	.280**	1
	Sig. (2-tailed)	.005	
	N	100	100
** Correlation is significant at the 0.01 level (2-tailed)			

Thus, our study showed that total cholesterol, LDL-C were found to be significantly high in hypertensive patients and HDL-C was found to be decreased in hypertensive patients while triglyceride and VLDL-C levels showed no positive correlation with hypertension.

In the present study it was found that the frequency of hypertension increases with increasing age in all groups which are in accordance with the former studies of M.S. Saha, N.K. Sanaet al.¹⁷

In this study, total cholesterol was found to be higher in females (205.3 ± 56.3) as compared to males (178.6 ± 51.8) which was statistically significant ($p=0.037$). In this study, all the other lipid fractions i.e. TG, LDL-C, HDL-C, VLDL-C, were found to be statistically insignificant in both males and females (p value >0.005) as seen in the study conducted by Srinivas Pai K, Sanjay B Bhagoji et al.¹³

In this study, BMI was found to be statistically insignificant in both males and females ($p=>0.005$)

Therefore, this study has shown a significant relationship between the mean blood pressure and total cholesterol, HDL-C, LDL-C, but no significant relationship was seen between hypertension, triglyceride and VLDL-C. In this study no significant correlation was found between triglyceride levels of hypertension patients and normotensive patients. In the present study no significant correlation was found between VLDL-C and mean blood pressure.

Thus our study shows that dyslipidemia is more common among hypertensive patients, and among the parameters, total cholesterol, HDL-C, LDL-C were found to be abnormal compared to triglycerides and VLDL-C.

CONCLUSION

This study concludes that the incidence of dyslipidemia is increasing at a rapid rate in developing and

developed countries. Hypertension and hyperlipidemia occur together more often than it is expected by chance. There is some evidence that hyperlipidemia itself may predispose to hypertension and that lipid lowering interventions may have a beneficial effect on blood pressure and on endothelial dysfunction. Hypertension and dyslipidemia are the two major contributing risk factors for heart disease. Our study and several other studies have shown that:-

1.The serum lipid profile of hypertensive patients were deranged significantly compared to normotensive patients.

2.No significant difference was seen in serum lipid profile between hypertensive males and females.

3.Of 100 hypertensive patients only 20-31% patients had altered serum lipid profile.

Thus, it was concluded that serum lipid profile can serve as an important marker for screening hypertensive patients for cardiovascular diseases, and their early detection can reduce cardiovascular morbidity and mortality. More so, in this study total cholesterol, HDL-C, LDL-C, and BMI were found to be abnormal in hypertensive patients, but triglycerides and VLDL-C did not show any significant variation with hypertension.

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Examining the Relationship between Organizational Environment and Public Health with Interpersonal Forgiveness in Women Working in Department of Education in Ahvaz

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ABSTRACT

The aim of the present study was examining the relationship between organizational environment and public health with interpersonal forgiveness in women working in Department of Education in Ahvaz. The sample included 150 women working in Department of Education that were selected by random sampling method. Interpersonal Forgiveness Questionnaire (FS), Organizational Environment Questionnaire and General Health Questionnaire (GHQ) were used in the presents study. The research design was correlational. Simple correlation coefficient at the level of $\alpha = 0.05$ showed there is a significant difference between organizational environment and general health with interpersonal forgiveness among women working in Department of Education. Stage regression analysis also showed the general health variable is the only predictor interpersonal forgiveness among women working in Department of Education.

Keywords: *Organizational environment, General health, Interpersonal forgiveness*

INTRODUCTION

Having a meaningful and satisfying interpersonal life involves growing traits such as capacity, enrichment and cooperation. In addition to these attributes, the parties in a close relationship must be able to bear, cope and forgiveness of mistakes and each other's inevitable defects confront. Forgiveness is one of the reactions that makes the continuity of the relationship possible despite of mistakes, betrayal and failure in satisfying the expectations. Forgiveness does not let the inhibiting negative emotions of intimacy overcome the individuals and this reaction (forgiveness) is the representative of individuals' more complicated cognitive capacity. Forgiveness lets the relationships continue and enhances the intimacy despite the threats. Hence, forgiveness is an important tool in keeping and continuity of serious and long-term relationships. It is found that a set of factors facilitate or braze the ability to forgive the wrongdoer after betrayal or interpersonal damage ¹. Forgiveness

is a positive personality trait that is studied in Western countries in last three decades and limitedly in Iran recently. Forgiveness includes feature in which the person who is abused or hurt in interpersonal relationships forgives the wrongdoer.

Effective organizations are considered as the most important tools in achieving development in a society and the organizations become effective that in addition to other necessary conditions have an appropriate environment. Various definitions are proposed of organizational environment. One of them is that organizational environment is an environment that individuals work in it and is the reflector of employees' attitude and the way of managing the organization. In another definition, organizational environment is told to common understanding of policies, habits and formal and informal procedures. Also, organizational environment includes a value system, i.e., the way of doing things and the behaviors that should be rewarded, are identified ². General health is the other variable that is associated with interpersonal forgiveness. The health of the society is one of the axes of evaluating the health of various societies. Undoubtedly, psychological health plays an important role in assurance of dynamism and efficiency of each society ³. Psychological health is one

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of the issues that is discussed nowadays. Psychological health is one of the issues that individuals are seeking in life. Since, psychological health is considered as a vital need for improving quality of life in individuals' life, World Health Organization (WHO) considers health as a state of complete physical, mental and social well-being and not merely the lack of disease. Psychological health is identified as a state of well-being in which the individuals identify their abilities, use them effectively and productively and is useful for the society ⁴.

Forgiveness is a variable that has been studied limitedly recently in Iran, therefore, there are not studies that directly deal with the relationship between organizational environment and forgiveness in Iran. Thus, in case of Iranian researches, other researches that have been conducted in case of the variables of the present study with forgiveness will be addressed. Babadoost (2014) showed in a study that there is a positive significant relationship between organizational intelligence and safe attachment style and forgiveness. Also, organizational intelligence was the best predictor of forgiveness in employees ⁵.

Considering the Islamic society and the necessity of moral principals in the relationship with others, the importance of forgiveness in the relationship with others, especially in organizations such as Department of Education is identified. In fact, forgiveness is necessary in relationships and causes maintaining and stability of the relationship in long time, developing intimacy and flourishing. Finally, because of dispersed researches and lack of cohesive researches, highlighting the role of variables especially organizational environment in predicting interpersonal forgiveness in employees and research gap in case of simultaneous study of two variables (organizational environment and mental health), conducting this research is of great importance. Also, considering the importance of forgiveness in individuals' personal, family, social and occupational life and preventing disintegrating interpersonal relationships and identifying related and effective factors on forgiveness, doing research in this case seems necessary. Therefore, in case of considering the factors effective on forgiveness, it can be expected that by increasing the level of forgiveness, many of mental, emotional and social problems of the families and society will decrease. Also, by promoting the level of interpersonal forgiveness, people of society will deal with growth, ascendancy and social, cultural and economic services and families will take benefit of this progress. Therefore, the present study aims to study whether there is a relationship between attachment styles, organizational environment and general health and interpersonal forgiveness in women working in Department of Education in Ahvaz or not.

METHOD

All women working in Department of Education in Ahvaz in 2015 consisted the statistical population of the study. The sample includes 150 women working in Department of Education that were selected by simple random sampling method.

Tools

1. Interpersonal Forgiveness Questionnaire (FS):

This questionnaire is a self-assess tool that is designed by Rye et al., (2001) ⁶. The main scale had 16 items and one of its items was omitted after doing factor analysis and it turned into 15 items. The questions are designed on a five-option Likert scale from 1 (Totally disagree) to 5 (Totally agree). Scoring of items number 1, 3, 4,5,8,10,12, and 14 is reversed ⁶. Also, this scale has two subscales (lack of negative reaction and existence of positive reaction) and the validity of both subscales is reported appropriate. Chronbach's alpha of 0.86 and 0.85 was reported respectively for lack of negative reaction scale and existence of positive reaction scale. Its test-retest validity was 0.76 for both subscales and 0.80 for the whole scale ⁷.

2. Organizational Environment Questionnaire:

The program of innovative organizational environment was first made by Siegel and Caimier (1978). This questionnaire has 24 items and is planned in a descriptive form. By emphasis on the theoretical basis that exist in case of organizational environment, two subscales of this questionnaire including protect from the creativity and supplying the sources for innovation in organizations are criticized. This questionnaire can be used for all personnel of the organizations from the managers to employees. The responses of the questionnaire are on a 5-option Likert range from totally disagreeing to totally agree. Thus, it can be said that the scoring of the questionnaire is from 23, that represents the lowest organizational innovation, to 115, that represents the highest organizational innovation. Some researchers have been conducted to evaluate the reliability of the Organizational Environment Questionnaire. Afshari & Anami (2006) reported Chronbach's alpha of 0.79 and 0.74 for this questionnaire. The criterion reliability of this questionnaire was reported 0.46 and 0.30 for this questionnaire ⁸.

3. General Health Questionnaire: To assess the general health in women working in Department of Education in Ahvaz, General Health Questionnaire was used. This questionnaire first was set by Goldberg (1972) ⁹. The main questionnaire has 60 items but short forms with 30 items, 28 items and 12 items were used in various

studies. Researchers believe that various forms of this questionnaire have high validity and efficiency and the efficiency of 12-item form is the same as 60-item form¹⁰. 28-item form was used in the present study. The 28-item form was designed by Goldberg and Hilier (1979) by implementing factor analysis method on its long form. Various studies were conducted about the reliability of GHQ¹¹. In a study by Azizanmortazavi (2010), the reliability coefficients of GHQ were calculated using Chronbach’s alpha method that was 0.90 and 0.77 for the whole scale and indicated acceptable reliability for the questionnaire. In the present study, to calculate the reliability of GHQ, Chronbach’s alpha was used that was 0.94 for the whole questionnaire and showed pleasant reliability coefficients for the questionnaire¹².

FINDINGS

Descriptive findings:

Descriptive findings of this research including statistical indices such as mean and standard deviation for all studied variables are presented in Table 1.

Table 1. Descriptive Statistic

Mean	SD	N	Indices Variable
54.31	11.05	150	organizational environment
20.23	12.65		disturbance general health
66.73	8.19		interpersonal forgiveness

Table 4. Multidimensional correlation coefficients of predicting variables

Method	Predictive Variable	R	R2	F	β	t	P
“log in”	organizational environment	0.65	0.43	21.66	0.12	1.87	.062
	disturbance in health				-0.31	-4.58	0.0001
“ Phase”	disturbance in general health	0.62	0.38	46.04	0.43	6.66	0.0001
					-0.39	-6.09	0.0001

CONCLUSION

The aim of the present study was examining the relationship between organizational environment and general health with interpersonal forgiveness in women working in Department of Education. As it can be seen in Table 2, there is a positive significant relationship between

2. Findings related to the research assumptions

The present study includes all the following assumptions that every assumption is presented here with the results obtained from its analysis.

