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Health problems prevailing among the female workers in a garment factory, Bengaluru

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Abstract
Background: Garment workers are susceptible to various health problems by virtue of their workplace and working conditions. The present study was conducted to assess the morbidity profile of female workers of garment factory in Bengaluru.
Methodology: A cross-sectional descriptive study was conducted among all the females working in the garment factory. An interview was conducted using a semi-structured pretested questionnaire. Clinical examination was done to measure height, weight. Visual acuity was tested using Snellen's chart. The data was compiled in Microsoft (MS) Excel worksheet and analyzed using SPSS.
Results: The mean age of the study participants was 30.33 ±7.06 years. Musculoskeletal problems were the most common problems present among 110(51.4%) study participants. 61.22% of the females worked in standing posture.
Conclusion: In the present study found that the most common problem was musculoskeletal disorders. Regular periodic medical examination would help in early diagnosis and treatment of morbidities among the workers.

Keywords: garment factory, musculoskeletal problems, females, morbidity

1. Introduction
Textile and clothing are considered as the oldest, largest and most global industries in the world and in India, it is also considered as the second largest employment sectors [1].
According to ILO estimates, at least 2 million deaths per year are accounted to occupational diseases and injuries [2]. Every occupation is associated with one or other ill affects on health [3]. One such occupational group, causing a wide range of co –morbid conditions are the garment industry. Garment workers are susceptible to various health problems by virtue of their workplace and working conditions [4].
The workers in the garment factories are mainly exposed to prolonged sitting, prolonged standing, highly repetitive work, lifting of heavy objects, working with their hands lifted to shoulder level or even higher, and working with their back twisted or bent forward, that have been shown to predict impaired work ability and enhance long-term sickness [5].
Workers with high physical work demands are well documented to be at elevated risk for impaired work ability, musculoskeletal problems, cardiovascular disease, long-term sickness absence, early retirement and all-cause mortality. Specifically, the workers with repetitive nature of work due to the physical demands are prone to get physical, psychological and nutritional health problems [6, 7]. The most common health hazards are respiratory problems, cardio vascular diseases, gastrointestinal diseases, gynecological diseases, and neurological, musculoskeletal and nutritional problems [1].
Approximately 60% of the population employed in the garment industry is women [1]. Today is an era of women who have diverse role to play in society. Often they handle two or more tasks simultaneously. They are therefore prone to suffer from work related diseases, which are further complicated by social, psychological and physiological issues. Roughly, 1 out of 300 female is suffering from some occupation related disease [8].
Studies have reported that women perform a dual role and often end with stress, which result in psychological related problems [1].They also struggle to combine their roles to look after their families. Women household workers have a double burden as there is greater demand for their skills as care-givers and service workers outside home [9].

Information on the existing morbidity pattern of the garments workers is essential to provide need based health care delivery to any population [10]. Hence the present study was conducted to assess the health problems among female workers of garment factory in Bengaluru

2. Objective

To assess the health problems prevailing among the female workers in a garment factory in a field practice area of a teaching hospital, Bengaluru.

3. Materials and Methods

- A cross-sectional descriptive study was conducted among females working in a garment factory in the field practice area of a teaching hospital, Bengaluru. The study was conducted during October to December 2016. Considering the study done by Saha K T *et al.* [11] prevalence of musculoskeletal problems is 69.64% by using formula $4pq/L^2$ with an allowable error of 10% and alpha error of 5% the estimated sample size is 177.Complete enumeration of the female workers of the garment factory was done (214).
- **Inclusion criteria:** Workers ≥18 years of age who have been working for minimum one year duration in the same factory.

3.1 Methodology

- Data was collected after obtaining clearance from the institutional ethics committee. A written informed consent was obtained from the workers after which an interview was conducted using a semi-structured pretested questionnaire.
- Questionnaire included variables like demographic details of the study participants, socio-economic status (Modified Kuppuswamy classification 2017), Morbidity pattern.
- Information on visual problems, hypertension, and diabetes were collected, followed by clinical examination to measure height, weight for assessment of body mass index (BMI). Blood Pressure was recorded and classification was done using JNC – VII criteria.6 Visual acuity for distant and near vision was tested using Snellen's chart.
- Participants who had been identified with problems were referred for further assessment and treatment to higher centers.

3.2 Statistical analysis

The data was compiled in Microsoft (MS) Excel worksheet and analyzed using SPSS (Statistical Package for Social Sciences) software version 20.0. The descriptive statistics-All qualitative variables was presented as frequency and percentages. All quantitative variables were presented as mean and standard deviation. Appropriate tests of significance were applied where ever necessary. P values of less than 0.05 would be considered statistically significant.

4. Results

A total of 214 study participants were examined in the study. The mean age of the study participants was 30.33 ±7.06 years. Most of the study participants i.e. 101 (47.2%) belonged to21-30 years age group and 112 (52.3%) had completed their high school education. Majority i.e. 161 (75.2%) were married. It was found that 95 (44.4%) and 103 (48.1%) belonged to Class II and class III socioeconomic status respectively (Table 1). It was found that 40.1% were tailors and 59.9% of the workers were working in those sections which involved prolonged hours of standing. Figure 1 shows different health problems among the study participants. Musculoskeletal problems were the most common problems present among 110(51.4%) study participants. 91 (42.5%) study participants have anemia. In the resent study, 6 (2.8%) participants were found to have normal blood pressure. 8(3.7%) had history of diabetes mellitus. Body mass index among the study participants was measured and it was found that 131(61.2%) had normal BMI and 8(3.7%) participants were obese. The work profile of the workers was shown in Table 2 which shows that 64.5% had less than 3 years of total experience in the garment factory and 61.22% of the females worked in standing posture. The workers had a leisure time of 1 hour and 30 minutes and the mean duration of working hours was 8 hours per day.89% had no history of tobacco use. It was observed that musculoskeletal problems were more common among the age group >35years (Table 3). The difference among them was found to be statistically significant ($p<0.05$). Among the study participants who were working in standing posture 63(57.27%) had musculoskeletal problems. The difference was not found to be statistically significant.

Table 1: Socio demographic profile of the study participants (N=214).

Variable	Number	Percentage
Age (years)		
<20	19	8.9
21-30	101	47.2
31-40	80	37.4
>41	14	6.5
Religion		
Hindu	198	92.5
Muslim	13	6.1
Christian	3	1.4
Literacy		
Illiterate	29	13.6
Primary/Middle school	70	32.7
Higher secondary/Intermediate	112	52.3
Graduate	3	1.4
Socio economic status		
Class I	-	-
Class II	15	7.0
Class III	95	44.4
Class IV	103	48.1
Class V	1	0.5
Marital status		
Married	161	75.2
Unmarried	34	15.9
Widowed/Divorced/Separated	29	8.9
Total	214	100.0

