Determination of Stress Levels among Post Graduate Students of Gandhi Medical College, Bhopal: A Cross- Sectional Study

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ABSTRACT

Background: Medical education is highly challenging and often places heavy demands on mental resources of its students, stretching their psychological distress and making them vulnerable to high levels of negative affective states. The present study was undertaken to determine the degree of stress prevalent among the Post Graduate students of Gandhi Medical College Bhopal &to identify probable factors responsible for it.

Materials and Methods: A prospective, cross-sectional survey was carried out amongst 75 post graduate students. Convenient sampling method was used. Semi-structured questionnaire, prepared using Stress Indicator Questionnaire was used for assessment.

Result: A total of 75 Post graduate students were included in the study, of which 36 (48%) were males and 39 (52%) were females. Maximum respondents, 59 (78.67%) were of ≤30 years of age. 76% were from clinical branches and 53.33% were first year residents. Physical and emotional factors were found to be responsible for highest levels of stress among the post graduate students.

Conclusion: Participants from clinical branches showed higher degree of physical stress as compared to those from non clinical. Male subjects had a higher degree of emotional stress as compared to the female subjects. Post graduates had poor knowledge and access regarding stress busting measures.

Keywords Post graduate students, Stress Indicator Questionnaire, Stress, Cross-sectional study.

INTRODUCTION

Stress is a state of an individual that results from the interaction of the individual with the environment that is perceived as threatening to the well-being. It is an external constraint which directly upsets the individual both mentally and physically[1].

The existence of stress depends on the existence of the stressor. Feng (1992) and Volpe (2000) defined stressor as anything that challenges an individual's adaptability or stimulates an individual's body or mentality[2,3]. Stress can be caused by a variety of factors such as environmental, psychological, biological and social factors.

It is widely believed that stress and medical school go hand in hand as medical education is highly challenging and often places heavy demands on mental resources of its students, stretching their psychological distress and making them vulnerable to high levels of negative affective states.One of the important reasons is that, they are expected to be proficient clinicians, educators, researchers and administrators at the end of their training.Compared to others, medical education is evidenced by high prevalence of stress. Several studies have revealed that incidence of stress and stress related illness such as anxiety, depression, lack of sleep among Post-Graduate students are increasing day by day[4-11]. Suicide among the medical students has equally been reported[12].

OBJECTIVES

The study conducted to find out the degree of stress prevalent among the Post Graduate students of Gandhi Medical College, Bhopal and also to determine the factors influencing the stress levels.

MATERIALS AND METHODS

A prospective, cross-sectional survey was carried out amongst the Post graduate students of Gandhi Medical College, Bhopal, Madhya Pradesh, India, over a period of three months from September 2016 to November 2016. Total 75 Post graduate students from various departments were willing to participate in the study and hence were included through convenient sampling method. Those post graduates who were not willing to participate and those undergoing treatment for any psychiatric illness were excluded from the study.

The study was carried out after taking permission from The Head of the Department of Community Medicine, GMC, Bhopal and after obtaining ethical clearance from Institutional Ethical Committee. Consent was obtained from those who wished to participate in the study. A semi-structured questionnaire, prepared using Stress Indicator Questionnaire[13] was used to assess stress among the PG residents. Stress Indicator Questionnaire comprised of questions pertaining to *Physical, Sleep, Behavioral, Emotional indicators and Personal Habits* according to *Likert Scale*. In each indicator, a certain set of questions were to be answered as *Almost always, Most of the time, Some of the time, Almost never or Never* and was given a score of 5, 4, 3, 2 and 1 respectively. Total scores were calculated from all five indicators and based on the total score, stress levels were categorized into Low, Medium, High, Very high and Danger.The following table highlights the cut-off values for these categories (Table 1).

Respondents' socio-demographic details, branch in which post graduation is being persued, family history of any psychiatric illness and risk behaviors related to smoking, alcoholism and physical activity were also enquired. Data were entered in MS Excel 2007 and statistical analysis was carried out using Epi-info 7.1. Proportions and percentages were used to summarize categorical variables. Chi-square test was used as the test of significance. A P value ≤0.05 was considered to be statistically significant.

Table 1: Categorization of Stress level based on the stress score

Category	Low	Medium	High	Very high	Danger
Physical indicator Points	22-30	31-38	39-48	49-53	54 and above
Sleep indicator points	5-8	9-10	11-12	13	14 and above
Behavioral indicator points	18-27	28-36	37-45	46-49	50 and above
Emotional indicator points	21-29	30-37	38-46	47-54	55 and above
Personal habits points	9-15	16-20	21-25	26-29	30 and above

RESULT

A total of 75 Post graduate students were included in the study, of which 36 (48%) were males and 39 (52%) were females. Maximum respondents, 59 (78.67%) were of ≤30 years of age. 76% were from clinical branches and 53.33% were first year residents (Table 1). Table 2 shows the distribution of study participants according to various indicators. With respect to Physical indicators 29.33% participants were found to be in Danger category. Likewise 46.67% participants were in Low category in Sleep indicators. With respect to Behavioral and Emotional Indicators, 37.33% participants were in Low and Danger category respectively. 24.00% participants were in Medium category as far as Personal habits are considered.Table 3 shows the distribution of study participants according to relation between Physical IndicatorsScores and different variables. With regard to Branch in Post graduation 47.37% of participants in Clinical branches belonged to Class II category whereas only 22.22% of the participants in Non-clinical branches belonged to Class II category and the difference was Statistically Significant.