1. There is a relationship between organizational environment and interpersonal forgiveness in women working in Department of Education.

Table 2. Simple correlation coefficients between organizational environment and interpersonal forgiveness in women working in Department of Education

(r)	(p)	(n)	Indices Predictive Variable	Criterion variable
0.28	0.001	150	organizational environment	interpersonal forgiveness

2. There is a relationship between disturbance in general health and interpersonal forgiveness in women working in Department of Education.

Table 3. Correlation coefficients between disturbance in general health and interpersonal forgiveness in women working in Department of Education

(r)	(p)	(n)	Indices Predictive Variable	Criterion variable
-0.44	0.0001	150	disturbance in general health	interpersonal forgiveness

organizational environment and interpersonal forgiveness in women working in Department of Education ($r= 0.28$, $P=0.001$). Therefore, the first assumption is confirmed. In other words, the more organizational environment increase in women working in Department of Education, the more the interpersonal forgiveness increases in them. The results of this assumption are consistent with the

results of researches by Babadoost (2014)⁵, Helali (2010)¹³ and Gorsuch (2012)¹⁴. Gorsuch (2012) concluded in a study about the forgiveness and organizational environment that there is a positive correlation between three kinds of forgiveness (from the others, from God and forgiving others)¹⁴.

As it can be seen in Table 3, there is a negative significant relationship between disturbance in general health and interpersonal forgiveness in women working in Department of Education ($r = -0.44$, $P = 0.0001$), therefore, the second assumption is confirmed. In other words, the more disturbance in general health increase in women working in Department of Education, the less the interpersonal forgiveness in them. It should be explained that considering the scoring of General Health Scale, high score indicates disturbance in general health. The results of this assumption is consistent with the results of studies by Helali (2010)¹³, Ehteshamzadeh et al (2008)¹⁵, Bahari & Saif (2004)¹⁶, Keller (2014)¹⁷, Dey (2012)¹⁸, Ysseldyk et al (2007)¹⁹, Orcutt (2006)²⁰. In explaining this assumption it can be said that one of the axis of evaluating the health of various societies is the health of that society. Undoubtedly, psychological health has an important role in assurance of the dynamism and efficiency of each society

As it is shown in Table4, predicting regression of interpersonal forgiveness in women working in Department of Education is significant in case of organizational environment and disturbance in general health ($F = 21.66$, $P < 0.0001$), therefore, the third assumption is confirmed. Disturbance in general health variable with beta coefficient of 0.31 can negatively and significantly predict interpersonal forgiveness in women working in Department of Education. Also, the amount of R^2 shows 43 percent of the variance of interpersonal forgiveness in women working in Department of Education is explained by the stated variables. The results of stage regression analysis showed that only disturbance in general health predicts interpersonal forgiveness in women working in Department of Education. In explaining this assumption it can be said that individuals with general health do not do rumination about the mistakes that they do or others do and try to look at it positively and because of that have rational attitudes to their vexation and solve them and because of having this rational attitude, are able to solve themselves and the others.

The present study had some limitations including: Low cooperation, lack of interest and fear of disclosure of life secrets and inner secrets in some participants in completing the questionnaire. The sectional nature of this study reduces the possibility of generalizing the results to some extent. A lot of distributed questionnaires were not

returned and some of the returned questionnaires were omitted because of lack of complete answering and it can be because of low motivation in participants. Therefore, it is recommended such studies be conducted on other societies, regions and age groups. Since this research was only conducted on females, it is recommended to conduct researches on both sexes in future. Considering the results about interpersonal forgiveness, judging about the superiority of the employees is so difficult, therefore it is recommended to apply those individuals in organizations that have higher interpersonal forgiveness. It is recommended employees of Department of Education become familiar with the concept of interpersonal forgiveness through workshops and the ground of gaining necessary knowledge and skill for identifying, controlling and changing organizational environment be provided considering the understanding of the members of Department of Education and creating an environment full of intimacy in the Education System.

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Impact of Parental Education on Birth of Healthy Children in India

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ABSTRACT

Major cause of neonatal and infant mortality is caused due to congenital anomalies especially in developing countries, accounting for around 30 % of infant deaths. Low socio-economic condition and educational status play an important role in increased risk of still birth, congenital anomalies, and preterm labour and fetal death rates. Among other socio-economic disparities, determinants, such as low body mass index (BMI), inadequate weight gain during pregnancy, poor nutrition and short stature are all associated these risks. Understanding, how these factors are relating to congenital anomalies arise is key to implementing effective public health interventions to reduce socioeconomic inequalities in infant and neonatal mortality.

In the present study, the author has quantified the effects of different demographic factors on the prevalence of babies with abnormalities and to analyze the education and socioeconomic factors related to pregnancy outcome and neonatal mortality in association with congenital anomalies in Mysore population. In the present study a total of 691 chromosomal aneuploidy cases were collected from different hospitals of Mysore city over a period of 20 years from 1989-2009. To generate case- control data set randomly selected 700 healthy children from different religions, localities and hospitals in and around Mysore city were used. Logistic regression was performed using the software, SPSS version 10.0 to record the effect of the variables in both controls and cases. Out of 7, 20,000 babies 691 are born with chromosomal abnormalities and Down syndrome stands first with 82.77% among them whereas cri-du chat is least prevalent accounting for 0.28%. Parental education , parents from Urban area, education of the parents and prenatal diagnosis showed significant difference in the odds ratios. These studies indicate that medical awareness is essential for each parent whether they belong to urban or rural regions and proper prenatal diagnosis has to be implemented in all health care centers both in rural and urban areas.

Keywords: Parental education, Prenatal diagnosis, Abnormal children

INTRODUCTION

India's health goals for the year 2000 included reducing the national mortality rate for children under 5 years of age to less than 100 per 1000 live births; the infant mortality rate to less than 60 per 1000 live births; and the perinatal mortality rate to less than 85 per

1000 live births. Biological and socio-economic factors strongly influence child mortality and there is a strong tendency for child deaths to cluster within families, even after controlling for many socio-economic and biological factors There is, of course, widespread awareness that the mother's abilities are important for the child's health, as evidenced in the discussion of the role of mother's education as well. Every year, an estimated 7.9 million infants (6% of worldwide births) are born with serious birth defects. Although some congenital defects can be controlled and treated, an estimated 3.2 million of these children are disabled for life. Moreover, birth defects are the leading cause of infant mortality. Although

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some birth defects are inherited, others are a product of harmful environmental factors known as teratogens, and still others are multifactorial, resulting from a complex interaction of genetic and environmental influences. However, in approximately half of all birth defect cases, the causes are unknown.¹ Socioeconomic inequalities in congenital anomalies have been shown to exist in the rates of stillbirth and perinatal, neonatal and infant mortality.² It is difficult to overemphasize the importance of prenatal environment to a developing fetus. Indeed, a pregnant mother's health, diet, and level of exposure to toxins and environmental pollutants all have a direct effect on fetal development.

Numerical and structural chromosomal anomalies are the common cause of fetal death, congenital malformations and mental retardation in humans. It has been estimated that at least 5% of all human conceptions are aneuploidy, most of them resulting in pregnancy losses.³ Approximately 10-20% of all clinically recognized pregnancies end in abortion with trisomy 21 resulting in Down syndrome which is the most common chromosome abnormality in newborns. This disease is associated with mental retardation, immune system disorders, autoimmune problems, premature aging, alzheimer disease at the age of 30-40 years.^{4,5} Chromosomal aneuploidies are the exceeding, discouraging and frustrating problem for the parents as well as the physicians.

There have not been many epidemiological studies assessing the association between aneuploidy and parental demographic factors in India particularly in Mysore. In the present study, the author has quantified the effects of different demographic factors on the prevalence of babies with abnormalities and examined the interaction of possible socio economic factors in Mysore population.

MATERIALS AND METHOD

The genetic register was constructed for each case based on the records which were maintained in different hospitals. The complete clinical assessment of the proband information pertaining to age, sex, religion, caste, place of birth, birth order, any associated medical problems of the proband and also reproductive history, health history and education, occupation of the parents, parental consanguinity and other relevant details were collected.

The registered cases were collected from different hospitals of Mysore city over a period of 20 years from

1989-2009. This register is population based and included information regarding total live births, stillbirths (from 24 weeks of gestation), spontaneous fetal loss (before 24 weeks of gestation), termination of pregnancy because of fetal anomaly at any gestational age, congenital anomalies in fetuses and infants of mothers living within the region. The history related to antenatal screening, antenatal ultrasonography, delivery reports, birth notifications, pathology, cytogenetics, clinical genetics, and paediatric surgery were also collected. Information on maternal age, reproductive history ethnicity, end date of pregnancy, and gestation at delivery were recorded.

Chromosomal aneuploidy cases

In the present study a total of 572 Down syndrome, 62 Klinefelters, 45 Turners, 2 Cri-du chat, 10 fragile X syndrome cases were collected from different hospitals of Mysore city over a period of 20 years from 1989-2009. The age of the children ranges from newborn to 18 years. An informed consent was obtained from the hospitals before include them in the study.

Control population

Randomly selected 700 healthy families belonging to different religions as well as different localities and hospitals in and around Mysore city in South India were used as controls. To generate case-control dataset for the analysis of chromosomal abnormality 691 patients of chromosomal aneuploidy and one randomly selected child from each of the 700 control families were used.

Statistical analysis

Logistic regression was performed using the software, SPSS version 10.0 to record the effect of the variables. Case control status was used as dependent variable and region wise distribution, education status of parents, prenatal diagnosis as covariates. Results were reported as odds- ratios from models with one variable at a time.

RESULTS

Table 1 shows the distribution of chromosomal aneuploidy conditions from 1989-2009 in Mysore population. Out of 7, 20,000 babies 691 are born with chromosomal abnormalities over a period of 20 years. Among these abnormalities Down syndrome stands first with 82.77% and cri-du chat condition is least prevalent accounting for 0.28%. Table 2 represents the comparison

of risk factors between controls, Down syndrome (DS) and sex chromosomal aneuploidy families in Mysore population along with logistic regression analysis. Figure 1 indicates the significant differences between control and cases for variables. Table 3 shows the result of the logistic regression analysis of case-control study of chromosomal aneuploidy condition. The analysis was done at all combinations to establish specific relationship of each possible risk factor with other variables. The 95% confidence intervals for the effect of region wise distribution, education status of parents, and prenatal diagnosis as covariates. The odds ratios were significant when all the three variables were used one at a time. Urban area of the parents, education of the parents and prenatal diagnosis showed significant difference in the odds ratios.