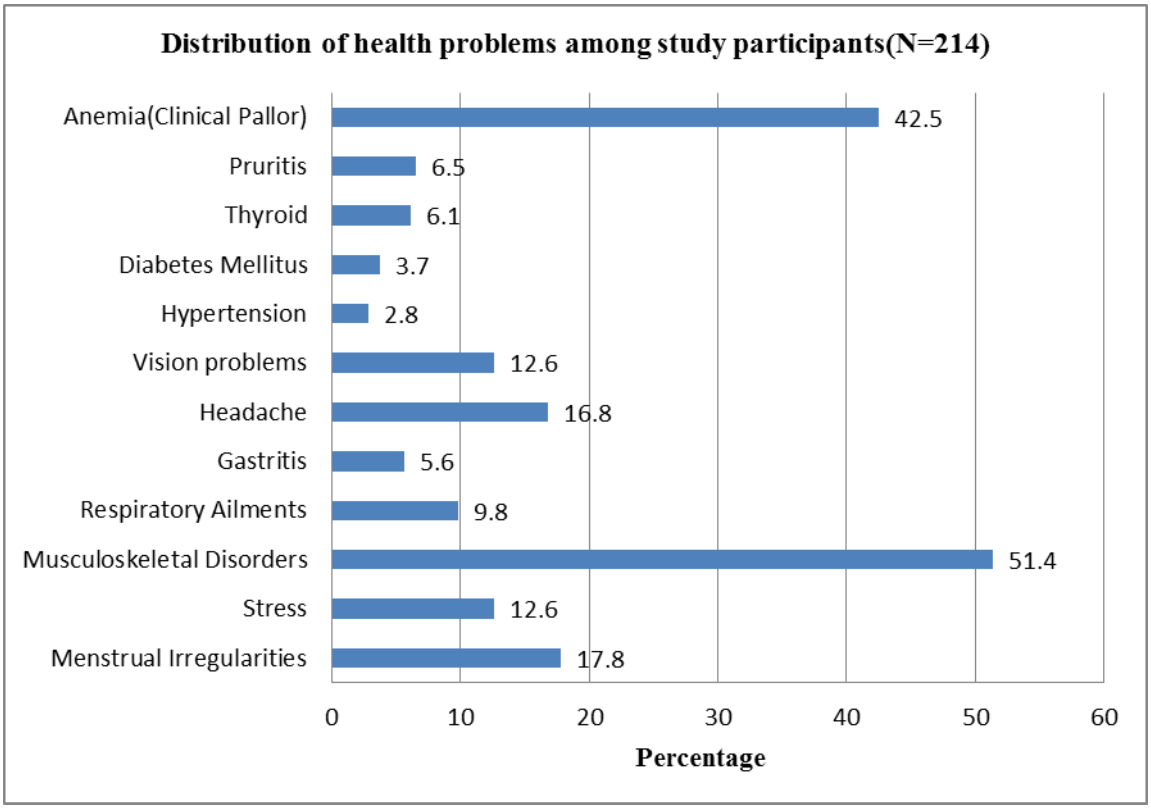

Fig 1: Bar diagram showing the distribution of health problems among study participants (N=214)

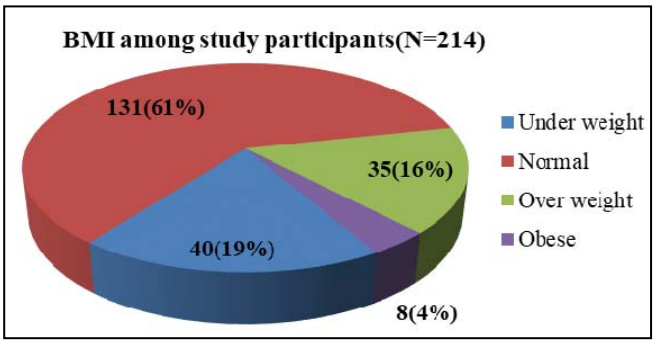

Fig 2: Pie chart showing the distribution of study participants according to BMI (N=214)

Table 2: Distribution of study subjects according to the work profile (N=214)

characteristics	Frequency	Percentage
Work experience in years		
<3years	138	64.50
>3years	76	35.50
Work posture		
Standing	131	61.22
Sitting	83	38.78
Total	214	100.00

Table 3: Association of Musculoskeletal problems with Age and work posture (N=214)

Age(Years)	Musculoskeletal problems		Total	Chi square	df	P Value
	Present (%)	Absent (%)				
<35	71(64.5)	88(84.6)	159(74.3)	11.27	1	0.001
>35	39(35.5)	16(15.4)	55(25.7)			
Total	110(100)	104(100)	214(100)			
Posture						
Standing	63(57.27)	68(65.38)	131(48.09)	1.482	1	0.22
Sitting	47(42.73)	36(34.62)	83(51.91)			
Total	110(100)	104(100)	214(100)			

5. Discussion

Being one of the biggest job creators in India, this sector makes one out of every six households to depend on them either directly or indirectly. The workers are unaware of their basic rights and their health problems are generally left unaddressed. In this study the mean age of the study participants was 30.33 ±7.06 years. This corresponds with the studies done by Ravichandran SP *et al* [12], Kumary P *et al*. [9].

Most of the participants (64.5%), in our study were employed in sections which involved prolonged hours of standing. These results are comparable with a study done by Tiwari RR *et al*. [13], where 60.7% of the study subjects adopted a standing posture during majority of their working hours.

Among the various health problems, musculoskeletal disorder was more common (51.4%). Anemia was reported in 42.5% of the study participants. In a study done in Tamil Nadu [4] it was reported musculoskeletal problem as common health problem (77.6%) followed by anemia

(57.1%).In a study done by Saha KT *et al*. [11] in Kolkata it was observed that musculoskeletal problems were the commonest health problem (69.64%) followed by sleep disturbances and gastrointestinal problems. These variations may be due to difference in the socio demographic characteristics and occupational setting.

2.8%ofthe participants were found to have hypertension in the present study these results corroborates with the studies done by Yerpude *et al*. [3] and Joseph *et al*. [14].

In the present study 16% of the study participants were overweight and 4% were obese these results were comparable to the study done by Joseph *et al*. [14] where 11.9% were overweight and 2.9% were obese. The participants were explained about the risk of obesity and advised to follow regular exercise and diet.

In the current study Musculoskeletal disorders were significantly more among participants <35years age group These results differed from the other studies by Bandyopadhyay L *et al*. [15], Ravichandran SP *et al*. [12] where musculoskeletal disorders were more among workers in age group above 35 years. This difference may be due to the more number of study participants in age group above 35 years in present study.

6. Limitation

The study was conducted in one garment factory hence results cannot be extrapolated to all the workers of the different garment factories.

7. Conclusion

Success of the garment factory has been made at the cost of worker's health. The health problems prevailing among garment workers is quite high with the most common being musculoskeletal problem and anaemia. The study has highlighted the possibility of age as a significant factor in the development of various musculoskeletal problems.

8. Recommendation

Screening by pre-placement examination and periodic health check-ups of the workers, so as to ensure early diagnosis and prompt treatment of symptoms. Proper posture adoption at work place will help in reducing musculoskeletal disorders.

