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Editorial

Foundation course for MBBS graduates

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Introduction:

The Government of India recognizes Health for All as a national goal and expects medical training to produce competent "Physicians of First Contact" towards meeting this goal. However, the medical education and health care in India are facing serious challenges in content and competencies.

The most significant challenge for regulatory bodies like the Medical Council of India has been to balance the need for more medical colleges with the maintenance and improvement of quality standards. The globalization of education and health care and India's potential as a destination of choice for quality education and health care has brought the issue into sharper focus.[1]

The National Knowledge Commission (NKC) was established by the Government of India in 2005 to recommend reforms in professional education. As medical education have a significant impact on country's socio-economic development, NKC constituted a working group on medical education to identify constraints and challenges relating to curriculum, infrastructure, administration, and to suggest reforms.[2]

Another document we will look into is the report of the "Task Force on Medical Education for the National Rural Health Mission" constituted by the Ministry of Health and Family Welfare, Government of India.[3] Revamping medical education with reference to the requirements of medical professionals was the first objective of the terms of reference of the task force. In the light of the changing epidemiological scenario, the report emphasized the need for revitalizing the health care system in the country with special focus on primary health care.

Curricular reforms to systematically address these issues and develop strategies to strengthen the medical education and health care system are needed so that Indian Medical Graduates match or better the international standards.

In this background, Medical Council of India has planned to introduce new teaching elements as per Vision 2015 document[1]. These includes

1. Foundation Course
2. Integration: Horizontal and Vertical
3. Early Clinical Exposure
4. Student Doctor Method of Clinical Training
5. Electives
6. Skill Development & Training
7. Secondary Hospital Exposure

8. Adoption of Contemporary Education Technologies

This editorial is about the benefits and feasibility of one of the element – Foundation course for Undergraduate MBBS students – which is conducted by the department of Community Medicine as a pilot study.

Foundation course for MBBS graduates:

As per Vision 2015, Medical Council of India - Foundation course will be of 2 months duration after admission to prepare a student to study Medicine effectively. This period aims to orient student to national health scenarios, medical ethics, health economics, learning skills& communication, life support, computer learning, sociology& demographics, biohazard safety, environmental issues and community orientation. In addition, this would include overview in the three core subjects of Anatomy, Physiology and Biochemistry to be taught in first MBBS.

The concept of foundation course is to lay foundation to the MBBS aspirants with basic knowledge and skills before entering the core stream of medicine. The students joining MBBS generally have an attitude of a doctor seeing patients at a hospital and this may hinder in obtaining the overall role of a doctor and the medical field. The link between national scenarios, economics, ethics with medicine & allied sciences are broken if they are not instilled in the young minds at an early stage.

The challenge at present – Is this foundation course of 2 months be possible with the current situation? Is 2 months duration of foundation course adequate or longer than required? These questions can be addressed by trying out the foundation course in a primitive manner with the new batch of students and looking at the feasibility and feedback from the students.

Majority of the subjects in the foundation course as per MCI can be covered by the department of Community Medicine. These include national health scenarios, health economics, sociology & demographics, biohazard safety, environmental issues and community orientation. The rest can be taken over by Medical Education department along with the faculty from other departments.

The academic team in one of the private medical colleges in Tamilnadu had decided to start the foundation course for the current batch and worked on the feasibility. The two months programme was considered not feasible at the present condition as the first year programme is still for 12 months and not 14 months as per Vision 2015. After undergoing multiple discussion with the heads of the departments and due to the delay in the admission process with the current batch due to NEET entrance, the foundation course was planned to be conducted for a period of one week.

In the one week period, the time decided for covering the topics such as national health scenarios, health economics, sociology & demographics, biohazard safety, environmental issues and community orientation was three days and the same was conducted as per schedule.

The students were divided into ten groups and tasks were designed for active learning by the students. There was no didactic lecture planned for any session. The students were oriented about the objectives of the session and the planned activities for those three days. Each group was assigned a staff and a post graduate for guiding them during the task and help in their presentation.

On day 1, the students were oriented to the three day program and schedule by the program coordinator. They were oriented to the department and departmental activities by the professors. The students were able to appreciate the need for such community based activities at the initiation of the course. The scientific sessions started with the playing of ‘This is Public Health’ video and ‘John Snow – Cholera’ video.

This was followed by the session on knowing the national health scenarios and vital statistics. The groups were assigned tasks to find out the commonly prevailing diseases along with their prevalence rate and burden in our country. They were asked to present on the commonly occurring diseases such as air-borne diseases, water-borne diseases, non-communicable diseases, and similar diseases. Also they were asked to present on the

current mortality and morbidity rates. They were allowed to use library internet and text books.

Table 1: Topics for discussion on health scenarios

Group	Health scenarios
1	Vital Statistics
2	Airborne infections such as ARI, Tuberculosis
3	Water borne infections such as Typhoid, Cholera, ADD
4	Vector Borne Infections such As Dengue, Malaria
5	IMR, MMR, growth rate
6	Nutritional disorders such as PEM, Nutritional Anameia, LBW, Xerophthalmia
7	Non Communicable Disorders such As Diabetes, Hypertension
8	MCH problems
9	Environmental health problems
10	Problem of Medical care &Population problem

On day 2, hospital visit was planned to learn on the biohazard safety. The objectives of this session were to know about the biomedical waste management as a medical student and the commonly occurring biohazard accidents at various levels. Each group was assigned a ward or OP or laboratory and they had to visit the allotted site to learn the practice of biomedical waste management and critically analyse the real situation with the guidelines. The students actively participated and were able to identify the deficiencies in each ward and the same was reported to the administrators. The enthusiasm shown by the students was amazing and they were updating the listeners with the latest 2016 guidelines.

Table2: Place of visit to collect data on Hospital Waste Management

Group	Place of visit
1	Blood bank
2	ICU
3	Labour ward
4	Casualty
5	Central Laboratory
6	Surgery ward
7	Injection OPD
8	CSSD
9	ICTC / Immunization OPD
10	Hospital waste management - guidelines

Later in the noon, problem based learning was designed to learn about the demography of various population. Library internet was made available to access and the students were assigned different countries to present the demographic variables of the assigned population / country along with their current stage of demographic cycle. The countries were selected keeping into account the different levels of development (underdeveloped, developing and developed countries) and similarly belonging different stages of demographic cycle (high stationary to declining stage). The students were able to differentiate the health scenarios, political commitment, economy and other factors favouring the demography of various populations.

Table3: Groups to discuss on demography and their health scenario of the country

Group	Population / country
1	India
2	Denmark
3	UK
4	Congo
5	Hungary
6	China
7	Singapore
8	Sierra Leonne
9	Japan
10	Germany

The third day was scheduled to cover on the social issues, demographic pattern and environmental issues prevailing in the society. Field based teaching was preferred for these subjects. The students were taken to the nearby village and oriented to the community. One house was allotted for three students and totally 5 houses were surveyed by a group. Medico-social workers and field staffs were used to link the community residents with the newly joined students, who were in the community for the first time. Checklist was given to the students to look for certain common social factors & environmental factors. Social issues such as smoking, alcoholism, poverty, illiteracy, unemployment and environmental factors such as housing type, lighting, ventilation, source of water, breeding places of mosquito and houseflies were elicited. The staff in-charge discussed the issues at the field level and demonstrated the various environmental problems existing in the community. The students were extremely delighted and enlightened with social background at the village level.

The last session in the three day session of foundation course covered by Community medicine was Health Economics. A brief orientation and training was given by the professor on health economics and the students were sent to hospital to have hands on training of eliciting the cost incurred at various divisions by the patients. The concepts of Direct medical costs, Direct non-medical costs and Indirect costs were explained to the students for better assessment. Economic evaluation of these patients made them understand the health expenditure pattern of patients.

The three day program concluded with the feedback from the students. There was an enormous positive response from the first year students regarding the method used to teach them and also the orientation and foundation made on these important areas. They had suggested continuing similar program in the upcoming years.

Conclusion:

The idea of Medical Council of India Vision 2015 is welcoming. The subjects selected are more appropriate and apt for laying foundation at the initial level. The period of the foundation course is challenging. Similar workup and primitive foundation courses has to be designed and scheduled in different colleges and regions to look for the feasibility, especially in relation to the required time. The foundation course should not be lengthy as the students interest and attention may be lost. However, the course should not be too short to cover the required topics in a brief manner. This should lay foundation for further learning during the block postings.

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Short Article

Cost of diabetes treatment among patients covered by the Employees State Insurance Scheme – expenses beyond direct medical cost

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Abstract

Background: Prevalence of diabetes is increasing in India. Diabetes is associated with significant direct costs. There are few studies which have focussed on indirect and intangible costs. **Objective**: To estimate the indirect and intangible costs associated with treatment of diabetes in patients covered by the Employees State Insurance Scheme. **Methods**: A cross sectional survey was conducted among 32 diabetic patients attending a tertiary hospital covered under the Employees State Insurance Scheme to measure the indirect cost of travel, food and beverages, wage loss and expenses for the attender and intangible costs in the form of reduced social participation, social support and psychological distress. **Results:** There is substantial indirect cost with a major proportion of it going towards travel costs, followed by wage loss and food and beverages for the patient and attenders. High intangible costs in the form of loss of social participation in leisure time activities (25/32), reduced socialization, poor financial support (14/32) and high rates of neutral and sad affect (24/32) were found. **Conclusions**: Despite being protected by the social security of the Employees State Insurance scheme there are substantial indirect and intangible costs of diabetes which need strengthening of the health care services at the primary care level and interventions to promote social support.

Key Words: Diabetes, indirect cost, intangible cost, Employees State Insurance scheme

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Introduction

The prevalence of diabetes is rapidly increasing in India.[1] Not only does it have a high prevalence, it is also occurring at a younger age and causing greater morbidity and mortality.[2]People living with diabetes incur substantial costs for meeting the expenses of medicines, laboratory tests and procedures. Health expenditure is largely divided into direct and indirect costs. Direct costs are the expenses that are incurred for direct treatment such as cost of medicines, injections, laboratory tests, consultation fees etc. Indirect costs are those which are not directly related to the treatment, such as cost for travel to the clinic, loss of wages because of visit to the hospital, cost of food for the patient and the bystander during the clinic visit etc.[3] In addition to these direct and indirect costs, there are several intangible costs, which are difficult to quantify in monetary terms. These include, loss of work productivity, loss of social participation, feeling of isolation, stigma etc.[4]

India faces a huge economic burden of diabetes.[5-7] The most important reason for this is the dominance of the private health sector and heavy out of pocket expenditure for treatment of diabetes. Several studies have reported that drug costs account for more than half of all the direct cost involved in the treatment of diabetes.[5] It was also reported that out of the indirect cost, a major proportion was contributed by the patient's loss of wages.[5]In a study from south India, the average expenditure on out-patient care was reported to be Rs. 3310 (range Rs. 360 – Rs. 48600) and overall 7.7% of the annual income was spent on outpatient diabetes treatment.[6] It was also seen that lower income groups spent a greater proportion of their annual income on diabetes treatment.[8] The cost of routine care is not very high, but when routine care is not available it leads to drastic increases in direct and indirect costs and leads to impoverishment.[7] Diabetic patients with complications incur higher costs than those without. In another study from south India it was shown that diabetic patients with foot complications spent four times more than those without complications.[9,10] Most cost of illness studies related to diabetes have focussed on direct costs. There have been very few which have looked at the total expenditure including indirect costs.[5,11]

Health care in India is provided by a public health system operating at the primary, secondary and tertiary care level as well as a strong private health system where most of the services are delivered on payment at the point of service. The private health sector is the most sought after health system in the country and majority of health care is obtained through out of pocket payments.[12]

In addition, there are other forms of social security provided by social and employees health insurance schemes. The Employees State Insurance Scheme (ESI) is a contributory health insurance system in which all employees who earn less than Rs. 15,000 a month are enrolled into a health insurance system, wherein part of the premium is paid by the employee and a major part by the employer. The ESI scheme provides coverage of direct cost for outpatient consultations, laboratory tests, imaging procedures, medicines, inpatient admissions and referrals. In addition, there are also coverage of indirect costs such as loss of wages in case of certified disability related to the occupation. The ESI scheme provides coverage for diabetes care. Almost all the direct costs involved in the care, including the cost of consultation, medications, investigations and admissions are covered.[13] Despite this, there is likely to be some indirect costs which are not covered by the insurance scheme. The indirect costs which are incurred by the diabetic patients who are covered by the ESI scheme are not well documented. These patients, though covered by the social insurance still are subject to various intangible costs. This study was done to understand the indirect and intangible costs of treatment of diabetes among patients who are covered by the Employees State Insurance Scheme.

Methods

This cross sectional descriptive study was conducted in a tertiary hospital in Chennai among patients attending the diabetes specialty outpatient department. Patients were recruited during the month of July and August 2016. Both men and women aged between 30 and 80 years of age, having diabetes for at least 10 years,and insured under the Employees State Insurance Scheme were enrolled in the study. Patients who met in-patient admission criteria were excluded from the study.

In a previous study the indirect cost of diabetes was estimated to be Rs.100 and the SD was found to be Rs. 200.[14] Therefore for a 95% confidence level, 10% precision of estimate and a design effect of 2, the sample size was calculated as 32 patients. The sampling was done following a non-probabilistic consecutive sampling method.

A questionnaire was developed to capture the indirect costs in the domains of travel, food and drinks during the outpatient visit for the patient and bystander, loss of wages for the patient and the bystander and other indirect costs. Intangible costs were recorded based on three main domains namely, social participation, work productivity and psychological state.[15,16]The indirect costs were measured in actual amounts in Rupees. The intangible costs were measured on a Likert type scale.

The patients with diabetes who met the inclusion criteria were approached in the outpatient department. The study procedure explained and informed consent sought. The questionnaire was administered to those who were willing to participate in the study. The data were then entered in MS Excel spreadsheet and analysis was done using SPSS Statistical Package version 21. Simple frequencies and descriptive statistical analysis was performed and reported. The study was reviewed by the Institutional Ethics Committee of the XXX Medical College. It was approved after an expedited review.

Results

A total of 40patients with diabetes were approached for the study of whom 32 participated in the study. Since the total sample size is only 32 the results are presented as proportions and not percentages. It is seen that about 22/32 of the participants are between the ages of 50 and 65 years. A small proportion of 11/32 had higher secondary education and above. The predominant occupation was manual labour. Table 2 shows the morbidity status of the study population. Of the participants 27 had diabetes for 10-20 years duration. Eleven out of 32 had eye complications. Hypertension was present as a comorbidity among 18/32(Table-1).

Table 1: Diabetes disease status of the study participants

S. No	Characteristics	Categories	Number (n=32)
1	Number of Years of Diabetes	10-20	27
		21-30	2
		31-40	3
2	Complications (multiple responses)	Eye	11
		Kidney	5
		Food	3
		Heart	7
3	Comorbidities (multiple responses)	Hypertension	18
		Heart Disease	5
		COPD	2
		Arthritis	8
		Others	5

Table 2: Indirect costs for patients on the day of the hospital visit for outpatient care

S. No	*Indirect Cost*	*Categories*	*Minimum (Rs.)*	*Maximum (Rs.)*
1	Food and beverages for patient	Food	0	150
2	Food and beverages for bystander		0	150
3	Patient's wage loss	Wage loss	0	500
4	Attender's wage loss		0	500
6	What is the Cost of Transport per visit?	Transport	0	4000

Indirect Cost: The indirect costs due to the outpatient clinic visit for diabetes care are shown in Table 2. Due to the small sample size and the skewed distribution of the indirect cost, the mean is not calculated. The table represents the minimum and maximum cost under each category. It is seen that transport cost represents the greatest proportion of the indirect cost, followed by wage loss and lastly the cost for food and beverages for the patient and attender. Figure 1 shows the indirect cost incurred by two sample patients.

Intangible Cost: The intangible costs are shown in Table 4. Twenty-five of the 32 participants reported that they never had any form of entertainment like movies, drama, theatre etc. Only 8/32 reported visiting their friends and relatives frequently. Five out of the 32 reported that they never attended any family functions or social occasions. While 14/32 participants reported absence of any form of financial support, 15/32 reported high levels of emotional support and 12/32 reported high levels of intellectual support. Twenty-five of the participants reported having a good appetite, 16 of them reported good sleep and 29/32 reported interest in activities of leisure. Ten of the participants reported that their current state of mind is sad(Table-3).

Table 3: Intangible Costs

Statement	A	M	S	N
Do you participate in all social functions?	0	8	19	5
Do you visit your friends / relatives and spend time with them	0	8	11	13
Are you able to go to movies / drama / or other entertainment?	0	1	6	25
Question	**Ma**	**S**	**N**	
Do you have people whom you can rely on for financial help?	8	10	14	
Do you have people whom you can rely on for emotional support?	15	8	9	
Do you have people whom you can turn to for advice?	12	8	12	
Question	**Frequency**			
Do you sleep as before?	16			
Do you feel hungry as before?	25			
Do you have interest in activity of entertainment as before?	29			
Question	**H**	**Ne**	**Sa**	
Can you describe your state of mind today	8	14	10	

A-Always. M-Mostly. S-Sometimes. N-Never;Ma-Many, H-Happy, Ne-neutral, Sa-Sad

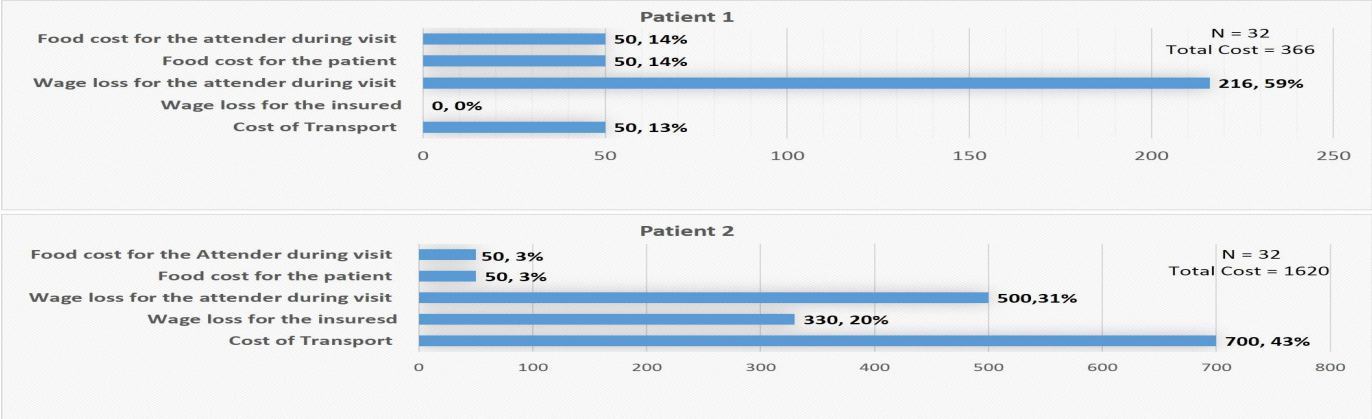
Discussion

This study on diabetic patients receiving care through the ESI scheme, revealed that despite the insurance cover, there are substantial indirect costs in the form of loss of wages for the patient and the attender and travel costs. The study also revealed that there are high levels of intangible costs in the form of reduced social participation and psychological distress.

This study did not look at the direct costs, as the ESI scheme covers most of the direct costs such as consultation fees, cost of tests, and medications. However, despite removing the burden of direct costs, the problem of indirect costs remains. A previous study from south India reported the median indirect cost on transportation to be Rs. 200 with a range between Rs. 4 and Rs. 12,000.[6] In comparison to this the current study also reported a substantially high indirect cost on transport to the hospital. In order to tackle this high cost of travel, more easily accessible health facilities should be created in such a way that all patients may access these facilities without having to spend much. This study was done in a tertiary health care facility. The fact that patients with uncomplicated diabetes came to the tertiary care facility itself denotes a failure of the referral mechanism. If the referral mechanism was robust most of the patients in this study sample would not be required to come to the tertiary centre. Therefore, proper streamlining of the referral system within the ESI scheme would help cut down this cost. Similarly, the second major indirect cost, which is wage loss and cost of food for the patient attender, can also be reduced if the need to travel to a tertiary centre is removed. A systematic review showed that effective integration of services within primary care can enable delivery of cost effective services in low and middle income settings.[17]This can be achieved by strengthening the primary care ability to manage uncomplicated diabetes.

Two methods of measuring intangible costs of diseases have been reported. Firstly, the intangible costs can be measured in monetary terms by the contingent valuation method. This is a method where the patients state their preference of the amount they are willing to pay to correct the extent of intangible loss.[18,19] The second, more common method is non-monetary method of measurement in terms of description of the intangible costs. This study uses the latter. It is seen that there was a major loss of social participation among the patients in terms of poor leisure time and recreational socialization. There was also poor financial support for these patients, though emotional and intellectual support was good. A significant proportion of the participants had either a neutral or a sad affect on the day of the interview. These intangible costs

Figure 1: This figure shows the distribution of indirect cost for the hospital visit for two patients. It is seen that 59% of the indirect cost incurred by Patient 1 is because of wage loss for the attender and 42% of the indirect cost for Patient 2 is because of transportation cost.



significant impair productivity and quality of life of the patients. Therefore they lead to a significant economic burden. Group consultations, support group interventions, telephonic and internet based support interventions have all shown to be effective in improving social support and social participation among diabetic patients.[20] This can significantly reduce the intangible cost.

This study has indicated that even patients covered by the ESI scheme incur substantial indirect and intangible costs. Strengthening of the ESI referral mechanism, improving their accessibility and thus avoiding the need for uncomplicated diabetic patients to travel to a tertiary facility can significantly reduce the indirect cost incurred in travel cost, wage loss as well as food and beverage costs. In order to reduce intangible social and psychological costs of diabetes, social support interventions can be incorporated through the ESI scheme. Treatment of diabetes should be viewed more as a social process rather than a purely biomedical process.

The strength of this study is that it is one of the few studies which has focused on the indirect and intangible costs of diabetes in a low and middle income setting. The small sample size, though calculated based on previous estimates, has precluded the calculation of any meaningful estimates of indirect cost. Statistical analytical models could not be developed for the same reasons. However, the findings are useful in indicating directions for future research and interventions.

Conflicts of Interest: None declared

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Original Research Article

Focus on primary prevention: A study on awareness of diabetes mellitus and its complications among offsprings of diabetes patients

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Abstract

Background: India is facing a major health care burden due to the high prevalence of type-2diabetes. Early identification of at-risk individuals and appropriate lifestyle intervention would help in preventing the onset of diabetes. **Objectives**:This study is done with the objectives, to find out the knowledge about the risk factors and complications of diabetes among off springs of diabetic patients and to identify the modifiable risk factors of diabetes among them. **Methodology**: A cross sectional study was done in a community based rural setting among 100 off springs of diabetic patients using an interview based questionnaire, capturing information on presence of risk factors of diabetes and practice of lifestyle modifications. **Results**: Both parents were diabetic in 17% of the participants. About 40%of the subjects had BMI above 25kg/m².Many of the participants were aware of these risk factors of diabetes. Many of them also knew that diabetes could affect heart, kidney and eyes. But, only few were aware that diabetes could also affect the brain and the oral cavity. Though most of them knew that periodic blood sugar monitoring is necessary, less than 50% were practicing it. Less than 30% were following some dietary modification. Nearly 50% of the participants did not do any physical exercise. **Conclusion**: This study done among off springs of diabetes patients revealed that the subjects had modifiable risk factors that need urgent intervention. Though the subjects had considerable knowledge about diabetes, the practice of lifestyle modification is less. Education begins at home but medical education of awareness and intervention in the form of knowledge/awareness of disease screening/awareness of exercise and diet as prevention should be aimed by the government at large at whatever section possible.

Key words: Diabetes, off springs, knowledge, risk factors, complications

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INTRODUCTION

Diabetes has emerged as one of the major public health problems across the globe.[1] India is facing a major health care burden due to the high prevalence of Type-2 diabetes and there are indications that this would increase further in the next few decades.[2] What is responsible for this epidemic? Lifestyle changes in the face of a vulnerable genetic makeup are mainly responsible. We are endowed with a thrifty genotype. Our genes are programmed

for a metabolic economy to ensure growth and adaptation during periods of limited supply of nutrients. When exposed to a positive energy balance due to over nutrition a catch up growth occurs with preferential catch up of fat compared to lean tissue. Thus the metabolic adaptation turns maladaptive and we develop obesity, diabetes mellitus and their complications.

The so called "Asian Indian pheno-type" makes Asian Indians more prone to diabetes and premature coronary artery disease. At least a part of this is due to genetic factors. However, the primary driver of the epidemic of diabetes is the rapid epidemiological transition associated with changes in dietary patterns and decreased physical activity as evident from the higher prevalence of diabetes in the urban population. The fact that there is a shift in age of onset to younger age groups is alarming as this could have adverse effects on the nation's economy. Hence, the early identification of at risk individuals and appropriate intervention in the form of weight reduction, changes in dietary habits and increased physical activity could greatly help to prevent, or at least delay, the onset of diabetes and thus reduce the burden due to non-communicable diseases in India[3]

This study is thus undertaken with the objectives to find out the knowledge about the risk factors and complications of diabetes among off springs of diabetic patients and to identify the modifiable risk factors of diabetes among them.

Methodology

A community based cross sectional study was done between June-July 2015 in the rural field practice area of our institution. Study subjects were off springs of diabetic patients. 100 subjects chosen by convenient sampling were interviewed with a standard questionnaire. Inclusion criteria: Offsprings of diabetic patients more than 18 years old. Exclusion criteria: Pregnant mothers were excluded from the study.

Questionnaire was administered to find out background details, presence of risk factors of diabetes, knowledge about prevention, symptoms and complications of diabetes. Details about practice of life style modifications were also obtained. The physical activity status of all the subjects was recorded as per the IDRS criteria[3]. The height and weight of all the subjects were measured as per WHO recommendations using stadiometer and conventional weighing scale. WHO guidelines for Body Mass Indiex was used to classify the individuals as underweight, normal, overweight or obese.

Statistical analysis was performed by using Microsoft Excel. Prevalence of risk factors like overweight, obesity, waist circumference and various other factors influencing the knowledge, perception and practices on preventing the onset of diabetes were presented in percentage.

Results

A total of 100 off springs of diabetic patients were interviewed. Among them 40 were males and 60 were females. The age distribution of the participants is shown in the graph ((fig.1)

Figure 1. Age distribution of participants

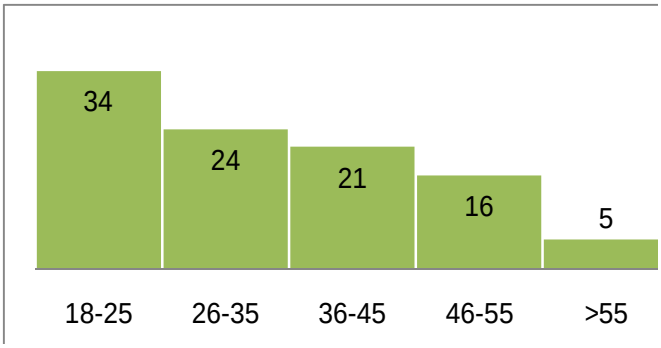
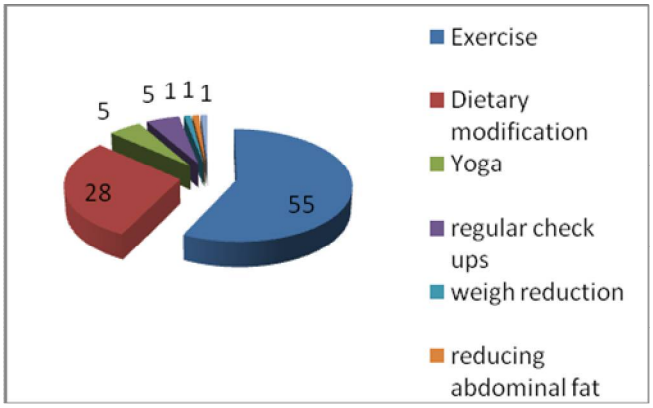


Fig.2. Subjects perception on various measures that prevent diabetes



The following table (table.1) shows the modifiable and non-modifiable risk factors of the subjects.

Table 1. Percentage of subjects with various risk factors for diabetes (n = 100).

S.No.	Risk factors	Percentage
1.	**Diabetes Status of Parents**	
	Father diabetic	51
	Mother diabetic	32
	Both parents diabetic	17
2	**Body Mass Index**	
	Underweight	7
	Normal	53
	Overweight	28
	Obese	12
3	**Central obesity(waist circumference)**	15
	Men	35
	Women	
4	**Smoking**	2

Table 2. Participants knowledge on risk factors for diabetes (n = 100).

Risk factors	Percentage
Family History	
Yes	71
No	18
Dont know	11
Obesity	
Yes	68
No	19
Dont know	13
Sedentary Lifestyle	
Yes	55
No	27
Dont know	18
Diet	
Yes	67
No	25
Don't know	8

The subjects were assessed on their knowledge about diabetes prevention, symptoms and complications. About 71% subjects felt that diabetes could be prevented and 14% did not know about it.

Among those who said that diabetes could be prevented, an open ended question regarding various measures that could prevent diabetes led to the responses(fig.2)

One person though felt that diabetes could be prevented, didnot know the measures to prevent diabetes. Some (3%) felt that prayer could prevent diabetes.

The subjects' knowledge on the various risk factors for diabetes was analyzed. (Table.2)

The participants' were assessed on their knowledge about the symptoms of diabetes. Very few could mention the symptoms like increased urination (17%), tiredness (15%), increased appetite (10%), thirst (9%), loss of weight (8%) and delayed wound healing(8%). Some of them (11%) mentioned breathlessness and giddiness as symptoms of diabetes. One person mentioned sweating, headache as symptoms

The subjects' knowledge on the various complications was assessed. Most of them were aware that diabetes could affect heart, kidney, blood vessel, nerves and eyes. But only a very few knew that it could affect the brain and the oral cavity.

The subjects knowledge and practice on some of the following parameters were assessed

Figure 3. Knowledge on importance of periodic blood sugar monitoring (n = 100).