DISCUSSION

Chromosomal aneuploidies arise as a result of nondisjunction of chromosomes which occurs when chromosome fail to segregate properly during meiosis. A nondisjunction error may result in aneuploidy gametes that are disomic and nullisomic of the nondisjoined chromosomes. Subsequently fertilization of these types of gametes results in trisomy, monosomy for the nondisjoined chromosome and most often, the aneuploid fetus is aborted spontaneously. The only well established risk factor in causing nondisjunction was advanced maternal age.⁶ Risk factors other than these are subtle in their nature not directly linked are socio-economic factors. In the present study, the prevalence of Chromosomal aneuploidy is 0.09%. The reduced prevalence in recent years is because of parental awareness and prenatal diagnosis in urban areas.

Vermaet *al.* (1998)⁷ have reported that the frequency of congenital malformation was more in babies born to rural mothers than urban mothers. Various factors like low socio-economic status, environmental factors, inadequate antenatal care and nutritional deficiency like folic acid could be contributory for malformation in rural areas. Booked antenatal deliveries had a lower malformation incidence as compared to unbooked deliveries and the difference was significant. Unbooked deliveries are a result of unmonitored pregnancies with poor antenatal detection of medical diseases in the mothers, fetal anomalies and other potential teratogenic effects. This could have been either due to early detection and termination in booked mothers in urban

region.^{8,9} Government institution born children were at a significantly higher risk of malformation than private hospitals. Reason postulated for this difference is the poor socioeconomic status of those preferring to deliver in a government hospital and receiving no antenatal care.⁹

Present study indicates the increased number of chromosomal aneuploidy among children born in rural areas than urban areas. The logistic regression analysis using these as two covariates have shown that when they were considered separately one at a time, the effect of rural region of the parent was not diluted showing an increase in odds by 57% per extra year. These studies indicate that medical awareness is essential for each parent whether they belong to urban or rural regions.

The educational gradient found in the Down syndrome parents might reflect selective impact on maternity care, prenatal diagnosis, elective termination, and acceptance of prenatal diagnostic measures. The parents with lower socioeconomic status often have few options for maternity care and little knowledge of prenatal testing are supported by the case sheets. Dzurova and Pikhart (2005)¹⁰ have reported the effects of education on the odds of Down syndrome at birth, and hypothesized that the age related increase in the odds of Down syndrome at birth is higher for women with lower levels of education due to their unawareness about the use of prenatal diagnosis.

In the present study, when the educational status of parents was considered by applying logistic regression analysis the effect of parental education (awareness about genetic disorders) was not diluted showing an increase in odds by 24% per extra year respectively. This analysis supports that the literacy is an essential component for the parents to help them to have better awareness about pregnancy maintenance and to have healthy progeny.

The study of women undergoing prenatal diagnosis evaluated recurrent early pregnancy loss as a predictor of abnormal karyotype by amniocentesis.¹¹ Hence, advances in prenatal diagnostic and intervention services combined with differential access and use of such services can result in increased socioeconomic disparities in the risk of birth defects.

In this study, least number of mothers of chromosomal aneuploidy children had undergone prenatal diagnosis than controls. Among the affected families generally the prenatal diagnosis like scanning was done only at the

primitive level and not by competent authority in rural areas. The logistic regression analysis using the covariate has shown that when the covariate was considered one at a time, the effect of mother not undergone prenatal diagnosis was not diluted showing an increase in odds by 18% per extra year. This shows that the prenatal diagnosis like scanning at first trimester is very essential factor to know the health condition of the developing fetus. By

chance, if the fetus is abnormal it can be terminated successfully in the first trimester. Therefore, proper prenatal diagnosis has to be implemented in all the health care centers both in rural and urban areas. This shows prenatal diagnosis like scanning a noninvasive diagnosis at first trimester, is very essential factor to know the health condition of the developing fetus.

Table 1: Distribution of chromosomal aneuploidy conditions from 1989-2009 in Mysore population.

Chromosomal aneuploidy	No. of cases (n=691)	%
Down syndrome	572	82.77
Turner syndrome	45	6.51
Klinefelter syndrome	62	8.97
Fragile X syndrome	10	1.44
Cri-du- Chat syndrome	2	0.28

Table 2: Comparison of risk factors between controls, Down syndrome (DS) and sex chromosomal aneuploidy families in Mysore population along with logistic regression analysis (c.i. = confidence intervals).

Region-wise distribution		Down syndrome		Sex chromosomal aneuploidy	
Region-wise distribution	Urban	0.131 (0.079;0.219)	0.131	0.262 (0.105;0.651)	0.04*
	Rural	7.618 (4.576;12.682)	0.0001*	3.818 (1.537;9.488)	0.04*
Exposed to chemicals	Father	7.106 (2.364;21.361)	0.0001*	4.749 (1.256;17.959)	0.022*
	Mother	3.213 (0.817;12.637)	0.095	8.608 (0.748;99.05)	0.084
	Father and Mother	5.828 (2.455;13.837)	0.0001*	2.811 (0.444;17.810)	0.272
Uneducated member	Father	4.166 (1.948;8.907)	0.0001*	5.769 (2.133;15.564)	0.001*
	Mother	2.174 (1.257;3.759)	0.0001*	3.672 (1.479;9.117)	0.005*
	Father and Mother	3.409 (2.105;5.519)	0.0001*	2.591 (0.575;11.665)	0.215
Prenatal scanning	Mother not undergone prenatal scanning	3.42 (0.191;0.611)	0.0001*	1.33 (0.453;3.923)	0.602

*pis significant at 0.005

Table 3: Distribution of possible risk factors between controls and chromosomal aneuploidy families in Mysore population along with logistic regression analysis (c.i. = confidence intervals).

Variables	Logistic Regression Analysis	
	Univariate	
	Odds ratio (95% c.i.)	P value
Parents from Urban region	0.571 (0.461;0.706)	0.0001*
Educate parent	0.244 (0.190; 0.311)	0.0001*
Mother undergone prenatal scanning	0.186 (0.146;0.237)	0.0001*

*P is significant at 0.005

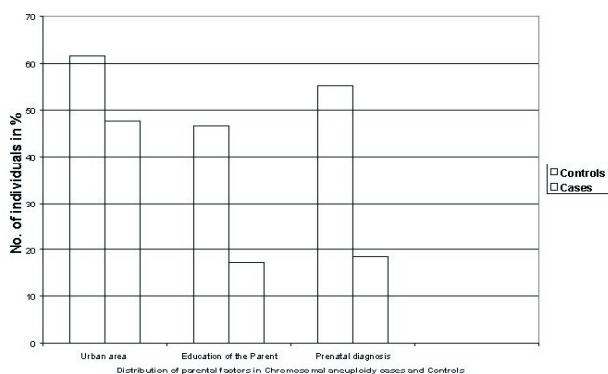


Figure 1: Distribution of parental factors in control (700) and chromosomal aneuploidy (691) families.

CONCLUSION

The rapid advances in molecular genetics over the last few decades, increases the knowledge about genetic diseases. This enormous data is finding applications in clinical management of diseases in the form of genetic counseling, carrier detection, pre-symptomatic and prenatal diagnosis. Prenatal diagnostic techniques are introduced in different countries therefore termination of pregnancy because of congenital anomaly have seen large reductions in neonatal mortality rates, unlike those countries with more restrictive policies on pregnancy termination. Nevertheless, the impact of these secondary preventative measures might vary with socioeconomic deprivation in terms of access to, and timing of, antenatal detection services through to the provision of information, the interpretation of risk, and the consequent decision regarding continuation or termination of a pregnancy.

The families of the present study were counseled depending on their genetic problems to decide whether to have healthy children by calculating the probabilities of passing of the disorders using family history or pedigree

of parents. The author along with the team leader assisted the clinicians and patients by explaining the inheritance patterns of genetic diseases and recurrent risks to patients. The ultimate goal of research in genetic disorders should be to improve the lives of people with abnormalities and their families. Neonatal mortality is being reduced by termination of pregnancy through antenatal screening for congenital anomalies. Efforts are being made to reduce the frequencies of genetic abnormality in the population by targeting the rate of reproduction by those individuals who are susceptible to give birth to affected offspring. Therefore, antenatal and new born screening for inheritable diseases, awareness about genetic diseases is being established as a preventive public health programme on a priority basis as immunization program.

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Ethical Clearance- Institutional Human Ethical committee (IHEC) of the University of Mysore (IHEC-UOM No. 34/Ph.D/2009-10)

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Role of Crush Cytology in Intraoperative Central Nervous System Tumours with Histopathological Correlation

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ABSTRACT

Introduction – Fine needle aspiration of intracranial space occupying lesions is difficult due to the closed architecture. Crush cytology is the only possible way to provide a rapid & reliable diagnosis. Crush cytology also known as Squash cytology yields a superior cytological detail of cells as it is devoid of freezing artefacts.

Aims & objectives – To assess the efficacy of intraoperative crush cytology as a standalone method in the rapid intra-operative diagnosis of intracranial tumor and tumor like lesions.

Materials & method – Cases of various intracranial space occupying lesions were studied. Patients were investigated by various radio imaging techniques, routine cardiac & laboratory tests. Patient was operated according to the clinical need and the decision was made by the operating surgeon in the benefit of the patient. Intraoperative crush smear cytology was performed and was correlated with the histopathological diagnosis of the sample which was simultaneously sent for histopathological examination. The study was carried out at Mahatma Gandhi medical college, a referral tertiary care centre.

Results – The cases where the intraoperative cytological diagnosis was same as histopathological diagnosis, including the grade of the malignant tumor, was considered as complete correlation.

Keywords – CNS Tumors, intraoperative diagnosis, crush/squash cytology

INTRODUCTION

Central nervous system is one of the most challenging domains for the pathologist. Making the diagnosis of CNS lesions is difficult on the basis of clinical and radiological findings only. Cytological &/or histological diagnosis is required for confirmation and proper management. Role of intraoperative pathological diagnosis is crucial in neurosurgery helping the neurosurgeon to plan the extent of surgery and modify it accordingly. Besides rapid decision making during neurosurgical procedures it is also ensured that minimum injury is caused to the normal

brain structures surrounding the intracranial neoplasm. With the advent of CT guided stereotactic biopsies it has regained importance and momentum.