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Prevalence of dental Fluorosis among children aged 12 to 17 years in an endemically affected area of Rural Bangalore – a Cross Sectional study

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Abstract:
Objective: *This study was undertaken to assess the prevalence and severity of Dental Fluorosis among children aged 12 -17 years in an endemically affected area in Rural Bangalore and to determine the public health significance of Dental Fluorosis.*
Introduction: *Ground water has been a significant water source for domestic, irrigating, and industrial purposes in India. More than 85% of rural and 50% of urban domestic water requirements is met from ground water resources [1]. Presence of excess amount of fluoride in drinking water leads to dental fluorosis.*
Methodology: *This was a cross sectional study conducted in the rural field practice area of RajaRajeswari Medical College and Hospital Bangalore. A total of 250 study subjects belonging to the age group of 12 to 17 years were studied. The dental Fluorosis was assessed in the mixed dentition and was graded using Dean's index and Community Fluorosis Index calculated.*
Results: *The prevalence of dental Fluorosis was 60.8%. The highest percentage of study subjects suffered from Grade 2 Dental Fluorosis i.e., Mild Fluorosis (25.2%) as per Dean's Index and the least seen was Severe Dental Fluorosis (5.2%). The Community Fluorosis Index was 0.45 suggesting the concerned issue as a Borderline public health problem.*
Conclusion: *It was concluded that Dental Fluorosis is a public health problem among children of villages coming under Ittamadu Primary Health Centre, Ramnagar District. It needs to be rectified at the earliest for implementation of policy.*
Keywords: *Dental fluorosis, Endemic, Rural, Community Fluorosis Index*

I. Introduction:

Ground water has been a significant water source for domestic, irrigating, and industrial purposes in India. More than 85% of rural and 50% of urban domestic water requirements is met from ground water resources [1]. Fluoride is a salt of the element fluorine; fluorine is the most highly reactive element of halogen family. Fluoride is the one of the very few chemicals that has been shown to cause significant effects in people through drinking water [2]. Fluorosis, an endemic disease, is caused due to excess ingestion of fluoride. Fluoride acts as an essential component for normal mineralization of bone, teeth, and formation of dental enamel in minute amounts and at the same time when consumed in higher doses it has been a danger. Fluoride content of water sources above the permissible limits (1.5 mg/L) may lead to dental and skeletal fluorosis.

Globally, 23 nations have the problem of excess fluoride in drinking water, principally involving the developing countries including India [1]. India lies in a geographical fluoride belt, which extends from Turkey up to China and Japan through Iraq, Iran and Afghanistan. In India, the disease is endemic in about 275 districts of 20 states and UT's, with 66 million people, at risk [3]. Andhra Pradesh, Rajasthan, Punjab, Tamil Nadu, and Karnataka have reported highest endemicity rate [1]. Approximately 25 million people are already affected by Fluorosis. As per Central Ground Water Boards report (2009), a Government of India organization under the Ministry of Water Resources, in Karnataka, Dharwad, Gadag, Bellary, Belgaum, Raichur, Bijapur, Gulbarga, Chitradurga, Tumkur, Chikmagalur, Mandya, Bangalore Rural and Mysore districts are identified to be endemic for Fluoride and the range of fluoride concentration varies from 0.2 to 18.0mg/L in these districts [2].

Clinical dental Fluorosis being the most convenient biomarker of Fluoride exposure [4] evoked the thought of conducting the present study with the following objectives:

1. To assess the prevalence and severity of Dental Fluorosis among children aged 12 -17 years in an endemically affected area in Rural Bangalore.
2. To determine the public health significance of Dental Fluorosis in the study area using Community Fluorosis Index.

II. Materials and Methods:

This cross sectional study was conducted among children aged 12 to 17 years in two randomly selected villages of Ittamadu, namely Thoraidoddy and Banandur, an endemically affected area in Rural Bangalore, coming under the field practice area of RajaRajeswari medical College and Hospital, Bangalore. The study was conducted during January to March 2015. Two villages coming under Ittamadu Primary health centre were selected randomly and complete enumeration of all the children aged 12-17 years were done. The number of study subjects hence came up to be 250. Institutional Ethical Clearance and informed consent from the study participants was obtained prior to the study.

The dental Fluorosis was assessed in the mixed dentition and was graded using Dean's index. Oral examination was performed by two trained and calibrated dentists. Each tooth in the mouth was rated according categories of Dean's index, and the individual's dental Fluorosis score was arrived at based on the severest form recorded for two or more teeth.

Community Fluorosis Index (CFI) was calculated to quantify public health significance of dental Fluorosis [1]. CFI was computed by summing up the scores of individual grades of dental Fluorosis as described by Dean and dividing the sum by the total sample size.

The public health significance of CFI values was as below:

Sl. No	CFI value range	Public health significance
1	0.0-0.4	Negative
2	0.4-0.6	Borderline
3	0.6-1.0	Slight
4	1.0-2.0	Medium
5	2.0-3.0	Marked
6	3.0-4.0	Very marked

The data was entered into Microsoft Excel 2010 and analyzed using SPSS version 20.0. The data was expressed in percentages and chi square test of significance was applied wherever possible. A p value <0.05 was considered as statistically significant.

III. Results:

A total of 250 school going children in the age group of 12-17 years were studied. 30.8% were in less than 14 years of age, 36.4 % were in the age group 14-16 years and 32.8% were > 17 years of age. There were 140 male children (56.0%) and 110 female children (44.0%) among the study subjects (Table No. 1).

Table No. 1 - Socio-Demographic Details of Study Subjects

AGE WISE DISTRIBUTION		
Age	**Number**	**Percentage (%)**
<14 years	77	30.8
14-15 years	91	36.4
> 16 years	82	32.8
TOTAL	**250**	**100.0**
GENDERWISE DISTRIBUTION		
Gender	**Number**	**Percentage (%)**
Males	140	56.0
Females	110	44.0
TOTAL	**250**	**100.0**
DISTRIBUTION ACCORDING TO RELIGION		
Religion	**Number**	**Percentage (%)**
Hindu	250	100.0
Others	0	0.0
TOTAL	**250**	**100.0**
DISTRIBUTION ACCORDING TO CLASS OF STUDY		
Class of Study	**Number**	**Percentage (%)**
8th Std	77	30.8
9th Std	91	36.4
10th Std	82	32.8
TOTAL	**250**	**100.0**

The prevalence of dental Fluorosis was 60.8%. The highest percentage of study subjects suffered from Grade 2 Dental Fluorosis i.e., Mild Fluorosis (25.2%) as per Dean's Index and the least seen was Severe Dental Fluorosis (5.2%). The Community Fluorosis Index was 0.45 suggesting the concerned issue as a Borderline public health problem (Table No. 2)

Table No. 2 – Distribution of Study Subjects according to grading of Fluorosis

	Grading of Dental Fluorosis					**Total**
	No Fluorosis	**Questionable Fluorosis**	**Mild Fluorosis**	**Moderate Fluorosis**	**Severe Fluorosis**	
Number	98	56	**63**	20	13	**250**
Percentage	39.2	22.4	**25.2**	08.0	05.2	**100.0**
CFI	-	0.13	**0.45**	0.24	0.21	**-**

It was found that occurrence of Dental Fluorosis was significantly associated with gender (chi-square test 9.59, $P < 0.05$) (Table 3). The prevalence of dental Fluorosis was more in males when compared to females. However, there was no significant association between occurrence of Dental Fluorosis and the age of study participants.