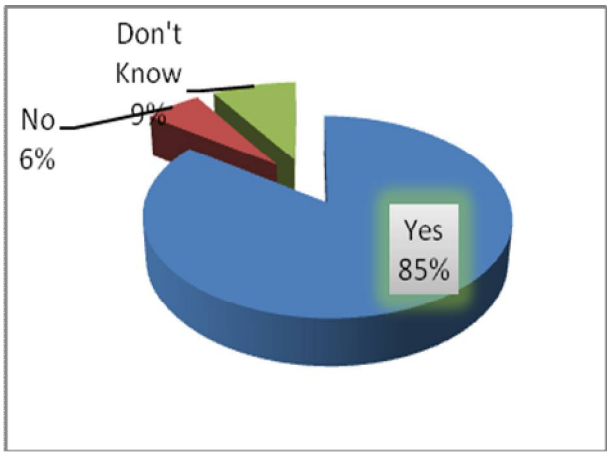
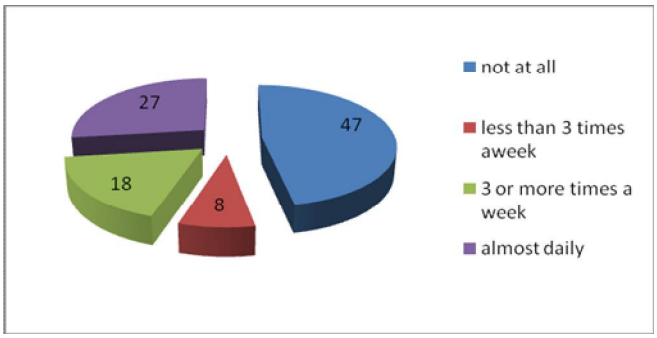


Figure.4. Physical exercise of study participants



Periodic Blood Sugar Monitoring - Knowledge and Practice

The following figure shows the subjects' knowledge on the importance of periodic blood sugar monitoring (fig.3)

Among the subjects (85%) who felt that periodic blood sugar monitoring is important only 49% checked their blood sugars periodically.

Among the subjects who checked their blood sugars periodically, 33% monitored once in six months, 31% monitored once a year and 36% only during illness

Table 3. Types and frequency distribution of various foods avoided by participants (n = 48)

Type of food	Percentage
Sweets, sugar	31
Rice	30
Oil	15
Non vegetarian	10
Fatty food	7
Fruits(mango, banana)	4
Ice cream	2
Coffee	2

Table.4. Physical activity pattern at home and workplace based on IDRS (n=100)

Physical activity	Sedentary	Mild	moderate	Severe
At home	8	50	36	6
At work	6	46	44	4

Dietary Modification

Among the study subjects 48% follow dietary modifications to prevent diabetes. Following table shows the various foods avoided by the participants. (table.3)

Physical Activity

The Indian Diabetic risk score (IDRS) guidelines were used to assess physical activity at workplace, home and involvement in physical exercise. Most of them have sedentary to mild physical activity pattern (table.4). Around 47% do not undertake any physical exercise (fig.4)

Discussion

This study was done to help us find out the level of awareness about diabetes among the off springs of diabetic patients. The outcomes from the study would help physicians to focus more on counseling the family members of diabetic patients on lifestyle modifications that will postpone or prevent the onset on diabetes in the population.

Various studies say that off springs of diabetic patients show a higher risk of developing type 2 diabetes epidemiologically since they are likely to share genetic predispositions and have lifestyle habits similar to those of their parents.[4] In particular, individuals with an affected first-degree relative display a 2.3–5.5-fold higher risk of type 2 diabetes, independent of sex, age, race/ethnicity, body mass index (BMI), and other demographic characteristics.[5] Therefore, family history has been used to screen high-risk populations.[6-8.] Thus our study had only subjects who were off springs of diabetic patients.

Our study shows that the subjects were greatly aware that diabetes can be prevented and to some extent are well informed about the lifestyle modifications but are to a lesser extent practicing them. Thus, it is the role of physicians to counsel the family members of diabetic patients more about the preventive measures to prevent the early onset of diabetes.

However, community settings are more complex and have fewer resources compared with research

settings. Direct interventions by medical professionals to communicate with healthy offspring is especially difficult because of lack of opportunities of communication.[9] Preventive strategies if conducted in face-to-face personalized form directly by the physician might help.

For high-risk individuals to become actively involved in prevention, recognition of the risk for the disease is crucial[10] In some diseases with known genetic susceptibility, affected relatives can play effective roles in promoting adoption of preventive behaviour to other unaffected family members. But for diabetes, previous studies have shown that although patients recognize the necessity of advising their offspring to adopt preventive behaviour, they do not necessarily advise their offspring due to underestimated risk perception.[11] Moreover, preventive behaviour in offspring may not be necessarily facilitated even if their parents advise them. [12]

This ineffectiveness is mainly due to unmet needs for information source: Offspring of type 2 diabetic patients want information about disease susceptibility and prevention directly from medical professionals. From these perspectives, and from our study which shows a higher percentage of people who have a BMI on the higher side(28% are overweight and 12% are obese), tool development which enables patients to deliver information on diabetes genetic susceptibility and prevention made by medical professional to their offspring is necessary.

Conclusion

This cross sectional study done among off springs of diabetes patients revealed that subjects had modifiable risk factors that needs urgent intervention. Though the subjects had considerable knowledge about diabetes, the practice of life style modifications is less. Education begins at home but medical education of awareness and intervention in the form of knowledge/ awareness of disease screening/awareness of exercise and diet as prevention should be aimed by the government at large at whatever section possible.

Compliance with Ethical Standards

Conflict of Interest: Both the authors declare no conflict of interest

Ethical Approval: The study has been approved by the Institutional Human Ethics Committee and adheres to ethical standards

Informed consent: Written informed consent has been obtained from the study participants

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Original Research Article

Out of Pocket Expenditure on Health among Elderly in a Rural population of Katihar District, Bihar

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Date of Submission: 28.10.2016 **Date of Acceptance: 30.11.2016**

Abstract

Background: In spite of cost free and subsidized provision of medical facilities for elderly population under various schemes, out-of-pocket payments remain to be one of the main hindrances in the path of proper health services utilisation. **Objectives:** To estimate the out of pocket expenditure incurred and study various factors associated with catastrophic health expenditure while health care utilisation by elderly. **Materials and methods:** A cross-sectional study was conducted in a rural population of Katihar, Bihar. A pre-designed, pre-tested questionnaire was used to collect information regarding socio-demographic data. A total of 314 elderly people who had utilised any sort of healthcare service (private or government) over last one month were interviewed face to face about their various expenses during health seeking. **Result:** Mean out of pocket expenditure was found to 422.72 ± 312.48 (INR). Catastrophic out-of-pocket expenditure incurred in about 12.5% elderly. Multiple logistic regression revealed upper lower and below-socio-economic status (OR 7.53; 95% CI 3.43-14.16; p=0.01) and chronic morbid condition (OR 1.58; 95% CI 1.33-4.16; p=0.03) to be independent predictors of catastrophic out-of-pocket expenditure among elderly. **Conclusions:** Out of pocket expenditure for health care services was quite high and even catastrophic among 12.5% of elderly who had sought any sort of treatment in last one month.

Keywords: Catastrophic health expenditure, Elderly, Out-of-pocket expenditure.

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Introduction

Ageing is inevitable phenomenon affecting every individual residing in any part of world. Demographic transition has led to an increase in expectancy along with increase in proportion of elderly population.[1] About 11% of population throughout the world is above 60 years of age and out of these 8% resides only in South East Asian countries including India.[2]

The proportion of elderly in India has increased from 6.0 to 8.3 per cent between 1991 and 2013 with of females comparatively higher than males in number.[3] It is projected that over next year demographic structure of India will be transformed, from a young to an old country. It will result in about 316 million elderly by 2050.[4] With the increase in life expectancy, there has been rise in load of chronic morbidities among elderly

population over past few decades that had affected elderly population not only in physical, mental and social aspect but also in financial aspect too. To regain their lost health, the elderly seek the treatment during which they have to suffer from out of pocket direct and indirect financial expenses. Out-of-pocket health expenditures were those made by households at the point of receiving health services and include cash payments reported in the surveys. Catastrophic spending on health occurs when a household must reduce its basic expenses over a certain period of time in order to cope with health care expenses on one or more of its members.[5] Health expenditure has been defined catastrophic if 5-20% of total household income is spent on healthcare.[6]Although various studies has been conducted previously to assess the out of pocket expenditure on health in India, but only a few of them have focussed on health spending specifically among elderly. Therefore in the present study, an attempt has been made to assess the out of pocket expenditure incurred and the factors determining catastrophic health expenditure while receiving the health care.

Materials and methods

A community based cross-sectional study was conducted from July 2013 to September 2013, under catchment area of Rural Health and Training Centre, Katihar Medical College. Total 314 subjects ≥60 years were enrolled in the study via multistage sampling. The elderly were selected from three randomly selected villages (out of seven villages under RHTC covering a population of about 7500). All the elderly who had utilized any sort of healthcare service over last one month in these three randomly selected villages were approached with the help of Medico-social worker and community level health worker, thus complete enumeration process was done. The information regarding treatment seeking and expenses incurred were collected from those who seek for any sort of health service during last one month.

Data collection methods

Socio-demographic data was collected with the help of preformed, pretested, semi-structured schedule. Total monthly income of the family was confirmed by the head of the family including individual incomes in terms of salary, daily wages, any sort of pensions etc. Elderly and there family members were asked about all types of expenses incurred for healthcare services for elderly during last one month including medical expenditures on medications, lab tests, hospital fees etc.; non-medical expenditures on transportations, accommodation and special meals if any and indirect medical expenditures like loss of wages due to visit to health centre. In the present study we have taken upper threshold *i.e.*20% of the household income for catastrophic out-of-pocket expenditure.

Data analysis

Data collected was compiled and analysed using the statistical software. Association between various factors and catastrophic health expenditures during delivery was determined using bivariate analysis followed by multivariate logistic regression. A p-value of ≤ 0.05 was considered statistically significant.

Ethical consideration

Owing to ethical consideration, permission was obtained from the Institutional Ethical Committee of the Katihar Medical College, Bihar. Written informed consent was taken from each of the selected participants after explaining them, the aims and objectives of the study.

Results

Table No.1. Out-of-pocket on expenditure by elderly during last one month.

Health Expenditure Category	Mean ± SD (INR) Median (IQR)
Direct Health Expenditure	281.85 ± 208.33 238 (117-466)
Indirect Health Expenditure	46.97 ± 34.72 39 (19-77)
Direct Non-Medical Expenditure	93.95 ± 69.44 79 (39-155)
Total out of pocket expenditure	422.72 ± 312.48 357 (175-699)

Table No.2 Univariate and Multivariate analysis of factors associated with catastrophic out-of-pocket health expenditure.

Variables		Total (N=314)	Out-of-pocket health expenditure		Unadjusted OR (95% CI)	Adjusted OR (95% CI)
			Non-catastrophic	Catastrophic		
			n=275 (87.5)	n=39 (12.5)		
Age (Yrs)	60-70	211	182 [86.26]	29 [13.74]	1.48(0.67-2.88)	-
	>70	103	93 [90.29]	10 [9.71]	**REFERENCE**	
Gender	Female	116	98 [84.48]	18 [15.52]	1.54(0.74-2.22)	-
	Male	198	177 [89.39]	21 [10.61]	**REFERENCE**	
Marital Status	Single*	113	100 [88.50]	13 [11.50]	1.14(0.69-2.34)	-
	Married	201	175 [87.06]	26 [12.94]	**REFERENCE**	
Type of Family	Nuclear	246	213 [86.59]	33 [13.41]	1.61(0.61-3.99)	
	Joint	68	62 [91.18]	6 [8.82]	**REFERENCE**	-
Financial dependency of elderly on others	Dependent	145	115 [79.23]	30 [20.77]	4.94(1.98-8.22)	1.84(0.81-3.20)
	Independent	169	160 [94.67]	9 [5.33]	**REFERENCE**	
Religion	Non-Hindu	74	61 [82.43]	13 [17.57]	1.75(0.89-2.59)	-
	Hindu	240	214 [89.17]	26 [10.83]	**REFERENCE**	
Social Class	OBC	152	129 [84.87]	23 [15.13]	1.85(0.78-3.35)	-
	SC/ST	36	31 [86.11]	5 [13.89]	1.68(0.77-3.96)	-
	General	126	115 [91.27]	11 [8.73]	**REFERENCE**	
System of medicine used for health seeking	Allopathic	96	71 [73.96]	25 [26.04]	5.13(1.32-9.26)	1.62(0.78-3.36)
	AYUSH	218	204 [93.58]	14 [6.42]	**REFERENCE**	
Socioeconomic Status**	Upper lower & below	198	161 [81.31]	37 [18.69]	13.27(4.31-24.14)	**7.53(3.43-14.16)**
	Lower middle and above	116	114 [98.28]	2 [1.72]	**REFERENCE**	
Type of Morbidity	Chronic	187	154 [82.35]	33[17.65]	4.32(2.23-10.13)	**1.58(1.334.16)**
	Acute	127	121 [94.53]	6[5.47]	**REFERENCE**	

Single includes unmarried,widow,divorced & separated;

****Modified BG Prasad's socioeconomic scale 2014***

Bio-social Characteristic of the study population

The mean age of 314 elderly subjects was 69.4 ± 5.6 years. About two-third were male (63.0%) and were married (64.6%). About 80% of elderly were residing in nuclear family and 50 percent were financially dependent on others. Majority belonged to Non-Hindu religion (76.4%) and Other Backward Caste (OBC) categories (48.4%), followed by General and SC/ST category (40.1% and 11.4% respectively). Almost two-third (63.05%) belonged to either upper lower or below socio-economic status. For health seeking, alternative system of medicine (AYUSH especially Ayurveda and Homeopathy) was the most preferred choice of the elderly. Only 30% of them preferred allopathic medication for their illness. During last one month about 59.5% of the elderly seek treatment for chronic morbid condition and 40.4% seek treatment for acute illnesses.

Health care expenditure

Mean (Median) total out of pocket health expenditure were found to be INR 422.72 ± 312.48(357), including direct health expenditures {281.85 ± 208.33 (238)}, indirect health expenditures {46.97 ± 34.72 (39)} and direct non-medical expenditures {93.95 ± 69.44 (79)}. Catastrophic out of pocket health expenditures incurred in about 12.5% of the elderly who seek any type of treatment in last one month. Multivariate logistic regression analysis reveal that catastrophic health expenditure occurred significantly more among the elderly who belongs to upper lower and below-socio-economic status (OR 7.53; 95% CI 3.43-14.16; p=0.01) and among those who were suffering from chronic morbid conditions (OR 1.58;95% CI 1.33-4.16;p=0.03). Elderly who belongs to lower socio-economic class were about seven times more susceptible to suffer from catastrophic health expenditure. However, factors like financial dependence on others and preference of allopathic system of medicine those were found significant during univariate analysis, became non-significant on multivariate analysis.

Discussion

Limited studies are present in context to catastrophic health expenditure with focus on elderly. Therefore the present research work was aimed to estimate the health expenditure incurred and its determinant. In India per capita out of pocket expenditure is estimated about INR 847 per month for non-subsidised health care facilities.[7]However, in present study the total mean out of pocket expenditure was found to be INR 422.72 ± 312.48, which was quite less than national reference. The expenditure incurred was also much lower as reported in various other national survey reports and studies (NSSO-2006, Singh et.al).[8,9]In contradictory to that the out of expenses bear by the elderly in present study was comparatively higher as that reported Brinda *et al.*, who in their study reported total out of pocket health expenditure for last 3 month about INR 216.[10]These variations in the studies might be due to differences in provision of subsidized health facility for elderly which use to vary from state to state within the country. Apart from that the difference in the base line bio-social characteristic of the population and study settings may attribute to these huge variations. Lower socio-economic status was found to be one of the most important predictor for the incurrence of catastrophic health expenditure. Although various National Health Programmes are providing subsidized as well as free of cost health facilities, but in spite of that elderly belonging to lower class had to spend for the medical and diagnostic services that are not available in government health facilities in rural and remote areas. Apart from that they also have to bear transportation cost in case of referral for chronic morbid conditions. In line with the other research work catastrophic health expenditure was comparatively higher among those who were using private health services. This might be due to payment of more consultation fees to the medical practioner which leads to overburden of health expenses during the health seeking.

Limitations

However, the study was subjected to some limitations.As the study was conducted in limited rural field practice area; results may not be applicable for the whole district. Expenses, the household income and expenditure incurred were assessed as self-reported by elderly that could be unverifiable. Apart from that household income and expenditure could also be under reported due to respondents' recalls.

Conclusions

Out of pocket expenditure for health care services was quite high and even catastrophic among 12.5% of elderly who had sought any sort of treatment in last one month. Therefore provision of better quality and comprehensive government health services along with increase in community participation should be encouraged at the grass root level. IEC (Information, Education, and Communication) based community interventions must be strengthened so that the people living in rural areas including elderly may came to know about current government health schemes, which might help to reduce the burden of their health expenditure.

Conflict of Interest : None

Source of Funding : Nil

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Original Research Article

Depression, anxiety and stress among the faculty members of Aljouf medical and Dental colleges, Saudi Arabia

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Date of Submission: 05.09.2016 **Date of Acceptance: 30.11.2016**

Abstract

Background: Everyone experiences stress and anxiety at one time or another. Depression is also common but serious illness **Objective:** Find prevalence of depression, anxiety and stress among the faculty members of medical and dentistry colleges of Aljouf university, Saudi Arabia. **Methods:** The pre-validate questionnaires were distributed to 60 members of faculty of medicine and dental colleges which started from 24th March till 2nd April, 2014. Out of all 18 from dental and 35 from medical colleges were responded to the questionnaires. A questionnaire was prepared from DASS 21. SPSS V.17 was used for collection of data to calculation of frequencies and percentages. **Results:** With respond rate of 88%, the mean score for depression was 0.45 which indicates low depression in these colleges based on score from 0 to 4. Also, anxiety and stress showed mean of 0.42 which was also low in this population. **Conclusion:** A low level of depression, anxiety and stress were seen in staff of medical and dental colleges. The contributory factors for this low level of these parameters can to be studied further.

Keywords: Depression, Anxiety, Stress, Aljouf, Saudi Arabia

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Introduction

Everyone occasionally feels blue or sad. But these feelings are usually short-lived and pass within a couple of days. When one has depression, it interferes with daily life and causes pain of self and surrounding. Depression is a common but serious illness[1]. Another disorder, anxiety affect about 40 million American adults age 18 years and older (about 18%) in a given year, causing them to be filled with fearfulness and uncertainty.[2]

Unlike the relatively mild, brief anxiety caused by a stressful event (such as speaking in public or a first date), anxiety disorders last at least 6 months and can get worse if they are not treated. Anxiety disorders commonly occur along with other mental

or physical illnesses.[3] Stress is simply a fact of natural forces from the inside or outside world affecting the individual.[4] Stress comes in many forms and affects people of all ages and all walks of life. No external standards can be applied to predict stress levels in individuals.[5]

And there were many similar research of this research, such as the lifetime prevalence of depression, anxiety, and stress among adolescents and young adults around the world is currently estimated to range from 5% to 70%, with an Indian study reporting no depression among college going adolescents. Data were obtained using Depression, Anxiety, and Stress Scale to assess symptoms on dimensional basis and using Mini International Neuropsychiatric Interview to diagnose on categorical basis.[6]

A study conducted in Saudi Arabia shown the prevalence of symptoms of depression, anxiety and stress was 41.5 %, 66.2% and 52.5% respectively. The majority of symptoms were mild to moderate in severity. The scores for depression, anxiety, and stress were positively and significantly correlated.[7]

These disorders were ranging from mild to server in different region and selective population. The aim of the study was to find prevalence of depression, anxiety and stress among the faculty of Medical and Dentistry College in Aljouf University, Saudi Arbaia.

Material and Methods

The study area was medical and Dentistry colleges of Aljouf University and Inclusions were all Male faculty members Saudis and non Saudis between the ages of 30-60 of medical and Dentistry College. Students, officer and female faculty members were excluded due to accessibility issue.

The Study Design was cross-sectional and the questionnaire was distributed to members of faculty and was self administered and names was put optional .And the participants were asked to fill the responses of the questions based upon the past one week of experience. The study started in October 2014 and completed in 8 weeks.

The questionnaire had specific depression, anxiety and stress factors which were validated before administered to study participants. Questionnaire was adopted from DASS 21. Each of the three DASS scales contains 14 items, divided into subscales of 2-5 items with similar content. The Depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, and lack of interest/involvement, anhedonia, and inertia. The Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The Stress scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. Subjects are asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week. Scores for Depression, Anxiety and Stress are calculated by summing the scores for the relevant items.[8] The DASS is a quantitative measure of distress along the 3 axes of depression, anxiety(Symptoms of psychological arousal) and stress(The more cognitive, subjective symptoms of anxiety) . It is not a categorical measure of clinical diagnoses.[9]

The Data was entered in SPSS software and analyzed. A simple frequencies and percentages were calculated for each question. Scoring and grading was also done to stratify depression, anxiety and stress separately. An Institutional Ethical Committee approval was obtained before proceeding to the study.

Results

A total of 60 doctors with respond rate of 88 %(N: 53) participated in the study. There were 18 doctors from Dentistry College and 35 doctors from medical college between the ages 30-60 years.

Disorder wise questions were organized and questions are studied in detail. For the convenience of analysis questions were organized in to questions related to depression and questions related to anxiety and stress.

Table 1. Responses to questions related to depression given by study participants.

Responses	I found it difficult to relax		I feel that I was using lot of nervous energy		I felt scared without any reason	
	No.	%	No.	%	No.	%
Did not apply to me at all	34	64.2	31	58.5	35	66.0
Applied to me some degree	18	34.0	19	35.8	15	28.3
Applied to me considerable degree	1	1.9	2	1.9	3	5.7
Total	53	100	53	100	53	100

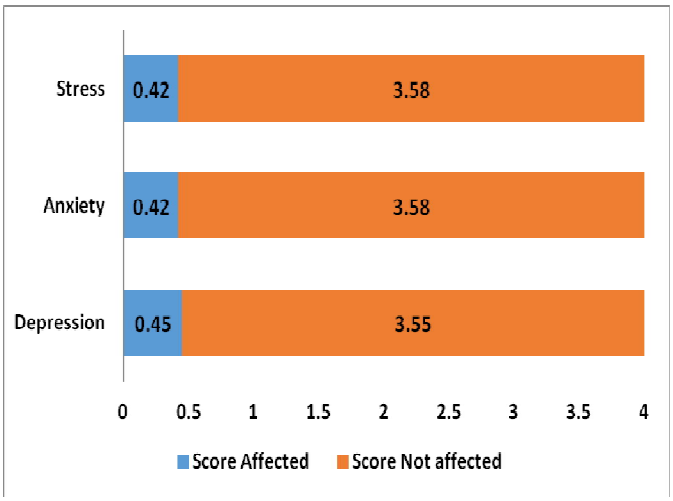
Among study participants, 34(64.2%) doctors answered that they have enough time to relax (I found it difficult to relax), while 18(34.0%) doctors answered that they have difficulty in relaxing (applied to me at some degree). When it comes to one feels that using lots of nervous energy, 31(58.5%) doctors answered did not apply to me at all, while 19(35.8%) doctors answered that it applies to me at some degree. And 35(66.0%) doctors answered that they not felt scared without any reason (did not apply to me) while 15(28.3%) doctors answered that it was applicable to them some degree. And very less proportion of study participants felt that they have difficult to relax (1.9%), using lot of nervous energy (1.9%) and scared without any reason (5.7%).

Among study participants, 34(64.2%) doctors answered that it was not applicable of experiencing any positive feeling at all not apply to me while 17(32.1) doctors answered some degree of not seem experience any positive feeling at all. And 28(52.8%) doctors answered that they not found difficult to work up the initiative to do things, while 24(45.3%) doctors answered that they had a difficult to work up the initiative to do things. Also 37(69.8%) doctors answered that they did not felt that I had nothing to look forward to, while 15(28.3%) doctors answered that have some degree of feeling of felt that I had nothing to look forward to. And 1.9% of respondents felt that all the responses were applicable to some degree to very much.

Table 2. Responses to questions related with Anxiety and Stress given by study participants.

Responses	I could not seem experience any positive feeling at all		I found it difficult to work up the initiative to do things		I felt that I had nothing to look forward to	
	No.	%	No.	%	No.	%
Did not apply to me at all	34	64.2	28	52.8	37	69.8
Applied to me some degree	17	32.1	24	45.3	15	28.3
Applied to me considerable degree	1	1.9	1	1.9	1	1.9
Applied to me very much	1	1.9	0	0	0	0
Total	53	100	53	100	53	100

Figure.1. Scoring of depression, Anxiety and stress among Study participants (n=53)



When scoring of the questions related to depression, anxiety and stress to 0-4 points, the mean score of 0.45, 0.42 and 0.42 obtained the degree of depression, anxiety and stress respectively among study participants.

Discussion

This study finds out the degree of depression, anxiety and stress among staff working in medical and dental colleges in well known university in Saudi Arabia. Out of these three disorders, depression had a high scoring of 0.45(0-4 range). Anxiety and Stress were scored 0.42 only. These scores are very less compared to other studies conducted in Saudi Arabia and other countries (multiple references). And very fewer studies are published the extent of these disorders among medical and dental college staff and majority of studies were conducted in general population. Hence we found difficulty in comparing our findings with similar studies.

When exploring the less severity of depression, anxiety and stress in our university, the respondents are professionals and having some knowledge about this disorder and coping mechanism. Also all were well paid and quality of live is also considerably good. On the other side there would be challenges of peer and family pressure, recent policies or guidelines of medical education, promotion and thinking of their long term future as most of them are expatriates. And there might be some work pressure at institution level that can cause considerable level of stress.

Depression, anxiety and stress can be taken as reliable indicator for assessment of mental illness in a community. In a study conducted in Pakistan found that 88% of doctors have low percent of depression, anxiety and stress while other researches show average anxiety scores of all doctors from 300-400 was 8.05 which indicate mild level anxiety , while the average scores of depression showed high level . [10]

This cross-sectional study in 500 students was conducted in India to determine prevalence of current depressive, anxiety, and stress-related symptoms on a Dimensional and Categorical basis among young adults showed more than 10% of prevalence of this disorder [6] a study from India showsthan half of the respondents were affected by depression (51.3%), anxiety (66.9%) and stress (53 %) among medical students and instructed the importance of student's psychology and professional counselling. Because medical students are future doctors.[11] Also a study conducted in Mysore, India shows the prevalence of mental health problems like depression, anxiety and stress were more than 30% among medical immediately before they manifest into severe forms. students.[12] Also a study examine the prevalence of depression, anxiety, and stress was high (43%, 63%, and 41%, respectively) which reduced (to 30%, 47%, and 30%, respectively) to some extent after medical examination examinations in Saudi Arabia.[13] A study conducted in Hong Kong among nurses shows that the prevalence of depression, anxiety and symptoms of stress came in at 35.8%, 37.3% and 41.1% respectively and explored various reasons for the same.[14]

We have certain limitations in our study. The sample size was very less and it was covered only one section staff of our university. Certain level of measurement error can be expected due to the medical knowledge of participants.

Conclusion

Some doctors suffered from stress and depression to certain extent. Hardness, dryness, panic & negative feelings are all existed in the sample. It clearly shows that these disorders are not uncommon in medical professionals.

Recommendation

Since we have low extend of stress, depression and anxiety, it is very early to develop some mechanism at institution level to identify these symptoms through regular self or professional screening mechanism and treat them. We also recommend physical exercise; will be very helpful for those people who have these issues. An exploratory study to find out the factors affecting in developing or worsening these disorders in large scale can be done.

Conflict of Interest: Nil

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Original Research Article

Evaluation of workshop on communication skills for Health Care Providers in Pondicherry

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Abstract

Background: Communication skills for health care providers are vital because it predicts quality of care and patient outcome. We planned to impart training to Health Care Providers in the primary care settings as a learning exposure. **Objectives:** The present study was conducted to evaluate the workshop on communication skills for health care providers at the primary health care settings. **Material and Methods:** The study was conducted in the Department of Community Medicine (DCM), Sri ManakulaVinayagar Medical College and Hospital (SMVMCH) Puducherry, nearby Primary Health Centre (PHC, Thirubhuvanai) and Community Health Centre (CHC, Karikalambakkam). It was a mixed-methods design where quantitative (using retro-pre feedback) and qualitative (using open ended questions) were used. The total number of health care providers included in the study was 41. A half day workshop on counselling micro skills was facilitated by two trained health professionals for health care providers. Quantitative data was collected using a retro-pre feedback questionnaire. The participants were contacted and qualitative data was collected after one month of training program using open ended questions.The quantitative data was entered and analysed using Epi_info (version 3.5.4) software. Qualitative data was entered and analysed manually. Ethical Clearance from the Institutional Human Ethics Committee was obtained. Informed consent was obtained from the participants before enrolment.**Results:**The difference between the pre and post session mean scores were found to be statistically significant (P<0.001). The qualitative data obtained from the health care providers showed self-perceived improved changes in communication skills during their routine work. **Conclusion:**Communication skills training program for health care providers resulted in self-perceived improved changes in knowledge and practice of communication skills in primary care settings.

Key words: Health Care Providers, communication skills training program,counselling micro-skills.

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Introduction

Communication skills for health care providers are vital because it predicts quality of care and patient outcome.[1,2]Health Care Providers(HCP) are trusted community members providing informal community-based health-related services and establishing vital links between health providers and the community.[3] They perform many functions like providing services to improve maternal and child health, adolescent health, patients with non-communicable diseases, active case finding for Tuberculosis, patient transportation, management of minor illness and home visits.The Department of

Community Medicine (DCM), Sri ManakulaVinayagar Medical College and Hospital (SMVMCH) Puducherry, has been working in collaboration with the nearby Primary Health Centre(PHC) for training Post Graduates (PGs) and medical interns in primary care setting. All the faculties and PGs in the DCM received a one-day training in counselling micro skills. Hence we planned to impart training to Health Care Providers in the primary care settings as a learning exposure.

Objectives: The present study was conducted to evaluate the workshop on communication skillsfor health care providers inthe primary health care settings.

Material and Methods

Study area and setting: The study was conducted in the Department of Community Medicine (DCM), Sri ManakulaVinayagar Medical College and Hospital (SMVMCH) Puducherry, nearby Primary Health Centre (PHC, Thirubhuvanai) which caters to a population of 35,425 andCommunity Health Centre (CHC, Karikalambakkam) which caters to a population of 85,300.

Study design: Mixed-methods design where quantitative (using retro-pre feedback) and qualitative (using open ended questions) were used.

Study population&Sample size: We included health care providers namely medical social workers, auxiliary nurse midwife, health inspector, counsellor, staff nurse from PHC, CHC and SMVMCH. The total number of participants was 41.

Brief procedure: Permission was obtained from the Medical Officer of PHC and CHC for conducting a half day workshop on communication skills for health care providers in their respective centres. Convenient date and time for the workshop was fixed in consultation with the in charges. A half day workshop on counselling micro skills was facilitated by two trained health professionals (a Postgraduate and Assistant Professor in Community Medicine). Workshop included initial briefing on importance on communication skills for health care providers followed by micro skills in counselling using a power point presentation. At the end of the session, the participants were given hands-on activity by role play demonstration in pairs for the common scenarios which they encounter in the field (counselling a/an adolescent girl with anaemia, pregnant woman, alcoholic male). Debriefing was done at the end. Quantitative data was collected using a retro-pre feedback questionnaire (pre and post workshop rating on a scale of 1 to 5)to evaluate participant's reactionto the sessions (Kirkpatrick level 1). Handouts in their local language (Tamil) were distributed to the participants for their future reference. Participants were encouraged to practicecounselling micro-skills in their routine field activities. After one month of training program, the participants were contacted and qualitative data was collected using four open ended questions to know their learning of knowledge and practice of counselling skills in their routine work (Kirkpatrick level 2).