MATERIAL AND METHOD

Current prospective study was undertaken to assess the utility of intraoperative consultation for rapid cytomorphological diagnosis by crush/squash smear and its histopathological confirmation. Intraoperative cytology is an important diagnostic tool and has a special role in the diagnosis of CNS tumours. This study was done to assess the accuracy of crush cytology as a standalone diagnostic test in guiding the surgeon & its comparison with HPE.

METHODOLOGY OF CRUSH SMEAR

In neuropathology commonly practiced is, small fragment of tissue can be compressed between the two

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slides – crushed or squashed and gently smeared. Alternatively, a scalpel blade can be used take 1-2 mm of tissue material on the slide and crushing with another slide with just enough pressure to spread the tissue into a thin film. It is then fixed with 95% alcohol and stained by hematoxylin & eosin (H & E). Paraffin sections were prepared for histopathological diagnosis. Tumours were classified according to the WHO classification & subjected to appropriate statistical analysis methods.

TABLE- 1

S.No.	Tumours studied	Number	Cytological diagnosis	Histopathological diagnosis	Remarks
1.	Astrocytic tumours - Pilocytic - Anaplastic - Glioblastoma multiforme	<u>27</u> 02 09 16	Low grade gliomas-pilocytic High grade gliomas High grade gliomas (WHO grade IV)	Pilocytic astrocytoma (WHO grade I) Anaplastic astrocytomas(WHO grade II & III) GBM (WHO grade IV)	Difficulty is grading 2 gliomas.
2.	Embryonal tumors - Medulloblastomas	<u>06</u> 06	Medulloblastomas	Medulloblastomas	Complete correlation
3.	Tumors of cranial & Para spinal nerves - Schwannoma - Neurofibroma	<u>13</u> 11 02	Schwannoma Neurofibroma	Schwannoma Neurofibroma	Complete correlation
4.	Meningeal tumors - Tumors of meningotheial cells	<u>16</u> 16	Meningioma	Meningioma	Grading and variant was difficult in one case
5.	Ependymal tumors	<u>04</u>	Ependymal tumors	Ependymal tumors	One was d/d between medulloblastomas & ependymoma on crush cytology & biopsy. Considered as complete correlation. Adv. Markers.
6.	Oligodendroglial tumors	<u>04</u>	Oligodendroglial tumors	Oligodendroglial tumors	Complete correlation
7.	Tumors of the sellar region - Craniopharyngioma - Granular cell tumor of the neurohypophysis	<u>21</u> 04 17	Craniopharyngioma Pituitary adenoma	Craniopharyngioma Pituitary adenoma	Complete correlation One was doubtful as papillary variant or mets (??) on both crush smears & biopsy. Considered as complete correlation Advised markers.
8.	Tumors of haemopoietic system - Plasma cell tumor - Lymphoma	<u>05</u> 01 04	Hemopoietic malignancy Lymphoma	Plasma cell tumor Lymphoma	Considered as complete correlation
9.	Metastatic tumors	<u>04</u>	Metastatic	Metastatic	Complete correlation

TABLE 2 – Histopathological and Crush smear comparison

Total number of cases (n)	n = 100
Correct histopathological diagnosis	100
Correct Cytological diagnosis	97
Cases misinterpreted on cytology	03

TABLE 3 – Determination of accuracy

Histopathological diagnosis	Total cases (n =100)	Correct cytological diagnosis	Accuracy
Astrocytic tumors	27	25	92.59 %
Embryonal tumors	06	06	100 %
Tumors of cranial & Para spinal nerves	13	13	100%
Meningeal tumors	16	15	93.75 %
Ependymal tumors	04	04	100 %
Oligodendroglial tumors	04	04	100 %
Tumors of the sellar region	21	21	100%
Tumors of hemopoietic system	05	05	100 %
Metastatic tumors	04	04	100

TABLE 4- Detail of cases in which there was discrepancy –

Tumor	Final histopathological diagnosis	Cause of discrepancy	Cases misinterpreted on cytology
Astrocytic tumors	Astrocytic tumors	Difficulty in grading two gliomas as Grade III. Were diagnosed as grade II	02
Ependymal tumors	Ependymal tumors	D/D/ Medulloblastomas /ependymal tumor	Biopsy report was same, advised markers, not done
Tumors of sellar region	Tumors of sellar region	Papillary variant of pituitary adenoma /metastasis	01 Biopsy report was same ,advised markers, not done
Tumors of hemopoietic region	Tumors of hemopoietic region	Plasma cell tumor was not identified but reported as hemopoietic malignancy.	Counted as correlated.
Meningeal tumors	Meningeal tumors	Grading and variant was difficult in one case	01

RESULTS

The study includes central nervous system tumors and their cytological and histopathological correlation. 100 patients with intracranial space occupying lesions were studied. 27 astrocytic tumors with 2 cases of pilocytic astrocytoma, 9 anaplastic and 16 cases of glioblastoma multiforme. This cytological and histopathological correlation was 92.59 % with difficulty in grading two gliomas which were graded as WHO grade II on cytology and were reported as WHO grade III on histopathology.

There were 6 embryonal tumors reported as medulloblastomas on both cytology and histopathology and there were 4 ependymal tumors of which one case was D/D between medulloblastomas & ependymoma on both cytology and histopathology. Were advised marker studies which were refused done by the patient .This case has been reported as complete correlation of cytology and histopathology. There was 100 % correlation in embryonal & ependymal tumors.

16 meningeal tumors were reported of which in one

case cytological grading and variant was not correctly interpreted. Accuracy was 93.75%. Oligodendroglial tumors were 4 and reported with complete correlation similar to 13 tumors of cranial and Para spinal nerves with 11 cases of schwannoma & 2 of neurofibroma.

21 cases of tumors of the sellar region were studied of which 4 craniopharyngioma showed complete correlation while out of 17 cases of pituitary adenoma 16 showed correlation while one case was D/D between papillary variant of pituitary adenoma and metastasis on both crush cytology and biopsy. Counted as complete correlation. (100%) Markers were advised for confirmation but were not done.

5 cases of tumors of hemopoietic system were studied of which 4 lymphomas were correlated but one was reported as hemopoietic malignancy and on biopsy it was plasma cell tumor. It has been included as complete correlation. (100%)

4 cases of metastasis were reported with complete correlation. (100%). one case was metastatic thyroid, two were metastatic renal cell carcinoma and one was epithelial neoplasm.

DISCUSSION

Importance of crush cytology in intraoperative diagnosis of intracranial space occupying lesions has been proved in many studies.^(8,9,10,11) In our study, overall diagnostic accuracy was 97 % in concordance with other studies with diagnostic accuracy varying from 86 to 97.3 %.^(1, 2, 3, 4, 5, 6, 7) Squash /crush cytology is a simple and rapid and provides good cellular details in minimal time and is devoid of freezing artifacts occurring in the frozen sections making it superior to frozen sections. Some authors believe that cytological preparation provides better morphology than frozen section with even minute amount of tissue.^(11, 12, 13, 14)

In our study, we were able to grade most of the tumors by crush cytology. A good cytological and histopathological correlation including the grade was seen in almost all types of intracranial tumors. Crush smear cytology with adequate material provides the benefits of both good cytology and histopathology⁽¹⁵⁾

The goal of a pathologist in intraoperative setting is not to diagnose and grade every case definitively, rather to provide sufficient preliminary information to optimize surgery.

As brain tissue is soft and with high water content it renders poor quality frozen sections and thus crush cytology /squash preparation is more conclusive for opinion.

A precise diagnosis requires good correlation of clinical, radiological and histopathological data and this may be the reason of good results in our study.

CONCLUSION

Crush cytology/squash cytology is fairly accurate, simple and cost effective tool for rapid diagnosis in CNS lesions and it gives good cellular detail and even avoids freezing artifacts. However, correlation with clinical data as well as radiological CT & MRI findings increases the diagnostic accuracy.

Ethical Clearance – Taken

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Conflict of Interest - Nil

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Retrospective Study of Central Nervous System Tumors in a Tertiary Health Care Centre

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ABSTRACT

Introduction – Scenario in today’s world shows definite rise in the incidence of CNS tumors. The CNS tumors are underdiagnosed & under-reported due to differences in pathological diagnosis & reporting. The WHO tumor classification is still not in universal use. Differences in diagnostic practices make the geographic especially international comparisons difficult. Reporting the cases is important for the statistics & epidemiological studies. There is no similar study to the best of my knowledge from the region of Rajasthan.

Aims & objectives – This paper is to elicit the spectrum of CNS tumors reported in our medical college in a period of last one year from January 2015 to December 2015.

Materials & method – This study was carried out at a tertiary health care centre from January 2015 to December 2015. All patients operated in the department of neurosurgery for space occupying lesions in CNS were enrolled. All radiological and relevant lab investigations were done. Final diagnosis was based on histopathological examination and immunohistochemistry whenever needed. Data on the CNS tumors was collected and analysed in terms of age, gender and current WHO classification of histopathological types.

Results – Total of 139 CNS tumors were investigated and studied in last one year which revealed highest incidence of tumors of the sellar region- granular cell tumor of neurohypophysis and craniopharyngioma collectively comprising 45 cases (32.37 %) of which pituitary adenoma alone stands out with a percentage of 28.77 %. This was followed by astrocytomas (19.42 %) ,with GBM having highest incidence (9.35 %)

Conclusion – In contrast to other studies, which show highest incidence of GBM, this is the only study showing highest incidence of tumors of the sellar region- granular cell tumor of neurohypophysis and craniopharyngioma which is due to the facility of endoscopic surgery in our referral tertiary health care centre. Our centre is one of the very few centres in Rajasthan where Endoscopic endonasal surgery is done.

Keywords – CNS tumors, trends, incidence, developing countries

INTRODUCTION

There are significant differences in the incidences of cancers of brain in developed and developing countries.^{17,19} Less developed countries have low incidence, may be due to undiagnosed cases or unaccessibility to modern diagnostic facilities. They contribute significantly to

morbidity and have a poor prognosis. As CNS cancers are increasing, analytical epidemiological studies may help in understanding the etiology^{5,10}

As there is less data available for individual CNS tumors from the developing countries, this paper is an effort to show the patterns for the epidemiology of individual WHO classified CNS tumors. There is no detailed data available describing the trends CNS tumors as per WHO classification in nearby states of Uttar Pradesh, Haryana and Gujrat. Only a study is available from Punjab as per WHO classification.

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MATERIAL AND METHOD

This study is carried out at Mahatma Gandhi Medical College, Jaipur, Rajasthan from January 2015 to December 2015. Our hospital drains the state of Rajasthan, Punjab, Haryana & Madhya Pradesh, thus draining an adequate area to survey epidemiology of the CNS tumors in this area.