Table No. 3– Association of Dental Fluorosis with Age and Sex of Study participants

AGE	**Grading of Dental Fluorosis**					**TOTAL (%)**
	No Fluorosis (%)	**Questionable Fluorosis (%)**	**Mild Fluorosis (%)**	**Moderate Fluorosis (%)**	**Severe Fluorosis (%)**	
13-14 years	29 (29.6)	22 (39.3)	17 (27.0)	06 (30.0)	03 (23.1)	**77 (30.8)**
14 – 15 years	36 (36.7)	23 (41.1)	22 (34.9)	06 (30.0)	04 (30.8)	**91 (36.4)**
15 -16 years	33 (33.7)	11 (19.6)	24 (38.1)	08 (40.0)	06 (46.1)	**82 (32.8)**
TOTAL	**98 (100.0)**	**56 (100.0)**	**63 (100.0)**	**20 (100.0)**	**13 (100.0)**	**250 (100.0)**
chi-square = 7.11 degrees of freedom = 8 probability = 0.577						
SEX	**No Fluorosis (%)**	**Questionable Fluorosis (%)**	**Mild Fluorosis (%)**	**Moderate Fluorosis (%)**	**Severe Fluorosis (%)**	**TOTAL (%)**
Male	52 (53.1)	34 (60.7)	39 (61.9)	11 (55.0)	04 (30.8)	**140 (56.0)**
Female	46 (46.9)	22 (39.3)	24 (38.1)	09 (45.0)	09 (69.2)	**110 (44.0)**
TOTAL	**98 (100.0)**	**56 (100.0)**	**63 (100.0)**	**20 (100.0)**	**13 (100.0)**	**250 (100.0)**
chi-square = 9.59 degrees of freedom = 4 probability = 0.047						

IV. Discussion:

Dental Fluorosis is hereby found out to be a borderline public health problem in Ittamadu Primary health centre area of Ramnagar District.

The findings from the present study imply 60.8 % prevalence of dental Fluorosis, significantly being associated with male gender. However, a study conducted by Shruthy Narayanamurthy *et al*., on Prevalence of dental Fluorosis in school children of Bangarpet taluk, Kolar district has concluded the prevalence of dental Fluorosis to be 31.05% which had significant association to age and gender of the children studied. When our study revealed that Dental Fluorosis was a borderline public health problem, it was seen that in Kolar it was a slight Public Health problem [1].

According to a study conducted by C B Shivayogimath *et al.,* on the prevalence of dental Fluorosis among residents of Gadag District in Karnataka, it was revealed that out of the 2001 people surveyed, maximum number i.e., 28.18% suffered from mild levels of Dental Fluorosis. This was similar to our study in which maximum number i.e. 25.2% suffered from mild levels of Dental Fluorosis [2].

Sunil V Gitte *et al.,* in their study on prevalence of Fluorosis in endemic village of Chhattisgarh found out a higher prevalence of Dental Fluorosis among the male study subjects. This observation was in sync with that from this present study wherein there was significant association between occurrence of Dental Fluorosis and male gender [3].

S Saravanan *et al.*,[4] in Chidambaram Taluk, Cuddalore district, Tamil Nadu, among 5-12 years age group, reported 31.4% prevalence of dental Fluorosis and a significant association with age ($P < 0.001$) . This was in total contrast to our study where the prevalence of dental Fluorosis was 60.8% with no significant association with the age of study participants [4].

Gopalakrishnan *et al.,* [6] in Alappuzha district, Kerala showed 35.6% prevalence of dental Fluorosis with female preponderance and an inverse association with age. This was also in contrast with our study showing 60.8 % prevalence of dental Fluorosis with male preponderance and no significant association with age.

Bhat and Kumar [7] in their study on dental Fluorosis among residents of Hanumantharayanaplaya, Ramnagar district, Karnataka in 2011 showed that 36.4% were affected with mild grade Fluorosis and community Fluorosis index of 1.76.

V. Conclusion:

Fluorosis is a public health problem among children of villages coming under Ittamadu Primary Health Centre, Ramnagar District.

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Prevalence and Patterns of Self Medication among Adults of Randomly Selected Villages in Rural Bangalore – A Cross Sectional Study

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ABSTRACT

Introduction: Self medication using prescription medicines is common in certain developing countries due to lack of strict drug regulatory implementations and monitoring by the concerned authorities. Hence this study was carried out to know the prevalence and practices of self medication among the rural population of a village in rural Bangalore and plan for appropriate alternative health seeking behavior.

Method: This is a descriptive cross- sectional study carried out in Ittamadu Rural Health Centre area covering a population of 10,875 people, coming under 19 villages, employing Multi Stage Random Sampling.

Results: This study revealed that the prevalence of self medication was high (75.1%). Lack of time and financial reasons were found to be the most common reasons for self medication. Fever was found out to be the most common ailment for which self medication was practiced and analgesics were the most common drug used.

Conclusion: This study revealed that prevalence of self medication was high among adult population aged 18-60 years and there existed statistical association between practice of self medication and socio demographic determinants like Gender, Storage of Drugs at home after use, Awareness regarding possibility of Adverse Drug reactions occurring.

Keywords: Self Medication, rural area, Bangalore, Prevalence, patterns

INTRODUCTION

Self Medication involves the use of certain pre existing medicines by the general population to either cure or treat self- diagnosed symptom or group of symptoms or the continued or intermittent use of certain medications previously prescribed by health care personnels for recurring diseases, without consulting the health care personnel[1]. Self medication using prescription medicines is common in certain developing countries due to lack of strict drug regulatory implementations and monitoring by the concerned authorities.

Although widely practiced in developing countries due to a plethora of reasons, self-medication is regarded as an unnecessary and potentially unhealthy practice in the western world[2,3]. In countries like India, most episodes of self-medication practices occur due to many factors like easy availability of a wide range of drugs, lack of knowledge about the cons of using such drugs without prescription, inadequate health services etc[4]. This practice has earned much acclaim and recognition among the masses of today especially those belonging to the lower strata of the socio economic classes.

Poverty, ignorance, extensive advertisement and lack of proper rules and regulations regarding OTC (over the counter) drugs are certain other reasons responsible for the growing trend of self medication[5].

Inappropriate self medication results in irrational as well as incorrect use of drugs, thereby resulting in wastage of national resources, technical complications like increased resistance towards common antibiotics, delayed cure and thereby prolonged suffering. Therefore, as against the proposed idea of alleviating health care burden, practice of self medication only worsens the situation[6,7].

Hence this study was carried out to calculate the prevalence and describe the patterns of self medication among the rural population of Ittamadu rural health centre.

SUBJECTS AND METHODS

The study area was Ittamadu Rural Health Centre area, covering a population of 10,875 people coming under 19 villages. All the subjects more than 18 years of age residing in the selected villages and willing to participate in the study were included and non-permanent residents (have been staying in the village since less than 6 months) were excluded. This was a community based cross sectional study conducted on the basis of a study done by Kulkarni et al. on Self Medication practices among the adults in Hyderabad[4], in which the prevalence of Self Medication was found out to be 30.5%. In the present study to get 95% confidence level and relative precision of 8%, the study requires a minimum of 1369 subjects. Multi Stage Radom Sampling technique was employed as follows:

Stage 1: Stratification of Villages

All the villages (19), coming under the area covered by Ittamadu primary health Centre were listed. The villages were then divided into three different strata based on the size of population.

a) 1st strata: villages with population ≤ 500 people
b) 2nd strata: villages with population between 500 and 1000 people
c) 3rd strata: villages with population ≥ 1000 people

Employing the Probability Proportional to Population Sampling (PPPS) technique, the required sample size from each of the three strata was also calculated.