Ethical issues: Ethical principles such as respect for person, beneficence, justice and ensuring confidentiality were adhered during the study. Ethical Clearance from the Institutional Human Ethics Committee was obtained. Informed consent was obtained from the participants before enrolment.

Data analysis: The quantitative data was entered and analysed using Epi_info (version 3.5.4) software.Paired t test was applied to test the difference between the mean scores before and after the training program. Qualitative data was entered and analysed manually.

Results

1) Quantitative data findings

The mean age in years (±SD) of the participants was 35 years (±10.8). Out of 41 participants 11 (26.8%) were male and 30 (73.2%) were female. The mean post test scores were significantly higher for five variables namely knowledge on definition of counselling, knowledge on importance of counselling, knowledge on different counselling micro skills, perceived ability to demonstrate counselling micro skills and perceived usefulness of the workshop in future than the mean pre test scores ($p < 0.001$), (Table 1). The mean (±SD) pre test scores for knowledge on different counselling micro skills showed a greater increase from 2.73 (± 1.12) to 4.8 (± 0.40) compared to other variables.

2) Qualitative data findings

As presented in Table 2, five categories of common responses emerged from the qualitative data. They were 1) Usefulness of the programme: Out of 41 health care providers, 20 participants reported that

Table 1: Retro pre feedback data on different domains of communication skills n=41

Sl no	Variables	Rating	Mean±SD(on a scale of 1 to 5)	p value
1.	Knowledge on definition of counselling	Pre	3.22 ±1.11	
		Post	4.7 ±0.56	0.0001*
2.	Knowledge on importance of counselling	Pre	3.51±1.19	
		Post	4.90 ± 0.30	0.0001*
3.	Knowledge on different counselling micro skills	Pre	2.73 ± 1.12	
		Post	4.8 ±0.40	0.0001*
4.	I am able to understand and demonstrate the different counselling micro skills	Pre	3.02 ±1.10	
		Post	4.85 ± 0.36	0.0001*
5.	Learning from the workshop will be useful for me in future	Pre	3.24 ±1.20	
		Post	4.98 ±0.16	0.0001*

*p value significant.

Table 2: Feedback from participants after one month of exposure to communication skills training program n=(38)

S.no	Categories of common response	Participants' statements (Number of participants' making the statement)
1.	Usefulness of programme	Yes, it is useful for my routine work (20)
2.	Self-perceived changes in communication skills	I learned how to approach the patient (5) I learned to speak clearly with the patient (4) I learned to make the patient comfortable by good rapport building before initiating the session (9) I learned to give adequate time for the patient to speak out (8) I learned to listen to the patient actively (7) My overall communication skills with patient improved (9)
3.	Self-perceived levels of improvement in communication skills	Improved by 20% (4) Improved by 50% (5) Improved by 70% (2)
4.	Difficulties faced	No sufficient time to interact with the patient in the field setting (3) Privacy for the patient could not be maintained in field setting (7)

the workshop was useful for their routine practice, 2) Self-perceived changes in communication skills: Participants reported that they had learned how to approach and talk clearly to beneficiaries like pregnant and lactating women and how to listen to them actively. Nine participants stated that "I learned to make the patient comfortable by good rapport building before initiating the session" and eight participants stated that "I learned to give adequate time for the patient to speak out", 3) Self-perceived levels of improvement: The Health Care Providers noted an overall improvement in their communication skills,
4) Difficulties faced: Lack of adequate time and privacy in field setting were mentioned as the major difficulties faced in interacting with the patients.

Discussion

The major findings of the study showed that the mean scores for domains such as knowledge of counselling definition, knowledge of counselling importance, different counselling micro skills, demonstration of different counselling micro skills, overall learning from the workshop increased from 3.22±1.1, 3.51±1.19, 2.73±1.12, 3.02±1.10, 3.24±1.20 to 4.7±0.56, 4.90±0.30, 4.8±0.40, 4.85±0.36, 4.98±0.16 respectively. Overall, the difference between the pre and post session mean scores were found to be statistically significant ($P<0.001$). The qualitative data obtained from the health care providers showed self-perceived improved changes in communication skills during their routine work.

In our context, Non Communicable Diseases (NCDs) continues to be a public health problem.[4] A study done in Chennai has shown that the relative risk reduction was 28.5% (95% CI 20.5–37.3, p=0.018) for a group of non-diabetic subjects who received health education on Life Style Modification (LSM) like diet and physical activity by health workers as compared to the control group. The follow up done for three years showed a significant reduction in the incidence of diabetes through health education on Life Style Modification, 39.3% as compared to 55% in the control group.[5]Hence empowering our Health Care Providers with communication skills will helps us to achieve improvement in NCD prevention. Similarly, the lessons learned can be applied to improve maternal and child health, adolescent health and geriatric health in primary care settings.

The major strengths of the study were the use of mixed methods design, the training program conducted was targeted mainly on counselling micro skills and follow up data was collected from the participants after one month of the training program. We measured self-perceived changes in communication skills of health care providers which was a limitation of the study.

Our study results found that communication skills training program for health care providers resulted in self-perceived improved changes in knowledge and practice of communication skills in primary care settings. The future recommendations from the present study would be to empower health care providers with communication skills throughknowledge and skill based training programs to achieve betterhealth outcomes in the community.

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Original Research Article

Epidemiological determinants of contraceptive practices among eligible couples in a rural area of Thrissur, Kerala

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Date of Submission: 05.11.2016 **Date of Acceptance: 15.12.2016**

Abstract

Background: India launched the Family Planning Programme in 1952 to accelerate the country's socio-economic development and to reduce the rate of population growth. In spite of the efforts by the government, women, especially in the rural areas are reportedly reluctant to accept any method of contraception due to various reasons. Despite Kerala is a state in which the total fertility rates, urban-rural differences still persist in Kerala with rural women having 0.56 children more than urban women. In the above context, the present study was conducted to throw light on the prevalence and epidemiological determinants of contraceptive practices among the eligible couples in Thrikkur, a rural area of Thrissur. **Methodology:** A community based cross-sectional study was done among all the currently married women in the reproductive age group (n=130) residing in Thrikkur. Data was collected using a pre-tested semi-structured interview schedule by house-to house survey, after obtaining consent from the study subjects. **Results:** The contraceptive prevalence rate among the eligible couples in this study was found to be 68.5%. The most common method of contraception used by the study subjects was Post Partum Sterilization (43.8%). The prevalence of unmet need of family planning in this study was 18.4%. Religion, educational status of females and parity were the factors which were significantly associated with contraceptive practices of the eligible couples in this study. **Conclusion:** The present study found a high contraceptive prevalence rate among the study subjects. But the unmet need of family planning, among the women was found to be higher than the overall unmet need of family planning in Kerala. There is an urgent need to fill this gap between the contraceptive need and the contraceptive practices of the eligible couples in this area.

KEY WORDS: Contraceptive practice, eligible couples, rural area

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INTRODUCTION

The population of India is increasing at a rapid rate, and the population size in India is the second largest in the world. The Census of Population, 2011 indicate that we are now having over one billion people in India, which means that the country has to support about 16 percent of world population on 2.4 percent of total world land area. But, there is severe shortage of adequate capital and technology to fully exploit all the available resources, which makes most of the Indians to live in poverty, face unemployment and suffer from ill health. Population growth in India has been a matter of great concern for the government of India since a long period of time.

India launched the Family Planning Programme, in 1952, which was the first of its kind in the developing countries, to accelerate the country's

socio-economic development and to reduce the rate of population growth. The programme was accorded special priority during the 1960's and 1970's,but so far only met with marginal success, that is, till 1989-1990, only 41.9% of the total eligible couples has been effectively protected.[1]

Family planning is promoted globally as a mechanism to address the reproductive needs of men and women as well as the crucial challenge of rapid population increase. [2] Family planning refers to the practices that help the individual or couple to avoid unwanted births, by temporary or permanent methods, to regulate the interval between pregnancies, control the time at which birth occurs in relation to the age of parents and determines the number of children in the family.[3] The National Population policy adopted by the Government of India in 2000 has set as its immediate objective, the task of addressing unmet need for contraception to achieve the medium-range objective of bringing the total fertility rate down to replacement level by 2010.[4]

In spite of the efforts by the government the acceptance of contraceptive practices varies among different societies, religious and cultural groups. Women, especially in the rural areas are reportedly reluctant to accept any method of contraception due to various reasons. Kerala is a state in which the total fertility rates are lower than most of the other states in India. Despite low levels of overall fertility, urban-rural differences still persist in Kerala with rural women having 0.56 children more than urban women (NFHS 3). In the above context, the present study was conducted among the eligible couples in Thrikkur, a rural area of Thrissur with the following objectives:

1. To determine the proportion of eligible couples practicing any of the approved methods of contraception
2. To study the different methods of contraception practiced by the study population
3. To determine the factors influencing the contraceptive practices of the study population

MATERIALS AND METHODS

A community based cross-sectional study was done from August 2013 to October 2013 among all the currently married women in the reproductive age group (n=130) residing in Thrikkur. Data was collected using a pre-tested semi-structured interview schedule by house-to house survey, after obtaining consent from the study subjects. Information about the socio-demographic details, usage of contraceptives, type of contraceptives used, and reason for not adopting contraceptive methods were collected using the questionnaire.

Operational definitions:

Eligible couple: Currently married couples with wives aged between 15 to 45 years.[5]

Couple Protection Rate (CPR): Per cent of eligible couples effectively protected against childbirth by one or the other approved methods of family planning, viz. sterilization, IUD, condom or oral pills.[5]

Unmet need of family planning: Women with unmet need are those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child.[6]

The collected data was coded and entered into Microsoft Excel and analyzed using SPSS version 16. Data was analyzed using frequencies and Chi-square test was done to determine the association between the contraceptive prevalence and determinants and p value <0.05 was considered to be significant.

RESULTS

A total of 130 (n=130) currently married women in their reproductive age groups (15-45 years) participated in the study. Majority of the women in the study group, 41 (31.5%) were in the age group of 25-29 years. There were 60 (46.2%) Hindus, 38 (29.2%) Muslims and 32 (24.6%) Christians among the study subjects. Majority, 69 (53%) of them had two living children. Knowledge of contraceptives among the respondents is universal; all women in the study group were aware of at least one modern

method of contraception (Table 1). Awareness about emergency contraception was present among 74 (56.9%) of the study subjects.

Table 1: Sociodemographic profile of the study subjects

Factor	Number	Percentage
Age		
15-19	9	6.9
20-24	32	24.6
25-29	41	31.5
30-34	26	20
≥ 35	22	16.9
Religion		
Christian	32	24.6
Hindu	60	46.2
Muslim	38	29.2
Educational status		
University	24	18.5
Higher secondary	64	49.2
Secondary	24	18.5
Primary	18	13.8
Socioeconomic status		
APL	77	59
BPL	53	41
Parity		
Nullipara	12	9.3
Para 1	26	20
Para 2	69	53
≥Para 3	23	17.7

Table 2: Distribution of study subjects according to theType of contraceptives used

Type of contraceptive	Number	Percentage
Post Partum Sterilization	39	43.8
IUCD	20	22.4
Condom	16	18.1
Oral Pills	14	15.7
Total	89	100

Table 3: Reason for not using contraceptives by the study subjects

Reason for non-usage	Number	Percentage
Inconvenience	17	41.2
Family not complete	14	35
Opposition from partner	4	10.3
Breast feeding	3	7
Ignorance	2	4.1
Fear of side effects	1	2.4
Total	41	100

The number of eligible couples in the study group, practicing any of the approved contraceptive methods was found to be 89 (68.5%).The most common method of contraception used by the study subjects was Post Partum Sterilization, with 39 (43.8%) using this method. Intrauterine contraceptive devices were used by 20 (22.4%); condom usage was found to be present among 16 (18%); and 14 (15.7%) of the study subjects were using Oral Contraceptive Pills (Table 2). Among the study subjects who were not using any contraceptive methods, 14 (35%) of them had not completed their family, which was their reason for not using contraception (Table 3). Among the 130 eligible couples in the study group, 24 (18.4%) had an unmet need of family planning services. Among the contraceptive users, 79 (88.7%) have already completed their families, which was their reason for adopting family planning services.

Contraceptive usage was significantly higher among those eligible couples belonging to Hindu religion, 47(78.3%) as compared to other religions and this was found to be statistically significant. Females who are well educated (university and above), 21 (87.5%) are more likely to accept family planning methods as compared to women with primary level of education, 5 (27.8%), which was also found to be significant ($p<0.05$). The contraceptive usage of women with two or more living children was significantly higher than that of nulliparous women and women who have less than two living children (Table 4). Factors such as age and socioeconomic status of the study subjects were not

Table 4: Association of Contraceptive practice of the study subjects with selected variables

Variable	Contraceptive use			X2 (df)	p value
Religion	**Yes No (%)**	**No No (%)**	**Total No (%)**		
Christian	21(65.6)	11 (34.4)	32 (100)	**5.9 (2)**	**0.05**
Hindu	47(78.3)	13 (21.7)	60 (100)		
Muslim	21(55.3)	17 (44.7)	38 (100)		
Education				**18.2 (3)**	**0.004**
University	21 (87.5)	3(12.5)	24 (100)		
Higher secondary	46 (71.9)	18 (28.1)	64 (100)		
Secondary	17 (70.8)	7 (29.2)	24 (100)		
Primary	5 (27.8)	13 (72.2)	18 (100)		
Parity				**56 (3)**	**0.0001**
Nullipara	2 (16.7)	10 (83.3)	**12** (100)		
Para 1	6 (23.1)	20 (76.9)	**26** (100)		
Para 2	61 (88.4)	8 (11.6)	**69** (100)		
≥Para 3	20 (87)	3 (13)	**23** (100)		

p value <0.05: significant

found to be significantly associated with contraceptive usage.

Among the study subjects, the most important source of information regarding family planning services are health care providers (66.9%), followed by media/friends (33.1%). Majority of the women in this study, 121 (93.3%) were availing family planning services from the government hospitals and 8 (6.7%) were availing these services from the private hospitals.

DISCUSSION

A community based cross-sectional study was done to determine the contraceptive practices and its determinants among 130 women of reproductive age group in Thrikkur, a rural area of Thrissur. There were 89 (68.5%) eligible couples in the study group who were practicing any of the approved methods of contraception. The National Family Health Survey (NFHS 3) data shows that 68.6% of currently married women in Kerala are using some method of contraception.[7] A study done by Saurin V Patel et al in a rural population of Vadodhra, the contraceptive prevalence rate was found to be 72%.[8] The contraceptive prevalence rate found in the present study is higher than that of another study done in rural India by Chandhick et al, in which the CPR was found to be 45.2%.[9]

The most common method of contraception used by the study subjects was Post Partum Sterilization (43.8%), followed by intrauterine contraceptive devices (22.4%), condom (18%) and Oral Contraceptive Pills (15.7%). According to NFHS-3, female sterilization accounts for 66 percent of all contraceptive use, the most common spacing methods are condoms and the rhythm method, each used by 5 percent of currently married women.[4] Another study done by Kumar R et al found that the most common method of contraception used by the eligible couples was post partum sterilization (41.3%), followed by condom (35.6%), IUD (17.9%), and oral pills (5.1%).[10] The most common reasons for not using any of the contraceptive methods in the study group was found to be inconvenience in using contraceptives (41.2%) and family not complete (35%). Other reasons for not using contraception were: opposition from partner, ignorance and fear of side effects. In the study by Kumar R et al, the common reason for contraceptive non usage was side effects (37.1%), desire for more

children (32.6%) and failure of contraceptive method (19.0%).[10]

The present study showed a significant association between educational status of the females and contraceptive usage. Women who are educated will be aware of the different contraceptive methods and are more likely to adopt a small family norm when compared to women with low level of education. This finding was similar to the findings of a study by Banerjee et al, where they found a significant association between woman's literacy status and contraceptive practice.[11] There was an increasing trend of contraceptive usage among women with increase in parity, which was found to be statistically significant (chi square 56, p value=0.0001). This finding is consistent with the finding in NFHS 3, in which it was found that current use of contraception varies greatly with parity first increasing from 34 percent for women with one child to 74 percent for women with three children.[4] This may be due to the fact that nulliparous women will be in need of more children for completing their family, whereas women who have more than two children have already completed their family and are more likely to adopt any one contraceptive method.

The present study showed that 18.4% of the women in the study group were having unmet need of family planning, which is found to be higher than the NFHS 3 data which shows that the unmet need of family planning in Kerala is 8.9%.[7] Government sector was the most important contraceptive provider among the study subjects, with 93.3% of eligible couples getting the contraceptives from government hospitals. The study also found that the most important source of information regarding family planning services is health care providers (66.9%), followed by media/friends (33.1%).

CONCLUSION

The present study showed that the contraceptive prevalence rate among the study subjects was high and was consistent with the current contraceptive practices in Kerala. But the unmet need of family planning, among the women in this study was found to be higher than the overall unmet need of family planning in Kerala. This means that there is a gap between the contraceptive need and the contraceptive practices of the eligible couples in this study. This can be effectively solved by behavior change communication and health education, targeting the eligible couples, especially in the rural area.

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Original Research Article

Assessment of unmet need for contraception in an urban area of Pondicherry

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Abstract

Introduction: World-wide, 64% of married women use contraception but an estimated 225 million women in developing countries would like to delay or stop childbearing but are not using any method of contraception. Globally, the prevalence of contraceptive use has been increasing, but the unmet need for contraception still remains a problem. **Objectives & Methods:** To assess the unmet need for contraception among the eligible couples residing in urban area of Pondicherry; to study the socio-demographic characteristics of those with the unmet need and the reasons for not using contraception. In this community based cross-sectional study all married women in the age group of 15 – 45 years residing in the Shanthinagar subcenter area were interviewed using a semi-structured pre-tested questionnaire. **Results:** The unmet need for family planning was found to be 20.5%, the unmet needs for spacing and limiting were 4.9 per cent and 15.6 per cent respectively. The most commonly adopted method of contraception among the users were tubectomy for limiting and condoms for spacing. Significant difference was seen for age, education, number of children and male involvement in decision making about contraception between the women with unmet need and without unmet need of family planning. Client related factors like lack of awareness about contraception, irregular periods, post-partum amenorrhoea were the most commonly stated reasons.

Key words: unmet need, contraception, limiting, spacing

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Introduction:

According to the World Health Organisation (WHO), women with unmet need are those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child[1]. This unmet need for family planning may be further classified as unmet need for spacing and unmet need for limiting. In the most recently conducted District Level Health Survey[2] (DLHS-4) & National Family Health Survey (NFHS-4)[3] the same definition of unmet need has been used.

World-wide, 64% of married women use contraception but an estimated 225 million women in developing countries would like to delay or stop childbearing but are not using any method of contraception. Reasons for this include limited choice of methods; limited access to contraception, particularly among young people, poorer segments

of populations, or unmarried people; fear or experience of side-effects; cultural or religious opposition; poor quality of available services; users and providers' bias and gender-based barriers[1]. Globally, the prevalence of contraceptive use has been increasing, but the unmet need for contraception still remains a problem[4].

According to DLHS-3, the total unmet need, unmet need for spacing and limiting for India as a whole was 20.5, 7.2 and 13.3 respectively. The district level health survey (DLHS-4) has reported that the unmet need for family planning in Puducherry is 27.1%; being 17.2% and 9.9% for unmet need of spacing and limiting respectively[2]. Studies done in various parts of India have reported a prevalence of unmet need of family planning ranging from 18.7% to 44%[4,6-13]

This unmet need for family planning actually corresponds to the gap between the reproductive intentions and contraceptive use among women. It is a valuable programme indicator because it shows how well the populations' felt need for family planning is addressed. It poses challenge to family planning programme - to reach and serve millions of women whose reproductive attitude resembles those of contraceptive user but who are for some reason or combination of reasons are not using contraceptives[5].

Unmet need for family planning was added to the 5th Millennium Development Goal (MDG) as an indicator for tracing progress on improving maternal health. Subsequently, one of the indicators for sustainable development goal (SDG-3) which addresses health, is the percentage of all demand for family planning that is met with modern contraception. Demand for family planning is the sum of women who are currently using contraception and those with unmet need. For this indicator, the benchmark proposed is 75%. Thus reducing the unmet need will indirectly reduce maternal mortality by reducing the number of pregnancies, number of abortions and the proportion of births at high risks. It can help to reduce infant mortality, slow the spread of HIV/AIDS, promote gender equality reduce poverty, accelerate socioeconomic development, women empowerment and promote the environment.

There is a paucity of community-based studies on the extent and the reasons for unmet need of contraception in Puducherry, especially in the urban areas. It is against this background that the present study was conducted to determine the prevalence of unmet need for family planning in an urban area of Puducherry.

Objectives:

1. To assess the unmet need for contraception among the eligible couples residing in urban area of Pondicherry.
2. To study the socio-demographic characteristics of those with the unmet need.
3. To find out the reasons for not using contraception among those with unmet need.

Material & Methods:

This community-based cross-sectional study was conducted in one of the subcenters of the Urban Health Training Center, attached to the department of Community Medicine. All married women in the age group of 15 – 45 years residing in the Shanthinagar subcenter area were included. Unmarried, separated and divorced women were excluded.

Sample size was calculated to be 245, based on prevalence of 29% from previous literature (DLHS-4), assuming a relative precision of 20% and an alpha error of 0.05. The interviewer administered questionnaire used in the study was developed based on the objectives of the study and the information obtained from review of literature. Face validity and content validity was done with the help of 4 experts from the department of Community Medicine. It was then pretested on 10-20 married women of reproductive age belonging to the other sub-center area (not included in the final sample).

The study was undertaken after obtaining approval from the Institute Research Committee and the Institute Ethical Committee. A list of all eligible couples residing in the selected area was obtained from the eligible couple register. All eligible women satisfying the inclusion criteria in the area were interviewed using a semi-structured pre-tested questionnaire. If a woman was not available even after three attempts, she was excluded from the study. After explaining the purpose of the study to

the married women, participant information sheet was provided and informed written consent was elicited in Tamil. The questionnaire had 2 parts. Part 1 of the questionnaire recorded information on the socio-demographic characteristics of the respondents like age, education, occupation, family income, age at marriage and first birth, family size. Modified Kuppuswamy scale, 2012[6] was used to assess socio-economic class. Part 2 focussed on the assessment of unmet need and reasons for not using contraception, whether pregnant or not, whether currently using any contraceptive or not, and the reasons for using them; whether the women discuss about contraception with their husbands, whether he helps her to choose a particular contraceptive method, whether he has used or opposes the use of contraceptive methods.

Data analysis: The collected data was entered in Microsoft excel 2007 and analyzed using the latest version of SPSS v 20.0. Mean and proportions were used to express the numerical and categorical variables. Student t-test was used to compare means and Chi-square test was used to test the proportions.

Results:

There were 278 eligible couples registered in the subcenter area of which 262 were eligible and 244 (93% response rate) could be contacted during the survey. The mean age of the respondents was 31.93 ± 6.21 years. About 3.6 % of the respondents were illiterate and 14.9% had received primary school education. Around 27.5% were educated upto higher secondary school and above. The mean age at marriage and at first child were 21.62 ± 2.64 and 23.10 ± 2.73 years respectively. Around 88.5% were Hindus and majority (96.7%) of them were housewives. About 49.2% % belonged to the backward classes and 2.5% were SC/ST category. About 66.8% of them belonged to the middle class (34.4%, upper middle and 32.4%, lower middle) according to the Modified Kuppusamy's classification. Of the 244 married women interviewed, 134 (54.9%) eligible couples were using contraceptives. Unmet need for contraception was 20.5 per cent; unmet needs for spacing and limiting were 4.9 per cent and 15.6 per cent, respectively. (Table 1)

Table 1. Prevalence of unmet need of family planning among the study population

Unmet need	Number	Percentage
Unmet need for spacing	12	4.9
Unmet need for limiting	38	15.6
Unmet need for family planning	50	20.5

Table 2: Socio-demographic characteristics of those with and without unmet need for family planning

Characteristic	With unmet need N=50 (%)	Without unmet need N=194 (%)
Age group*		
15-24	1(2.0)	29 (14.9)
25-34	26 (52.0)	89 (45.9)
35-45	23(46.0)	76 (39.2)
Education*		
Illiterate	5 (10.0)	4 (2.1)
Upto 12th	33(66.0)	135 (69.5)
Above 12th	12(24.0)	55(28.3)
Occupation of husband		
Unskilled	12(24.0)	50(25.7)
Skilled	28(56.0)	122 (62.8)
Professional	10(20.0)	22 (11.3)
Age at first child		
17-24	34 (68.0)	121 (62.3)
25-34	16 (32.0)	48 (24.7)
Number of children*		
<2	17 (34.0)	74 (37.2)
>/= 2	33 (66.0)	120 (61.8)
Socio-economic status		
Upper class	0	2(0.1)
Middle class	33 (66.0)	130(67.0)
Lower class	17 (34.0)	62(31.9)
Male involvement in family planning decisions*		
Poor	42(84.0)	153(78.8)
Good	8(16.0)	41(21.1)

*p-value <0.05

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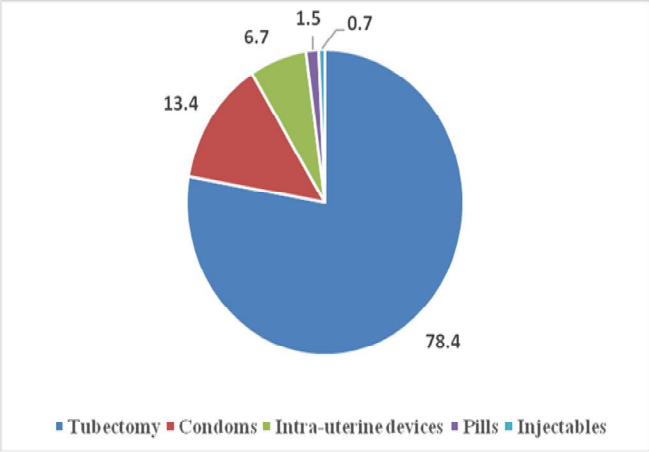
Table 2 compares the socio-demographic characteristics of those with unmet need for family planning to those who do not have unmet need. Significant difference was seen for age, education, number of children and male involvement in decision making about contraception between the women with unmet need and without unmet need of family planning.

Figure 1 gives the details of contraceptive use among those women who are currently using contraceptive methods. More than three-fourth of the contraceptive users had undergone tubectomy.

Table 3: User perspective pertaining to not using contraceptive among those having unmet need

Factors	Number (N=50)	Percentage (%)
Provider related (facility, staff)	8	16
Client related (personality, knowledge, health concerns, fertility related)	23	46
Contraceptive related (availability, accessibility, affordability, side effects)	16	32
Environment related (Family, cultural, religious)	3	6

Figure 1: Type of contraception used by current users



Condoms were most common spacing method used followed by intra-uterine devices.

Table 3 describes the reasons for non-usage of contraception among those with unmet need of family planning. Client related factors like lack of awareness about contraception, irregular periods, post-partum amenorrhoea were the most commonly stated reasons.

Discussion:

This study was conducted to assess the prevalence of unmet need for family planning among married women in their reproductive age in an urban area of Pondicherry. The contraceptive use among the respondents was 54.9% and the unmet need of family planning was 20.5 per cent; unmet needs for spacing and limiting were 4.9 per cent and 15.6 per cent respectively. Similar prevalence of unmet need were reported by studies done in Jamnagar, Gwalior, Patiala, Bhavnagar, and Kolkata[5-9]. The study done in Patiala by Singh et al and in Gwalior by Kumar et al were both undertaken in rural areas, but still yielded similar prevalence. In both these studies the sample size of respondents were much more than the sample size of the present study[6,7.] The study done by Ram et al in Kolkata[10] was a facility based study done among married women in the reproductive age attending the immunisation clinic of a medical college. So the prevalence stated in the study is not the true prevalence of the unmet need in the community. Studies done by Kaushal et al in western UP[10],Patil et al in Karad[11],Bhattathiry in Chidambaram[12] and Patil SS et al in Maharastra[11] have all reported an unmet need of family planning (between 39-44%) which is much higher than that found in the present study and what was reported in DLHS-4 survey. Among this, study by Patil SS et al was done in a hilly tribal area of Maharastra.

Significant difference was seen for age, education, number of children and male involvement in decision making about contraception between the women with unmet need and without unmet need of family planning. There was a significant association found between women's education level and her unmet need. This study also shows that as the proportion of illiterate women with unmet need are significantly more than the women without unmet need. This proportion decreases as the level of education increases. Similar results have been reported by kumaret al[6], Patil SS et al[11], Nayak et al[8] and Bhattathiry et al[12]. Patil SS et al found 91.5%

unmet need among illiterate. So, although women at all educational levels want to avoid pregnancy & the less educated (below primary school) ones face more difficulty to using contraception due to various reasons.

The present study noted that women who had discussion with their husbands on family planning and whose husbands were involved in decisions regarding contraception were more likely to have less unmet needs for family planning than women whose husbands were not involved. This difference was statistically significant. Those women who had two or more children had a higher unmet need of contraception. Similarly as the age increased the unmet need also increases. This would specifically mean unmet need for limiting. So permanent methods of family planning should be directed towards them. The most commonly adopted method of contraception is tubectomy followed by use of condoms. This has been consistently reported by most of the other studies done in India[6-13]. Client related factors like lack of knowledge and awareness, shyness, fertility problems are the common reasons for non-use of contraception by those with unmet need. The limitation of this study is that the unmet need for contraception in male members of the family could not be studied; this would have provided wider perspectives and better ideas as solutions to address this problem in the community.

Conclusion:

This study has indicated a high unmet need for contraception in the area with a scope to decrease constraints and address user perspective to meet the contraception needs. Client related factors like lack of knowledge and awareness, shyness, fertility problems are the common reasons for non-use of contraception by those with unmet need Health education and strategic behaviour change communication for both partners is required to cope up with the unmet need.

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Original Research Article

A MORBIDITY STUDY OF ELDERLY RESIDING IN URBAN FIELD PRACTICE AREA OF S.N.MEDICAL COLLEGE, BAGALKOT.

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Abstract

INTRODUCTION-Ageing is a lifelong and inevitable process. It is a progressive change in the physical, mental and social status of individuals. The focus on ageing is not only to prolong life but also to improve the quality of life of older persons. Many current day problems of the geriatric population like hypertension, diabetes mellitus and osteoarthritis are related to nutrition and lifestyle AIMS AND OBJECTIVES - To study the socio demographic profile and health issues in the elderly residing in urban field practice area. MATERIALS AND METHODS – 160 elderly individuals, 80 each from urban and urban slum of urban health training center area, S.N.Medical College, Bagalkot, Karnataka were enrolled after approval from Institutional Ethics Committee and informed consent by simple random sampling. Information about socio-demographic details and health problems were recorded on a pre tested proforma. Anthropometric measurements of height and weight and blood pressure was recorded and noted. RESULTS – Majority (28.12%) were between 65-69 years of age followed by 25.63% between 60- 64 years of age. Maximum numbers (73.13%) were female and most of them (70.08%) were widows. It was observed that 78.75% of the subjects were illiterate. Cataract was seen in 28.75% followed by musculoskeletal problems in 28.13% and known hypertensives were 23.13%. Both diabetes mellitus and hypertension was observed in 10% and known diabetes mellitus in 6.25%.Body mass index >25 was observed in 32.5% in the urban and in 20% in the urban slum geriatric study population. CONCLUSION – Geriatric primary health care services is the need of the hour in the community.