Patients operated in the department of neurosurgery for space occupying lesions in CNS were included after Relevant radiological and lab investigations. Final diagnosis was based on histopathological examination and immunohistochemistry wherever needed.

RESULTS

Total of 139 CNS tumors were investigated and studied in the period of last one year from January 2015 to December 2015. Results were tabulated according to their incidence, age of presentation, gender predilection and the WHO system of histological classification.

Our study showed highest incidence of tumors of the sellar region – granular cell tumor of neurohypophysis and craniopharyngioma collectively comprising 45 cases out of 139 (32.37%) of which pituitary adenoma alone stands out with a percentage of 28.77%. This high incidence is due to the facility of endoscopic surgery in our referral tertiary health care center. Our centre is one of the very few referral centres where endoscopic endonasal surgery is done in Rajasthan.

This was followed by astrocytomas (19.42%), meningeal tumors (15.82%), metastatic lesions and cranial and paraspinal tumors had equal incidence of 9.35%. Of the cranial and paraspinal tumors, schwannomas formed the major percentage of 7.91% and neurofibromas 1.43%.

In astrocytic tumors, glioblastomas were reported with highest incidence (9.35%) followed by anaplastic astrocytomas (6.47%). Least incidence was of pilocytic astrocytomas (1.43%)

Meningeal tumors comprised of 15.82% of which incidence of tumors of meningotheial cells was 13.66% and mesenchymal tumors comprised of 2.16% cases.

Rare tumors diagnosed at our center are the neuronal and mixed neuroglial tumors (2.16%) with central neurocytoma comprising 1.43% and glomus tumor 0.72%

. Tumors of hemopoietic system 1.44% with plasma cell tumor 0.72% and histiocytic tumor 0.72% having equal incidence.

Maximum number of CNS tumors presented in the age group of > 50 yrs (33.09%) followed by 31 to 40 yrs (24.46%) which is closely followed by the age group of 41 to 50 yrs (22.30%)

Of all the tumors reported, childhood tumors³¹ (< 20 yrs) were 7.91%.

Most of the CNS tumors show male preponderance except meningiomas and pituitary tumors which showed female predilection.

With special reference to the maximum incidence of the cases of the tumors of the sellar region, 45 cases, (32.37%) the granular cell tumor of neurohypophysis (pituitary adenoma) constituted 40 cases (28.77%) of which 39 presented as macroadenoma (97.5%) and 1 as microadenoma (2.5%). Mean age of presentation was 40.51% (range 24 to 76 yrs) and females 16 (40%) and males 14 (35%) comprised the part of the study showing slight predisposition in females.

Table 1 - Total CNS tumors -

S. No.	CNS tumors	Number of cases	Percentage (%)
1	Astrocytic tumors	27	19.42
2	Meningeal tumors	19	13.66
3	Ependymal tumors	04	2.87
4	Schwannoma	11	7.91
5	Neurofibroma	02	1.43
6.	Pituitary adenomas	40	28.77
7	Craniopharyngiomas	05	3.59
8	Medulloblastomas	06	4.32
9	Oligodendrogliomas	04	2.87
10	Metastatic	13	9.35
11	Central neurocytoma	02	1.22
12	Malignant hemangiopericytoma	01	0.61
13	Cavernous hemangioma	01	0.61
14	Glomus tumor	01	0.61
15	Lipoma	01	0.61
16	Eosinophilic granuloma	01	0.61
17	Plasma cell tumor	01	0.61
	Total cases	139	

Table 2 - Tumors according to WHO classification –

S.No.	Tumor	Number of cases	% (Percentage)
1	Astrocytic tumors	27	19.42
	- Pilocytic	02	1.43
	- Diffuse	03	2.15
	- Anaplastic	09	6.47
	- Glioblastoma	13	9.35
2	Embryonal tumors - medulloblastomas	06	4.32
3	Tumors of cranial & paraspinal nerves	13	9.35
	- Neurofibroma	02	1.43
	- Schwannoma	11	7.91
4	Meningeal tumors	22	15.82
	- Tm.of meningotheial cells	19	13.66
	- Mesenchymal tumors	03	2.16
5	Tumors of haemopoietc system	02	1.44
	- Plasma cell tumor	01	0.72
	- Histiocytic tumor	01	0.72
6	Tumors of sellar region	45	32.37
	- Craniopharyngioma	05	3.59
	- Granular cell tm of neurohypophysis	40	28.77
7	Ependymal tumors	04	2.87
8	Neuronal & mixed neuroglial tm	03	2.16
	- Central neurocytoma	02	1.43
	- Glomus tumor	01	0.72
9	Oligodendroglial tm.	04	2.87
10	Choroid plexus tumors	Nil	Nil
11	Other neuroepithelial tumors	Nil	Nil
12	Tumors of pineal region	Nil	Nil
13	Germ cell tumors	Nil	Nil
14	Familial tumor syndromes	Nil	Nil
15	Metastatic tumors	13	9.35
	Total	139	

Table 3 - CNS tumors according to age –

S.No.	Age group	Number of tumors	% (percentage)
1	< 10 yrs	03	2.16 %
2	11 – 20 yrs	08	5.75 %
3	21 – 30 yrs	17	12.23 %
4	31 – 40 yrs	34	24.46 %
5	41 – 50 yrs	31	22.30 %
6	> 50 yrs	46	33.09 %

Table 4- Details of tumors of sellar /suprasellar region -

Tumors of sellar region – 45

- i. Granular cell tumors of neurohypophysis (pituitary adenoma) – 40 (28.77%)
- ii. Craniopharyngioma – 5 (3.59 %)

According to size –

- i) Microadenoma – 1 (2.5 %)
- ii) Macroadenoma - 39 (97.5 %)

Gender predisposition –

- i.) Males – 14 (35%)
- ii). Females 16 (40 %)

Age incidence – 24 yrs to 76 yrs

Mean age – 40.51 yrs

Table 5 - CNS lesions according to gender predisposition –

S. No	Tumor	Male	Female
1	Pilocytic astrocytoma	1	1
2	Diffuse astrocytoma	2	1
3	Anaplastic astrocytoma	7	2
4	Glioblastoma multiforme	9	4
5	Ependymoma	3	1
6	Oligodendroglioma	3	1

7	Meningeal tumors	06	13
	- Meningothelial cell		
8	- Mesenchymal	3	-
	Schwannoma		
9	Neurofibroma	6	5
10	Medulloblastoma	1	1
11	Sellar tumors	6	-
	- Craniopharyngioma		
	- Pituitary adenomas		
12	Neuronal & mixed neuroglial tm	2	-
	- Central neurocytomas		
	- Glomus tumor		
13	Hemopoietic tumors	1	-
	- Plasma cell tumor		
	- Histiocytic tumors		
14	Metastatic	11	2

DISCUSSION

There is no detailed data available describing the trends CNS tumors as per WHO classification in nearby states of Uttar Pradesh, Haryana and Gujrat .Only a study is available from Punjab as per WHO classification

A study from the state of Haryana,²⁴ Rohtak describes the incidence of some CNS tumors with incidence of astrocytic tumors being the highest followed by ependymomas ,meningiomas,oligodendrogliomas and medulloblastomas.pituitary adenomas and craniopharyngiomas account for 1.7 % of all brain tumors. In our study there is highest incidence of sellar tumors followed by astrocytic tumors.

A study from Gujrat, Ahemdabad ²³describes pediatric tumors only (0-14 yrs) only (2%) .No study describing tumors according to WHO classification is available. Our study has incidence of childhood tumors (<20 yrs) as 7.91 %.

In a study from Punjab ²² the spectrum of CNS tumors shows the highest incidence of neuroepithelial tumors (51.7 %),followed by tumors of meninges (34.8%),metastatic tumors (5.6 %),tumors of peripheral nerves (4.5%),tumors of sellar region (2.3%) and lymphomas and hemopoietic malignancies (1.1%)

Of the neuroepithelial tumors maximum incidence was of astrocytic tumors (39.32%) followed by oligodendroglial tumors (4.50%), mixed gliomas (2.25%), ependymal tumors (2.25%), choroid plexus tumors (2.25%) and embryonal tumors (1.12%).

In the astrocytic tumors they found maximum incidence of anaplastic astrocytoma Grade III (45.7%) followed by diffuse astrocytoma Grade II (34.3%) and glioblastoma multiforme grade IV (20%).

Our study shows maximum incidence of sellar tumors followed by astrocytic tumors with highest incidence of GBM.

None of the above studies of the nearby states are in concordance with this data.

In a study by Ishaq et al¹⁸, in India the number of cases reported in cancer registries are negligible, however, those reported in Pubmed are 70 cases (0.89%) out of which 66 (94.3%) are astrocytic tumors in years 2009 to 2012.

A study by Balkrishna B. Yeole¹⁶, shows incidence rates of CNS cancers in five major cities (Mumbai, Bangalore, Chennai, Delhi and Bhopal) in two periods 1982 to 1983 and 2002 to 2003,

Mumbai registries of CNS cancers ranked 9th in both sexes in both periods. Bangalore and Chennai registries ranked 9th in males and 8th in females in both periods. Delhi registries rank 9th in males and 7th in females in both periods and Bhopal registry ranked 9th in males in both the periods.^{1,2,16}

An increasing trend in incidence^{3,4} rates in both sexes of CNS cancers observed in all the registries except Delhi. The increase in incidence for Bhopal registry and decrease in incidence of Delhi registry¹⁴ was not statistically significant. More than 3% statistically significant increase in age adjusted incidence rates of CNS cancers was noted in both the sexes in Mumbai, Chennai and Bangalore registries.¹²

Another study by James L. Fisher et al¹⁷ compares the incidence in United States and other countries for international comparisons.¹² US shows most common tumor to be astrocytoma of which glioblastoma multiforme was most common and then were the tumors of the sellar region with mean age of diagnosis being 64 and 48 yrs respectively. According to this study Mumbai

¹³ has incidence of approximately one fourth of high incidence countries. Differences in diagnostic practices and completeness of brain tumor reporting make all the geographic especially international comparisons difficult. In addition, higher incidence rates appear in countries with greater access to health care and better medical care.

Therefore, reporting the cases is important for the statistics, epidemiological studies and patient care as needful.

Various studies show that incidence of brain and other CNS and intracranial tumors is related to age with highest incidence rates in older men and women, though all age groups can be affected.

In U.K (2010 & 2015) 25% CNS tumors were diagnosed in men and women > 75yrs while 10% in people < 30 yrs.^{9,19} Age specific incidence rate remains relatively stable from infancy to around 25 to 29 yrs, before increasing more sharply (in males) with highest rates in older age groups. Highest incidence was of astrocytomas (34%) followed by meningiomas (21%) and pituitary (8%).