Stage 2: Selection of villages

In each of the strata, all the villages were alphabetically listed. From them, four villages were randomly selected using the Lottery method. In case any selected village did not have the necessary population to cover the required sample size from that particular stratum, more villages were selected so as to reach the required sample size.

Stage 3: Estimation of sample size from each selected village

From each of the selected village, the required sample size was again calculated using

Stage 4: Selection of the study subjects

In order to select the required people for the study, randomization was employed. again as follows.

From the selected villages all the people ≥18 years of age and are permanent residents of the village and willing to participate in the study were studied. The data was collected using a pre tested, semi structured questionnaire. The data included age, sex, educational status, family income, frequency of Self Medication, and reasons for the Self Medication and B.G. Prasad classification to assess socio economic status.

Ethical clearance was obtained before conducting the study from the Institutional Ethical Committee. During the survey, informed written consent was taken from the study subjects. Assurance was given that the confidentiality regarding their information will be maintained strictly. Descriptive analysis of Prevalence of Self Medication, patterns of Self Medication was analyzed and presented in terms of percentage and its 95% confidence interval was estimated. Chi square test was used to find out the association between socio demographic profile of the study subjects and Self Medication practices. The data was analyzed statistically using SPSS version 20 and tabulated accordingly.

RESULTS

Among the 1369 people studied, 759 (55.4%) were males and 610 (44.6%) were females. A wide majority, 88.6% of the study subjects belonged to the Hindu religion. Majority of the study subjects (67.9%) were literates whereas only 32.1% were illiterate. 35.9% of the study subjects (492 in numbers) had High School education. Out of the total 1369 study subjects, only 18.3% were unemployed. 33.4% of the study subjects were unskilled workers and almost 26.9% of the study subjects were involved in clerical jobs. 491 (35.9%) belonged to Joint family and 409 (30.0%) belonged to Nuclear family. Most of the study subjects, i.e., 598 people (43.7%) belonged to the Lower Class where as only 16.1% belonged to the Upper Middle Class as per Modified B.G. Prasad Distribution – 2013. (Table No. 1)

Table 1: Socio -Demographic Data of Study subjects (n=1369)

Variable	Subjects (%)
Age Group	
18-30	548 (40)
31-40	394 (28.8)
41-50	137 (10)
51-60	148 (10.8)
>60	142 (10.4)
Gender	
Male	759 (55.4)
Female	610 (44.6)
Religion	
Hindus	1213 (88.6)
Muslims	156 (11.4)
Educational Status	
Not Literate	440 (32.1)
Middle School	161 (11.8)
High School	492 (35.9)
Secondary School/Diploma	276 (20.2)
Employment status	
Not employed	250 (18.3)
Home maker	293 (21.4)
Unskilled worker	457 (33.4)
Skilled worker	369 (26.9)
Socio-economic class	
Upper middle class	221 (16.1)
Middle class	208 (15.2)
Lower middle class	342 (25)
Lower class	598 (43.7)

It was seen that out of the total 1369 study subjects, 1028 (75.1%) said that they have practiced self-medication at least once in the previous 6 months.

It was observed that out of the 1028 study subjects who practiced self medication, majority were Literate (77.1%). Among the 341 study subjects who were not practicing self medication, literacy rates were comparably high (79.5%). However, this statistical association between Educational status and practice of self medication among the study subjects was not found to be statistically significant.(χ^2 = 0.8042,df = 1, P = 0.37**)** (Table 2)

It was also observed that out of the 1028 study subjects practicing self medication, most of them were Males (51.7%). Out of these 1028, 42% belonged to the age group 18-30 years where as only 10% were above 60 years of age. In contrast, out of the 341 study subjects not practicing self medication, only 34% were aged between 18-30 years. There was a significant association between Age, Gender and practice of Self Medication (χ^2 = 79.550, df = 4, P < 0.005) and (χ^2 = 22.759, df = 1, P< 0.005) respectively. (Table 2)

It was observed that out of 1028 study subjects who were practicing self medication, 766 (74.5%) were unaware of the possible Adverse drug reactions where as 262 (25.5%) were aware of the possibility of such reactions to occur. There was a statistically significant association between Awareness regarding Adverse Drug reactions and practice of Self medication (χ^2 = 159.147, df = 1, P < 0.005). (Table 2)

Among the 1028 study subjects practicing self medication when asked about the reasons, 658 (64%%) said that there was lack of time to consult a doctor whereas 513 (49.9%) of them quoted financial reasons and 407 (39.6%) said that they did not want to go to a doctor for mild ailments. (Table 3)

In this study, it was noted that out of the 1028 study subjects who were practicing self medication, the main source of information regarding the drugs was "friends" for 756 (73.5%) study subjects and "earlier Prescriptions" for 633 (61.2%) of the study subjects. (Table 4)

Table 2: Comparison of practice of self medication with socio-demographic and awareness indicators

	Self Medication practice		Total (n=1369)(%)	Chi-square	df	P value
	Yes (n=1028)(%)	No (n=341)(%)				
Educational Status						
Not Literate	235 (22.9)	70 (20.5)	305 (22.3)	0.8042	1	0.37
Literate	793(77.1)	271 (79.5)	1064(77.7)			
Age- Group						
18-30 years	432 (42.0)	116 (34.0)	548 (40.0)	79.550	4	<0.005
31-40 years	240 (23.4)	154 (45.2)	394 (28.8)			
41-50 years	129 (12.5)	008 (02.3)	137 (10.0)			
51-60 years	124 (12.1)	024 (07.0)	148 (10.8)			
>60 years	103 (10.0)	039 (11.5)	142 (10.4)			
Gender						
Males	532 (51.8)	227 (66.6)	759 (55.4)	22.759	1	<0.055
Females	496 (48.2)	114 (33.4)	610 (45.6)			
Awareness of ADRs						
No	766 (74.5)	126 (37.0)	892 (65.2)	159.147	1	<0.055
Yes	262 (25.5)	215 (63.0)	477 (34.8)			
Awareness regarding Storage of Drugs						
No	282 (27.4)	185 (54.3)	467 (34.1)	81.951	1	<0.055
Yes	746 (72.6)	156 (45.7)	902 (65.9)			

Table 3: Distribution of study subjects practising self medication based on reasons for self medication

Reason	Subjects (n=1028)* (%)
Time constraint	658 (64)
Financial reasons	513 (49.9)
Poor care in hospitals	334 (32.5)
Not wanting to go to doctor for mild ailments	407 (39.6)
Travelling difficulty	279 (27.1)
Dislike to a particular doctor	84 (8.1)
Others	89 (8.7)

*Indicate multiple responses

Table 4:- Distribution of study subjects practising self medication based on source of information about self medication (n=1028)*

Source	Numbers (%)
Friends	756 (73.5)
Family	291 (28.3)
Earlier Prescriptions	633 (61.2)
TV and radio	110 (10.7)
Chemists	155 (15.1)

*Indicate multiple responses

Table 5: Distribution of study subjects practising self medication based on common ailments for which self medication is practiced (n=1028)*

Health condition	Subjects (%)
Fever	910 (88.5)
Cold	695 (67.6)
Cough	736 (71.6)
Sore Throat	82 (8)
Vomiting	24 (2.3)
Diarroeha	60 (5.8)
Joint Pain	355 (34.5)
Headache	495 (48.2)
Others	75 (7.3)

*Indicate multiple responses

It was observed form this table that among the 1028 study subjects practicing self medication, 746 (72.6%) were storing drugs in their houses for further use where as 282 (27.4%) said that they did not store the drugs, instead procured them whenever it was needed. The association between Storage of drugs and Practice of Self medication was found to be statistically significant (χ^2 = 81.951, df = 1; P< 0.005). (Table 2)

In this study, it was observed that self medication was practiced by 85.1% of the 342 study subjects belonging to the Lower Middle Class, 84.6% of the 123 study subjects in the Upper Middle Class and 70.7% of the 598 study subjects belonging to the Lower Class.