KEY WORDS- geriatric study, urban, urban slum

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INTRODUCTION

Ageing is a lifelong and inevitable process. It is a progressive change in the physical, mental and social status of individuals. Exposure to behavioral health risks such as smoking, alcohol consumption, poor diet, a sedentary lifestyle or to toxic substances at work also influences health outcomes in older age.[1] Urbanization, nuclearisation of family, migration and dual career families are making care

of the elderly more and more of a personal and social problem in India.[2]

More people now survive the challenge of childbirth and childhood to reach old age. This trend is not restricted to the resource-rich countries, but has become a global phenomenon including countries of the World Health Organization (WHO) South-East Asia (SEA) Region. It has been estimated that nearly 142 million people or about 8% of the population of the South- East Asia Region are over 60 years. This number will continue to increase and by 2025, it is estimated that proportion of the population over 60 years will be twice that of 2000, and by 2050, it will have further increased to three times the proportion of 2000. There is, therefore, an urgent need to focus attention on the ageing population because of this increasing trend.[1] The focus on ageing is not only to prolong life, but also to improve the quality of life of older persons. Healthy ageing is a process of optimizing opportunities for physical, social and mental health to enable older persons to take an active part in society without discrimination, and to enjoy an independent and good life.[1]

Many current day problems of the geriatric population, like hypertension, diabetes mellitusand osteoarthritis are related to nutrition and life style. There is a need to focus attention on the problems of elderly so that evidence-based policies are planned particularly in the present scenario due to epidemiological transition in diseases.[3] In terms of demography, this process of aging of population is known as demographic transition. Hence, the present study was conducted with the aim of finding out life style and disease burden in elderly in the urban field practice area of S.N.Medical College, Bagalkot which could be of help in planning policies for their better care in future.

MATERIALS AND METHODS

Type of study: Cross – sectional study

Sample size: Qualitative estimation of sample size was calculated considering the prevalence of health problems in geriatric population as 85% in the study carried out by Indian Council of Medical research.[4]

Sample size= $4pq/L^2=79$

(p=prevalence of health problems in geriatrics, q=1-p,L=allowable errori.e.10% of p)

Near sample of 80 elderly individuals have been taken from each urban and urban slum areas of old Bagalkot city leading to a total sample size of 160.

Sampling Technique: Study subjects were chosen by simple random sampling technique from Sabannavaroni, Karaveermath and Tenginmath for urban slum and Koulpet and Hundekaroni for urban areas under the Urban Health Training Center, Department of community medicine, S.N.Medical College, Navanagar, Bagalkot.

The study was conducted by house to house survey. Data was collected by oral questionnaire, anthropometric measurements and clinical examination using a pre tested proforma. After approval from Institutional Ethics Committee and obtaining an informed consent from the elderly, information regarding their age, education, marital status, dependency, health problems, housing status and having a ration card was documented. Their weight was recorded to the nearest 500 grams and height measured against the wall to the nearest centimeter by marking on the wall. Blood pressure was recorded in the sitting position and a measurement of more than 140/90 mm Hg was determined to be hypertensive and they were requested to visit the urban health training center for further management and referral if needed. The documents of the known hypertensive's and diabetes mellitus were verified.

RESULTS

Out of 80 elderly residents residing in urban area, majority (28.75%) were between 60-64 years of age whereas in urban slum, maximum number (36.25%) were between 65-69 years of age**. (**Table No 1)

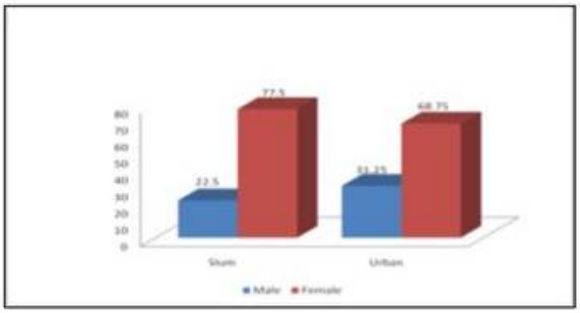
Table no 1: Age distribution of elderly

	Slum		Urban		Total	
Age in years	No.	%	No	%	No	%
60-64 yrs	18	22.5	23	28.75	41	25.63
65-69 yrs	29	36.25	16	20	45	28.12
70-74 yrs	14	17.5	10	12.5	24	15
75-79 yrs	12	15	16	20	28	17.5
> 80 yrs	7	8.75	15	18.75	22	13.75
Total	80	100	80	100	160	100

$X^2 = 8.512$ DF=4 p = 0.0745

In this study, majority were elderly females in both urban and urban slum. (Graph no 1) and it was observed that majority of the elderly in urban slum were widows.

Graph no 1: Sex distribution of elderly



$X^2 = 0.7618$ DF=1 P= 0.3828

In this study, it was observed that majority of the study subjects in urban slum were illiterate compared to urban area and was statistically significant.

It was observed that 8.75% of the urban slum residents were working as daily wage laborers.

It was observed that majority of the elderly had dental problems followed by cataract and musculo skeletal problems. (Table No 2)

Table No. 2: Distribution according to morbidity

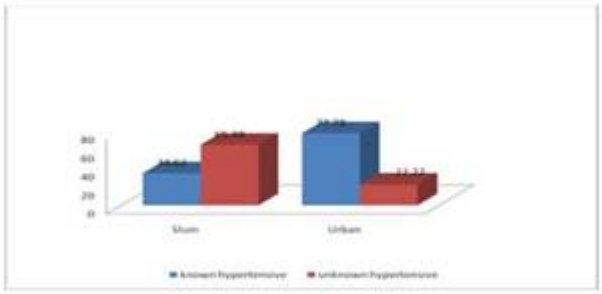
	Slum		Urban		Total	
Morbidity	No	%	No	%	No	%
Musculoskeletal	20	25	25	31.25	45	28.13
Hypertension	15	18.75	22	27.5	37	23.13
Cataract	21	26.25	25	31.25	46	28.75
Diabetes	05	6.25	05	6.25	10	6.25
Hypertension & Diabetes Mellitus	03	3.75	13	16.25	16	10
Dental problems	24	30	30	37.5	54	33.75
Deafness	03	3.75	01	1.25	04	2.5
Diminished vision	09	11.25	00	0	09	5.63
COPD	06	7.5	02	2.5	08	5
Tuberculosis	01	1.25	00	0	01	0.625
Stroke	01	1.25	02	2.5	03	1.88

In this study, it was observed that elderly Muslims were more in urban slums than urban areas and was found to be statistically significant.

It was noted that 85% of the elderly residing in the urban slum had a BPL card whereas in the urban area, 46.25%, had a BPL card.

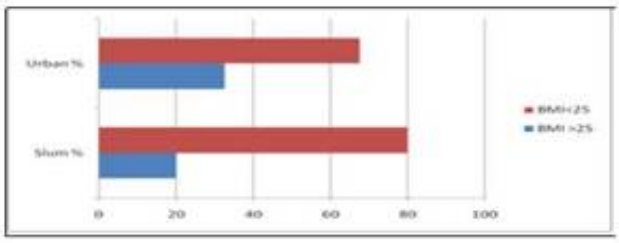
Majority (75%) of the urban slum elderly were receiving a monthly pension of Rs. 500/- from the Government and in the urban area 47.5% were receiving the same amount.

Graph No 2: Distribution of the elderly knowing hypertensive status



$X^2 = 18.13$ DF = 1 p = 0.0000206

Graph No 3: Distribution of the elderly according to body mass index



Regarding the housing status of the elderly, it was observed that majority (76.25%) in the urban area were living in their own homes whereas in the urban slum, maximum number(42.5%) were living in rented homes and 31.25% were living in municipal houses. Only 26.25% had their own homes in the urban slums and this finding was found to be statistically significant.(p=<0.0000001)

Regarding tobacco or alcohol consumption, it was observed that 38.75% of the elderly slum residents and 13.75% of the elderly urban residents agreed that they had the one or the other habit.

It was observed that majority of the elderly in both urban slum and urban areas were living with their son or sons, 71.25% and 67.5% respectively.

On examination, it was observed that majority of the unknown hypertensives were found in the urban slum compared to the urban area and was statistically significant.(Graph No 2) Maximum number of elderly in both urban and urban slums approached private practitioners for their health care needs, 93.75% and 88.75% respectively.

In this study, it was observed that 35% of elderly in urban area had BMI >25 compared to 20% of elderly residing in urban slum. (Graph No 3)

DISCUSSION

The elderly population is a vulnerable group of society and a lot of social and economic planning is required to lead a comfortable life in old age. The physical ailments need timely care and advice. Health should be the priority in this age group.

In this study, majority of the elderly in urban areas were between 60-64 years of age whereas in the urban slums majority were between 65-69 years of age. In a similar study done in Gujarat, majority of the elderly were between 60-64 years of age in both slum and urban areas.[5]

In this study, maximum number of elderly in both urban and urban slums was female. In contrast, in the study done in Gujarat, elderly males outnumbered elderly females in both slum and urban areas.[5]

Elderly widows were more in the slums and this finding is similar to other studies.[6,7] This finding could be attributed to the life style of the males in the urban slums.

Maximum number of elderly were Hindus followed by Muslims but they were more in the urban slum and indicates need for their socio economic development.

Majority of the elderly in the urban slum area had a BPL ration card and this helps them in availing of the public services like the public distribution system and government health services.

Maximum number In the urban slum were receiving a meagre pension of Rs. 500 and it may help in purchasing their medications.

Most of the elderly residents in urban slum area, almost 75% were living in rented accomodation . More number of hygienic housing conditions need to be provided to this vulnerable population.

Health education about tobacco and alcohol consumption needs to be addressed and the health problems resulting from their use can be stressed.

It was also observed that majority of the elderly residing in urban slum and urban area were living with their son/s and still indicates the Indian tradition of being dependent on their sons during their old age.

Majority of the elderly in the urban slums were illiterate compared to urban where majority were literate. This finding is similar to the study done in Gujarat [5] and indiates the social status of the elderly in the community and the need for awareness regarding health problems in the aged.

Majority of the elderly in this study had dental problems,and cataract followed by musculoskeletal problems and hypertension. This finding is similar to other studies [2,3,4,5,7] and indicates the need for health care which is affordable and easily accessible. A private dental college for the last 30 years is just opposite the urban field practice area and the services need to be utilized by the population. Economic constraints could be the reason for not availing the facility. Health insurance is the need of

the hour in such situations. Dental problems are leading to poor nutritional intake by the elderly.

It was observed that 42.5% of the elderly slum residents and 12.5% of the elderly urban residents were diagnosed for the first time to be hypertensive by examining them during this study. In a study done in Rourkela, 15% of the elderly slum residents were detected to be hypertensive for the first time.[8] Similarly, in another study done in the urban slums of Surat city, 14.5% of the elderly were detected to have hypertension.[9] This finding reveals the necessity of regular screening for hypertension in the elderly residing in the community and also compliance of treatment in the known hypertensive elderly. In a study done in Nagpur, 26.6% of the elderly were found to be hypertensive and indicates burden of disease.[10]

Maximum number were availing private health care for their ailments and this finding suggests the economic burden on the community and the need for urban primary health care in the vicinity caring for only the elderly. In a study done in Shimla, most of the elderly preferred going to government facilities for treatment of their illness.[11]

Body mass index >25 was seen more in the urban area than urban slum and indicates that ideal body weight should be maintained .This finding is similar to another study done in Puducherry.[12] There is the need for lifestyle modification with regard to nutrition and exercise in order to prevent or control non-communicable diseases so that they can lead a healthier life and decrease morbidity and early mortality.[13]

The study also revealed that almost 3/4ths of the elderly with BMI >25 were females. In a study done in Ahmedabad it was found that 28.47% of the elderly women had BMI >25 whereas 21.62% of the elderly men had BMI >25.[14] In another study done in Nagpur, 25% of the elderly women had BMI >25.[15] Sedentary life in elderly females should be avoided and they can be involved in household activities along with their daughter in laws.

CONCLUSION

Geriatric primary health care services in the form of mobile clinics are the need of the hour in the urban and urban slum community. Emergency help lines could be started especially for this vulnerable group of society. Involvement of N.G.O's could also be thought of to bring about the required change in their health care. Each family has to be strengthened as a support system for the provision of care and protection of older persons. Special attention should be given to the poor, the widows, the childless, the minorities, the disabled and the sick whose families are unable to support them and those who are destitute and have no family.[16] The support gained from the community can be important in recovering from illness and knowing that they care will help a great deal. The pension amount could be increased to the deserving elderly.

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CONFLICT OF INTEREST

Nil

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Original Research Article

Influence of various extraneous factors on management of diarrheal diseases in Children of under five year age group

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Abstract

Background : Diarrhoea accounts for about 8% of deaths in Under Five year age group. People of low socio economic status are most affected by this problem which has both preventable and treatable conditions, safe water provision is one of the main stay of prevention but has very low success, personal hygiene and sanitation are other factors. **Objective:**To determine the episodes of diarrhoea and factors associated with diarrhoea in children under five in rural area of Karimnagar. **Design:** A cross sectional study was done in 250 house hold in the rural area of Karimnagar, convenient sampling method was used. **Results:** A total of 502 children were enrolled. The episodes of diarrhoea was 32.6%. **Conclusion:** Diarrhoea prevalence can be reduced through sanitation measures such as improved water supply, excreta disposal, and personal hygiene. health education and other intervention methods like immunization, assures prevention of prevalence at the community level.

Keywords: Diarrhoea, Under five years, care takers.

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INTRODUCTION

India has made steady progress in reducing deaths in children younger than 5 years, with total deaths declining from 2.5 million in 2001 to 1.5 million in 2012.[1] This remarkable reduction was possible due to the inception and success of many universal programs like expanded program on immunization, program for the control of diarrheal diseases and acute respiratory infection. Even though the deaths among children under-5 years have declined, the proportional mortality accounted by diarrheal diseases still remains high. Diarrhea is the third most common cause of death in under-five children, responsible for 13% deaths in this age-group, killing an estimated 300,000 children in India each year.[2] The majority of diarrhoeal diseases can be prevented by implementing water, sanitation and hygiene (WASH) programmes, which all aim at interrupting faecal oral transmission pathways, commonly

referred to as the five ‘‘F’’ (fluids, fields, flies, fingers and food).[3] Several studies have attempted to evaluate the effects of combined or single water, hygiene and sanitation interventions on diarrhoea as an outcome variable. In her review, Fewtrell et al [4] provided valuable information about the effect of WASH interventions on diarrhoea prevalence, updating an earlier review by Esrey et al. [5] Preventing diarrheal diseases and associated morbidity in children was shown to reduce levels of pupil absence in schools, while preventing long-term consequences such as malnutrition and stunting, which in turn detract from intellectual capacities and later economic status.[6] Even though diarrhoea morbidity and mortality has decreased since the 1990s, the overall disease burden remains unacceptably high, particularly in low- and middle-income countries. To achieve sustainable progress in overcoming such unmet health needs, programme planning and implementation needs to be adjusted to the specific requirements and needs of a local setting.[7]

MATERIALS AND METHODS

A Cross-sectional study was conducted using a convenient sampling method, in the kodimyal area of Karimnagar district (Rural area),Total of 250 houses were selected by simple random technique during the period of (April-May 2016).

The questionnaire for collection of the data was adapted from WHO’s and UNICEF’s “Core questions on drinking-water and sanitation for household surveys”.[8] The topics covered were: Socio-demographic information,Diarrhoea occurrence and treatment , Behavior and knowledge , Socio-economic indicators,Water access and water chain.

Collection of the data from the household survey was done.[9]The survey questionnaire was pre-tested and standard operational procedures were developed and discussed.

The House hold survey included the following criteria

1.Primary caretaker (Mother) was available for interview.

2.At least one Under five child was living in the household

Diarrheal episodes among children under five was calculated using the number of children who reportedly had at least one episode of diarrhoea within the preceding two weeks of the survey, as the *numerator* and the overall number of Under five years as the *denominator* (period prevalence).

The presence of blood in stools, suggesting dysentery, was also considered diarrhoea.

RESULTS

An overview of the socio-demographic characteristics of the households surveyed. Most caretakers (67.89%; n_167) were between 20 and 35 years old and had one to two children under the age of five (89.43%; n_220). Over 54.7% (n_133) of households had at least one U5 who suffered from diarrhoea during the past two weeks. The classification of water sources into improved vs. unimproved revealed that 54.88% (n_135) of households collected drinking water from improved water sources. Public taps were the most common source of drinking water (38.6%; n_95). The classification of excrement disposal facilities into improved vs. unimproved showed that 3.66% (n_9) of households had access to improved sanitation facilities. The majority of households (90.65%; n_223) used open pit latrines as sanitation facilities.

The analysis per age strata revealed a higher prevalence of diarrhoea in the first two years of life. Across age strata, the overall prevalence was at 32.6% (n_163). Gender did not play a substantial role regarding diarrhoea prevalence across the different age groups. An analysis of treatment options administered to boys and girls during their last diarrhoeal episode such as the use of oral rehydration salts (ORS), traditional healing methods, self medication, the visit of a health centre or no treatment at all, also discovered no differences between the two genders.

Table 1: Distribution according to Socio Demographic Profile

		Total no. of children	No. of affected cases	No. of not affected cases	
Age of children	<1year	120	51	69	
	1 – 2 years	90	36	54	
	2 – 3 years	125	25	100	
	3 – 4 years	80	28	52	
	4 – 5 years	87	23	64	
Gender	Male	287	84	203	Chi-square=3.133 p-value=>0.05
	Female	215	79	136	
Socio-Economic Status Classification	Class I	80	23	57	chi-square statistic is 3.4186 The *p*-value is 0.331474 The result is *not* significant
	Class II	99	38	61	
	Class III	173	50	123	
	Class IV	150	52	98	
	Total	502	163	**339**	

DISCUSSION

This study provides detailed information about household characteristics in a rural setting of Karimnagar and their interrelation with diarrhoea prevalence among the U5 population was 32.6%. A study done in Bhopal by Tiwari *et al*. has reported the prevalence of acute diarrhea among children under 5 years as 27.4%, which is little higher than that found in the present study. [10] Ansari *et al*. have reported the prevalence as 16% in their study done in Aligarh of Uttar Pradesh. The study by Ansari *et al*. relates to the patients attending the clinics under Rome scheme, which may not be representative of the population. [11] A study done in East Africa by Mtike has reported the prevalence of diarrhea to be 18% among children in both rural and urban populations. [12]

Table 2: Distribution according to Caretaker's Profile

		No. of caretaker's	No. of affected children (cases)	
Range of caretaker's age	18 – 19	14	13	The chi-square statistic is 44.0457 The *p*-value is < .00001 The result is significant at *p* < .05
	20 – 24	64	55	
	25 – 29	51	86	
	30 – 34	52	7	
	35 – 39	36	2	
	> 40	29	0	
Literacy Rate	Literates	157 (64%)	49 (31%)	
	Illiterates	89 (36%)	113 (69%)	
Knowledge regarding ORS	Complete	70 (28%)	31	The chi-square statistic is 53.6212 The *p*-value is < 0.00001 The result is significant at *p* < .05
	Partial	146 (60%)	60	
	No knowledge	30 (12%)	72	
	Total	246	163	

Table 3: Distribution according to Type of water supply

		No. of children using water	No. of affected children (cases)	
Type of water supply	Public tap water	115 (23%)	49 (30%)	The chi-square statistic is 18.7774 The *p*-value is .000304. The result is significant at $p < .05$
	Private supply	11 (2%)	4 (2%)	
	Protected source	225 (45%)	42 (26%)	
	Unprotected source	151 (30%)	68 (42%)	
	Rivers, wells & other sources	0	0	
	Total	502	163	

The study done in South India has shown a very high prevalence of acute diarrhea (40.7%) in the age group 7-12 months compared to other age groups and the difference is also statistically significant.higher percentages of U5s who received ORS during their last diarrheal episode (38% vs. 20.7%). Oral rehydration therapy (ORT) with ORS remains the cornerstone of appropriate case management of diarrheal dehydration and is considered the single most effective strategy to prevent diarrheal deaths in children.[13] Knowledge of ORS/ORT among mothers of under-five children in India is good (73%), but there is a big gap between knowledge and practice as reflected in poor ORS usage rates (43%).[14]

Our analysis of possible gender inequities in health-care seeking and choice of treatment for common diarrhoea presented similar results to recent studies from South Asia and Sub-Saharan Africa. the higher prevalence rates of diarrhoea in the first two years of life are analogous to previous findings.[15] The results emphasise the protective effect of knowledge in the fight against diarrhoeal diseases, which is achievable through hygiene education. Hygiene promotion is able to avert 200 DALY's per $1,000 spent, making it the most cost-effective public health intervention in the world [16] which promotion of hand washing with soap compared to general hygiene education showed the strongest effect . [4, 17] Similar findings were reported by earlier reviews of Esrey and Huttly et al.[5,18]

Table 4: Distribution according to Method of Water Purification and Sanitation

		No. of Houses practicing	No. of affected cases	
Methods of water Purification	Boiling	33 (13%)	3 (2%)	The chi-square statistic is 22.5422 The *p*-value is .00005 The result is significant at $p < .05$
	Modern purifier	5 (2%)	2 (1%)	
	Candle filter	63 (25%)	30 (18%)	
	MO process	149 (60%)	129 (79%)	
Method of Sanitation	Open air defecation	150 (60%)	106 (65%)	The chi-square statistic is 1.6786 The *p*-value is .432009 The result is *not* significant at $p < .05$
	Water shed latrine with flush	13 (5%)	5 (3%)	
	Pit latrine	87 (35%)	52 (32%)	
	Total	250	163	

Providing access to improved water supply and sanitation is an important cornerstone in reducing diarrhoeal disease rates. However, these actions must be integrated into a comprehensive approach. In order to improve people's hygiene behaviour and to assure proper utilisation of new facilities, hygiene education at the community and household level is

essential.[19] Bartram et al. called on health professionals to provide global access to hygiene promotion, especially for young children's parents, in order to improve the current situation.[20] Part of most hygiene education is the provision of information regarding the correct handling of drinking water, such as purifying techniques prior to drinking. Supporters of point-of-use water treatment interventions argue that even water that was clean at source is under high risk of contamination due to unhygienic drawing or storage and thus should be treated directly before consumption. In kodimyal, such point-of-use water treatment methods are poorly utilised with ''boiling'' being the most frequent treatment option. Our findings indicate that boiling water before consumption was able to reduce diarrhoea in U5s by 61% in the study area while the sole use of improved sources had no impact on diarrhoea prevalence. There is evidence supporting this finding ,[4,21] even if these early enthusiastic results were qualified by later studies .[22] Point-of-use water treatment options should not be seen as a replacement for more cost intensive water supply projects since sustainable development can only be achieved by improving both water quality and quantity. It is important to provide accessible, consistently safe drinking water through water supply projects because the provision of improved sanitation is also linked to these projects in the long term.[23] In accordance with the WHO's Guidelines for drinking water quality,[24] our findings show that in a remote environment such as rural areas of Karimnagar where sources of contamination are omnipresent, boiling water before consumption can make a valuable contribution in the fight against diarrhoea.

CONCLUSION

Our study shows that the prevalence can be reduced by simple measures like improving sanitation health education for clean drinking water, proper disposal of stools, healthy hygienic practices. Awareness training concerning the use of ORS in such rural areas should be increased and existing campaigns changed to the needs of the local population. Gender inequities in care seeking behaviour seem to play a secondary role in the provision of good treatment.

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Original Research Article

Socio demographic and economic factors associated with people on Hemo-dialysis in a tertiary care hospital, Davangere: A cross sectional study

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Abstract

Back Ground: Dialysis is extremely stressful as it interferes with all spheres of daily activities of patient. This study has done to understand the socio demographic factors associated with patient on dialysis and its impact daily activities of patients. **Objectives:** 1. To determine the socio demographic and economic factors associated with people on haemo dialysis**.** 2. To determine the perceived effect of haemodialysis on people's day today activities **Methodology:** A cross sectional study involving 80 patients with chronic kidney diseases on haemodialysis was conducted for a period of 4 months (August and November 2011) in a tertiary care hospital. Pre-tested semi structure questionnaire was used for the study; data was collected by interview method. **Results:** 45% of the people didn't go for renal transplant due to lack of financial support. More than 50% of the subjects were generating money for dialysis from their occupation. Most of the subjects responded that to some extent their day today activities were affected by dialysis. **Conclusion:** Majority of the subjects had completed upto 2 years duration of hemodialysis and twice weekly dialysis. Majority of the people had to spend rupees 10000 – 20000 per month for their survival. Majority didn't opt for renal transplantation due to lack of money.

Key words: Hemo dialysis, Chronic Kidney Disease, illness intrusion, social factors

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Introduction:

Chronic kidney disease (CKD) is a worldwide public health problem.The population of India exceeds one billion and is projected to become the major reservoir of chronic diseases like diabetes and hypertension. Since 25–40% of these subjects may develop CKD, the end stage renal disease burden will rise and health care system would need to take care of them. [1]"There is an estimated 1.5 lakh new dialysis patients in India annually, of which 1.35 lakh die without treatment due to financial constraints.[2]According to the first annual report published by the CKD registry of India involving 13,151 patients, diabetes and hypertension were

major causes of CKD in India accounting for 28.5% and 16.2% respectively. [1]

A number of stress factors operate in patients on maintenance hemodialysis. These include: social, financial and marital problems, dependency on the machine, limited activities and treatment related problems.[3]Most people pay for their own medical treatment in India, kidney related or otherwise. Only people working for the government or large corporations have their medical expenses covered. While this is all right for minor problems that are transient, it can be a lifelong nightmare for chronic conditions [4]. In India the incidence of CKD is increasing day by day and the option for the treatment is dialysis or transplantation. In the present scenario, due to the cost of treatment normal people can afford only hemodialysis rather than transplantation. Since the cost of hemodialysis differs across the country, research is needed to evaluate its exact cost. [5]The substantial monetary burdens and everyday inconveniences for CKD patients on hemodialysis have become two of the most important health care related concerns which prompted us to take up the present study. [6]

Objectives: To determine the socio demographic and economic factors associated with people on haemo-dialysis. To determine the perceived effect of haemo-dialysis on people's day to day activities.

Methodology:

A cross sectional study was conducted on patients on maintenance hemodialysis in S S Institute of Medical Sciences & Research Centre, a tertiary care hospital in Davangere, Karnataka for a period of four months.

About 80 patients of Chronic Kidney Disease on Hemodialysis were taken up for the study after obtaining the informed consent. We included patients who were willing to participate, stable & who had completed at least two months of Hemodialysis. The subjects were interviewed using pre tested & semi structured interview schedule covering demographics, the expenditure for dialysis & social activities affected due to dialysis.

The subjects were asked to rate their perceived illness intrusion regarding work, hobbies, social activities and relationship with friends on a 4 point scale ranging from 1(not applicable), 2(not at all), 3(to some extent), 4(to great extent).As most of the patients were accompanied by a relative, they were also involved in the study during the interview.

Data was entered and analyzed using statistical package SPSS Version 17. Results were tabulated in percentages and proportions.

Results :

Table 1: Socio – demographic details of the subjects on Hemodialysis

Demographic factors	Category	Frequency	%
Age (Years)	<40	14	18
	40-60	49	61
	>60	17	21
	Total	80	100
Gender	Male	63	79
	Female	17	21
	total	80	100
Religion	Hindu	70	88
	Muslim	7	9
	Christian	2	3
	Jain	1	1
	Total	80	100
Education	Upto SSLC	45	56
	PUC	23	29
	Graduate	8	10
	PG	4	5
	Total	80	100
marital status	unmarried	7	9
	married	69	86
	widow/widower	4	5
	Total	80	100
place	urban	50	63
	rural	30	38
	Total	80	100
Family	Nuclear	47	59
	Extended/Joint	19	24
	3 Generation	14	18
	Total	80	100

Among the 80 subjects, majority of the study subjects were in the age group of 40 – 60 years accounting for 61% and 79% of the subjects were males. Hindus accounted for 88% and 56% of the subjects education status was within 10th Standard. Majority were married accounting for 86%. Most of the subjects came for Dialysis from urban area (63%). Majority were belonging to nuclear family (59%)

Table 2: Distribution of subjects according to the duration, Frequency and cost spent on hemodialysis

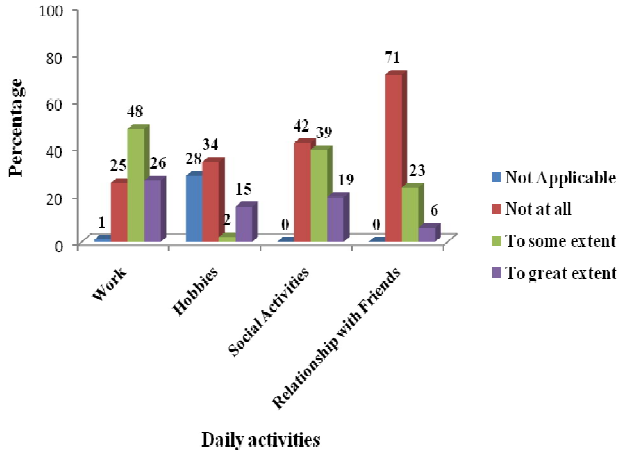
Variable	Category	Frequency (Percentage)
Duration of Dialysis	< 2 years	44 (55)
	2 – 5 years	30 (38)
	5 years	6 (7)
Total		80 (100)
Frequency of Dialysis	Once weekly	19(24)
	Twice weekly	53(66)
	Thrice weekly	8 (10)
Total		80 (100)
Average amount spent for dialysis by study subjects	< 10000	21(26)
	10000 - 20000	53(66)
	>20000	6(8)
Total		80 (100)

Majority of the study subjects were undergoing dialysis from past 2 years accounting for 44(55%) and 30(38%) between 2 years – 5 years. Majority 53(66%) were undergoing dialysis twice weekly. 53 (66%) subjects spent around 10,000 – 20,000 rupees per month for their dialysis.

Table 3: Distribution of subjects according to certain variables on hemodialysis

Variable	Category	Frequency(Percentages)
Reason for not choosing renal transplantation	Lack of money	37(46 %)
	Lack of donors	18(23 %)
	Fear	17(21 %)
	Age factor	8(10 %)
Total		80 (100)
Money for Dialysis is generated from	Occupation	43 (54 %)
	Sale of property / Debt	21(26 %)
	Reimbursement	11(14 %)
	Charity	5(06 %)
Total		80(100)
Relatives attitude towards patient	Responsibility	71(89 %)
	Physical burden	2(02 %)
	Financial burden	7(09 %)
Total		80 (100)

Figure 1: Perceived illness intrusion in various domains among the subjects



The subjects were asked the reason for not opting renal transplantation, Majority of them 37 (46%) told lack of money being the reason and 18 (23%) told lack of donors. majority of the subjects

generated money for Dialysis from their occupation, 21 (26%) generated by selling their property or by debt. the relatives were asked about their attitude towards the patient, 71% felt it is their responsibility to take care and 7 (9%) of them felt is as financial burden.