Table 2: Distribution of study participants according to Age, Gender, Branch and Academic year

Variables	Frequency (n=75) (%)
Age	
No response	5 (0.0666)
≤30 years	59 (0.7867)
>30 years	11 (0.1467)
Gender	
Male	36 (0.48)
Female	39 (0.52)
Branch	
Clinical	57 (0.76)
Non-clinical	18 (0.24)
Academic Year	
First	40 (0.5333)
Second	19 (0.2533)
Third	16 (0.2133)

This suggests that participants from clinical branches have higher degree of physical stress as compared to those from non clinical. Probable reason behind this might be prolonged duty hours and constant physical exertion including lack of appropriate rest and sleep in clinical branches as compared to non- clinical. Table 4 shows distribution of study participants according to the relation between Emotional Indicators Scores and different variables. With regard to Gender, 66.66% of male participants belonged to Class II category whereas only 41.02% of the female participants belonged to Class II category and the difference was Statistically Significant, suggestive of higher degrees of emotional stress in male subjects as compared to females. Most probable reason could be greater pressure to achieve academic excellence among males as compared to females.

Table 3: Distribution of study participants according to various indicators

Indicator	Category (n= 75)					
	No response (%)	Low (%)	Medium (%)	High (%)	Very high (%)	Danger (%)
Physical Indicator	0 (0.00)	10 (13.33)	18 (24.00)	16 (21.33)	9 (12.00)	22 (29.33)
Sleep Indicator	0 (0.00)	35 (46.67)	8 (10.67)	5 (6.67)	15 (20.00)	12 (16.00)
Behavioral Indicator	0 (0.00)	28 (37.33)	21 (28.00)	17 (22.67)	5 (6.67)	4 (5.33)
Emotional Indicator	3 (4.00)	6 (8.00)	12 (16.00)	15 (20.00)	11 (14.67)	28 (37.33)
Personal Habits	3 (4.00)	7 (9.33)	14 (18.67)	18 (24.00)	16 (21.33)	17 (22.67)

Table 4: Distribution of study participants according to relation between Physical indicators scores and different variables

Variables	Physical indicators		Total	Significance
	Class I (%)	Class II (%)		
Age (N=70)				
≤30 years	34 (57.62)	25 (42.37)	59 (100)	0.969
> 30 years	7 (63.63)	4 (36.36)	11 (100)	
Gender				
Male	23 (63.89)	13 (36.11)	36 (100)	0.378
Female	21 (53.85)	18 (46.15)	39 (100)	
Branch				
Clinical	30 (52.63)	27 (47.37)	57 (100)	0.05*
Non-clinical	14 (77.78)	4 (22.22)	18 (100)	
Academic Year				
1	24 (60.00)	16 (40.00)	40 (100.)	0.427
2	9 (47.37)	10 (52.63)	19 (100)	
3	11 (68.75)	5 (31.25)	16 (100)	

Class I = Low, medium, high; Class II = Very high, Danger

Table 5: Distribution of study participants according to relation between Emotional Indicators scorand different variables

Variables	Emotional indicators		Total	Significance
	Class I (%)	Class II (%)		
Age (N=70)				
≤30 years	27 (45.76)	32 (54.23)	59 (100)	0.985
> 30 years	5 (45.45)	6 (54.54)	11 `(100)	
Gender				
Male	12(33.33)	24(66.66)	36(100)	0.02*
Female	23 (58.97)	16 (41.02)	39 (100)	
Branch				
Clinical	29(50.87)	28 (49.12)	57 (100)	0.375
Non-clinical	7(38.88)	11 (61.11)	18 (100)	
Academic Year				
1	19 (47.50)	21 (52.5)	40 (100)	0.966
2	9 (47.36)	10 (52.63)	19 (100)	
3	7(43.75)	9 (56.25)	16 (100)	

Class I = Low, medium, high; Class II = Very high, Danger

DISCUSSION

present study showed a significant gender difference in stress as in our study 66% male belongs to category 2 whereas only 41.02% of the female participants belonged to Class II category while study done by Salam et al[1] show a higher prevalence among female that was not significant and study done by Anjali N et al[14] showed no significant correlation for Gender.

Present study showed a significant difference in stress level between clinical and non clinical department study done by Anjali N et al [14] also showed similar finding it may be due to difference in the type of work in clinical and non clinical department ,prolong duty hour and lack of rest.

In our study no significant difference is seen in stress level if we consider academic years of post graduate students.while study done by Gobbur SB et al [15]showed more stress among first year post graduate students as compared to others and it was significant.

CONCLUSION

Among the five factors assessed in the study, physical and emotional factors were responsible for highest levels of stress among the post graduate students. Correlations between the Physical factors and the Branch in post graduation showed statistical significance (p value =0.05),i.e., participants from clinical branches showed higher degree of physical stress as compared to those from non clinical branches. Probable reason behind this might be prolonged duty hours and constant physical exertion including lack of appropriate rest and sleep in clinical branches as compared to non-clinical. Correlations between the Emotional factors and the Gender showed statistical significance (p value= 0.02). Male subjects had a higher degree of emotional stress as compared to the female subjects in the study. Most probable reason could be greater pressure to achieve academic excellence among males as compared to females. Post graduates had poor knowledge and access regarding stress busting measures.

RECOMMENDATIONS

There is a need to create awareness among the medical post graduates regarding health hazards of excess stress, hence periodic counseling sessions must be organized by the institutions exclusively for the post graduate students emphasizing stress management and coping methods.

Medical college authorities must help organize screening programs in their respective colleges to identify and treat early cases of stress and mental breakdown to prevent its late complications such as suicide.

Distribution of the workload among the residents and optimizing the duty hours in order to provide appropriate relaxation time must be made mandatory.

LIMITATIONS

This study included only a limited number of medical post graduates of Gandhi Medical College, Bhopal as very few agreed to participate as they had immense workload and we were also constrained by time. The responses given by the post graduates may be biased which has not been considered in this study. We could not conduct counseling session for the post graduates again due to time constraints.

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