In this study, out of the 1028 study subjects who were practicing self- medication, 88.5% cited Fever as the most common disease for which they practiced self- medication followed by 71.6% for Cough and 67.6% for cold. (Table 5)

DISCUSSION

As is seen in this study, out of the 1028 study subjects who were practicing self- medication, 66.5% cited Fever as the most common disease for which they practiced self- medication. These results were found to be in accordance with most of the studies done in India and abroad with similar objectives. According to Malvi Reteesh et al, generally, self medication is used in some clinical conditions like fever (36.2%), pain (32.7%), headache (25.8%), cough (24.1%), cold (20.6%) etc [2]. A study done by Dr. Pavan Kumar Kulkarni et al on "Self medication practices among slum dwellers in South Indian city" opines that the symptoms for which medicines were used are mostly pain, cough, and fever[4].

In this study, it was observed that out of the total 1369 study subjects, 1028 study subjects i.e., 75.1 % had practiced at least one form of self medication during the past 6 months. This observation was similar to few other studies conducted by eminent a study conducted by Jyoti Kaushal et al[6], Abhishek Sharma et al[7] . However, the results of our study were in contrast to the observations made by certain other researchers in similar studies. A study conducted by S G Deshpande et al (31%)[8], Pandya R et al (82.3%)[9] S. Kayavizhi et al[10] , Parita Patel et al (64%)[11] and Pankaj Jain et al (2.5%) [12]. The difference in prevalence may be due to factors like Education, better Socio economic conditions and occupational oppurtunities in these areas when compared with the area under this study.

In this study, it was observed that among 1028 study subjects who were practicing self medication, 432 (42.1%) belonged to the age group 18-30 years. In a study conducted by S G Deshpande et al, it was found that among 31% Indians who practiced self medication; about 26.9 per cent of them were in the age group of 31 to 40 and 30.8 per cent between 41 and 50 years [8]. These results were not completely out of league with the current study.

In this study, out of the 1028 study subjects practicing self medication, 51.8% were males and 48.2% were females. This observation was in accordance with some studies done by other researchers with similar objectives. A statistical Study on Self Medication Pattern in Haryana, done by Pankaj Jain et al, states that the proportion of the interviewee practicing self medication as regards sex was 35.6% among female and 64.4% among males [12]. Mateti Uday Venkat et al opines that of the total 100 self medication prescriptions analysed during their study, 71% belonged to males and 29% to females [13].

A study on the "Prevalence of self-medication practices and its associated factors in Urban Puducherry, India" observes that 24.3% of the study population practicing self medication were in the age group 50-59 years, on contrast to 12.1% in the current study; 17.6% in the age group 40-49 years as opposed to 12.5% in the present study; 16.7% in the age group >60 years as against 10.0% in this study; 10.7% in the age group 20-29 years in contrast to 42.1% in this study and 10.5% in the age group 30-39 years as against 23.3% in the present study [14]. Bhavna Puwar et al in their study titled "Self medication practice among adults of Ahmedabad city" observe that majority of the respondents (33.6%) practicing self medication was in the age group of 20-29 years. The least number of respondents practicing self medication was in the age group >60 years (4.3%) [16]. An article published in the International research Journal of Pharmacy authored by Mateti Uday Venkat et al reveals that the highest incidence of self medication was in the age group 26-35 years, coming up to 39% However, the least number of people practicing self- medication was in the age group >65 years which came up to only 4% of the study population [17].

As is seen in this study, out of the 1028 study subjects who were practicing self- medication, 66.5% cited Fever as the most common disease for which they practiced self- medication. Marília Garcez Corrêa da Silva et al conducted a study titled "Self-medication in university students from the city of Rio Grande, Brazil" and concluded that the overall reasons for self-medication were headache (89.7%), cold (82.9%), sore throat (58.1%), fever (56.2%), menstrual cramps (47.6%), muscle pain (41.0%), cough (36.4%) and heartburn (29.4%); and also stomachache (27.1%), nausea (26.4%), vomit (22.3%), allergy (21.2%) and intestinal colic (14%) [18]. Most of these results reflected in the current study where the common ailments for self medication were fever, Cough, Common Cold, Headache, Joint pain etc. An "Assessment of Self-Medication Practices Among Medical, Pharmacy, and Health Science Students in Gondar University, Ethiopia" done by Abay S M finds out that Fever and headache (24.8%) were the most frequently reported causes of morbidity for which self medication was practiced [19]. These results were found to be in accordance with most of the studies done in India and abroad with similar objectives. According to Malvi Reteesh et al, generally, self medication is used in some clinical conditions like fever (36.2%), pain (32.7%), headache (25.8%), cough (24.1%), cold (20.6%) etc [2]. A study done by Dr. Pavan Kumar Kulkarni et al on "Self medication practices among slum dwellers in South Indian city" opines that the symptoms for which medicines were used are mostly pain, cough, and fever[4].

It was observed that out of 1028 study subjects who were practicing self medication, 746 (72.6%) were unaware of the possible Adverse drug reactions. Comparable observations were made by other researchers with similar objectives in studies done across the country and the world. A study entitled "Study of self-medication practices and its determinants among college students of Delhi university north campus, New Delhi, India" conducted by Mrinmoy Adhikary et al concludes that the awareness about adverse drug reactions of the drugs used was 93.6% among the study subjects [20]. A study published conducted by Rushi N Pandya et al reveals that more than 90% of respondents were aware of the adverse affects associated with self-medication [9]. In contrast, Malvi Reteesh et al, in their study on "Self medication among the people of Bhopal Region of Madhya Pradesh" concludes that out of the 116 respondents, very few had the knowledge regarding the adverse effects of the drugs being consumed without a doctor's advice [2].

CONCLUSION

This study revealed that the prevalence of self medication was high (75.1%) among the adult population aged 18-60 years and there existed statistical association between practice of self medication and some socio demographic determinants like Female gender, Storage of Drugs at home after use, Awareness regarding possibility of Adverse Drug reactions occurring. Schooling and education was not found to be having any effect on the practice of self medication. Lack of time and Financial reasons were found to be the most common reasons for practice of self medication. Fever was found out to be the most common ailment for which self medication was practiced and analgesics were the most common drug used for self medication purposes. Since the study covered a large sample size of 1369 and random selection of the study subjects were done, the study findings are most likely to be truly reflective of the problem in Ittamadu PHC population.