In our study 74% reported illness intrusion in the area of work of which 48% had felt the intrusion to some extent and 26% felt the intrusion to a great extent. With respect to hobbies, 28% reported that they didn't have any hobbies. Majority (71%) of the subjects reported that the relationship with family and friends was not affected. Regarding social activities, 42% reported that dialysis didn't interfere with their social life and 39% felt that dialysis interfered to some extent and 9% felt the interference to great extent.

Discussion:

The subjects with CKD require lifelong treatment by undergoing dialysis twice or thrice weekly, which will have a negative impact on their daily routine from all aspects, social, Psychological, economic and also the relationships.

As the duration of dialysis increases, the quality of life of the people on dialysis deteriorates. [7]

In our study majority (79%) of the subjects were males, similar result was seen from a study by Bhatti AN et al. where 77% of the subjects were males. Reason for the male predominance may be the treatment seeking behaviour of the society where the people avoid treating females, further the treatment is costly and lifelong. [7]

In our study 63% of the subjects were from urban area. Similar result was found in a study from Bapat U et al. where 86% were from urban area.[3] The reason for this may be because of the availability of the dialysis centres is limited in India with majority being in the private sector and located in urban areas which the subjects from rural area cannot utilise the facility because of the cost as well as the distance to travel.

In our study majority of the subjects (55%) were undergoing dialysis between 2 – 24 months, similarly in a study from Bapat U et al. majority (80%) of the subjects had completed 2 – 30 months[3] which shows that the chances of survival of the subjects on maintainancehemodialysis is less for longer duration.

In our study majority (66%) were undergoing dialysis twice weekly whereas in the study from Bapat U et al. majority (56%) were undergoing dialysis thrice weekly. [3]

In our study 74% reported illness intrusion in the area of work. Similar results were found from a study by Bapat U et al. where70% subjects reported intrusion of illness in the area of work. With respect to hobbies, in our study 28% reported that they didn't have any hobbies whereas a found from a study by Bapat U et al. reported Majority (50%) of the subjects didn't have any hobbies as well. Majority (71%) of the subjects reported that the relationship with family and friends was not affected. Similar results were found from a study by Bapat U et al. where Majority (79%) reported that illness didn't interfere in relationship with family and friends. Regarding social activities, 58% reported that dialysis did interfere with their social life whereas in a study from Bapat et al. Social life was not affected in 50% of the subjects. [3]

Conclusion:

Majority of the subjects had completed upto 2 years duration of hemodialysis and twice weekly dialysis. Majority of the people had to spend rupees 10000 – 20000 per month for their survival. Majority didn't opt for renal transplantation due to lack of money.

Regarding perceived illness intrusion in their daily life, in the area of work majority reported illness intrusion. Majority of the subjects reported that their hobbies was not affected due to hemodialysis. Majority of the subjects reported that illness had not interfered in their relationship with friends. Majority reported that illness had affected their social activities.

Recommendations:

Nephrology units should be started in each government district or at least at the regional level, which makes it possible for the people from rural area to utilize the facilities from cost point of view

as well as the distance. Educating and counseling the subjects on Hemodialysis to socialize and engaging themselves in light physical and spiritual activities with an active life style is important. As there are less studies in this regard, more studies need to be carried out towards social and economic aspects of the people on hemodialysis.

Conflict of Interest: None

Source of funding: Nil

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Original Research Article

Gender differentials in physical exercise practices among type 2 DM patients in a medical college hospital

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Abstract

Background: Diabetes mellitus is a growing public health concern in India. In the management of type 2 diabetes mellitus, self-care plays important role. Extensive review literature has revealed that there is a acute scarcity of studies in Indian context which specifically addresses the issue of gender differences in physical exercise practices among type 2 diabetes patients. **Objectives:** To find out the gender differentials in the practice of physical exercise among type 2 diabetes mellitus patients in medical college hospital. **Methods:** Data was collected from 209 type 2 diabetes in-patients admitted to medicine ward of KIMSH&RC, Bangalore with the help of pre-tested, structured proforma by employing interviewer administered method. Data on socio-demographic characteristics and current physical exercise practices were obtained. **Results:** Seventy five (35.9%) subjects were adhered to the practice of physical exercise. According to gender, 45 (60%) men and 35 (40%) women were showed adherence to physical exercise. There is a difference exists between the gender regarding age, locality, physical activity, consultation with physician in practicing physical exercise. **Conclusions:** The present study showed that around one in three type 2 diabetes patients had adherence to physical exercise and there is a gender difference in the practice of physical exercise, which needs to be confirmed by conducting further in-depth studies.

Key words: Gender differentials, Physical exercise, Type 2 diabetes mellitus,

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Introduction

Diabetes mellitus is a growing public health concern in India. The type 2 diabetes mellitus is a complex metabolic disorder which leads catastrophic life-threatening micro and macro vascular complications.[1]

The prevalence of diabetes is higher in developed countries than in developing countries, but the developing country like India will be hit hardest by the escalating diabetes epidemic in the future.[2] In India, 65.1 million people are affected by diabetes and number will increase to 109 million by 2035. Recent estimates suggested that the prevalence of diabetes among adults (aged 20-79 years) is about 8.6%.[2]

In the management of type 2 diabetes mellitus, self-care plays important role along with pharmacological treatment. Among self-care practices, physical exercise is considered as an important public health tool and a crucial part of treatment in diabetes mellitus. In ancient times, physical exercise was recognized as an important therapy for the management of patients with diabetes mellitus prior to the discovery of insulin. The physical inactivity and poor physical fitness have been associated with increased mortality among persons with established type 2 Diabetes.[3] There is credible evidence showing regular physical exercise enhances insulin stimulated glucose uptake more in trained muscles than untrained muscles.[4]

Even though, biologically risk of diabetes is equal in both genders, many studies on self-care have shown differences in the adherence between gender.[5,6] The extensive review literature has revealed that despite many studies on self-care in diabetes, there is acute scarcity of studies in Indian context which specifically address the issue of gender differences in physical exercise practices among type 2 diabetes patients. The gender specific evidences from such studies definitely help the treating physicians in better management of diabetes mellitus in near future. Hence, present exploratory study was undertaken to find out the gender differentials in the practice of physical exercise among type 2 diabetes mellitus patients in medical college hospital.

Materials and methods:

The present hospital based descriptive study was conducted for the period of three months in medicine in-patient ward of Kempegowda Institute of Medical Sciences Hospital and Research Centre (KIMSH&RC), Bangalore, a medical college hospital by employing purposive sampling method.

Totally 209 confirmed type 2 diabetes mellitus in-patients of either sex based on diagnosis by physician who are willing to participate and co-operate were invited for the study by excluding seriously ill, patients having speech and hearing difficulty and cognitively impaired. After getting informed written consent from the patient, interview method was employed to obtain data by using pre-tested, structured proforma on socio-demographic characteristics such as age, location, education, occupation, type of physical activity based on occupation, duration and family history of diabetes mellitus. For the purpose of study, physical exercise was defined as a sub-set of physical activity which is planned, structured and repetitive bodily movement performed to improve or maintain physical fitness.[7] Data on adherence (currently practicing physical exercise), compliance (practicing physical exercise for ≥5days/week and ≥30 minutes/day), type, duration, frequency, time and place of physical exercise was collected by trained investigators.

The data was entered in to Microsoft Excel 2007 and descriptive statistics such as percentages, range, mean and standard deviation was used.

Results

Table – 1: Baseline information on type 2 Diabetes mellitus in-patients (n=209)

Variable	Category	Number (%)
Age (years)	≤50	56 (26.8)
	>50	153 (73.2)
Gender	Men	112 (53.6)
	Women	97 (46.4)
Location	Urban	147 (70.3)
	Rural	62(29.7)
Education	Illiterate	87(41.6)
	Literate	122(58.4)
Occupation	Unemployed	4(2.0)
	Employed	205(98.0)
Type of Physical activity	Sedentary	98(46.9)
	Moderate/ Heavy	111(53.1)
Family history of DM	Present	129(61.7)
	Absent	80(38.3)

Table – 2: Gender distribution of socio-demographic characteristics according to physical exercise practices (n=75)

Variable	Category	Men (n=45)	Women (n=30)
Age (years)	≤50	6 (13.3)	10 (33.3)
	>50	39 (86.7)	20 (66.7)
Location	Urban	31 (68.9)	27 (90.0)
	Rural	14 (31.1)	3 (10.0)
Education	Illiterate	10 (22.2)	7 (23.3)
	Literate	35 (77.8)	23 (76.7)
Occupation	Unemployed	1 (2.2)	1 (3.3)
	Employed	44 (97.8)	29 (96.7)
Type of Physical activity	Sedentary	30 (66.7)	6 (20.0)
	Moderate	15 (33.3)	24 (80.0)
Duration of DM (years)	≤ 3	34 (75.6)	23 (76.7)
	> 3	11 (24.4)	7 (23.3)
Family history of DM	Present	31 (68.9)	21 (70.0)
	Absent	14 (31.1)	9 (30.0)

In the present study, out of 209 subjects, 112 (53.6%) men and 97 (46.4%) women and in men, age ranged from 26-82 years with mean age 58.6±11.7 years and in women, 30-82 years with mean age 56.8±10.2 years. Among study subjects, 147 (70.3%) were from urban area, 122 (58.4%) were literates, 205 (98%) were employed, 111 (53.1%) were engaged in moderate physical activity and 129 (61.7%) were having family history of diabetes mellitus (table – 1).

Seventy five (35.9%) were adhered to the practice of physical exercise. Of which, 55 (73.3%) were having compliance to physical exercise. According to gender, 45 (60%) men were having adherence to physical exercise, of which 35 (77.8%) were having compliance to physical exercise and among women, 30 (40%) were having adherence to physical exercise, of which, 20 (66.7%) were having compliance.

Table – 3: Gender distribution of physical exercise practices (n=75)

Variable	Category	Men (n=45)	Women (n=30)
Physician consultation before starting PE	Yes	11(24.4)	4(13.3)
	No	34(75.6)	26(86.7)
Duration of Practice of Physical Exercise	≤ 5 years	32(71.1)	21(70.0)
	>5 years	13(28.9)	9(30.0)
Frequency of PE (days)	<5/week	16(35.6)	15(50.0)
	≥ 5/week	29(64.4)	15(50.0)
Duration of exercise/day	<30 min	16(35.6)	10(33.3)
	≥30 min	29(64.4)	20(66.7)
Place of PE	Outside	41(91.1)	27(90.0)
	Both inside & outside	4(8.9)	3(10.0)
Time of exercise	Morning	34(75.6)	18(60.0)
	Evening	11(24.4)	12(40.0)

The gender differences in the practice of physical exercise according to socio-demographic characteristics showed that, 10 (33.3%) women in the age group ≤50 years were practicing physical exercise compared to 6 (13.3%) men and In >50 years age group, 39 (86.7%) men were practicing physical exercise compared to 20 (66.7%) women. In urban area, 27 (90%) of women were practicing physical exercise compared to 31 (68.9%) men and in rural area 14 (31.1%) men were practicing physical exercise compared to 3(10%) women. According to type of physical activity, 30 (66.7%) men engaged in sedentary physical activity were practicing physical exercise compared to 6 (20%) women and 24 (80%) women engaged in moderate physical activity were practicing physical exercise compared to 15(33.3%) men (table – 2).

Regarding current practice of physical exercise, 11 (24.4%) men had consulted physician before starting physical exercise compared to 4 (13.3%) women. With regards to time of exercise, 34 (75.6%) men were practicing physical exercise in morning hours

compared to 18 (60%) women and 12 (40%) women practicing in evening hours compared to 11 (24.4%) men (table – 3).

Discussion

The results obtained from the present hospital based study revealed that 35.9% of the type 2 DM patients had adherence to physical exercise practices. Similar findings were reported by Ibrahim AB et al (39.4%)[8] whereas Kalaiselvi S et al reported it as 50.6%.[9] The low level of adherence in this study could be due to lack of awareness regarding importance of physical exercise in glycemic control. This evidence is strengthened by the presence of significant proportion of illiterate subjects (41.6%). The existing research-based information explains that lot of effort and major changes in life style should be made to incorporate practice of physical exercise in daily routine among diabetic subjects as a cause for low adherence and complience.[10]

The gender differences in adherence to physical exercise practices shown that women had less adherence (40%) compared to men (60%). Similar findings were reported by a study which shown 37.2% of women and 62.8% of men were having adherence to the practice of physical exercise.[11] The possible explanation for this observation could be attributed to socio-cultural milieu of women in India which demands her time and energy for household responsibilities. This could be the reason behind increased adverse consequences of diabetes mellitus among women.[12]

In the current study, all the subjects were practicing walking as a type of physical exercise. Similar findings were observed by Waqar Al Kubaisy et al.[13] These observations strengthened the fact that walking is the most accepted aerobic exercise which is easy to perform, safe, effective, does not require any training or equipment, economical and has definite benefit in diabetes mellitus by improving glycemic control.[14]

The gender differences in the practice of physical exercise have found that higher proportion of women ≤50 years (33.3%) and higher proportion of men >50 years (86.7%) were practicing physical exercise. These observations were strengethen by the existing evidence that middle aged men and older women are less involved in the practice of physical exercise.[15] The probable reason for gender difference in the practice of physical exercise could be due to increased perception of body image among women ≤50 years and increased leisure time for men > 50 years.

According to locality, higher proportions of women from urban area (90%) compare to men were practicing physical exercise. The possible explanation for this difference could be urban women are relatively free in terms of responsibilities as compared to rural women in terms of agricultural activities and increased use of electronic gadgets to assist household activities.

Regarding physical activity, higher proportion of men engaged in sedentary physical activity (66.7%) and higher proportion of women engaged in moderate physical activity (80%) were practicing physical exercise. The probable reason could be due to 98% of the subjects in the study were employed, among them majority of men are employed in occupation which is sedentary in nature where as majority of women were housewife by occupation which is considered as moderate type of physical activity. Still there is a confusion existing among researchers and clinicians regarding prescription of physical exercise in moderate and heavy physical activity. Hence there is a need to accumulate further evidence to provide appropriate guidelines.

In this study, higher proportion of men consulted physician (24.4%) compared to women (13.3%) for advice on physical exercise. Contrary to this finding a study shown that women consult physician more often for advice compare to men.[9] This requires further probe in future studies.

The strength of this study was use of adherence and compliance in defining the practice of physical exercise and limited by inability to assess intensity of physical exercise.

In the view of low adherence to physical exercise practices by type 2 diabetes mellitus patients in general and specifically among women, the present study recommend for improvement in overall and gender specific patient education in diabetes mellitus

to increase awareness on the benefits of regular physical exercise in treatment of diabetes mellitus by involving treating physician and his team and also call for further in-depth studies in all settings to explore barriers and motivating factors influencing physical exercise practices in both gender in India. By addressing these issues effectively, adherence and compliance to physical exercise can be improved there by reducing adverse consequences of diabetes mellitus in near future.

Conclusions: The present study shown that around one in three type 2 diabetes patients had adherence to physical exercise. There is a difference exist between the gender regarding adherence, age, locality, physical activity, consultation with physician and time in practicing physical exercise, which needs to be confirmed by conducting further in-depth studies.

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Original Research Article

Prevalence of refractive errors among the 9-16 years school going children in rural areas of Belagavi, Karnataka

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Abstract

Background: Uncorrected refractive error is significant cause of visual impairment in children as per WHO. Approximately one-third of blind persons in India are affected before 20 years of age. Hence early detection and treatment is imperative to reduce the burden of preventable blindness. **Objectives:** To find the prevalence of refractive errors in school going children aged 9 to 16 years in rural areas and to identify the risk factors associated with refractive errors**. Methods:** A cross sectional study was carried out in school going children of age group 9-16 years in rural areas of Belagavi. Data was collected using pretested and predesigned questionnaire and all children were screened for visual acuity with the help of Snellen's chart by refractionist. **Results:** The overall prevalence of ocular morbidity was 12.5% and the prevalence of Refractive error was 7.7%. Keeping closer proximity while watching television and while reading their books were significant risk factors. As the age advanced Refractive error prevalence also increased. **Conclusion**: Visual impairment has a significant impact on a child's education. Therefore periodic screening and use of spectacles further helps to improve his/her school participation and psycho social development.

Key words: Refractive error, Rural area, Snellens chart, Visual impairment.

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Introduction

Visual impairment due to uncorrected refractive error is one of the avoidable causes of blindness in the world. Refractive error is an optical defect intrinsic to the eye, which prevents the light from being brought to a single focus on the retina; thus, reducing normal vision.[1] School going children being most vulnerable group which have significant impact on their learning capability and educational potential. Blindness due to refractive error can also have dramatic effect in personality development and career opportunities, along with causing an economic burden to the society.[2] Worldwide uncorrected refractive error has been estimated to account for more than half of the cause of visual impairment and 18.2% of blindness.[3] Uncorrected refractive error is significant cause of visual impairment in children as suggested by W.H.O.[4] Different study reveals that refractive errors are usually present in the childhood and continue to the adult life.[5-7] Children do not normally complain of visual problems as they adjust to the poor eyesight by sitting near the blackboard, holding the books

closer to their eyes, squeezing the eyes and even avoiding work requiring visual concentration.[8] Sometimes even the child complains of earliest signs of refractive errors like eye strain with or without redness, with watering and headache may go unnoticed to the parents due to lack of awareness among them.[9] Importance of early detection and treatment of ocular diseases and visual impairment in young children lies in the fact that 30% of India s population becomes blind before the age of 20 years.[10] Early detection and timely treatment of eye disease is significant to avert vision problems and eye morbidities, which could affect their learning ability, personality, and adjustment in school.[11]As school going children are the important target group to screen for the refractive errors in the earliest and to give health education, thus the present study was conducted to study the prevalence of refractive errors among school children and to find the risk factors associated with it.

Objectives:

To find the prevalence of refractive errors in school going children aged 9 to 16 years in rural areas and to identify the risk factors associated with refractive errors it.

Materials and methodology

This cross sectional study was carried out in the 3 randomly selected government high schools of Vantamuri, which comes under the rural field practice area of Department of community medicine, Jawaharlal Nehru Medical College, Belagavi during the period of 4 months from November 2015 to February 2016 .Prior information about the study was provided to the Principals of the selected schools and permission sought from them to conduct the study in their schools. All school going children of aged between 9-16 years were included. Students who were remaining absent even after two follow ups and not willing to participate in the study were excluded. Sample size was calculated using the prevalence rate of refractive errors from the previous study done in Karnataka.[9]

$n = 4pq/d^2$

Where, p = 8.28% (prevalence of refractive error)

q = 100 – p = 100 – 8.28 = 91.72

d = 3% (absolute error)

N=4(8.28) (91.72)/9=338 which can be rounded off to 350.

A pretested and predesigned questionnaire was used for data collection which included general data and eye examination details. External appearance of eye was examined using torch to find out ocular morbidities. Visual acuity was examined by Snellen's chart by a refractionist after explaining the procedure to the children. Child was made to sit at a distance of from the chart. One eye was covered with a plain occluder and the child was asked to read from the top of the chart. If the child cannot read the largest letter at 6 metres, child was made to move closer by one metre at a time, until the top letter could be seen, then repeat the whole procedure for the another eye. Colour vision examined by Ishihara chart. Children who needed treatment were referred to the higher centres with free referral card. Health education was given to the children regarding eye health and the earliest signs and symptoms of eye diseases were made aware. Data was analysed by SPSS version 20.Percentages and chi-square test were used and p value <0.05 was considered as significant.

Results

A total number of 350 students with age group 9 to 16 years were examined during our survey. The mean ± SD age group of study participants was 12 ± 1.4 years. Almost 184 (52.6%) of the study participants were male and 166 (47.4%) of them were females (Table I).

Out of the study participants, 44 (12.5%) of the children were suffering from either one of the ocular morbidities. The commonest was refractive error 27 (7.7%) followed by chalazion 9 (2.5%), squint 5 (1.4%) and least were ocular injuries, xeropthalmia and colour blindness which corresponds to 1 (0.3%) respectively.[Table II] The prevalence of refractive error was 27 (7.7%) in the present study. The prevalence was high among the age group of 15-16 years. It is also found that as the age increases the

Table I: Age distribution of the school children.

Age (years)	Male		Female		Total
	No	%	No	%	
9 -11	44	37.9	72	62.1	116
12-14	64	47.1	72	52.9	136
15-16	58	56.8	40	43.2	98
Total	166	47.4	184	52.6	350

Table II: Ocular morbidities among school children

Ocular Morbidities	No.	%
Refractive Error	27	7.7
Squint	5	1.4
Chalazion	9	2.5
Ocular injuries	1	0.3
Xeropthalmia	1	0.3
Colour Blindness	1	0.3
Total	44	12.5

Table III: Age wise distribution of refractive error

Age (years)	Refractive Error				Total
	Present		Absent		
	No	%	No	%	
9 -11	7	6.1	109	93.9	116
12 -14	9	6.6	127	93.4	136
15-16	11	11.3	87	88.7	98
Total	27	7.7	323	92.3	350

Table IV: Sex wise distribution of refractive error

Sex	Refractive Error				Total
	Present		Absent		
	No	%	No	%	
Male	13	7.8	153	92.2	166
Female	14	7.6	170	92.4	184
Total	27	7.7	323	92.3	350

Table V: Association between close television watching and refractive error

Close television watching	Refractive Error				Total
	Present		Absent		
	No	%	No	%	
Present	23	13.2	151	86.8	174
Absent	4	2.3	172	97.7	176
Total	27	7.7	323	92.3	350
χ^2 – 14.72		d=1			p<0.01

Table VI: Association between close reading and refractive error

Close reading	Refractive Error				Total
	Present		Absent		
	No	%	No	%	
Present	19	10.7	159	89.3	178
Absent	8	4.7	164	95.3	172
Total	27	7.7	323	92.3	350
χ^2 – 4.46		d=1			p<0.05

Table VII: Symptoms of visual impairment and refractive error (n=27)

n=27 Symptoms	Present	
	No.	%
Blurring of vision	3	11.1
Headache	4	14.8
Watering of eyes	8	29.6
No symptoms	12	44.5
Total	27	100

prevalence of refractive error also increases.[Table III] In the present study, the prevalence of refractive error was almost similar in both males and females i-e, 13 (7.8%) and 14 (7.6%) respectively.[Table IV] Watching television with less than 6 meters distance was considered as close television watching. In the present study there was significant (p<0.01) association between close television watching and

the prevalence of refractive error and it was observed that majority of the children who had practiced close television watching were suffered from refractive errors.[Table V] Keeping books closer (<1 meter) to eye while reading was considered as close reading. It was observed that in the present study most of the children who had practiced close reading were suffered from refractive errors. The association between close reading and prevalence of refractive error was statistically significant ($p<0.05$).[Table VI] In the present study, most 12(44.5%)of the children who were suffering from refractive errors did not had any symptoms of visual impairment, 8(29.6%) of them had complaints of watering of eye,4(14.8%) of them had headache and 3 (11.1%) had blurring of vision.[Table VII]

Discussion

Children being one of the vulnerable group prone for refractive errors and other ocular morbidities and their causes are essential because such ailments have a direct effect on the physical, mental and social adaptations of children. In India as in other developing countries, the school health services provided are hardly more than a token service because of the shortage of resources and insufficient facilities.[12] Childhood blindness being preventable ,earlier screening increases the emphasis on eliminating avoidable blindness,refractive error correction has assumed a place of prominence in the blindness prevention efforts of any nation.[13] In the present study, a total number of 350 students with age group 9 to 16 years were examined. The mean ± SD age group of study participants was 12 ± 1.4 years. A study done in Ethiopia showed the mean ± SD age of the children was 12 (±2.8) years which was almost similar to our study.[14] Another study conducted in rural area of North Maharashtra showed the mean age 13.5 ±1.7 years.[15] Among them 184 (52.6%) of the study participants were male and 166 (47.4%) of them were females. Similar study conducted in Chennai showed that 49.7% were boys and 50.3% were girls.[16] In our study, 44 (12.5%) of the children were suffering from either one of the ocular morbidities. Similar study done in rural areas of North Maharashtra and Nainithal showed the prevalence of ocluar morbidities was 27.65% and 23.3% respectively which is comparatively high compared to our study .[15, 17] The prevalence of refractive error in the present study was 27 (7.7%).Similar studies done in other parts of country showed the prevalence rate 8.28% ,10.12% , 20.9% , 8.14% ,13.3% which are on quite higher side when compared to our study.[9,15,16,18,19] This may be because of proper implementation of school health programme in the present study area. The prevalence of refractive error was almost similar in both males (7.8%) and females (7.6%) in our study. Similarly results is seen in studies done in Nainithal and Utharkand.[17,20] The prevalence was high among the age group of 15-16 years. The results were par to the Studies done in other parts of the country.[9,13,20] The commonest was refractive error 27 (7.7%) followed by chalazion 9 (2.5%), squint 5 (1.4%) and least were ocular injuries, xeropthalmia and colour blindness which corresponds to 1 (0.3%) respectively. In a study done in Mandya showed that out of 53 (14.6%) ocular morbidities, 30 (8.28%) children had refractive error and constitutes major ocular morbidity followed by colour blindness 16(4.4%) , Squint 3(0.8%) ,ocular injury 2 (0.5%) ,Chalazion 1(0.2%) and xerophthalmia 1(0.2%). [9] Another study done in Nainithal showed that Refractive errors are the most common (15.6%) ocular morbidity followed by colour blindness (2.4%) and Vitamin A deficiency (1.1%).Other ocular diseases such as allergic conjunctivitis (0.9%), vernal keratoconjunctivitis (0.7), infectious conjunctivitis (0.6) and blepharitis (0.6) were less prevalent. Diseases such as squint (0.2%), ptosis (0.1%) were least common. [17] In the present study there was significant ($p<0.01$) association between close television watching and keeping close approximity while reading books with the prevalence of refractive error and the prevalence was high among children who practiced close television watching and keeping close approximity while reading books. Similar results were found in the study done in Mandya, Karnataka and also Impal Manipur.[9,21] Thus the school teachers and parents of the children should be educated about the appropriate distance for watching Television and reading books so that in-turn shows the impact of the same on children.

In the present study, most 12(44.5%) of the children who were suffering from refractive errors did not had any symptoms of visual impairment, 8(29.6%) of them had complaints of watering of eye,4(14.8%) of them had headache and 3 (11.1%) had blurring of vision. Similar study done in Guwahati city showed that majority of children complaint of difficulty in reading blackboard from back benches (46.35%) followed by headache (39.36%) and eye strain (11.70%). [2] This shows that the commonest earliest visual symptom of refractive error was blurring of vision and headache. Thus eye health education if given to the school children may help them to know about the symptoms at the early stage and get treated.

Conclusion: The present study shows that the adolescent age represent high risk group for refractive errors. The overall prevalence of ocular morbidity was 12.5% and the prevalence of Refractive error was 7.7%. Most of the children were unaware of their refractive errors. Close television and close reading were the significant factors associated with refractive errors. Therefore, screening in schools and pre- schools ages should be carried out periodically. School teachers, parents and children should be aware of common eye symptoms and about eye care through proper health education also help in early detection of eye diseases and prevent progression.

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Original Research Article

Prevalence of Smoking among Faculties of Medical and Dental College of Aljouf University – A Cross Sectional Study

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Abstract

Introduction: Smoking is one of the major public health issue throughout the world. Teachers are considered as role model for the students on smoking habits. Also, a non smoker faculty and personnel can involve smoking prevention program better than smoking personnel. Hence, it is essential to take necessary steps to ensure healthy habits among faculties of the university. **Methodology:** This was a cross sectional study aimed to estimate prevalence of smoking and behavior and complaints associated with smoking among smokers among faculties of college of medicine and dentistry of Aljouf University. Structured questionnaire was administered among male faculties to assess their smoking status. Data analysis were done by using SPSS Version 17. **Results:** Mean age of the smokers from study participants is 47 (±3). The mean age to start their smoking habit is 17 (± 2). Most of the smokers have the smoking habit of long duration (25 ± 3) years. Most common cause for initiate smoking habit among respondents were are curiosity (43.7%), friend's influence (37.5%) and school conflicts (37.5%). Complaints due to smoking among smokers in current study were cough (65.6%), pharyngitis – sinusitis (56.3%) and head ache (37.5%). The present study also found that majority (65.6%) of smoker want to quit smoking.

Key words: Smoking prevalence, Faculties, Behaviour

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Introduction:

Smoking is one of the major public health issue throughout the world. It is also the most common preventable cause of premature mortality and morbidity in the world, placing the heaviest burden of mortality and morbidity compared to any other risk factor on people. The estimated mortality rate of around 4.9 million people in 1999 is expected to rise to 10 million by the 2020s and 2030s, 7 million of which will occur in developing countries. Smoking habit is more common worldwide among males compared to females. The World Health Organization (WHO) estimated that about 48% of males and 7% of females are smokers[1]. Most of the smokers has started their smoking habit during their adolescence period; very few proportion (less than 2%) of them started smoking after their 22nd years of age[2, 3].

The harmful health problems of smoking on are well-documented before. Data from previous studies has shown the direct relationship between habits of smoking and several health consequences in the form of premature mortality and serious morbidity[4-6]. Despite the known facts, smoking prevalence is increasing in several developing countries, including The Kingdom of Saudi Arabia, But in most of the developed countries there is a continuous decrease in its prevalence[7]. Also tobacco and its related production has been increasing globally at an average of around 2.2% every year, exceeding the population growth rate of 1.7%[8]. According to a World Health Organization (WHO) , products

related to tobacco usage is expected to cause around10 million lives per year by the year 2030. Since smoking habit has a significant impact on public health and prevention programs for tobacco and its usage have been given as high priority in World Health Organization (WHO) policies[9].

Smoking habits in university and colleges are an important issue for observation, its due to relationship with smoking habit among faculties and students. Smoking habit among faculties has significantly affects students' perception about smoking[10], leads to perceive smoking as positive and acceptable. Also, later they develop a personal belief and subjective norms and eventually intention to take up the habit[11]. Teachers' smoking behaviour also increases risk of smoking among adolescents especially their students by 2.51 times[12].

Despite of several health promotions activities are being carried out, there is still an increase of smoking and its related habits in the Kingdom of Saudi Arabia, especially among the youths. Teachers are considered as role model for the students on smoking habits. Also, a non smoker faculty and personnel can involve smoking prevention program better than smoking personnel. Hence, it is essential to take necessary steps to ensure healthy habits among faculties of the university. A study is, therefore, needed to estimate the magnitude and associated factors among the faculties of the university, in order to plan for more effective health promotion strategies to decrease this social problem.

Objectives:

The objectives of this study were to estimate prevalence of smoking and behavior and complaints associated with smoking among smokers among faculties of college of medicine and dentistry of Aljouf University.