In a study by Hiroko Ohgaki^{1,2,4}, gliomas account for > 70% of all brain tumors and glioblastoma multiforme is the most frequent. Both these studies are in concordance with our study of astrocytic group of tumors (19.42%) in which GBM has highest incidence of 9.35%.

However in our study maximum overall incidence is of sellar tumors (32.37%) of which pituitary adenomas constitute 28.77%. Our study showed highest incidence of tumors of the sellar region – granular cell tumor of neurohypophysis and craniopharyngioma collectively comprising 45 cases out of 139 (32.37%) of which pituitary adenoma alone stands out with a percentage of 28.77%.

This high incidence is due to the facility of endoscopic surgery in our referral tertiary health care center. Our centre is one of the very few referral centres where endoscopic endonasal surgery is done in Rajasthan.

Study by James L. Fisher et al^{9,17} shows women have lower gliomas risk and this protection occurs between the approximate ages of menarche & menopause and decreases in post menopausal age groups. Post menopausal women are at increased risk of gliomas and acoustic neuroma. This is in concordance with our study which also shows lower glioma risk in females and most

patients were of post menopausal age group.^{14,15,16}

Meningiomas^{7,8} occur twice as common in women than in men. Premenopausal women^{1,2,6} have greater meningioma risk than post menopausal. In our study females were more commonly affected but the age group was peri – and post- menopausal rather than premenopausal as in this study. However, a study by Randa EL Zein²⁰ et al shows increase in incidence of meningiomas with age, similar to our study.

Randa EL Zein²⁰ et al studies that for all primary brain tumors, though average age of onset is about 54 yrs, similar to our study which shows maximum incidence of brain tumors > 50 yrs.

In his study, there is significant variation for each histological category, as average of onset for GBM and meningiomas¹¹ is 62 yrs. In meningiomas incidence increases with age except for slight decline in those 85 yrs or older. In contrast, astrocytoma and GBM peak in incidence at age 65 to 74 yrs while oligodendroglioma peaks at 35 to 44 yrs. Some variation may be due to different diagnostic practices and access to diagnosis in different age groups. In our study the average age of diagnosis of GBM (52.7 yrs) & meningiomas (45.5 yrs) is lower. Oligodendroglioma tumors however peak in the same age group of 35 to 44 yrs.

Studies show, men are affected more with primary brain tumors than women except meningiomas which have higher incidence in females. The tumors of cranial and spinal nerves and of the sellar region affect males and females almost equally.

This is in concordance with our study, with meningiomas more prevalent in females and tumors of sellar region and cranial & spinal nerves having nearly equal incidence.

Presently no reliable data^{1,2} on incidence of secondary brain, other CNS & intracranial cancers - tumors which have metastasized to these sites from elsewhere in the body. Best estimate is that secondary brain cancers occur in at least 6% of all cancer patients with marked variation in primary cancer site. Proportion ranges from < 1% patients with thyroid, liver, stomach, prostate, uterine or ovarian cancers to 20% of those with lung cancer. Based on this estimate brain tumors are thought to outnumber primary malignant brain tumors by at least 3 : 1.

In our study metastatic carcinoma constitute 9.35 %

of the tumors

CONCLUSION

This study is different showing high incidence of tumors of the sellar region- granular cell tumor of neurohypophysis and craniopharyngioma which is due to the facility of endoscopic surgery in our referral tertiary health care centre. Our centre is one of the very few centres in Rajasthan where Endoscopic endonasal surgery is done. This is the only study to the best of my knowledge which shows highest incidence of sellar and supra sellar tumors²¹ in contrast to astrocytic tumors reported with glioblastoma multiforme having the highest incidence.

Ethical Clearance – Taken

Source of Funding – Self

Conflict of Interest – Nil

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Perceptions of Pregnant Women with Low Educational Attainment about Informed Consent after Registering into Randomized Controlled Trial in India – A Qualitative Study

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ABSTARCT

Background: Informed consent is more than simply getting a patient to sign a written consent form. **Aim:** The aim of the study was to assess the perceptions of pregnant women with low educational attainment about informed consent after registering into randomized controlled trial in India. **Method:** A consecutive sample of 120 subjects aged 18 and above, participating in randomized controlled trial was surveyed. The individual interview was carried out using interview schedule. All items regarded basic components of the informed consent such as: study objectives, potential benefits and risks, and participants' rights and obligations were included. **Results:** Out of 120 enrolled, 78% had High-school education or less, and only 2% had attended college education. Mean age of the participants were 24±3.5 years. All individuals were participating in a randomized controlled trial for the first time. Majority of the subjects were satisfied with the information given. Most volunteers were able to identify correctly study objectives and potential benefits. Only one third acknowledged there could be no benefit from enrolling in the trials. **Conclusion:** In general, the understanding about basic components of the informed consent in this population of low educational attainment was good, particularly, in regard to study objectives and participant's rights.

Keywords: *Informed consent, Randomized controlled trial, Perception*

INTRODUCTION

Obtaining consent is not only an ethical obligation, but also a legal compulsion. Informed consent is the process of communication by which treating health care provider provides all the information about the treatment process, risks and benefits of the treatment to be provided which results in the patients' authorization or agreement to undergo a specific medical intervention in a hard copy format. Patient who is giving the consent should be able to reasonably weight the benefits and risks. He/she should

be able to communicate their decision to the health care provider. For both ethical and legal reasons, patients must be given enough information to be fully informed before deciding to undergo a major treatment or enrolled into trial and this informed consent must be documented in writing.^{1,2}

Informed consent is more than simply getting a patient to sign a written consent form.¹⁻³ Unfortunately, even after signing a consent form, many patients still do not understand basic information about the risks, benefits and alternatives of their proposed treatment options. There are many potential reasons for this failure of truly informed consent and the ongoing lack of understanding.^{3,4} Patient factors may include low health literacy, limited English proficiency, cognitive impairments, learning disabilities, hearing or vision impairments, confusion about the purpose of the consent process, a feeling of

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intimidation, and stress or time pressure. On the provider side, the factors may include lack of time for up-front patient education, overly complex or overly broad written materials, lack of support with interpreters, and wrong assumptions about patient comprehension.³⁻⁵ Although the research on improved consent forms has been mixed, some studies have found that when consent forms are improved, patients are more likely to read and understand them before signing.⁵⁻⁸ Informed consent are considered as one of the patient safety targets.⁹

A major challenge posed was to assure subject's perception about the informed consent basic components, particularly among those with low educational attainment.³ A number of studies indicate that improving consent forms and the overall consent process can lead to better patient comprehension and recall.^{2,4,6} Little has been done to determine either what patients want to know or what they think about informed consent. Hence the present study was undertaken to assess the perceptions of pregnant women with low educational attainment about informed consent after registering into randomized controlled trial in India. The objective of the study was to evaluate their knowledge about informed consent by a questionnaire method.

METHOD

Study Design & Study Location:

A cross sectional study was carried out among pregnant women who have already registered into randomized controlled trial. A consecutive sample of 120 subjects aged 18 and above, participating in randomized controlled trial was surveyed. The study participants were part of cluster randomized trial to determine the effectiveness of Basic Package of Oral Care in pregnant women in Primary Health Centres on the incidence of Early Childhood Caries in their children. Ethical clearance for the present study was obtained from the Institutional Ethics Committee. The purpose of the study was explained to the pregnant women and they were invited to participate in the study. The individual interview was carried out using interview schedule in the selected primary health centres. All items regarded

basic components of the informed consent such as: study objectives, potential benefits and risks, and participants' rights and obligations were included. It was reassured to the participant that there were no right or wrong answers. Interview was started with brief introductory session. It was explained in the informed consent that, "participation in the study is entirely on the will of the subject, and she can withdraw from the study at any stage. The oral examination, being non-invasive, will definitely not include any risk or harm to the subject. After the examination if she is willing, basic treatment will be provided. Her identity will not be revealed and full confidentiality will be assured. This study is for the research purpose only. No charges will be applicable for participation in the study." The questionnaires were filled in right after they had agreed to participate and signed the consent. Data were collected from August/2013 to October/2013.

Data Management and Statistical Analysis:

Descriptive statistics were provided to measure subjects understanding of the informed consent. Data was coded and analyzed using the SPSS version 17.0.

RESULTS

Out of 120 enrolled, 78% had High-school education or less, and only 2% had attended College. Mean age of the participants were 24 ± 3.5 years. All individuals were participating in a randomized controlled trial for the first time.

About 81% of subjects were satisfied with the information given. Most volunteers were able to identify correctly study objectives and potential benefits, 88% and 78%, respectively. Only one third acknowledged there could be no benefit from enrolling in the trials. About 30% of the participants did not follow the meaning of trial. The vast majority understood the right to withdrawal from the study without prejudice (83%) and but a lower percentage (16%) did not understand the term research purpose. All subjects reported being comfortable about giving consent, and none felt pressured by any site personnel to enroll in the trials.

Table 1: Responses of study subjects towards various questions asked about informed consent after enrolling into randomized controlled trial

Questions	Yes		No		Don't know	
	n	%	n	%	n	%
Are you satisfied with the information given?	98	81.7	21	18.3	-	-
Did you follow the meaning of "Research purpose"?	100	83.3	20	16.7		
Do you understand that you can refuse to have this procedure?	105	87.5	10	8.3	5	4.2
Do you think any benefits after enrolling into trial?	94	78.3			26	21.7
Do you think any risks after enrolling into trial?			120	100		
Do you think you can change your mind once you sign the document?	100	83.3			20	16.7
Would you need more information before you decided? What information?			120	100		

DISCUSSION

Pretesting informed consent forms with the intended participants is always a good idea. This is especially true when developing forms for low-literacy participants. Seeking clinician’s advice on content is important, and assessing readability with manual or automated formulas may also be helpful, but pre-testing with actual patients will allow to assess comprehensibility, identify strong and weak points, determine personal relevance, and gauge confusing, sensitive, or controversial elements. In a way, this is just a preliminary and more formal way of doing the “teach back” that is recommended during each patient encounter. It would have been highly appreciated if we follow this method during enrolment of study subjects into randomized controlled trial. It is also important to verify the understanding of informed consent form.⁴ Majority of the study subjects were satisfied with the information given to them. This results agrees with the findings of study carried out by Dawes et al ² and contradicts with the study carried out by Robling MR et al ¹⁰ .