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STRESS, ANXIETY AND DEPRESSION AMONG STUDENTS OF SELECTED MEDICAL AND ENGINEERING COLLEGES, BANGALORE- A COMPARATIVE STUDY

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Abstract: ***Students of professional courses are under considerable amount of stress, owing to the ever-increasing study load and the burden of expectations from the society. Some of them go to the extent of falling into Depression and associated psychosocial disorders. This study was done to assess the proportion of students with stress, anxiety and depression in the 2nd, 3rd and final years of MBBS and Engineering courses, in selected medical and engineering colleges, Bangalore using the Depression Anxiety Stress Scale. Of the total 304 students in different years of each of the professional course, 33.6 % suffered from stress, 49.3% suffered from anxiety and 37.8% suffered from depression in varying levels of severity.***

Index terms: **Medical students, Engineering students, Stress, Anxiety, Depression**

I.INTRODUCTION

Mental health refers to a broad array of activities directly or indirectly related to the mental well-being component included in the World Health Organization's definition of Health [1]. Mental Health problems are a major public health concern due to their high prevalence rates, difficulties related with identification, treatment and their tendencies to become chronic. A student of Medical and Engineering courses has to read many hours a day routinely to understand vast field of study. Family and society has very high expectations from them [2]. Studies, related to anxiety and depression among students of such professional courses, have been reported from abroad, but such data from India is scarce [1]. Therefore, this study was undertaken to assess the level of perceived mental pressure among the students of the 2nd, 3rd and 4th years of the MBBS and Engineering courses.

OBJECTIVES:

I. To assess and compare the proportion of students with Stress, Anxiety and Depression studying in the Second, Third and Final Years of a Medical and Engineering college, Bangalore.

II. To describe the pattern of occurrence of Stress, Anxiety and Depression among medical and engineering students.

II.METHODOLOGY

This cross sectional study was carried out among the second, third and final year undergraduates of a medical and engineering college in Bangalore during the months of October and November 2014. The study was aimed at finding the effect of professional courses, its curriculum and the amount of hard work it demands, on the mental stress of the students and hence the First year MBBS and

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Engineering students who had just joined the college and not adequately exposed to the syllabus or examinations of the courses were excluded from the study. Similarly, students who were already diagnosed and treated for any psychosocial disorders were also excluded from the study. Based on similar studies conducted by Modi K et al on medical students [2], the sample size was calculated as 152 each from medical and engineering students. Probability Proportionate to Population Sampling method was employed to select the study subjects. Data was collected using a standard questionnaire, which had 2 sections consisting questions for socio-demographic information and the Depression Anxiety Stress Scale developed by the Australian Psychology Foundation, Sydney and approved by the WHO [3].

Data was entered in Microsoft Excel and analyzed using SPSS-20.0. Chi square test of significance was employed. Fisher's exact test was used when the cell frequencies were less than 5. Informed written consent was taken prior to the study. Institutional Ethical Clearance was obtained.

III.RESULTS:

The total strength of students in the second, third and final year MBBS and Engineering courses was 220 and 290 respectively. Out of the total students, 152 participants were selected each form MBBS and Engineering courses. The study subjects comprised of 50 boys and 102 girls in the MBBS course and 104 boys and 48 girls in the Engineering courses. Their ages ranged from 18 to 22 years.

In case of the MBBS course, the study subjects included 64 students from the second year (42.2%), 52 students from the third year (34.2%) and 36 (23.6%) students from the final year. In the engineering courses, 62 (40.8%) students were in the second year, 50(32.8%) students in the third year and 40 (26.4%) students were in the final year.

Of the 152 students in different years of the MBBS course, 50 suffered from stress, 71 suffered from anxiety and 58 suffered from depression in varying levels of severity. The highest proportion of students with stress and anxiety was in the Third year which amounted to 21 (42.0%) and 31 (43.7%) students respectively. In case of depression, the highest proportion of students was seen in the Second year where 26 (44.8%) students were suffering. In case of the 152 engineering students interviewed, 52 (34.2%) suffered from stress, 79 (52.0%) suffered from anxiety and 57 (37.5%) from depression. The highest proportion of students suffering from stress and anxiety was seen in the Second year which was 19 (36.5%) and 33 (41.8%) respectively. Depression was seen in the highest proportion in the Third year affecting 21 (36.8%) students (Table No. I).

TABLE I PROPORTION OF STUDENTS WITH STRESS, ANXIETY AND DEPRESSION (N=304)

Medical course			
Year	*Stress(n=50)*	*Anxiety(n=71)*	*Depression(n=58)*
Second	20 (40.0)	29(40.9)	26(44.8)
Third	21(42.0)	31(43.7)	24(41.2)
Final	9 (18.0)	11(15.4)	8(14.0)
Total	50(100.0)	71(100.0)	58(100.0)
Engineering course			
Year	*Stress(n=52)*	*Anxiety(n=79)*	*Depression(n=58)*
Second	19 (36.5)	33(41.8)	19(33.3)
Third	17(32.7)	25(31.7)	21(36.8)
Final	16(30.8)	21(26.5)	17(29.9)
Total	52(100.0)	79(100.0)	57(100.0)
Grand total	102	150	115

Figures within parenthesis indicate percentages

Among the 50 MBBS students suffering from Stress, 14 (28.0%) were suffering from Severe levels and 18 (36.0%) each were suffering from Mild and Moderate levels. In case of the Engineering students, out of the 52 students suffering from Stress, 22 (42.3%) were suffering from Moderate stress, 18 (34.6%) from Mild and 12 (23.1%) from Severe levels. (Table No. II).

TABLE II PROPORTION OF STUDY SUBJECTS WITH STRESS (N=102)

Course	**Mild**	**Moderate**	**Severe**	**Total**	**X^2 value** / **P value**
MBBS(n=50)					
Second Year	10 (55.6)	03 (16.7)	07 (50.0)	20 (40.0)	2.61
Third Year	04 (22.2)	11 (61.1)	06 (42.9)	21 (42.0)	
Final Year	04 (22.2)	04 (22.2)	01 (07.1)	09 (18.0)	0.27
TOTAL	18 (100.0)	18 (100.0)	14 (100.0)	50 (100.0)	
ENGINEERING(n=52)					
Second Year	08 (44.4)	07 (31.8)	04 (33.3)	19 (36.5)	1.27
Third Year	06 (33.3)	07 (31.8)	04 (33.4)	17 (32.7)	
Final Year	04 (22.3)	08 (36.4)	04 (33.3)	16 (30.8)	0.53
TOTAL	18 (100.0)	22 (100.0)	12 (100.0)	52 (100.0)	

Figures within parenthesis indicate percentages

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Out of the total 71 MBBS students suffering from Anxiety, 26(36.6%) students were suffering from Severe levels, 24 (33.8%) from moderate levels and 21(29.6%) from mild levels. In case of the Engineering courses, the numbers were 28 (35.4%), 32 (40.5%) and 19 (24.1%) respectively. (Table No. III)

TABLE III PROPORTION OF STUDY SUBJECTS WITH ANXIETY (N=150)

Course	Mild	Moderate	Severe	Total	X^2 value / P value
MBBS (n=71)					
Second Year	09 (42.8)	08 (33.3)	12 (46.2)	29 (40.8)	2.31
Third Year	08 (38.1)	13 (54.1)	10 (38.5)	31 (43.7)	
Final Year	04 (19.1)	03 (12.6)	04 (15.3)	11 (15.5)	0.31
TOTAL	21 (100.0)	24 (100.0)	26 (100.0)	71 (100.0)	
ENGINEERING(n=79)					
Second Year	09 (47.4)	15 (46.9)	09 (32.1)	33 (41.8)	0.83
Third Year	05 (26.3)	09 (28.1)	11 (39.3)	25 (31.6)	
Final Year	05 (26.3)	08 (25.0)	08 (28.6)	21 (26.6)	0.66
TOTAL	19 (100.0)	32 (100.0)	28 (100.0)	79 (100.0)	

Figures within parenthesis indicate percentages

Out of the 58 MBBS students suffering from Depression, 24 (41.3%) students were suffering from Moderate levels, 20 (34.5%) were suffering from Severe and 14 (24.2%) were suffering from Mild levels. In a total of 57 students in the Engineering course suffering from Depression, the proportion of students suffering from Severe, Moderate and Mild levels were 21(36.8%), 25(43.9%), and 11(19.3%) respectively (Table No. IV).