Materials and Methods:

Study design: Cross sectional study

Subjects: Study questionnaire was administered among faculties of college of medicine and dentistry in Aljouf university, Sakaka. This questionnaire was administered only to faculties of male section only.

Study questionnaire: A self administered questionnaire was given to all participants. The questionnaire had participants background details (such as age, nationality, position etc), smoking status (current, non smoker and past smoker).

Smoking status: In this study, a current smoker was a person who smokes daily or occasionally at the time of data collection. An ex-smoker was a person who either smoked daily or occasionally in the past but has quit smoking. An ever smoker was a person who currently smokes or has quit smoking

Study period: The data was collected during period between October and November 2014.

Data Analysis:

The data were analyzed by using SPSS version 17. Continuous variables were presented as means with standard deviation. The categorical results were expressed as number and proportion.

Results:

The total number of faculties responded in this study were 82. Table No.1 represents the socio-demographic characteristics of the study population. Most of the study population is non Saudis(72%) and aged 40 years and above (52%). The present study 58.5 % respondent were belong to basic sciences and 34% belong to clinical science

Table 1 Socio-demographic details of the study participants.(n= 82)

S.N	Characteristics	No	%
1	Age group (Mean 45 $\pm$ 4)		
	< 40 years	30	36.6
	$\geq$ 40 years	52	63.4
2	Nationality		
	Non Saudi	72	87.8
	Saudi	10	12.2
3	Marital status		
	Single	15	18.3
	Ever married	67	81.7
4	Teaching section		
	Basic science	48	58.5
	Clinical science	34	41.5

Table 2: Smoking status of faculties (n= 82)

S.N	Smoking status	No	%
1	Current smoker	32	39
2	Ex smoker	5	6.1
3	Non smoker	45	54.9

Thirty two (39%) respondent were smokers in the present study, while five (6.1%) were ex smoker and forty five (54.9%) were non smoker.

Table 3 Characteristics of smokers (n= 32)

S.N	Characteristics	Mean ±SD	Min	Max
1	Age (Years)	47.2 ± 3	34	58
2	Age of starting smoking (Years)	17.5 ± 2	12	19
3	No. of cigarettes per day	10 ± 2	5	20
4	Duration of smoking	25 ± 3	11	35

Table 3 shows the basic characteristics of smokers among study population. Mean age of the smokers from study participants is 47 (±3). The mean age to start their smoking habit is 17 (± 2). Most of the smokers have the smoking habit of long duration (25 ± 3 years

Table 4: Behavior and Complaints associated with smoking among smokers (n = 32)

S.N	Behaviour*	No	%
1	Causes of smoking initiation		
	Friends' influence	12	37.5
	Affectation	8	25
	Curiosity	14	43.7
	Family conflicts	9	28.1
	School conflicts	12	37.5
	Loneliness	8	25
2	Complaints association with smoking		
	Dyspnea	10	31.3
	Cough	21	65.6
	Pharyngitis-sinusitis	18	56.3
	Decreasing physical activity	7	21.9
	Mouth wounds	6	18.8
	Headache	12	37.5
	Bad smell of cigarette	8	25
	No complaint	1	3.1
3	Do you want quit smoking		
	Yes	21	65.6
	No	11	34.4

* Participants are allowed to answer more than one answer

Most common cause for initiate smoking habit among respondents were are curiosity (43.7%), friend's influence (37.5%) and school conflicts (37.5%). Complaints due to smoking among smokers in current study were cough (65.6%), pharyngitis – sinusitis (56.3%) and head ache (37.5%). The present study also found that majority (65.6%) of smoker want to quit smoking.

Discussion:

The World Health Organization (WHO) states that tobacco epidemic is one of the major public health hazards the world has ever come across, it is killing around 6 million person in a year. More than 5 million of that mortality is the effect of direct tobacco use and more than 600 000 are due to non-smokers being exposed to second-hand smoke[13].

There have been several studies have been done in the past on prevalence of smoking and associated factors in the kingdom. But most of the studies are done among students and general population[14-16]. There few studies[17-18] have been done in the past among faculties of university staffs in the past. But very limited studies in this regard in the Kingdom of Saudi Arabia.

The present study found that there is high prevalence (39%) of smoking faculties of medical and dental college. This finding is similar to done previous studies (14, 15). But other studies have shown lesser prevalence of smoking among their respondent[16, 18]. This can be explained by the different tools used to assess the prevalence of smoking.

Isabella et al[17] have found that mean age to start smoking among their study respondent were 17.7. This finding is almost similar to our study findings. But several studies done in the kingdom stated lesser age of starting of smoking. This can be explained by the study population as our study respondent mostly expatriates. Our present study found that high proportion of smokers would like to quit smoking. This finding is in similar to several previous studies[17,18].

Conclusion

We found high prevalence of smoking among faculties and several faculties would like to quit smoking. Hence, there is a need for smoking cessation program in the university campus to be conducted regularly. Also there should strict enforcement of law that bans smoking in and around college and university campuses.

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Original Research Article

Awareness And Diffficulties Encountered By The Postnatal Mothers During Breast Feeding

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Abstract

Background: Breastfeeding is the ideal method suited for the physiological and psychological needs of an infant. According to a national family health survey of India-3, the practice of initiation of breastfeeding within one hour of birth is only 24.5%, and exclusive breastfeeding up to six months of age is 46.4%. Breast milk is the optimal choice of feeding for both full term and premature new born infant. There are many barriers to initiate and continue breastfeeding during the neonatal period extending into infancy.**OBJECTVE:** To elicit the awareness and difficulties in the post natal mothers experienced during breast feeding in early postnatal period. **METHODOLOGY:** All the primi parous postnatal mothers who delivered an alive baby in the Meenakshi Medical College Hospital and Research Institute, Kancheepuram during the period from October 2014 to July 2015 was subjected to structured questionnaire about their basic knowledge and the difficulties they encountered during breastfeeding. **RESULTS:** In the present study the age of the patient ranged between 18- 32 years. 95.2% were booked patients; about 76.74% of patients belong to a low socioeconomic class, 93.9% delivered at term and 56.8% delivered by caesarean section. The correct knowledge about frequency of breastfeeding, positioning the baby and the nipple was present in 63%, 55%, 76% respectively. While 66% of women had prior knowledge about breastfeeding, most of them had their mother/ mother-in-law followed by books, magazine, TV as their source of information. The problems of breast feeding such as pain in the breast was felt by 15.37%,feeling of insufficient secretion by 14.44%, baby not able to suck properly by 12.52%, nipple problems by 5.70%. Women were supported during breast feeding by their mothers in 53% of the cases, by their partners in 21%, by mother in law in 9%, by doctors in 11% and by nurse in 6%.Only 46% of mothers started within half an hour to breastfeed the babies and only 32% of mothers know the importance of the colostrum. **CONCLUSION:** Our study shows that knowledge and attitude of postnatal mothers towards breast feeding is not satisfactory up to the limit. There is still need for the programmes which supports and encourages breast feeding.

KEYWORDS: primi parous, postnatal mothers, breastfeeding, breast milk.

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INTRODUCTION

Breast feeding is a mother's gift to herself, her baby and the earth. Breastfeeding has been accepted as the most vital intervention for reducing infant mortality and ensuring optimal growth and development of children. More than 15% of 24 lakhs child deaths could be averted in India by optimal breastfeeding practices.[1,2] Breastfeeding is the ideal method suited for the physiological and psychological needs of an infant.[1,3]

According to a national family health survey of India-3, the practice of initiation of breastfeeding within one hour of birth is only 24.5%, and exclusive breastfeeding up to six months of age is 46.4%. Mothers should be encouraged to breastfeed, but shouldn't be coerced to do so. Breast milk is the optimal choice of feeding for both full term and premature newborn infant.[2]

Attitudes and behaviour in relation to infant feeding do not occur within a social vacuum, but are highly influenced by the woman's social and cultural environment. Mothers receive support from a range of sources like their families, friends and professionals, but whether this promotes or undermines breastfeeding depends on the attitudes and experiences of the people giving support. There are many barriers to initiate and continue breastfeeding during the neonatal period extending into infancy.[4]

OBJECTVE: To elicit the awareness and difficulties in the post natal mothers experienced during breast feeding in early postnatal period.

METHODOLOGY:

All the primi parous postnatal mothers who delivered an alive baby in the Meenakshi Medical College Hospital and Research Institute, Kancheepuram during the period from October 2014 to July 2015 was subjected to structured questionnaire about their basic knowledge, awareness the received during the antenatal period, the difficulties they encountered during breastfeeding and support from the family. Informed consent was obtained from all mothers. Nursing mothers were observed during breastfeeding to detect the position and attachment of the baby on the breast and to find out the mistakes, complaints and problems of mothers during feeding.

STATISTICAL ANALYSIS: Analysis of data was carried out using the available statistical package for social sciences (SPSS) version17. Data was presented in simple measures of frequency and percentages.

RESULTS:

A total of 750 primi postnatal mothers were subjected to questionnaire during the study period. The age of the patient ranged from 18 to 32yrs and maximum postnatal mothers were seen between 22 to 26yrs of age. 95.2% were booked patients and about 76.74% of patient's belongs to a low socioeconomic class (modified kuppuswamy's class). 93.9% delivered at term and 56.8% delivered by caesarean section. About 2.73% of patients didn't follow the hygiene practice while feeding. 7.41% of the patients did not have confidence that they will exclusively breast feed the baby. 98.15% of the patients did not have any doubt about breast feeding. When we noted about the time of initiation of breastfeeding, only 46% of mothers had started the breast feeding within half an hour. Once we enquired about the importance of colustrum, about 32% of women had knew the importance of colustrum. The knowledge about the breast feeding(Figure 1) source for exclusive breast feeding(Figure 2) and the source of knowledge for breast feeding (Figure 3) were give in the figures. TABLE 1 represents the problems during feeding.

Figure 1: Knowledge about breast feeding.

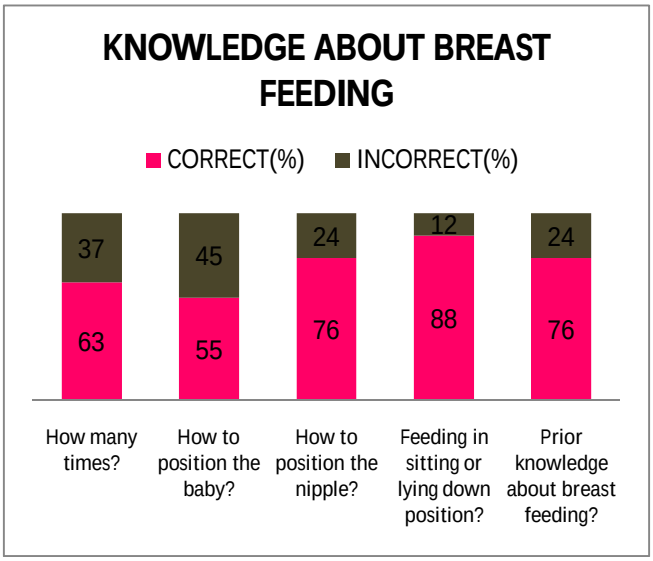


Figure 2: Supports for exclusive breast feeding.

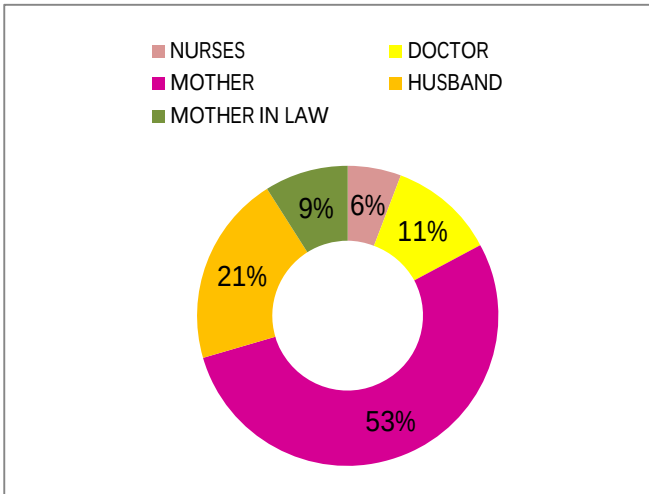
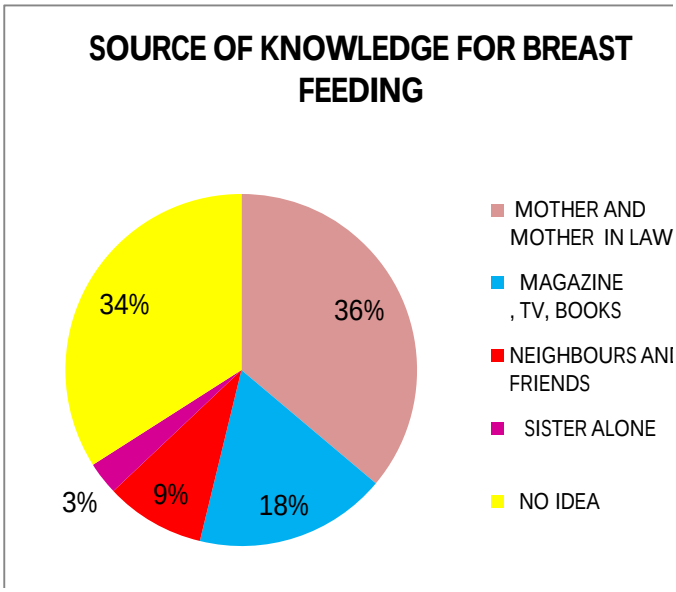


Figure 3: Source of knowledge for breast feeding.



DISCUSSION :

Universally recognised best nutrition for infants is breast milk.[5]Adequate nutrition during the neonatal and infant period is essential to ensure a good health, growth and development of the children.[6] Breast feeding also protects the children from a variety of acute and chronic disorders and also confers short and long term benefits both for the mother and the child.[7] Early and exclusive breastfeeding reduces childhood mortality and morbidity.[1]

Breast feeding is natural. But how to breastfeed the baby does not come naturally. It is a learnt skill. Most women while breastfeeding if encouraged, educated and protected then exclusive breastfeeding can be easily established.[8] According to this in our study knowledge about breastfeeding was adequate except for positioning the baby (55%) and the frequency of feeding the baby (63%).

Table 1: Problems during feeding.

Problems during feeding	Percentage
No problem	31.49%
Pain in the breast	15.37%
Feeling of insufficient secretion	14.44%
Baby is not able to suck properly	12.52%
Nipple problems	5.70%
Doesn't know how to position the baby	13.70%
Doesn't know the frequency	6.78%

Similar to other studies in the present study maternal mother and mother in law were the important information source for breast feeding.[9] This is because in south India daughters stay with their mothers during last three months and also at least for three months after delivery. In our study more than 95% of women were booked cases, but 34% of women do not have any idea about breast feeding. When correlated with other studies, it was found that during antenatal visits women were not counselled regarding breastfeeding.[9]In a study done by Almnoth s et al showed that when antenatal education about breastfeeding was given it improves the rate of exclusive breastfeeding.[10]

Proper positioning and attachment of the baby during breastfeeding prevents sore nipples, engorgement and mastitis and also facilitates the milk production and release.[11] The IMNCI strategy

recommends systemic assessment of breast feeding. It emphasises on proper position and attachment of the infant to the breast.[12]In our study, 45% of mother do not know how to position the baby and 24% does not know how to position the nipple properly. This was similar to other studies done in India.[13] The early education about proper breast feeding will prevent many problems in the future and can lead to increases in exclusive breastfeeding rate.[14]It was concluded that the initiation of breastfeeding within one hour of birth would save 22% of the infants from death.[15] In the present study only 46% of mothers started to breastfeed within half an hour of delivery. This is because most of the mothers delivered by caesarean section and instrumental delivery so there is a delay in shifting the mother or the baby is sick. Hence intensive efforts should be put for the timely initiation of breastfeeding preferably in the labour room itself before shifting the mother. Chalmers B et al found that there is no significant correlation between the initiation of breastfeeding and exclusive breast feeding. [16]

In our study only 32% of the mothers knew the importance of the colostrum which is very low when compared to other studies in India, where the importance of colostrum was known to 75% to 90% of the mothers.[17] In the present study more than 75% of mothers belongs to low socioeconomic status but has a good score for breast feeding. This is contrasted to other studies.[18]If the mother encounters any difficulties in the early postnatal period will lead to supplementation and early cessation of breastfeeding.[19] Some problems encountered by the mothers during breast feeding were painful breast, inadequate milk supply, latching difficulties and clogged ducts.[20] This was similar to our study. This can be solved by proper patient education.[21]But education alone is not sufficient instead practical demonstration is valued.[22]

In other studies the major problem faced by the mother was insufficient milk secretion. In our study, 14.44% had insufficient milk secretion which was similar to the study done in Iraq.[23] Reason may be because the baby cries often, demands frequent feeds or is irritable because of her lack of knowledge about normal behaviour of baby.[24] The perception of not having enough milk will lead to infrequent suckling which will truly reduce the production of breast milk.[25] In rural Karnataka the reason for starting the top feeds in 53.6% of cases was not enough of milk secretion.[26]

In our survey, it was found that exclusive breastfeeding was encouraged mainly by the maternal mothers followed by their husband. It is salutary to note that the hospital doctors and nurses were seen in the bottom of the list. This shows that the post natal mothers do not receive proper support from the health workers. This was similar to the study done in Swedish and Scotland women.[27]

LIMITATIONS OF THE STUDY:

This study was done in the postnatal ward. The patients were not followed for 6months. So the impact of risk factors in the early postpartum period was not correlated with exclusive breastfeeding rate.

CONCLUSION:

Our study shows that knowledge and attitude of postnatal mothers towards breast feeding is not satisfactory upto the limit. There is still need for the programmes which supports and encourages breast feeding. This programme should include the importance of breastfeeding, colostrum, exclusive breast feeding and demonstration of breastfeeding technique. Antenatal counselling about breastfeeding should be made mandatory during the antenatal visits. Proper training for breastfeeding in the postnatal ward should be given for successful and sustained breast feeding.

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Original Research Article

Prevalence and Correlates of Low PEFR among non-smoking tribal adults of Kandhamal district in Odisha: a cross sectional field study

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Abstract

Introduction: The primary cause of obstructive lung disease is tobacco smoke. However, this disease is more than a "smoker's cough". This study was conducted with the objective to estimate the prevalence of various risk factors, excluding tobacco smoke, and their associations with decreased PEFR among tribal population of Kandhamal district. **Methodology:** This was a cross sectional field study conducted among tribal villages of Kandhamal district of Odisha. Biophysical measurements were made and socio-demographic data obtained and analysed. Binary Logistic regression was used to calculate Odds ratio in multivariate analysis. **Results:** There were 34 males and 65 females included in the study. A majority of the study population (61.6%) lived in Kaccha houses. Literacy rate was 33%.Among the respondents, 24.2%, 39.4% and 36.4% belonged to lower, lower middle and middle socio-economic status respectively PEFR was decreased in 25.3 % cases. Reduced PEFR was significantly associated with raised blood pressure, reduction in chest expansion and use of biomass as fuel. Incidence of ARI was more when PEFR was decreased and also among biomass fuel users. The odds of having low PEFR were significantly high (OR=5.9) among households using biomass fuel. There was no significant difference between the PEFR and BMI. Home maker women had significantly increased odds (OR=5.88) of developing low PEFR. **Conclusion:** PEFR is a non-invasive, inexpensive, screening test that can be used as an early indicator of respiratory damage caused by exposure to air pollutants.

Keywords: PEFR, obstructive lung disease, blood pressure, biomass as fuel

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Introduction

Obstructive lung disease is a life-threatening health problem that interferes with normal breathing. It killed more than 3 million people in 2012. More than 90% of these deaths occur in low- and middle-income countries. COPD is frequently associated with acute exacerbations. Frequent exacerbations of COPD have been associated with poorer quality of life and worse morbidity and mortality. (1) Earlier identification of patients at particular risk may considerably reduce the morbidity and mortality from complications associated with COPD exacerbations.(2)

The primary cause of obstructive lung disease is tobacco smoke. However, this disease is more than a "smoker's cough".(3) Indoor air pollution due to biomass fuel use and occupational dusts are also major risk factors, especially in developing

countries.(3)(4) Other factors like lack of adequate ventilation, overcrowding and lack of a separate kitchen also contribute to respiratory illness.(5) Such factors are more prevalent in rural areas and among tribal populations where up to 70% households use some type of biomass fuel for lighting, cooking or heating.(6)

Data on strength of associations of these risk factors, excluding tobacco smoke, to pulmonary function is insufficient among vulnerable groups like tribal population. Inadequate lung function tests can be an indicator for increased risk of development and exacerbation of obstructive lung problems. PEFR is easily measured using a peak expiratory flow meter and it has a high degree of correlation with the gold standard lung function test for pulmonary obstruction. PEFR can also reflect the severity of the out flow obstruction and early deterioration of patient's condition can be anticipated before it actual happens.(7)(8)

The research question was what would be the strength of association between the hypothesised risk factors and low PEFR? This study was conducted with the objective to estimate the prevalence of various risk factors, excluding tobacco smoke, and their associations with decreased PEFR among tribal population of Kandhamal district.

Materials and Methods

This was a cross sectional field study conducted in villages of Kandhamal district of Odisha during June-August, 2016. The study population were adult tribals of both sexes. The following criteria were used for selection of the study population:

Inclusion criteria: aged 18 years or more; ethnically belongs to one of the indigenous tribal groups; prepared to give written consent.

Exclusion criteria: current smoker or with a history of smoking; pregnant women; lactating mothers; seriously ill or bed ridden patients; age <18 years.

Sample size estimation: An open source software called "A-Priori sample size calculator" was used to calculate the required sample size. Assuming a medium strength effect size (0.15), power of 80%, statistically significant probability level at 0.05, and 6 number of predictors for logistic regression model, minimum needed sample size that was obtained was 97.

Sampling: Kandhamal district is divided into 2 subdivisions. The larger subdivision, Baliguda, is selected for the study as it has predominantly rural and tribal blocks. All the 9 blocks of Baliguda sub division were included in the study and 1 village from each block was selected using simple random sampling; 11 households from each village were visited by starting from a random mid-point of the village and selecting every "n^{th}" house in all possible directions until a total of 11 households were visited in the village, where "n" was a random number generated using a smartphone app developed by Ux Apps. 1 resident of each household meeting the study criteria, who was present at the time of the visit, was selected using the same random number generator app. Thus a final sample size of 99 persons was arrived at.

Measurements: PEFR (peak expiratory flow rate), Blood Pressure, Pulse rate, Weight, Height, SpO2, and Chest Expansion were measured. A Wright's Peak flow meter (manufactured by JSB healthcare) was used to measure the PEFR using the instructions provided by manufacturer. The best of three efforts was accepted as the subject reading. Age, sex and height standardized expected values for PEFR were obtained using a formula for Indian population validated by Kodgule et al.(9) The formulae are given below:

PEF in L/min (male) = −1.807 (Age in Years) + 3.206 (Height in Cm)

PEF in L/min (female) = −1.454 (Age in Years) + 2.368 (Height in Cm)

The same EU scale PEFR meter was used in our study. The expected PEFR values thus obtained were compared with each individual's actual reading. A reading of less than 80% of expected value was considered as "Decreased PEFR".

A standard pulse oximeter was used to measure SpO2. Respiratory system examination was done by qualified doctors. Height and weight was measured

up to 1 decimal point using a stadiometer and an electronic weighing scale respectively. The house was assessed for physical overcrowding and ventilation by measuring the required dimensions and using standard textbook definitions.(10) Episodes of respiratory infections in the past month were recorded and a simple time-population projection was done to obtain estimated probable incidence rates of RTI. Updated BG Prasad scale was used to categorize socio-economic status using the June-2016 Consumer price index values for Odisha provided by Ministry of Labour. Wood, charcoal, wood chips, crop residue and dung cakes were categorised as Biomass fuel and the rest as clean fuel. BMI was calculated. Interviews were conducted and data was recorded using a predesigned and pretested format.

Statistical analysis: Descriptive statistics were obtained and appropriate tests of significance were used where necessary. Logistic regression models were used to estimate strength of association. All tests were done at 95% confidence levels and level of significance was set at 0.05. Analysis was done at the Department of Community Medicine, MKCG Medical College using open source software GNU PSPP ver 0.9.0.

Results

Among the 99 persons interviewed, 34 were males and 65 females. The mean age of the study population was 37.8 years (male=47.9 years; female= 32.5 years). Their average household size was 4.5 persons (Range: 2-6). Most of the males were daily wage labourers (n=13) and engaged in agriculture (n=18), whereas most of the females were home makers (n=44). Literacy rate was 33.3% (Male=32.4%; Female=33.8%). 81.8% (n=81) of the families were nuclear and 13.1% (n=13) were 3-generation. A majority of families lived in “Kaccha” house (61.6%; n=61) and 13.1% (n=13) and 25.3% (n=25) lived in “semi-pucca” and “pucca” house respectively. The mean monthly household income was 6247.5 rupees and according to updated B.G.Prasad scale, 24.2%, 39.4% and 36.4% belonged to lower, lower middle and middle socio-economic status respectively.

Table-01: Relationship between fuel type and PEFR status

Fuel type	PEFR Decreased	PEFR Not decreased
Biomass	22 (88%)	48 (64.86 %)
Clean	3 (12%)	26 (35.14%)
Total	25 (100%)	74 (100%)

(Pearson’s Chi Sq.= 4.82; df=1; p=0.02)

Table-02: Relationship between raised BP and PEFR status

Blood Pressure	PEFR Decreased	PEFR Not decreased
≥140/90	8 (32%)	7 (9.5%)
<140/90	17 (68%)	67 (90.5%)
Total	25 (100%)	74 (100%)

(Pearson’s Chi Sq.= 7.38; df=1; p=0.007)

At least 1 current active smoker in the house was present in 12 households. Seven individuals had a previous history of Asthma, 3 had a history of sinusitis and none had a history of tuberculosis. Dyspnea was seen in 18 cases; 13 had MMRC Grade-I and 5 had MMRC grade-II dyspnea. On auscultation, wheeze was evident in 3 cases and basal crackles in 2 cases.

Decreased PEFR (<80% of expected) was seen in 25.3% (n=25) cases.

The mean BMI of the study population was 21.55 (SD=2.02) and there was statistically no significant difference in BMI of males and females (t-test: p=0.54) or between BMI of those with and without decreased PEFR (t-test: p=0.91). 70.7% households (n=70) used biomass fuel in the house and the rest used some form of other fuel (i.e all Non-Biomass fuel). The relationship between biomass fuel use and decreased PEFR is shown in Table-01.

Overcrowding was present in 79.8% (n=79) and ventilation was inadequate in 66.7% (n=66) of the households. 62.6 % (n=62) houses had no separate kitchen. The mean oxygen saturation (SpO2) was 96.8%. SpO2 was significantly lower in those using biomass fuel (mean=96.5 %) as compared to those using clean fuel (mean= 97.7%) (p=0.03). The mean pulse rate was 83 beats per minute.

Table-03: Logistic Regression analysis for PEFR status

Sl.No	Co-variate		PEFR status: n, (%)		OR	95% CI	
			Decreased	Not Decreased		Lower	Upper
1.	Fuel Type	Biomass	22 (31.4%)	48 (68.6%)	5.90	1.09	31.91
		Clean	3 (10.3%)	26 (89.7%)			
2.	Separate Kitchen	Absent	14 (22.6%)	48 (77.4%)	2.36	0.42	13.12
		Present	11 (29.7%)	26 (70.3%)			
3.	Smokers in house	Absent	22 (25.3%)	65 (74.7%)	1.40	0.25	7.64
		Present	3 (25.0%)	9 (75.0%)			
4.	Adequate Ventilation	Absent	17 (25.8%)	49 (74.2%)	1.66	0.41	6.77
		Present	8 (24.2%)	25 (75.8%)			
5.	Socio-economic Class	Lower	10 (41.7%)	14 (58.3%)	1.27	0.24	6.53
		Lower-Middle	6 (15.4%)	33 (84.6%)	2.37	0.63	8.93
		Middle	9 (25.0%)	27 (75.0%)	1	(Reference)	
6.	Occupation	Agriculture	6 (26.1%)	17 (73.9%)	3.13	0.69	14.07
		Home-maker	7 (15.9%)	37 (84.1%)	5.88	1.45	23.85
		Labourer	3 (21.4%)	11 (78.6%)	1.80	0.25	12.78
		Others	9 (50.0%)	9 (50.0%)	1	(Reference)	

The mean chest expansion was 1.1 cm. The average chest expansion was lower in those with decreased PEFR (0.85 cm) as compared to those without decreased PEFR (1.18 cm). This difference was statistically significant with p=0.001. 15 individuals, 5 males and 10 females, had a blood pressure of over 140/90 mm of Hg. A significantly higher proportion of those with decreased PEFR had raised blood pressure as well. (Table-02)

At least one episode of respiratory infection in the past one month was seen in 56 persons. The estimated incidence rate for the sample was calculated to be 76.3/ 1000 per year.

The estimated incidence of RTI for those with decreased PEFR (81.6/1000 per year) was greater than and for those without decreased PEFR (73.2/1000 per year). This was however not significant (p=0.64). Similarly, the estimated incidence of RTI was significantly greater in those using biomass fuel (87.6/1000 per year) as compared to those using clean fuel (45.6/1000 per year); p=0.008.

Binary logistic regression was performed for the dependent variable PEFR status and the following 6 covariates: Type of fuel used; Presence of separate kitchen; Presence of smokers in house; Adequate ventilation; Socio-economic class; and Occupation. As evident from the results shown in table-03, significant association was found between decreased PEFR and use of biomass fuel as well as in home-makers.

Discussion

The study was conducted among tribals of Kandhamal district. The mean age of the study population was 37.8 years (male=47.9 years; female= 32.5 years). Active smokers were excluded from the study as its effect on decreased lung function is well established and it may have influenced the results of the other factors under analysis. Although FEV1 is the gold standard for obstructive lung disease, PEFR was chosen as the measure of lung function for the following reasons: firstly, it has a very high correlation with FEV1,

both in absolute and in % predicted values (r=0.83 & r=0.75 respectively); and secondly, PEFR is easy to administer in field surveys, like the current study. (8)

Decreased PEFR (<80% of expected) was seen in 25.3% cases. Peak expiratory flow rate is good at detecting patients with chronic obstructive pulmonary disease in the community. Dugdale et al in a study conducted among Semai tribes found that majority had a low PEFR.(11)

There was no significant difference between the PEFR and BMI. Kumar et al. reported that PEFR tends to reduce more in obese individuals in comparison to the non-obese group. (12) BMI within normal range in the study population might be the reason for finding no difference relation between BMI and PEFR. In a study by Anjum et al., it was found that, there was no significant difference in PEFR values in obese and non-obese subjects in young age group that is between 25-32 years, whereas it was found that, PEFR was inversely related to BMI in age group of 33-45 years. (13) Similar finding has been reported in adult males, indicating insignificant association between obesity markers and lung function parameters.(14)

Biomass fuel was used in 70.7% households and the rest used some form of clean fuel. The relationship between biomass fuel use and decreased PEFR is statistically significant. Revathi et al , found that biomass fuel especially wood was significantly associated with decreased PEFR. (15) Kiraz et al found that rural women exposed to biomass fumes were more likely to suffer from COPD.(16) In another study in Chennai conducted by Priscilla et al, reduced PEFR was observed among those who used biomass as fuel. (17) Inflammatory changes in respiratory tract is an effect of indoor air pollution among mainly women which leads to decreased PEFR and can lead to lung diseases like COPD.