Having introductory session on objectives of the study proved to be useful to fill the informed consent.^{2,4} It is also important to reassure them that there are no “right” or “wrong” responses. Since some patients who are not comfortable in answering questions, distance themselves from the consent form. It is important to assure the test participant that health care providers want their honest assessment. In this study, all the study subjects did not ask for the further information. Similar results in the study carried out by Dawes et al ², where majority of participants agreed that doctor has given enough information. Shared decision along with informed consent may be required in

case of trials and procedures involving high risk.¹¹

CONCLUSIONS

In general, the understanding about basic components of the informed consent in this population of low educational attainment was good, particularly, in regard to study objectives and participants rights. However, knowledge about potential study risks and the term like trial was poor. These items should be the focus of strategies to improve subjects understanding of the informed consent. Further studies to assess the quality of the informed consent process and to identify determinants of good understanding in subjects from developing countries are warranted.

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Conflict of Interest -Nil

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Awareness about Cause and Curability of Leprosy among Leprosy Patients in Eastern UP

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ABSTRACT

To study the awareness about cause and curability of leprosy among leprosy patients. **Material & Method:** 251 study subjects were selected randomly attending the Skin & VD OPD of S. S. Hospital of IMS, BHU, Varanasi. Questions related to cause and curability were administered to leprosy patients aged 15 years or above by the interviewer himself. **Result:** Only 6.4% of patients identified the correct cause of leprosy. More than half of the patients (54.6%) identified that leprosy was a curable disease. Nearly one fourth of the patients had heard about MDT. **Conclusion:** IEC activity should be strengthened with emphasizing message that leprosy is curable and MDT is the only effective treatment.

Keywords : Leprosy, awareness, cause, curable, MDT.

INTRODUCTION

Leprosy is one of the oldest scourges of mankind. The leprosy eradication programme in India aims to bring down the prevalence of leprosy first and then to eradicate this disease. With the introduction of MDT, a significant reduction in prevalence rate from 57/10000 in 1981 to less than one in 2005 has occurred¹.

However, Ideas of the contemporary society are in no way different from what they were nearly hundred years ago. Leprosy as a disease brings misery to the patient and the family members also overreact when they come to know that one of them is a leprosy patient. There are a number of misconceptions about cause and curability of the disease. Hence, some of the patients did not reveal the disease even to their family members for fear of rejection². Messages regarding cause and curability of leprosy are being dispersed through different media. The careful overview of the facts reveal that there is a large

gap between misbelieves and facts about leprosy, which need to be minimized. Hence, it becomes necessary to assess the current status of awareness about this disease and then required changes in programme may be done in order to achieve the goal of leprosy eradication in true sense.

MATERIAL & METHOD

Varanasi is one of the eastern districts of Uttar Pradesh and situated in the middle of upper Gangatic plain. Patients mainly from eastern UP and adjacent western part of Bihar find their most common destination as S. S. Hospital, BHU, Varanasi. Varanasi is also one of the most favoured religious destinations. Leprosy is firmly associated with religion. So, patients were selected from Dept. of Skin & VD of S.S. Hospital, BHU, Varanasi. A pilot study was conducted on 50 leprosy patients attending the OPD of Department of Skin & VD and required sample size was calculated to be 225. Assuming the attrition rate of 10%, the sample size of the present study was fixed at 250. Cases who noticed their symptoms within preceding two years were included in the study. As the objective of the study was to get information on knowledge of leprosy patients, this period was neither too short to manifest the attitude nor too long to allow the recall factor to crop in. Children

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below 15 years were not taken as it may not be possible to get complete information on their knowledge. Primary tool used was a predesigned and pretested interview schedule, prepared in Hindi, keeping the language of the respondents in mind. The questionnaire contained either

semi structured or open ended (wherever structuring was not possible) questions. The questions were explained to the patient and his/her response was recorded by the interviewer himself, so that least inter-observer variations crop in. SPSS statistical software was used.

RESULT

Table 1 : Knowledge of patient about cause of leprosy

Characteristics	No.	Germ	Wrong food habit	Sin	Hereditary	Other	Don't know
Total	251	6.37	47.01	40.03	14.34	10.35	28.28
Gender							
Male	196	7.14	50.51	4.352	13.27	10.27	23.98
Female	55	3.64	34.55	36.36	18.18	9.10	43.64
Education							
Illiterate	62	1.61	45.16	46.77	12.90	11.29	35.48
Primary	36	0.00	52.78	44.44	13.89	19.44	22.22
Middle	28	3.57	50.50	53.57	28.57	7.14	25.00
Secondary	64	7.81	53.12	39.06	14.06	9.37	26.56
College	61	14.75	42.62	24.59	9.84	6.56	27.87

Very few patients (6.4%) had correct knowledge about the cause of leprosy; while 28.3% of patients were ignorant towards the cause of the disease. Almost half of the patients believed wrong food habits to be the cause of their disease. This was followed by sin (40%) and hereditary factors (14.3%). The variable response of the cases to the cause of leprosy was not significantly associated with their gender. More number of literate patients (15 out of 189) than illiterate patients (1 out of 62) were knowing the correct aetiology of leprosy.

Table 2 : Knowledge of patient about the mode of spread of leprosy

Characteristics	No.	Cough & sneeze	Close personal contact	Just touching	Sharing utensils	Others	Don't know
Total	251	2.79	15.94	22.31	18.73	14.74	50.20
Gender							
Male	196	3.57	17.35	25.00	18.88	12.24	49.98
Female	55	0.00	10.97	12.73	18.18	23.64	54.55
Education							
Illiterate	62	0.00	11.29	11.29	14.52	11.29	62.90
Primary	36	2.78	8.33	19.44	13.89	13.89	61.11
Middle	28	3.57	21.43	17.86	25.00	17.86	50.00
Secondary	64	1.56	20.31	28.13	25.00	15.62	40.62
College	61	6.56	18.03	31.15	16.39	16.39	40.98

Half of the patients lacked any knowledge regarding the mode of spread of leprosy. Just 16.3% of the patients identified the correct mode of spread of leprosy (cough & sneeze and close contact). Touching was stated to be the mode of spread of leprosy by about one fourth of the respondents followed by sharing of utensils. Significantly higher percentage of male patients (18.37%) than female patients (9.0%) had correct knowledge regarding mode of spread of leprosy. There was no significant difference of knowledge between literate and illiterate patients.

Table 3 : Opinion of the patients about curability of leprosy

Characteristics	No.	Leprosy is curable (%)		
		Yes	No	Can't say
Total	251	54.58	8.00	37.42
Gender				
Male	196	56.12	9.18	34.70
Female	55	49.09	3.64	47.27
Education				
Illiterate	62	41.95	1.60	56.45
Primary	36	47.22	5.56	47.22
Middle	28	46.43	28.57	25.00
Secondary	64	68.75	6.25	25.00
College	61	60.66	8.20	31.14

More than half of the study subjects (54.6%) opined that leprosy was curable, while only 8% believed otherwise. Significantly higher proportion of literate patients (58.87%) were of the opinion that leprosy is curable.

Table 4 : Knowledge of MDT among leprosy patients

Characteristics	No.	Knowledge of MDT (%)	
		Yes	No
Total	251	25.90	74.10
Gender			
Male	196	31.12	68.88
Female	55	7.27	92.73
Education			
Illiterate	62	3.07	96.93
Primary	36	13.89	86.11
Middle	28	14.28	85.72
Secondary	64	29.69	70.31
College	61	57.38	42.62

Only one fourth of respondents had knowledge of MDT. Knowledge of MDT among male patients (31.1%) was much more than female cases (7.37%), which was statistically highly significant. Knowledge of MDT increased with rise in educational status from illiteracy (30.1%) to college level (57.4%). This trend was found to be very highly significant.

DISCUSSION

In India, Govt. programme on leprosy is running since 1955. But, the impact of programme on individuals who matters the most is of prime concern. The present strategy of leprosy eradication includes early detection of cases and their prompt and regular treatment with MDT, education of patient and the community about curability of disease and stress on their socio-medical rehabilitation.

In our study very few patients (6.4%) thought that germ was responsible for the disease. Higher proportion of males (7.2%) and literates (7.9%) were knowing the correct cause of leprosy than females (3.6%) and illiterates (1.6%) respectively. Close to this observation Shetty, Shivaswamy and Shirwadkar (1985) reported 8%³, Umadevi (1992) 10%⁴ and Croft and Croft (1999) reported 4%⁵ of leprosy patients stating that leprosy is a germ caused disease. It only shows that our IEC strategy have not improved the correct knowledge about disease in one and half decade. Contrary to these observations, Vasuraj, Garg & Lal (1981) found 42%⁶, Pal & Giridhar (1985) 85%⁷, Tin Myint (1992) found 81%⁸ of leprosy patients and Rajratnam (1999) reported 23.4% of school teachers⁹ knowing the real cause of leprosy. Leprosy remains as one of the most enigmatic diseases although it is caused by bacteria like any other infectious disease. In spite of various efforts by different agencies level of knowledge of the patients remains unsatisfactory.

Wrong food habit as the cause of disease (47%) was the most common response of the patients. This opinion was more prevalent in males (50.5%) as compared to females 34.6%). Tin Myint (1992) found 66% of patients in Myanmar claiming certain food responsible for the leprosy⁸. This reflects the habits of our people to correlate disease with eating certain foods and applying the same to leprosy also.

40% of patients opined that the sin committed in the present or past life was the cause of leprosy. Again, this wrong opinion was more commonly seen in males. Mutakar (1977)¹⁰ and Umadevi (1992)⁴ observed that 50% and 24.5% patients felt that the disease is the result of sin committed by them. Similar to our findings Rao et al (1996) reported that more number of males than females claimed the sin responsible for causation of leprosy¹¹. This observation is no different from other diseases. It seems to be a part and parcel of our religious upbringing and "Sanskriti".

The proportion of patients stating that hereditary factor was responsible for the leprosy was 10.4%, very close to the observation of Umadevi (1992) as 11.5%⁴. Much higher percentage was reported in previous studies by Ramu, Dwivedi and Iyer (1975)¹² and Pal and Giridhar (1985)⁷ as 80% and 40% respectively. This shows a healthy trend. Other reasons for causation of leprosy like indulgence in immoral sex, unhygienic conditions, impurity of blood, vitamin deficiency was responded by

10.3% of leprosy patients.

It can be seen from Table 2 that only 16.3% of patients correctly stated the mode of spread of leprosy. Significantly higher proportion of male subjects (18.4%) than females (9%) said the correct mode of spread of leprosy (cough & sneeze and close personal contact). Proportion of patients knowing the right mode of spread of disease was more in literate patients, although it was not statistically significant.

Tin Myint(1992)⁸ and Umadevi (1992)⁴ found that around 80% and 27.3% patients respectively opined that leprosy could be transmitted by person to person contact and 10.8% of patients told that leprosy could be transmitted through air. Higher percentage of males knowing the correct cause is attributed to higher literacy rate and more chances of getting exposure to different information sources of males than females.