TABLE IV PROPORTION OF STUDY SUBJECTS WITH DEPRESSION (N=115)

Course	Mild	Moderate	Severe	Total	X^2 value / P value
MBBS (n=58)					
Second Year	09 (64.3)	09 (37.5)	08 (40.0)	26 (44.8)	2.61
Third Year	03 (21.5)	12 (50.0)	09 (45.0)	24 (41.4)	
Final Year	02 (14.2)	03 (12.5)	043 (15.0)	08 (13.8)	0.27
TOTAL	14 (100.0)	24 (100.0)	20 (100.0)	58 (100.0)	
ENGINEERING (n=57)					
Second Year	03 (27.3)	08 (32.0)	08 (38.1)	19 (33.3)	1.28
Third Year	05 (45.5)	09 (36.0)	07 (33.3)	21 (36.8)	
Final Year	03 (27.2)	08 (32.0)	06 (28.6)	17 (29.9)	0.53
TOTAL	11 (100.0)	25 (100.0)	21 (100.0)	57 (100.0)	

Figures within parenthesis indicate percentages

It was also observed that there was an increase in the occurrence of Stress and Anxiety in the MBBS students from the Second to the Third year which was followed by a decrease in the Final year. However, Depression was found to decrease in proportion from the Second to the Final years. This (Fig No.1).

In case of Engineering students, when Stress and Anxiety showed a decrease from the Second to Final year students, Depression was seen to be the highest in the Third year (Fig. No. 2).

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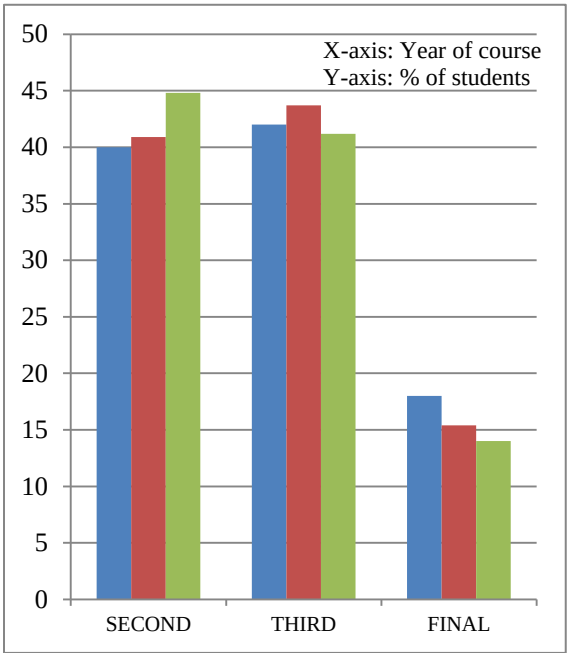


Fig 1 -Pattern of Stress, Anxiety and Depression with years of MBBS course

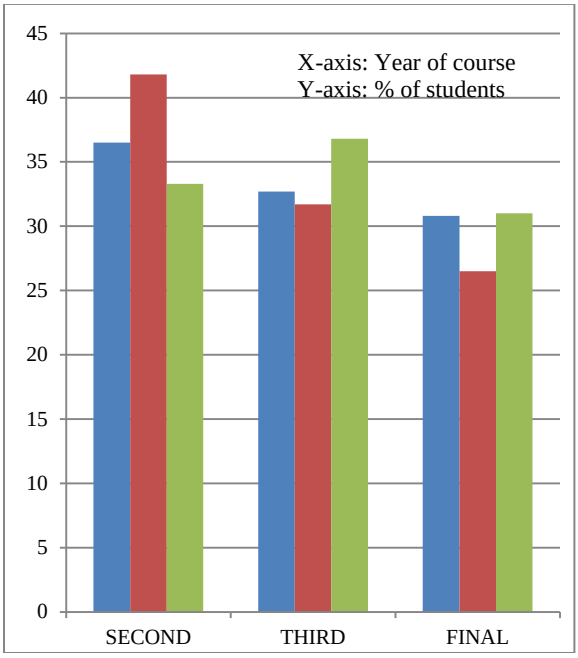
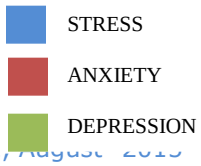


Fig 2 -Pattern of Stress, Anxiety and Depression with years of Engineering course



V.DISCUSSION:

The study reveals that both the medical and engineering students have considerable amount of perceived stress or mental pressure. In this study, 115 (3782%) students of professional courses like MBBS and Engineering experienced various levels of Depression, which is comparable to a study done by Modi K et al [2] and other studies from Indian sub continent [4, 6, 7]. In this study it was seen that when 32.9% of Medical students suffered from stress, 34.2% of the engineering students suffered from stress. This was in contrast to a study done by Vivek B et al who found out that the proportion of stress in medical and engineering students were 25.1% and 19.7% respectively [5]. As the study tools used were different in different studies, these rates are not necessarily comparable but all point in the same direction. The proportion of stress, anxiety and depression among the 152 MBBS students was 32.9%, 46.7% and 38.2% respectively. These differ from the values obtained in the study done by Modi K et al among medical students of Gujarat [2]. The decrease in the occurrence of all the three psychosocial disorders in the Final year students of both courses could be due to the various student friendly programmes being done in the concerned colleges so as to motivate them.

VI.CONCLUSION & SUGGESTIONS:

The study concluded that out of the 304 selected students the proportion of students suffering from Stress, Anxiety and Depression was 102, 150 and 115 respectively. Stress and Anxiety was found to be the highest among Engineering students than the students of the MBBS course. However, the proportion of students suffering from Depression in both Engineering and MBBS courses were comparable. It was also observed that there was a decrease in the occurrence of all the three psychosocial disorders in the MBBS and Engineering students of the Final year. Institutes are required to proactively seek out those students who need counseling and arrange for the necessary services. Such strategies have been tried successfully abroad. Students support cells and mentorship services could be few such examples. It is also suggested that students of professional courses involve themselves in co- curricular and extracurricular activities at frequent intervals which help them to relieve their mental strain. The main limitation of

this study lies in the fact that the study was done in a single college in a small sample. More studies involving larger population must be done in this regard so as to benefit the students.

VI. Acknowledgment:

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