Households using biomass fuel had a significantly greater estimated incidence of respiratory infections as compared to those using clean fuel. A compromised lung is prone for repeated respiratory viral infections leading to desquamation of epithelial cells of the lung, microvascular dilation, edema, and an inflammatory cell infiltrate.(17) The lung damage caused by exposure to particulate matter emitted by combustion of biomass fuel predispose the respiratory tract to bacterial infection by interfering with mucociliary clearance and by reducing the bacterial killing by alveolar macrophages.

Chest expansion measurements are used to evaluate a patient's baseline status, treatment effectiveness, and progression of disease with regards to chest wall mobility and respiratory muscle function. (18) In the present study it was observed that the average chest expansion was lower in those with decreased PEFR as compared to those without decreased PEFR . This difference was statistically significant.

A significantly higher proportion of those with decreased PEFR had raised blood pressure. Exposure to high concentration of respirable suspended particulate matter (RSPM) decreases the PEFR and the decrease depends upon the exposure concentration of particles and exposure duration. The decrease in PEFR is found to be responsible for increase in blood pressure (BP).(19) This finding has also been documented in separate studies by Pramodh et al., Yadav et al. and Panwar et al.(19–21) Several prospective studies have shown that not only hypertension is a risk factor for reduced lung function, but compromised pulmonary function tests increases the risk of development of hypertension.(22)

Conclusion:

In the present study PEFR was decreased in 25.3 % cases. Reduced PEFR was significantly associated with raised blood pressure, reduction in chest expansion and use of biomass as fuel. Incidence of ARI was more when PEFR was decreased and also among biomass fuel users. PEFR is a non-invasive, inexpensive, screening test that can be used as an early indicator of respiratory damage caused by exposure to air pollutants. (17) A peak expiratory flow rate of less than 80% will detect more than 90% of people with chronic obstructive pulmonary disease in the community, including all of those with moderate or severe disease—that is ,patients most likely to benefit from treatment with bronchodilators.(23)

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Original Research Article

Utility of dipstick versus urine culture in diagnosis of urinary tract infection in children.

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Abstract

BACKGROUND: Urinary tract infection is the most common genitourinary infection in children. The gold standard method to diagnose a urinary tract infection is by urine culture. **OBJECTIVE:** To evaluate the accuracy of urine dipstick test (nitrite and leukocyte esterase) versus urine culture in diagnosing the urinary tract infection in children. **STUDY DESIGN AND SETTINGS**: Cross sectional descriptive study done at Meenakshi Medical College and Research Institute. **MATERIALS AND METHODS :** One hundred children with features of urinary tract infection in Meenakshi Medical College and Research Institute were studied from February 2015 to July 2016. Two urine sample was collected by clean catch method with four hours of incubation period. One sample was used for culture and with the other sample dipstick analysis was done and the results were compared. **RESULTS:** Sixteen percent of children had urine cultures with 10^5 colonies/ml or greater. Sensitivity, specificity, positive predictive value and negative predictive value for nitrite test were 10.2%, 100%, 100% and 85.08% respectively. Sensitivity, specificity, positive predictive value and negative predictive value for leukocyte esterase test were 61.22%, 98.8% , 90.91% and 92.88% respectively. **CONCLUSION:** The study has suggested that both dipstick urinalysis methods can be used for rapid diagnosis. Urine culture is an expensive test for routine use and should not be applied unless the result of the nitrite and leukocyte esterase was positive. Leukocyte esterase test is the most useful test than nitrite test for detecting significant bacteriuria.

KEY WORDS : nitrite, leukocyte esterase, urinary tract infection, urine culture.

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INTRODUCTION :

Urinary tract infection is the most common genitourinary infection in children. In the pediatric age group a significant morbidity is caused by urinary tract infection. In boys the prevalence of UTI before the age of 14yrs, is 1-3%. The prevalence in girls is found to be increased to 3-10%.[1,2] In children these infections may present atypically or may present with no obvious symptoms. Due to paucity of clinical signs, diagnosis is delayed and it is difficult to diagnose.

The presence of bacteria in children alone is not an diagnostic criteria for diagnosing Urinary tract infection. Because with this criteria many normal children can be diagnosed as having a urinary tract infection. The gold standard method to diagnose a urinary tract infection is by urine culture. In the urine culture if there is a significant number of bacteria, fungi and viral particle, then it is diagnosed as urinary tract infection.[3,4]

Accurate diagnosis is important in children because of following reasons:[3,4] To identify the disease and to start the proper treatment;To prevent renal damage;To avoid unnecessary treatment and evaluation for children who are at no risk;To provide benefits and to prevent unnecessary expenditure for the family.

The facility for urine culture is not available in all places, especially in rural places in our country. It is also not possible to use a urine culture method as a simple screening method to rule out UTI. But to prevent the sequel as early as possible the UTI should be treated. Once the sample for urine culture is sent, it takes about 24 to 48hrs for diagnosing and to start the treatment. Hence a simple method is needed for the diagnosis. Only samples which were likely to be positive could be sent to the laboratory. This enables the laboratory to concentrate on the more important specimens from symptomatic patients. A reduction in number could save time, money and increase laboratory productivity.[1,2]

Dipstick method is recognized as a cheap, cost effective method and easy method to diagnose urinary tract infection. It can be used for mass screening. Hence this study was carried to evaluate the accuracy of urine dipstick test (nitrite and leukocyte esterase) versus urine culture in diagnosing the urinary tract infection in children.[5]

OBJECTIVE: To evaluate the accuracy of urine dipstick test (nitrite and leukocyte esterase) versus urine culture in diagnosing the urinary tract infection in children.

MATERIALS AND METHODS :

SOURCE OF DATA : The study was conducted from February 2015 to July 2016 in Meenakshi Medical College Hospital and Research Institute, Kancheepuram. It was a prospective study. One hundred children who were hospitalized in our hospital suspecting urinary tract infection requiring urine culture were included in the study.

INCLUSION CRITERIA :

Age of the children should range from 2months to 12yrs.

Both male and female children were studied.

Clinical features with UTI.

EXCLUSION CRITERIA :

Children who were on antibiotic therapy previously was excluded from the study.

Had indwelling Foleys catheter.

Symptomatic vaginal discharge.

Diabetes mellitus.

Immunodeficiency disorders.

Patient with nephritic syndrome and urinary tract anomalies with UTI features.

PROCEDURE : Once the patient got admitted case history was taken from the reliable informant mostly from the parents. Clinical examination was done with special attention to the genitourinary system. Parents were given instruction regarding cleansing the genitalia and proper technique for urine culture in sterile bottles. Urine samples were collected by clean catch mid stream method. Urine samples were divided and collected in three sterile containers. Two containers for urine dipstick(nitrite and leukocyte esterase) analysis and one for urine culture. The specimen was transported as quickly as possible and processed as soon as possible in the microbiology laboratory. More than 1,00,000(10^5) colonies per ml was taken as

significant bacteriuria and diagnosed as culture positive.

STATISTICAL ANALYSIS : The sensitivity, specificity, predictive value of positive and negative tests and accuracy of the tests individually and in combinations were statistically analyzed. The positive rate of nitrite test and leukocyte esterase test for individual organisms was also studied. If the differences were observed between the calculated values for a different test, the Chi-square test was applied to find if they are really statistically significant. Similarly the same Chi-square test was applied for evaluating the differences in the positive rate for different organisms.

RESULTS :

One hundred samples from the same number of children were tested. Sixteen samples showed significant growth(>10^5 cfu/ml) of a single type of microorganism. According to the present study the prevalence of UTI was more among male children(21.9%) and more between 1 to 3yrs of age(20.8%). The most common symptoms of UTI in our study ware dysuria (87.5%), abdominal pain (87.5%), fever (75%), urinary frequency (62.5%), vomiting(18.75%) and oliguria(12.5%). Out of this sixteen positive case, eight were E.coli(50%) followed by six cases of klebsiella(37.5%), one case of proteus(6.25%) and enterobacter(6.25%). Out of 8 E coli positive samples , nitrite test detected only one sample ,with the positive rate of 12.5%. The similarly positive rate of nitrite test for Klebsiella was 16.7%. Leukocyte esterase identified 11 samples out of 16 samples. It identified six E.coli samples, three klebsiella samples, one Proteus sample and one enterobacter sample. When we compared the nitrite test with leukocyte esterase test, the sensitivity of nitrite test was poor (15.15%) & diagnostic accuracy was 90.67%, which was lower than leukocyte esterase test. Table 1 and 2 shows the sensitivity, specificity, positive predictive value, negative predictive value, diagnostic accuracy, chi-square and p value.

Figure 1 : Organism and culture in the sample.

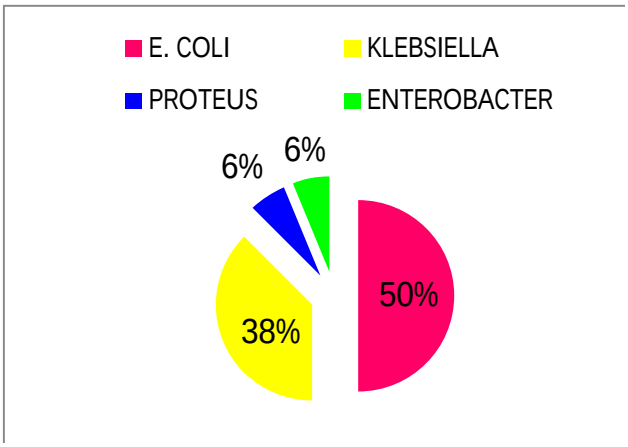

Figure 2 : Nitrite test with organism in the sample.

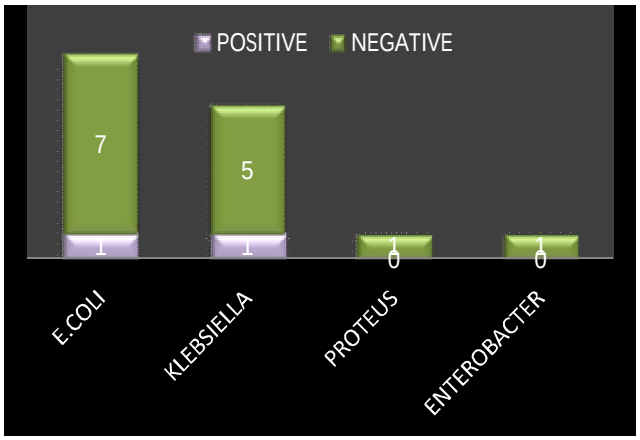

Figure 3 : Leukocyte esterase with organism.

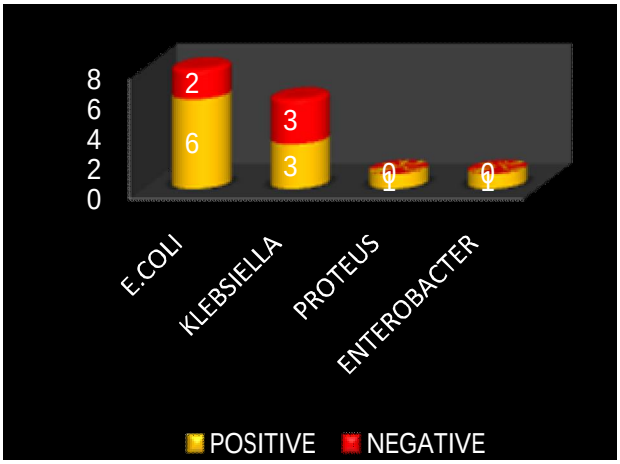

Table 1 : Nitrite versus culture

PARAMETER	ESTIMATE
Sensitivity	10.2%
Specificity	100%
Positive predictive value	100%
Negative predictive value	85.08%
Diagnostic accuracy	85.33%

Table 2 : leukocyte esterase versus culture

PARAMETER	ESTIMATE
Sensitivity	61.22%
Specificity	98.8%
Positive predictive value	90.91%
Negative predictive value	92.88%
Diagnostic accuracy	92.67%

DISCUSSION :

In the present study nitrite test and leukocyte esterase test were compared with the urine culture results, which were used as a gold standard for detecting UTI. The ideal screening test for significant bacteriuria should be rapid, inexpensive, simple to use, preferably independent of the organism grown, have less interference and at the same time it should be accurate. The overall incidence of UTI in the present study was slightly higher[52] and similar to other studies.[6-8] the reason may be the rural population with poor cleanliness, poor personal hygiene, prolonged use of diapers and constipation. When compared with the similar studies the common symptoms of UTI are the same.[9] Their symptoms were more in favour of lower urinary tract infection than upper urinary tract infection. The most common organism detected in our study was E.coli(50%) and klebsiella(37.5%). This was similar to other studies. But in contrast to the other studies Pseudomonas was not detected in the present study.[6-8]

Ayazil and Danesh, similar to our study, they also found the incidence of Proteus and Enterobacter as 6.25%. The nitrite test had a positive rate of 12.5% for E.coli and 16.7% for klbsiella, which was similar.[10] In contrast the enterobacter was not identified by nitrite test. [10] The specificity, PPV and NNP was found to more high when compared to other studies. [6-8,11] The diagnostic accuracy was found to be 85.33%. In our study by using chi-square the p value was found to be significant. But this was contrasted to the study done by Ayazil and Danesh were sensitivity was found to be high.[12] The positive rate for E.coli and klebshiella in leukocyte esterase was 75% and 50%. The sensitivity of leukocyte esterase was found to be lower when compared to other studies. But the specificity, PPV and NPV were found to be higher when compared to the other studies.[6-8,11&12] When we compared the nitrite test with leukocyte esterase test, the sensitivity of nitrite test was poor (15.15%) with a diagnostic accuracy of 90.67%.

CONCLUSION :

Urine culture is the “Gold standard test” for detecting urinary tract infection. However; simple biochemical tests may be useful for rapid diagnosis when the urine culture report was pending.

Nitrite test alone cannot be used as a rapid diagnostic test in childhood urinary tract infection in spite of its very high specificity, because of its very low sensitivity.

The leukocyte esterase test may be used as a rapid diagnostic test in childhood because of its high predictive value of a positive test and a negative test.

Leukocyte esterase test is the most useful test than nitrite test for detecting significant bacteriuria.

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Original Research Article

Prevalence Of Rheumatic Heart Disease In Urban School Going Children In South India, A Community Based Cross Sectional Study

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Date of Submission: 04.11.2016 **Date of Acceptance: 22.12.2016**

Abstract

Background: Rheumatic fever and rheumatic heart disease (RF & RHD) continues be a significant public health problem in less privileged regions of the world.Considering the importance of periodic surveys in countries where organized screening programmes at national or regional level are not in place, the current study has been planned to assess the prevalence and clinical profile of Rheumatic heart disease (RHD) in school going children aged 5 – 17 years in selected schools, using echocardiograph and to analyze the factors associated Rheumatic heart disease in the study population**. METHODS:** The current study was a school based Cross sectional study of 7137 school children aged 5 to 17 years from 3 randomly selected urban schools. Students suspected of having rheumatic fever or RHD in the past or currently by history and clinical examination were subjected to, 12 lead ECG, Echo cardiography. **RESULTS:** The overall prevalence of RHD was 0.34% (95% CI 0.23%to 0.50%). Previously undiagnosed proportion of RHD was 66.67%. The prevalence was highest in 8 to 10-year-old children (0.82%) and girls had higher prevalence, compared to boys (0.46% in girls compared to 0.23% in boys). There was a gradually declining trend in proportion of cases with increasing socioeconomic score. Mitral valve alone was involved in 75% of the affected children. Isolated mitral regurgitation was the most common lesion seen in 37.5% of the subjects. **COCNLUSISON:** The undiagnosed burden of RHD is very high in Indian school children. Poor socio economic and housing conditions are associated with higher prevalence of RHD. Mitral valve was the most common valve involved.

Key words: Rheumatic heart disease, prevalence, School children, screening, Echocardiography

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1. INTRODUCTION:

Rheumatic fever (RF) is caused by exaggerated autoimmune response of the host following group A streptococcalpharyngitis. Recurrent attacks of rheumatic fever can progress to rheumatic heart disease (RHD). RF & RHD continues be a significant public health problem in less privilegedregions of the world.[1-3]

It is currently estimated that at least 15.6million people have clinically recognized RHD with annual mortality rate between 3 and 12.5% [2–5], which accounts for 200000 to 250000 premature deaths. [4] According to the Vos, t., et al between 1990 to 2010 heart failure due to RHD increase in absolute numbers by 45.1% and documented 11.6% relative increase in YLDs per 100 000.[5]Recently published REMEDY study has also highlighted poor access of

RHD patients to surgical interventions, in advanced stages of disease.[6]

Many studies across the globe have highlighted the contribution of rheumatic heart disease towards maternal mortality and adverse neonatal outcomes, especially in low and middle income countries. [7-10.] This can be attributable to the fact that RHD is asymptomatic in the initial periods and manifests with symptoms only after significant hemodynamic compromise has resulted from the underlying valvar damage. In majority of the females, it is during the pregnancy, that the RHD becomes symptomatic and puts both the mother and neonate at risk for adverse consequences. given the progressive nature of RHD in the absence of secondary prophylaxis, surgery is currently the main remedy for preventing [3]

Various screening strategies have been proposed and implemented across the globe, for early detection of RHD. Even though majority of these strategies involve screening of School children, the criteria and tools used for detection are quite heterogeneous. Considering low sensitivity of clinical methods, echocardiography based screening is being strongly recommended by many recent guidelines. [1,3]Timely installation of secondary antibiotic prophylaxis may prevent progression of subclinical lesions to severe valvular damage and heart failure mediated by cumulative exposure to streptococcal antigens.[1]

Considering the importance of periodic surveys in countries where organized screening programmes at national or regional level are not in place, the current study has been planned to assess the prevalence and clinical profile of Rheumatic heart disease (RHD) in school going children aged 5 – 17 years in selected schools, using echocardiograph and to analyze the factors associated Rheumatic heart disease in the study population

2. METHODS:

2.1Study design and study setting: The current study was a school based Cross sectional study conducted in urban locality of Chidambaram town in Cuddalore district of Tamilnadu in South India.

2.2 Study period: The data collection for the study was done between November 2005 and October 2006.

2.3 Study population: The study has included School Children in the age group of 5 -17 Years.

2.3 Sample size: All the studies about Rheumatic heart disease used the sample size whichranged from 500-2,25,000 students. The reported frequency of Rheumatic heart disease in the studies mentioned was in the range of 1 – 5.4 / 1,000 children. In order to increase the accuracy of the estimate, total strength of all these schools was included in the sample. On any day the average number of absentees on the previous year was less than ten percent. The absentees (except long absentees) were covered during subsequent visits of the investigator. So the sample size was adequate even after adjusting for the absentees.

2.5Sampling method: The Chidambaram municipality area is about 4Sq. Km. The total number of schools in Chidambaram Taluk is 10 schools. Due to difficulty in getting permission, only three schools were randomly selected from the list of schools located in the Chidambaram municipal Town Area. In the randomly selected three schools, one is co-education school and one school is exclusively for boys and other one is exclusively for girls. Total number of students in all the three schools enrolled were Seven thousand Two hundred and fifteen students as per register available in the school for the year 2006

2.6Operational definitions:

- **Rheumatic fever: T**hose patients who fulfilled revised jones criteria at the time of screening were considered as having rheumatic fever.(Reference)
- **Rheumatic hear8disease: T**hose who were having clinical and echo cardiographic evidence of valvular involvement were considered as rheumatic heart disease.
- **Arthralgia: I**t is subjective pain which is a minor manifestation of rheumatic fever.
- **Rheumatic arthritis: I**t is migratory poly arthritis with affected joints showing redness, warmth, swelling, pain and limitation of movements.
- **Chorea:** abnormal, purposeless, involuntary movements of the arms and legs.
- **Erythema marginatum: N**on-pruritic, erythematous rash with raised margins and

central clearing on the trunk and proximal limbs but never on face.

- **subcutaneous nodule:** firm, non – tender nodule appearing over the extensor surface of the elbows, knees, ankle, knuckles, sclap and spinous processes.

2.7Ethical and administrative approval: Necessary Permission was obtained from the district school authorities and local authorities to conduct the study. The study was approved institutional human ethics committee. Informed written consent was obtained from the parents and ascent form was obtained from the students.

2.8Data collection tools: A structured questionnaire, prepared and validated by pre and pilot testing was used to capture all the relevant sociodemographic data. Since the parental income details could not be obtained the students, father,s occupation was noted. The socio-economic score was calculated by giving scores to father's occupation (coolie-1, clerical / salaried-2, agriculture-3, business-4), ownership of house (own-1, rental-2), and type of house (hut-1, katcha-2, pucca-3). Certain modifications were done in the questionnaire after pretesting.

2.9Study procedure: All the students were interviewed by the investigators to collect the socio demographic and relevant clinical data. Necessary enquiries were made from school teachers and parents, if the students were not able to provide necessary information. All the students were examined clinically by the investigating medical officers, with special emphasis on cardiovascular examination and general examination

Students suspected of having rheumatic fever or RHD in the past or currently byhistory and clinical examination were subjected to, 12 lead ECG, Echo cardiograph and other further investigations at Department of cardiology, Raja Muthiah Medical College and Hospital (RMMCH). In confirmed cases, students and parents were given moral support and advised them to carry on penicillin prophylaxis 1.2 mega units every three weeks for the period suggested by the expert and to get regular follow up. Towards the end of this study, teachers of all the schools were given proper orientation to identify heart disease among children in future and referring them to hospitals for confirmation of the disease.

2.10Statistical analysis: The prevalence of the disease was estimated as number of cases per 100 populations and it's 95% Confidence intervals are presented. The difference in the proportion disease was compared across the age groups and genders, using chi square test. The frequency of the disease in various categories of explanatory factors and the clinical profile of cases was presented as frequency and proportions. IBM SPSS statistical software version 21 was used for statistical analysis.

3.RESULTS:

A total of 7137 children were included in the final analysis. The highest proportion of children was between 14 to 16 years, followed by 11 to 13 years. Boys constituted 54.66% of the study subjects and girls constituted the remaining 45.34%. Only .9% of study population had family size < 3. In 84.5% of children, the family size was 4 to 5 and in 10.6% of participants, the family size was 6 and above. The most common paternal occupation in the study was clerical or salaried employee (35.56%). The proportion of children, whose father was collie were 28.96% and almost equal proportion of fathers were farmers. About 80% of children were lining in kutcha houses and the proportion of subjects, living in semi pukka and pukka houses were 7.8% and 12.2% respectively. The socio economic score was ≤ 5 in 37.82% of the subjects, 6-7 in 57.66% of the subjects and in only 5.41% of the subjects, it was ≥ 8.

Table 1: Overall prevalence and undiagnosed burden of RHD in study group.

Parameter	Number	Proportions (95% CI)
Overall prevalence (N=7137)	24	0.34% (0.23%to 0.50%)
• Newly detected	16	66.67%
• Previously diagnosed	8	33.33%

The overall prevalence of rheumatic heart disease in the study population was 0.34% (95% CI 0.23%to

Table 2: Age and gender wise prevalence of RHD in study group

Age in Years	Boys			Girls			Total		
	Number of Students Examined	Number of RHD cases	Age specific prevalence (%)	Number of Students Examined	Number of RHD cases	Age specific prevalence (%)	Number of Students Examined	Number of cases Diagnosed	Age specific prevalence of RHD (%)
5 – 7	399	0	-	251	2	0.8	650	2	0.31
8 – 10	622	4	0.64	471	5	1.06	1093	9	0.82
11 – 13	1395	3	0.22	1264	8	0.63	2659	11	0.41
14 – 16	1451	2	0.14	1228	0	-	2679	2	0.07
17 and above	34	0	-	22	0	-	56	0	-
Total	3901	9	0.23	3236	15	0.46	7137	24	0.34

0.50%). Out the total RHD cases only 33.3% were already diagnosed, but the remaining 66.67% of the cases were undiagnosed cases of RHD. (Table 1)

Table 3: Summary of socio-demographic factors among RHD patients in study population (N=24)

Sociodemographic factors	Number of cases	Percentage
Father's Occupation		
Coolie	12	50
Clerical/Salaried	6	25
Agriculture	5	20.8
Business	1	4.2
Socio economic score		
≤ 5	15	62.5
06-Jul	8	33.3
≥ 8	1	4.16
Type of house		
Hut	3	
Katcha	20	
Pucca	1	

The overall prevalence was highest in 8 to 10 year old children (0.82%), followed by 11 to 13 year children (0.41) and 5 to 7 year olds (0.31%). Lowest prevalence was seen in 14 to 16-year-old children (0.07%), whereas none of the children aged 17 years and above had RHD. When analyzed individually, girls had higher prevalence, compared to boys (0.46% in girls compared to 0.23% in boys). In both genders highest prevalence was seen in 8 to 10 year old children, followed by 11 to 13 years.(Table 2)

Among the cases highest proportion (50%) were found in children whose father was working as coolie, followed by farmers (20.8%). The proportion of cases among children of salaried employees and business people were less. There was a gradually declining trend in proportion of cases with increasing socioeconomic score. In people with socio economic score of < 5 62.5% of cases were reported. The proportion of cases among people with socio economic score between 6 to was 33.3% and this proportion was lowest (4.16%) in people with socioeconomic score of ≥ 8. (table 3)

Analysis of symptom profile had shown, majority of the affected children reporting joint pain plus dyspnea (29.2%). Combination of dyspnea and chest pain were present in 20.8% of the subjects and 20.3% of the affected children reported combination of all the three (joint pains plus dyspnea plus chest pain).None of the children in study group have reported other symptoms like chorea. Mitral valve alone was involved in 75% of the affected children. Mitral and aortic valves were involved in 20.8% of cases and in the remaining 4.2% of cases three valves i.e mitral, aortic and tricuspid valves were involved.

Table 4: Proportion of signs and symptoms and pattern of valvular involvement (N=24)

Character	Number of Cases	Percentage (%)
Signs and symptoms		
Joint Pain + Dyspnoea	7	29.2
Dyspnoea + Chest Pain	5	20.8
Chest Pain + Joint Pain	4	16.7
Fever + Joint Pain	2	8.3
Fever + Joint Pain	1	4.2
Dyspnea + Chest Pain + Joint Pain	5	20.3
Valve involvement		
Mitral Valve Alone	18	75
Mitral valve + Aortic Valve	5	20.8
Mitral + Aortic + Tricuspid Valves	1	4.2
Type of valvular involvement		
MS	4	16.7
MR	9	37.5
MS + MR	1	4.17
MR + AR	4	16.7
MR +MVPS	2	8.3
MS + PAH	2	8.3
MR + AR + TR + PAH	1	4.17
MR + AR + PAH	1	4.17

*MS: Mitral Stenosis, MR: Mitral regurgitation, AR: aortic regurgitation, TR: Tricuspid regurgitation, PAH: pulmonary Artery hypertension, MVPS: Mitral valve prolapsed syndrome.

The nature of valvular involvement has shown that majority of the cases having regurgitating valvular deformity. Isolated mitral regurgitation was the most common lesion seen in 37.5% of the subjects. Isolated mitral stenosis was seen in 16.7% of the cases. The other children had various combinations of lesions involving single or multiple valves. About 4 children had Pulmonary artery hypertension. (Table4)

4. DISCUSSION

Rheumatic heart disease is reported to be one of the important public health problems in under developed and developing nations. [5,11]Considering the subclinical nature of the disease and serious nature of adverse health and economic consequences resulting from valvular damage due to repeated episodes of rheumatic fever many studies have recommended regular screening of school children for RHD. [8,9,12,13]Early diagnosis of RHD and initiation of secondary prophylaxis are proved to successfully prevent the subsequent attacks of rheumatic fever and resulting valvular heart disease.[14-16]

In countries and regions, where national or sub national level organized screening programs are not in place, periodic surveys provide important insights into the burden of this important disease.[17, 18] The current study is one such attempt to document the prevalence of RHD in school children in the state of tamilnadu in south India.

In the current study, the overall prevalence of rheumatic heart disease in the study population was 0.34% (95% CI 0.23%to 0.50%). Out the total RHD cases only 33.3% were already diagnosed, but the remaining 66.67% of the cases were undiagnosed cases of RHD.

In a study by, Rama Kumari, N., et al. the echocardiographic prevalence of RHD was 0.76%, but clinical prevalence was only 0.07% and authors have emphasized the importance of Echo citing many fold increase in number of cases diagnosed compared to clinical examination alone.[19]Kumar, R., et al.[20] in their 8 year prospective study from north India have documented a prevalence of 0.1% (0.08 to 0.13) RF/RHD in 5 to 14 year old school children and about two-thirds of them were already enrolled in the hospital-based RF/RHD registries. The undiagnosed burden in this study is lower than the current study, as there was an organized RF/RHD surveillance and registration programme was in place. Bhaya, M., et al[21] in 2010 have reported a prevalence of 0.51% (0.38% to 0.64%) among 6 to 15 year old school children, by echocardiographic screening. This study also emphasized the need of echocardiographic screening, as they could diagnose

only one case clinically. Sriharibabu, M., et al, [22] who have documented an age-standardized RHD prevalence rate of 0.97% among, adults attending primary health centers in south India, have highlighted the fact that, more than two-thirds had no past history of RHD or penicillin prophylaxis.Kumar, P., et al. reported a prevalence of 0.334% in Rajasthan school children.[23]Many of these studies have emphasized continuing high burden of RHD and need for regular screening programmes. But a recent study by Nair, B., et al.in 2015have reported a clinical prevalence of 0.24% and echocardiographic prevalence of 0.58%, in one of the largest school survey in Kerala and opined that RHD burden is declining in the community.[2]Negi, P. C.,et al reported five-fold decline in burden of RF/RHD revealed 0.298% in 1992-93 to 0.059% in 2007-2008. [24] But even these studies emphasized huge undiagnosed burden of RHD.

In the current study, girls had higher prevalence, compared to boys (0.46% vs0.23%). In both genders highest prevalence was seen in 8 to 10-year-old children. Among the cases highest proportion (50%) were found in children whose father was working as coolie. There was a gradually declining trend in proportion of cases with increasing socioeconomic score. According to Saxena, A., et al, older age, female sex and government funded school student, which is a surrogate measure of lower socioeconomic status were found to be independent predictors of RHD[25]Periwal, K. L., et al.have observed equal prevalence of RHD in both genders, but higher prevalence in poor SES children in their study.[26]Kumar, P., et al. Maximum prevalence of RHD was in low socioeconomic group.[23]Negi, P. C., et al[24)] have attributed declining trend of RHD to improvement in socio economic conditions. So it can be concluded that there are disagreements in association between age group, gender and RHD between the studies, but all the studies have uniformly reported higher prevalence of RHD in poor socio economic status children.