Unfortunately, a good proportion of patients still thought that touching (22.3%), sharing utensils with leprosy patients (18.7%) and other modes like breast feeding, mosquito bite, polluted water (14.7%) were possible ways of transmission of leprosy. Such wrong perceptions are barriers to disease the social stigma attached to leprosy.

Majority of study subjects (54.6%) stated that leprosy could be cured (Table 3). Significantly higher percentage of literate patients (58.9%) than illiterates (41.9%) had positive opinion about curability of leprosy. Regarding curability of disease different observations were recorded by different workers; in Andhra Pradesh about 66% (Umadevi, 1992)⁴, Kumar et al (1983) 50%¹³ and in a study by Croft and Croft (1999) 46%⁵ leprosy patients.

In our study, quite higher percentage of patients believed that leprosy was curable as compared to proportion of patients having correct knowledge about cause and mode of spread of leprosy (Table 1 and 2). Possible explanation of this observation is that health education has positive impact on knowledge of leprosy patient. Although, they did not remember the exact content of education material; at least got the message that some treatment was available for the leprosy and it could be cured.

Only one fourth of leprosy cases knew the MDT. The knowledge was significantly more among male patients and literate persons.

Table 1 to Table 4 show that educational level of patients has greater association with the awareness of leprosy patients. Correct knowledge about leprosy was invariably higher in patients educated upto college level than the illiterate patients. Little or no knowledge about either the disease or the medical treatment worsens the treatment behavior and traumatic experiences of leprosy patients (Chaudhary, 1981)¹⁴. So, health education as a component of anti leprosy activities needs more strengthening.

A possible change in the last fifty years have seen the increase in public education efforts to spread the good news that leprosy can be treated and cured, that disabilities are preventable, and that the people affected by leprosy do not need to be segregated. In an effort to get rid of leprosy stigma, some countries have officially changed the name the disease to less stigmatizing terms like Hansen's disease. They have only been partially successful. New translations of the Bible have also helped to reduce some of the special religious significance of leprosy by substituting "skin disease" for the word "leprosy" in the text¹⁵.

CONCLUSION

Literacy of the patients has strong relationship with the knowledge of leprosy patients. It is recommended that the programme should be more effectively implemented i.e. with more honesty and sincerity of purpose. IEC must be strengthened to increase the knowledge of the public about the disease and its effective treatment i.e. MDT.

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The Survey of the Role of Gender in Respect to Test Anxiety in the City of Urmia's Medical Sciences University Students in 2016

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ABSTRACT

Introduction: Test anxiety and exams are considered as substantial inhibitory factors against the university students academic achievement and there is found a subtle and in-depth relationship between the individual traits, which force the individual to respond and behave under special conditions and in particular situations, with mental and somatic inability resulting from anxiety and stress. Thus, the present study aims at the survey of the role of gender in respect to the test anxiety among the city of Urmia's medical sciences university students.

Implementation method: In the present descriptive-analytical study, 380 individuals from Urmia's medical sciences university students were selected based on a random method to participate in our 2016 research proposal. The information required for the current study was gathered by making use of a two-part questionnaire the first part of which was related to the demographic characteristics and the second part pertained to the test anxiety questionnaire designed by Pintrich et al. In the end, the data were analyzed by taking advantage of SPSS ver. 19, descriptive statistics, Pierson correlation test and independent t-test.

Findings: The current study indicated that the individuals' average age was 21.72 ± 2.9 . 196 individuals were male and 184 individuals were female. The total mean score of the test anxiety among the university students was found to be in arrange of 42.04 ± 8.56 . The relationship between the age and the university students test anxiety mean score was not statistically significant but the relationship between the gender and test anxiety was found to be statistically significant and the men were found to have higher test anxiety levels in contrast to their female counterparts.

Keywords: test anxiety, university students, the city of Urmia

INTRODUCTION

Test anxiety and exams stresses act as the inhibitory and impeding factors against academic achievement for the students and university students which cause the imposition of large and extravagant imposition of

the costs on the communities and societies [1] and they are considered as a status and a state of tension and fearfulness which concomitantly get accompanied with worrisome thoughts and automatic nervous system activity which has been found to play a significant role in causing psychological disorders in the university students [2,3]. According to the highly increasing importance which is considered for the anxiety in the today's world it seems that treating and curing anxious individuals is vital and necessary from various aspects. Disregarding and even delaying the treatment or a lower than optimum attention paid to such a matter in the individuals can degrade and depreciate the individual from various somatic,

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psychological, affective, mental, academic, learning aspects and so forth [4, 5]. Test anxiety as a scientific concept and construct is referred to as a group of perceptive, physiological and behavioral responses which are accompanied with worries and concerns regarding the negative outcomes or contingent failure in exams or similar evaluation of the situations [6, 7] and it is considered as a general term which points to a sort of anxiety or social phobia which makes the individual doubtful of his or her own competencies and qualifications and it is usually followed with a reduction in the individual's power to cope with the situations such as test and exams, situations which expose the individual to evaluation and entail problem-solving. Therefore, the individual with test anxiety can be described as a person who knows the lessons and the instructional material but the intensity of his or her anxiety prevent him or her from practicing his or her knowledge [8, 9]. The individuals with high levels of test anxiety tend to react to evaluation signs through unreasonably high learning and proactive cognitions. Proactive cognitions are applied as a sign of responding to highly emotional arousal situations. Quite contrarily, the individuals with lower levels of evaluation anxiety tend to react to the performance evaluation signs through concentrating on the cognitive tasks [10, 11]. Hancock believes that if anxiety moves beyond the normal and specific boundaries it will cause distraction, distress and the individual's feeling of misery and it is under such circumstances that the individual's output is decreased and s/he is found to have performance downtrend and loss. Moreover, there is a rooted relationship between the personality characteristics, which force the individual to respond and behave in various situations and under different conditions, and the somatic and mental inability stemming from anxiety [4]. Some of the researches have shown that the test anxiety prevalence rate is found to be in a higher level in girls in comparison to the boys and the girls usually experience test anxiety with a more severe intensity [12-14]. This is because the girls are more likely to consider being motivated to accept anxiety as a female and feminine characteristic [15-17]. Thus, the present study aims at the survey of the role of gender regarding the test anxiety in the city of Urmia's medical sciences university students.

IMPLEMENTATION METHOD

In the present descriptive-analytical study, 380 individuals from Urmia's medical sciences university

students participated in 2016 all of whom have been selected based on a random method. The information required for the current study was gathered by means of a two-part questionnaire the first part of which involved the demographic characteristics (age, gender) and the second part pertained to the test anxiety questionnaire which was previously designed by Pintrich et al. The questionnaire included 5 questions which were a subgroup of Pintrich's learning strategies scale. The measurement scale was ordinal MSLQ. The study participants were guided on the way they were required to fill in the questionnaire and their responses were scored based on Likert's 7-point scale from 1 (it is not true about me at all) to 7 (it is completely true about me). Every scale's score is an average of the constituent items score. Therefore, in the present study the minimum score was 5 and the maximum score was 35. The reliability score of the scale was found to be equal to 0.80 by Pintrich et al and it was also calculated again in the present study through the use of Cronbach's alpha method and the result was 0.78.

To collect the data, firstly, the objective of the current study was explained to the university students and after an oral consent was acquired they were given the questionnaires. At the outset of the questionnaire there was a text to inform the participants of their consent for taking part in the current research plan which read "your cooperation in the current research paper means that you are fully aware of the study terms and you have provided an oral consent previously and that the information provided therein by the respondents will remain highly confidential and they will not be exposed to any risk of any sort". The data were extracted from the questionnaires and then they were analyzed by taking advantage of SPSS ver.19 software, descriptive statistics, Pierson correlation tests and independent t-tests.

FINDINGS

In the present study the results indicated that the individuals' average age was 21.72 ± 2.9 years of age. 196 individuals (51.6%) were male and 184 individuals (48.4%) were female. Test anxiety total mean score was 42.04 ± 8.56 among the students. The relationship between the age and the students' test anxiety mean score was assessed via Pierson correlation test and it was shown not to be statistically significant ($P=0.324$). The specifications related to the relationship between the gender and the test anxiety means scores of the students have been tabulated as table (1).

Table 1: The specifications related to the relationship between the students' gender and their test anxiety mean score (t-test)

	Gender	Mean	Std. Deviation	P Value
Test anxiety	man	24.36	6.41	0.001
	woman	22.16	6.01	

DISCUSSION

The results of the present study indicated that there is a significant relationship between the test anxiety and gender and the test anxiety has been found to be in a higher level in men in comparison to the women. In other studies the results were in another form in such a manner that Di Maria et al showed in their study that the girl university students had significantly higher intensity test anxiety symptoms in contrast to the boy students^[18]. In the study conducted by Di Maria et al the girls have been shown to have experienced higher test anxiety levels in respect to the boys^[15]. In the study carried out by Hong et al it was also demonstrated that the girl university students reported test anxiety in statistics more than the boys and the university students with weaker perceptions of their own competencies and qualifications in mathematics also considered statistics as being difficult which, per se, strongly influenced their anxiety regarding the statistics^[19]. In the study undertaken by Feingold et al it was also indicated that the test anxiety is higher in the girls in respect to their boy counterparts^[20]. The reason for such discrepancies in the results obtained in the current study in contrast to the other studies might be the test anxiety questionnaire being different. On the other hand, the opening of the progress path for the girls to enter to higher education institutions and that the girls have been proved to be their boy counterparts serious competitors all have brought about a condition under which the progress arena has been felt so narrow to the boys and this has led to the boys' higher level of worries and anxiety in comparison to what was a common procedure in the past.

It is suggested that the advising professors in the universities in cooperation with the university consultation center and also psychiatric groups take major steps and be attentive in line with reducing and controlling test anxiety in the students. Since anxiety is a mental phenomenon it is hardly measurable. Also, the individuals may have different perceptions of anxiety as a result of cultural, affective reasons and the other reasons as well. On the

other hand, the lengthiness of the vital signs controlling process during three periods and the idea of such a long period being out of the students' patience capacity can be pointed out as one of the limitations of the present study.

CONCLUSION

In the present study the results were in the following form: the relationship between the gender and the test anxiety was statistically significant and the test anxiety was found to be in a higher level in the boys in respect to the girls. Generally speaking, the university is an environment prepared for the university students to learn. Learning in such environments is accompanied with challenges which cause tension, stress and anxiety in the university students. Higher levels of anxiety can influence the university students' academic performance. The university officials should provide for the corroboration of the learning environment and consider facilitators and catalysts which bring about an improvement in the students learning.

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Conflict of Interest - Nil

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