In the current study joint pain plus dyspnea (29.2%) was the most common presenting symptom. None of the children in study group have reported other symptoms like chorea. Mitral valve alone was involved in 75% of the affected children. Mitral and aortic valves were involved in 20.8% of cases and in the remaining 4.2% of cases three valves i.e mitral, aortic and tricuspid valves were involved. The nature of valvular involvement has shown that majority of the cases having regurgitating valvular deformity. Isolated mitral regurgitation was the most common lesion seen in 37.5% of the subjects. Isolated mitral stenosis was seen in 16.7% of the cases. In study by Kumar, P., et al. the most common valvular lesions reported were isolated mitral stenosis, followed by combined mitral stenosis and mitral regurgitation.[23]Manjunath, C. N., et al. have reported the order of involvement of valves was mitral (60.2%), followed by aortic, tricuspid and pulmonary valves. Mitral stenosis, predominantly seen in females, was almost exclusively of rheumatic etiology (97.4%). The predominant form of isolated MR was rheumatic (41.1%).[27] many studies by Bhardwaj, R., et al.[28]Gupta, I., et al.[29]Zuhlke, L., et al.[18] have reported predominant mitral valvular involvement in RHD. A study by Ravisha,M. S., et al. [30] has reported mitral regurgitation to be predominant lesion in children with RHD. Most of the studies have reported mitral stenosis to be most common lesion in contrary to the current study findings.

In summary the current study findings have highlieted huge undiagnosed burden of RHD in school children using echocardiographic screening, as in many other previous studies conducted across the country. The study results emphasize the need of an organized screening and surveillance mechanism to address the issue. With the advent of newer portable echocardiographic equipment, any authors like Saxena, A. et al have recommended point of care echocardiographic screening of school children.[31] A study conducted in India by Kumar, R., et al. have reported high compliance rate with secondary prophylaxis of diagnosed RF/RHD subjects and have concluded that it is possible to successfully apply a secondary prevention programme for control of RF/RHD by using existing health infrastructure.[32]

5.Conclusion: The prevalence of rheumatic heart disease is high in school children. Girls have reported higher prevalence than boys and peak prevalence was observed between 8 to 10 years of age

Huge proportion (Almost two thirds) of the RHD burden was undiagnosed and were not on any prophylaxis

Poor socio economic status, poor housing conditions were associated with higher prevalence of RHD

Mitral valve was the most common valve involved and majority of the lesions were regurgitate in nature.

6. Recommendations:

Considering the high burden of undiagnosed RHD, regular ongoing screening or surveillance programmes targeting the school children is the need of the hour

Considering poor validity and diagnostic yield of clinical examination, the screening programmes should be based on echocardiography evaluation

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Original Research Article

Risk factors for Non Communicable Diseases among people aged above 30 years in an urban slum of Guntur city - A cross sectional Study.

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Abstract

Background: Non-communicable diseases (NCDs) are the leading cause of death and have many modifiable risk factors. **Objectives:** To study the risk factors for NCDs among the population aged 30 and above in Urban field practice area of Katuri Medical College and Hospital, Guntur. **Methods:** A cross sectional study with sample size of 400 was conducted in an urban slum of Guntur city in 2014. Households were selected by systemic random sampling. One person from each house aged above 30yrs was interviewed. A modified WHO-STEPS questionnaire was used with risk factors of tobacco, alcohol use, physical activity, diet and blood pressure. **Results:** High prevalence of smoking (30.25%), alcoholics (24.5%), known hypertensives 31.75%) was observed and over all prevalence of hypertension was 65.7%. The proportion of population with BMI > 25 was 53% [females (63.5%) > males (44.2%). Percentage of vegetable and fruit intake i.e < 5times / week were 37.25% and 82.75% .Out of known hypertensives 86.6 % reported to be on treatment but only 21.8% of those were having the blood pressure under control .Physical activity 57.25 % were inactive. **Conclusion and recommendations:** NCD risk factors are high in this study population. Hence detailed NCD studies to find out the reason and plan for suitable intervention are recommended.

Key Words: Hypertension, NCD, Risk factors, STEPS

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Introduction

Non-communicable diseases (NCDs), also known as chronic diseases, are not transmitted from person to person. They are of long duration and generally slow progression. The four main types of NCDs are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes.[1] NCDs are the leading causes of death globally, killing more people each year than all other causes combined. Contrary to popular opinion, available data demonstrate that nearly 80% of NCD deaths occur in low- and middle-income countries. Out of 57 million deaths that occurred globally in 2008; 36 million were due to NCDs.[2]Every year, roughly 5.8 million Indians die from heart and lung diseases, stroke, cancer and diabetes. In other words,

1 in 4 Indians risks dying from an NCD before they reach the age of 70.[3]

A vision of a world free of the avoidable burden of Non Communicable Diseases, WHO's Global action plan for the prevention and control of NCDs 2013-2020 was formulated.[4]To accelerate national efforts to address NCDs, in 2013 the World Health Assembly adopted a comprehensive global monitoring framework with 25 indicators and nine voluntary global targets for 2025. In that one of the objectives is to reduce modifiable risk factors.[5]India is the first country to develop specific national targets and indicators aimed at reducing the number of global premature deaths from NCDs by 25% by 2025.[3]

Common, modifiable risk factors underlie the major chronic diseases. These risk factors explain the vast majority of chronic disease deaths at all ages, in men and women, and in all parts of the world.[6] The rise of NCDs has been driven by primarily four major risk factors: tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets. The epidemic of NCDs poses devastating health consequences for individuals, families and communities, and threatens to overwhelm health systems. The socioeconomic costs associated with NCDs make the prevention and control of these diseases a major development imperative for the 21st century.[7] Local level strategies are also planned through engaging leaders to influence polices, strengthen health systems, modify unhealthy behaviour, encourage research, track trends and monitor the progress of NCD control.[8]

Over the past decade, the burden of NCDs increased as a result of changes in diet and life style occurred due to industrialization, urbanization, economic development and globalization.[9] The diseases have their affect at individual household and health systems hence labelled as chronic emergency.[6] These have had significant impact on health and nutritional status of population particularly in developing countries like India. The growing burden of NCDs represents major challenge to health development in India and accurate data are vital to decrease the mortality and morbidity due to NCDs.[10]

Though many studies conducted in identifying risk factors for NCDs, we felt it would be an opportunity to identify the risks in this locality of different lifestyles and plan for specific targeted interventions. In this back ground, the study aims to find out the risk factors for NCDs among the population aged 30 and above in Urban field practice area of Katuri Medical College and Hospital.

Material and Methods

The study was a community based cross sectional study in an urban slum population. It was conducted in Srinivasa Rao Thota, a field practice area of Katuri Medical College and Hospital during September to November 2014.

The total number of households in UHC area (as per the intensified pulse polio immunization survey, 2012) was 3786. We surveyed 10% of total households with the estimated sample size of 400. Households were selected by systemic random sampling. One from each house age above 30yrs were interviewed. If more than one eligible participant in the household, one was selected randomly for the study.

The WHO STEP wise approach to Surveillance (STEPS) is a simple, standardized method for collecting, analysing and disseminating data which was developed to Risk factors and Stroke. STEP1: collection of information on socio demographic variables and behavioural risk factors, i.e. tobacco use, alcohol use, physical inactivity and diet factors.STEP2: obtaining clinical measurements like Weight, Height, BP using standardized protocols and instruments. STEP 3: biochemical measurement like total cholesterol, blood glucose and triglycerides. [11] We used STEP wise approach to risk factor surveillance. We concentrated only selected risk factors. The questionnaire was developed in the department after making necessary modification and it was field-pre tested in our RHC field practice area.

In STEP 1, we have collected Information on socio demographic variables and behavioural NCDs risk factors and STEP 2 Height, Weight, BP were

measured using standardized instruments and protocols.[11]

Operational definition for the study[11]:

Any forms of tobacco use or alcohol use were considered as a risk factor for NCDs. Individuals consuming less than 5 servings of fruits/vegetables per week were considered as at risk group. Overweight is defined based on BMI. Hypertension is defined as systolic BP of > 140 mm Hg or diastolic BP of > 90mm Hg or the use of antihypertensive drugs. Physical activity was classified into 3 groups. 1) Inactive when the individual was inactive at work, transport and leisure time. 2) Vigorous when the individual had vigorous activity at work, transport and leisure time.3) All other individuals were classified as having moderate activity.

The data were entered in Microsoft excel and analysed.

Results

The study comprises responses and measurement from 400 (Males: 210; Females: 190) with mean age of 48.12 years. Out of study participants 36.50% were upper castes, 25.50% backward community, 21.30% Muslims and 16.8% Scheduled Castes (SCs) and Scheduled Tribes (STs) and 61.50% were Upper lower socio economic status, 26.5%Lower and 12% lower middle class.

Smoking / tobacco usage:

Among study participants 121(30.25%) were smokers or tobacco users. Mean age of starting smoking is 26.2±8.4 years.

Alcohol consumption: Alcohol users were 98(24.5%). Mean age of starting drinking alcohol was 26.17±9.5 years.

Among alcohol users 15.3% (15) consumed more than 5 days per week, 22.4 %(22) consumed 1-4 days per week, 18.3% (18) consumed 1-3 days per month and 43.8 %(43) were occasional drinkers.

Figure 1. Usage of tobacco and smoking of study participants (n=400)

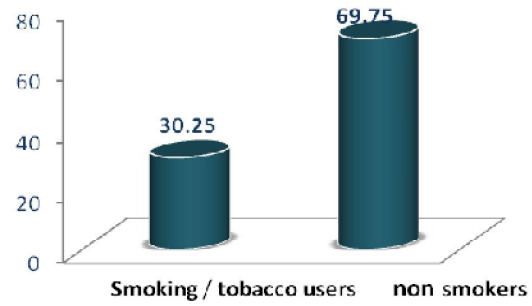
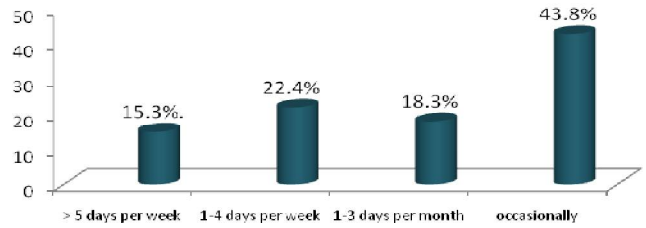


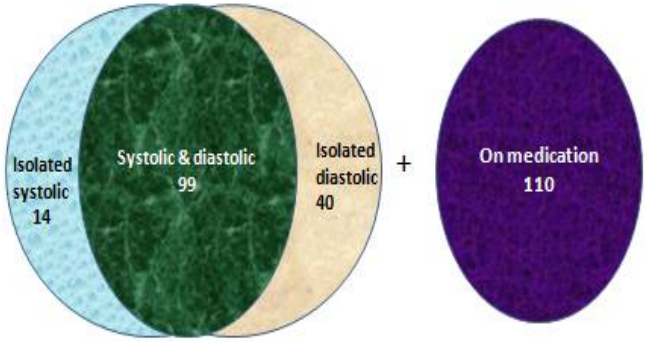
Figure 2. Frequency of Alcohol consumption of study participants (n=400)



Blood pressure:

Prevalence of known hypertensives in the study was 31.75% and 87 %(110) of known hypertensives were on hypertensive drugs.

Figure 3. Hypertension of study participants (n=263)



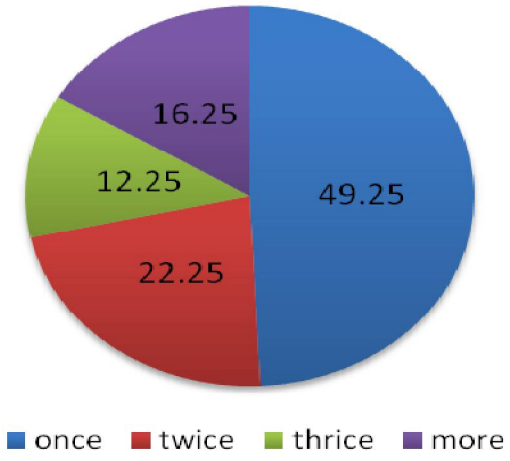
Among 263 hypertensives identified in our study, 14 had isolated systolic hypertension, 40 isolated diastolic hypertension and 99 had both systolic and diastolic hypertension.

Table1. Comparison of obesity among males and females among study participants (n=400)

Sex/Obesity	Male	%	Female	%	P Value
Underweight	05	2.38	04	2.11	$\chi 2$ = 14.7; df=3; P<0.05 (Significant)
Normal	112	53.33	67	35.26	
Overweight	73	34.76	86	45.26	
Obese	20	9.52	33	17.37	
Total	210	100.0	190	100.0	

In our study, 39.75 % were identified as overweight, 13.25% as obese and 2.25% as underweight. Obesity and overweight were higher in females with 17.3%, 45.2% respectively and the difference was statistically significant (p<0.05)

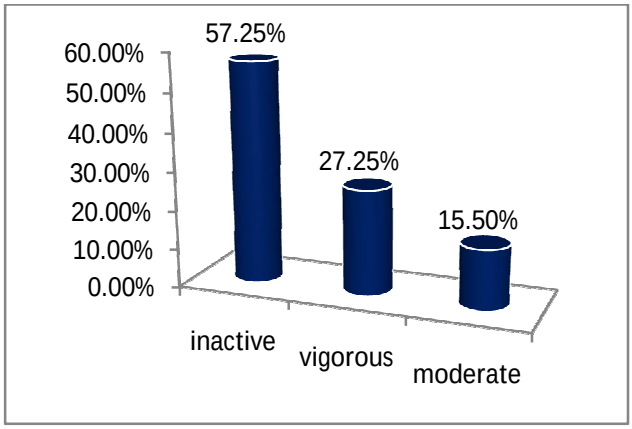
Figure 4. Frequency of pickle consumption per week (n=400)



Frequency of vegetable and fruit intake (<5 times) per week were 37.25% and 82.75% respectively and frequency of outside (other than home) food habit was very high (76.75%). Pickle consumption in most of the days of the week taken by 16%, thrice per week 12%, twice per week 22% and 50% only once in a week.

Most of the study participants were inactive 57.25 %, 27.25% were doing vigorous activity and 15.5% moderate activity. When enquired about their mode of transport, 57.75% were using auto/bus, 26.25% bike/car, 8.25% bi-cycle and 7.75% walking.

Figure 6.Type of work among study participants (n-400)



Discussion

Guntur city has been fast developing as the capital city of Andhra Pradesh state headquarters is planned very nearby. Andhra Pradesh offers a model for progressive Economic Growth and Development for the developing nations.[12] So urbanization has been growing in the city. Guntur is known for Chillies and Tobacco production and availability of fish food is also high. So the risk factor of NCD has got its importance. Also the findings can supplement findings of various STEPS survey conducted in India.

The major findings of the study include high prevalence of smoking (30.25%), alcoholics (24.5%), known hypertensive (31.75%) and over all prevalence of hypertension was 65.7%. The proportion of population with BMI > 25 was 53% [females (63.5%) > males (44.2%). Percentage of vegetable and fruit intake per week were very low (37.25% -<5 times vegetables and 82.75 %-< 5 times fruits). Out of known hypertensives 86.6 % reported to be on treatment but only 21.8% of those were having the Blood Pressure under control. Physical activity 57.25 % was inactive. Most of the other studies conducted on non-communicable disease shows variable degree of risk factors.[13-19]

India has conducted a sub national STEPS survey in 6 centres in 2004 (Ballabargh, Chennai, Delhi, Dibrugarh, Nagpur, Trivandrum), and another STEPS survey including 7 states in 2007 (Andhra Pradesh, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Tamil Nadu, Uttarakhand).[14] Smokeless tobacco usage was 4-12% in Andhra Pradesh, Kerala and Tamil Nadu but high (32-48%) in other NCD survey in 2007. Also Alcohol intake was high (20%) in AP. But fruit consumption was less in Tamil Nadu. The mean time spent in recreational activities was low (4 minutes per day) in Andhra Pradesh and less than 31 minutes per day of cycling or walking. Blood pressure, BMI were also high in Andhra Pradesh than other sites.[15]

WHO estimates the 13.9% of tobacco smoking daily (2% females), 14% physical inactivity (17.3% females), 1.9% Obesity (2.45% Females), 27.1% Raised Cholesterol (28.3% Females), 32.5% raised blood pressure and 10% raised blood glucose in India.[16]

A study conducted at Nellore by Prabakaran J et al. resembles our study findings with regards to the fruit and vegetable intake, obesity and BMI.[17] But the prevalence of hypertension was high in this study. The detailed study of hypertension can be planned in Guntur to find out the reasons.

Out of known hypertensives 86.6 % reported to be on treatment but only 21.8% of those were having the Blood Pressure under control. So treatment behavior of hypertensive should be strongly reemphasized. Though the Government of India (GoI) launched the National Programme for prevention and control of cancer, Diabetes, Cardio Vascular Diseases and Stroke (NPCDCS) in 2010 merging the cancer control programme and National Programme for Prevention and Control of Diabetes, Cardio vascular diseases and Stroke in 2010[18], it is not implemented fully country wide. The monitoring framework with 21 indicators and 10 targets (additionally indoor air pollution) was approved by National Health Mission of India.[3]

All risk factors of NCDs mentioned in WHO-STEPS was not done. It was one of the limitations of the study due to resource constraints. Other limitation of the study was the less sample size to extrapolate the findings to the whole city. But this study helps us to take appropriate actions at our end and shared the findings to concerned authorities.

The study was beneficial to the respondents and their family as we conducted a health education session after conducting the survey and linked them to appropriate health center for further diagnosis and treatment. Hypertensive patients were referred to our health center for medical management.

Conclusion & recommendations: All the above factors identified in the study clearly reflect the extent of NCDs and their risk factors in the urban slums of Guntur. NCD risk factors are high in this study population. Hence detailed NCD studies to find out the reason and plan for suitable intervention are recommended. Health education regarding hazards of smoking and alcoholism should be widely spread and reinforced. Periodic screening of individuals aged > 30 yrs for early detection of HTN and ensuring for adequate treatment and compliance is essential to control HTN. The importance of maintaining BMI within normal limits by increasing physical activity and fruit intake, decreasing outside food (Unhealthy) consumption must be emphasized.

Conflicts of Interest: Nil

Source of funding: None

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Original Research Article

Patients' Satisfaction and Quality of Emergency Care Services in a Tertiary Care Hospital in Chennai

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Abstract

Background: The patients' choice of taking treatment at hospitals based on its quality of services has been portrayed as inevitable component **Objectives:** To analyze socio-economic, demographic profile of the patients and their satisfactions over the quality of services of emergency care department in Government General Hospital in Chennai. **Materials and methods:** The study was conducted among the patients visiting the emergency medical services GGH, Chennai. An interview schedule was used to collect information on their demographic profile, Dimensions of quality and patient satisfaction. **Results:** The sample size included 200 patients. Most of them (90%) visited hospital on their own. 68% stated it took nearly 10 minutes to get their details registered at registration counter. Over three-fourth of them (76%) expressed they needed to wait nearly 5-20 minutes prior to have consultation with doctors and physical examination. An outright majority of them (92.5%) felt they were comfortable with the provision available in the waiting area. Nearly everyone expressed that the doctors had spent nearly 20 minutes with every one of them. Over half of them (57.5%) felt privacy was not assured and maintained to them. 66% and 72% reported that the doctors were not adequately listening to their problems and did not wash their hands after having done physical examinations. Over two-fifth of them felt they were not involved in the process of decision making of treatment Most of the patients (90%) felt they were apparently assured of confidentiality. Over half of them (56%) ascertained that almost every nurse who was on duty took care of patients well. Over three-fourth of them (75.5%) rated the overall services of emergency care as good. Everyone (100%) stated that they would visit the hospital again and recommend others to utilize the services of the government hospital. **Conclusions:** The level of quality and patient satisfaction is mildly deficient in few areas and needs improvement for the achievement of optimal health of the people. The use of such a tool is recommended in order to improve the satisfaction levels of patients visiting such facilities.

Key words: Patients' Satisfaction, Quality, Emergency Care Services.

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Introduction:

After the emergence of globalization and liberalization polices, developing countries like India plays imperative role in catering to the health needs of all sections of people. With mushrooming of urbanization and living standard of the people, their level of knowledge and expectation over health care services considerably increases. The patients' choice of taking treatment at hospitals based on its quality of services has been portrayed as inevitable component. [(1)] The patients encountering severe

problems due to accidents, catastrophe, sudden illness, suicide and poisoning are provided with high quality of treatment in order to save their lives and prevent any loss of organs and restore normal life is considered emergency care. Emergency care department and its services had emerged in 1963 in all government and private hospitals across India. It was an outcome of the Central Health Council that had urged all the state government to initiate the process. [(2)] The repercussion of injuries leads to death of more than 5.8 million people every year amounting to 10% of world's death. Over 90% of the death relating to accidents and injuries happen in low and middle income groups owing to the limited and tardy emergency care services in hospitals. [(3)] In India, nearly 30 to 50 people tend to seek emergency care services, but they are to suffer owing to lack of quality of services in hospitals. [(4)] Pallavi S U et al [(4)] pointed out in the study that a standardized system in emergency care services could bring down mortality among patients by 15%-20% and medically preventable death by 50% in high income countries. In developing countries like India, the emergency care services have not been well organized and developed like developed countries. Some hospitals in Karnataka do not even have emergency care services and dedicated & designated teams to handle patients coming to hospital with life threatening situations. Nonetheless, these circumstances have been managed with available medical teams. The staffs working at emergency care services in many hospitals across country have not been adequately trained to handle emergency situation and inadequate staffing forces to refer cases elsewhere. [(5)] Moreover, treating patients differently, administration of conservative patterns to diagnose patients' illnesses, making unendorsed payments to the health care providers, breaching of confidentiality, dearth of patient privacy, lack of supply of medicines and infrastructure, poor nursing care are primary causes why patients seek services of private hospitals. During the traumatic circumstance, people prefer to avail the services of private vehicle to carry patients to hospital despite 108 ambulance services being available. [(6)] The vast challenges for the health care providers, especially the medical teams working at the emergency care services, are to make themselves more of client centered.[(7)] When the patients visit emergency care services, they come with an expectation of their ailments getting cured. When their expectations are fulfilled, they would become loyal patients to that particular hospital and even recommend others to utilize its services. This study has attempted to assess the patients' socio-economic profile and their satisfaction over the quality of services of emergency care department in Government General Hospital, Chennai. It had five components of services which included clinical care, admission procedure, reliability, trust, and infrastructure, on which patients satisfactions were assessed. It has facilitated to identify the existing gaps prevailing in the department and fulfill those gaps to improve the quality of its services.

Materials and Methods:

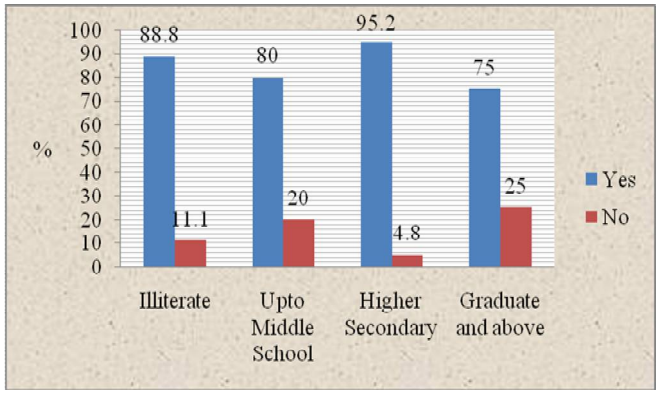
The study was carried out in the hospital setting adopting cross sectional study design. The intention of the study was to collect information on the services provided to the patients at the emergency care department of the government General Hospital, which is one of the premier health institutions in the country with a total capacity of housing 2100 inpatients at a time. On an average 200-400 patients utilized its services every day. It was started in 1664. The most ancient teaching Institute in India, the Madras Medical College was started in 1835. The Casualty in Government General Hospital is the most modern, well equipped situated in the ground floor of Tower block – II with footsteps and ramp. The Ambulance vehicle directly can go to the casualty entrance easily which is working 24 x 7 days all over the year. All types of cases are seen on Emergency basis. Cases which needed Hospitalization are admitted, others are treated as outpatients. Convenient sampling technique was used to recruit 200 respondents with their willingness, to participate in the study from the unknown population. The instrument used to elicit information from them was self constructed semi structured interview schedule. It was diversified into three domains that encompassed socio demographic profile, quality of service at emergency care and patients' satisfaction. The interviews with respondents were executed at the exit door, only after having availed services for their ailments. That too, the schedule was administered only after obtaining their informed consent for participating in

the study. The data collated were warily edited, coded, and entered into computer. It was then analyzed using SPSS software and tabulation were put up according to the study objectives. Statistical test like chi-square was used to find association between different variables.

Results:

The study population encompassed 64.5% males and 35.5% females. As for age, 74% of the respondents, who belonged to the age group of 24-54, utilized maximum services of emergency care. Religion wise, the respondents (87%) belonged to Hindu, constituted a major proportion in the study population. Educationally, 82% were literates, and 37% studied up to middle school level. Nevertheless, there was no statistically significant association between education of the patients and their responses over cleanliness of causality room. (Table: 1)74.5% married couple were the highest to utilize the services of emergency care. There was a significant association between the unemployed people (24%) and the people working in private sector (24%) in the percentages, however they have slightly differed from house wives, who constituted only 22%. It is to note that only 6.5% of the respondents used ambulance services during emergency despite ambulance services being available in the state. 68% expressed that the time consumption for registering their details at registration counter was nearly 10 minutes for their cases. 66% rated the queue system being followed in the government hospital as fair. 76% stated they needed to wait at least 5-20 minutes before physical and medical examinations took place. However, 92.5% felt they were comfortable with the provision available in the waiting area. As for treatment consultation, 98% expressed that the doctors had spent nearly 20 minutes with every patient. 68% reported that adequate information on their illnesses was given to them. (Figure: 1)The cleanliness of treatment room in the causality was fairly maintained, 76% said. Regarding skills of the doctors, 44% pointed out the doctors were able to clarify the queries pertaining to their illnesses and treatments. 57.5% felt privacy was not assured and maintained to them, while they were on treatment consultations, however, 90% of them felt they were apparently assured of confidentiality. (Table: 2)In contrast, 66% and 72% reported that the doctors were not adequately listening to their problems and did not wash their hands after having done physical examinations. Over two-fifth of them felt they were not involved in the process of decision making of treatment. A vast majority of them (78%) stated it was first time for them visiting causality at government hospital. With respect to the services of nurses, 56% ascertained that almost every nurse is on duty serving the patients and 49% corroborated that they were informed of confidentiality and many of them (67.5%) attributed that the nurses did not talk to them. On the whole, many of the respondents (59.5%) felt happy over the services rendered to them, while they were in causality. Every respondent (100%) stated that they would visit the hospital again and recommend others to utilize the services of the government hospital.

Figure: 1 Education of the Patients by competence of Doctors in answering important questions over illnesses



Discussion:

The crux of patients' satisfaction on the services of emergency care department in any hospitals rely upon how well one is treated when s/he is under treatment, how well the information they receive from health care provider on what is going to happen to them in future, and the amount of time the doctors spend with each patient, the amount of information the doctors share with the patients on their illnesses and treatment aspects, and how well nursing care is given to each patient, etc. This study has attempted to elicit information on the level of satisfaction of the patients whoever had come to take treatment. Its inferences would emerge as imperative factors that influence satisfaction level of the

Table: 1 Education and their responses over Cleanliness of Causality Room

Education	Cleanliness of the casualty room			Total	Chi-square [P<0.05]
	Very clean	Fairly clean	Not very clean		
Illiterate	8(22.2%)	28(77.8%)	0(0%)	36(100%)	16.068
Up to Middle school	12(13.3%)	70(77.8%)	8(8.9%)	90(100%)	
Up to Higher secondary level	8(19%)	26(61.9%)	8(19%)	42(100%)	
Graduation and above	0(0%)	28(87.5%)	4(12.5%)	32(100%)	
Total	28(14%)	152(76%)	20(10%)	200(100%)	

Table: 2 Education of the Patients and Their Confidence and Trust in the Doctors Treated Them

Education	Have confidence and Trust in the doctors treated		Total	Chi-square [P<0.05]
	Yes	No		
Illiterate	36(100%)	0(0%)	36(100%)	23.605
Up to Middle school	85(94.4%)	5(5.6%)	90(100%)	
Up to Higher secondary	42(100%)	0(.0%)	42(100%)	
Graduate and above	32(100%)	0(0%)	32(100%)	
Total	195(97.5%)	5(2.5%)	200(100%)	

patients and to bring positive changes in the emergency care department in government hospitals. It was alarming to note that there was a relationship between current and previous studies on most of the patients to have not used the Ambulance services of government in transporting the patients to hospitals. It was due to dearth of awareness among them and it is imperative to create awareness campaign among the people to use Ambulance services of government in traumatic situation. Regarding time spent at registration counter by patients, over two-third of them in the current study (68%) felt it took nearly 10 minutes for each one of them to get their details registered. In contrast, it was shown in the other study that many of them felt it took nearly 25 minutes for such work. Over vast majority of patients (84%) in the present study and nearly three-fifth of them (70%) in another study were satisfied with the doctors answering their queries over illnesses. [8] Nonetheless there was a likelihood similarity between two studies that it took nearly 20 minutes for each patient for his/her physical examination. A vast majority of the patients (82.5%) in the current study stated that the doctors engaged in providing treatment consultation to the patients, usually spent less than 10 minutes with them. Similarly, it was highlighted in the previous study that their consultations timing with patients in many government hospitals were not sufficient. [9] It is suggested that when patients are in waiting area prior to their physical examination or treatment consultation with doctors, health education on both communicable and non communicable diseases can be provided to them. It can enhance their decision making power on the health aspects and lead healthy life style. [6] Many patients (67.5%) have articulated in the present study that the nurses in the emergency care did not talk in front of them, when they underwent treatment at hospital. The previous study conducted in western Tamilnadu showed that some of the patients expressed the nurses on duty in the hospital and emergency care services talked differently with them. [9] Nevertheless, these issues and challenges the patients facing with nurses in the government hospitals could be addressed through organizing orientation and training workshops to the nurses at regular intervals. As for overall satisfaction of the patients on the entire services of emergency care department, over two-third of them

who were illiterates and studied minimum of graduation level rated their service as good and similarly, an Iranian study showed that a vast majority of illiterates rated their professional services as good. However, there was no significant statistical association between their education and responses over the overall services of ECD in the present study. [10]

Conclusion:

It is evident from the study that every respondent participated was satisfied with the overall services rendered to them at the emergency care department. However, their satisfaction has differed in certain areas like cleanliness of causality room, interaction of nurses with patients and attention given to patients by doctors on duty and infrastructure of the department. These areas certainly require attention of services care providers to improve their service in a better way. Maintaining cleanliness, updating of knowledge and skill of health care providers, health education to patients, capacity building programs for doctors and nurses at regular intervals, and introduction of innovative technologies are important and proactive components that would facilitate health care providers to completely fulfill the health needs of the patients.

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Conflict of Interest:None

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