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RESEARCH ARTICLE

PERCEIVED STRESS AMONG MEDICAL UNDERGRADUATES IN A PRIVATE MEDICAL COLLEGE IN RAICHUR, INDIA

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ABSTRACT

Background: Being in medical school has always been regarded as highly stressful. Excessive stress causes physical and mental health problems. Persistent stress can impair students' academic achievement and personal or professional development.

Objective: This study was aimed to explore the nature of stress among medical students by determining the prevalence and association between the levels of stress and study variables among Navodaya Medical College Students.

Materials and Methods: A cross-sectional study design utilizing validated questionnaire, Kessler 10 questionnaire to evaluate stress levels was used. 245 medical students from Navodaya Medical College, Raichur, Karnataka, India participated in the study. Institutional Ethical Committee clearance was obtained prior to the event. Data were analyzed using SPSS version 16.

Results: Out of all the medical students who were administered the questionnaire, 245 respondents participated in this study. Prevalence of mild, moderate and severe stress were 25.56%, 19.58% and 13.74% respectively. 41.12% of the study group was not under stress. Year of study was the only significant factor affecting stress among medical students (P -value <0.05)

Conclusion: The prevalence of stress among medical students in Navodaya Medical College is high. Academic-related problems were the major stressor among medical students. Year of study was the factor most significantly associated with medical students' stress. The results showed that there is a decrease in the psychological health of 1st year medical students.

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INTRODUCTION

Tertiary medical training has always been regarded as being highly stressful. Many studies have described the stressors of medical training and the associated negative consequences on the mental and physical health of medical students⁽¹⁻⁵⁾. Stress is the body's reaction to a change that requires a physical, mental or emotional adjustment or response. But too much stress can cause a lot of discomfort and can get in the way of being able to focus and achieve. As a college student all have a lot of demands on them, which it can be difficult to balance. Mannapur B. *et al*⁶ observed that stress is a term in Psychology and Biology, which in the also found to decrease attention, reduce concentration, impinge on decision-making, and reduce students' abilities to establish good relationships with patients⁷. As a consequence, students have reported feelings of inadequacy and dissatisfaction with clinical practice in the future. This may affect the lives of patients and the health of a community. Moreover, stress has also been linked to medical student suicide⁸, drug abuse^{9,10}, and alcohol use¹¹ more recent decades, has become a common place of popular parlance. The term 'stress' was first employed in the 1930's by the endocrinologist Hans Selye¹².

Stress, health and emotional problems increase during the period of undergraduate medical education. This can lead to mental distress and has a negative impact on cognitive functioning and learning¹⁰. An optimal level of stress, referred to earlier as 'favourable stress', can enhance learning¹³. However, excessive stress can lead to physical and mental health problems¹⁴. It can reduce students' self-esteem^{13,15} and may affect academic achievement and personal or professional development. Studies in the United States have suggested that the practice of medicine entails certain risks to the mental health of qualified medical students¹⁶, and numerous studies have revealed high rates of psychological morbidity in medical students at various stages of their training^{1,3,5}. Other studies among medical students have found that stress is associated with anxiety and depression^{18,19}, interpersonal conflict²⁰ sleep disturbances²¹ and poor academic or clinical performance²².

MATERIALS AND METHODS

Out of 249 study subjects, 245 responded to the cross sectional study. The study population consisted of medical students enrolled in Navodaya Medical College, during the 2012/2013 academic session. Data was collected using

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modified Kessler 10 questionnaire comprised of two parts: (i) Socio demographic questions and (ii) questions designed to elicit information about the sources and levels of stress. Socio demographic information including: gender, year of study, race, grades in subjects such as English, entry qualifications, religion and involvement with co-curriculum activities were collected.

Navodaya Medical College is located in Karnataka, India, which has a five and a half year study program. The first year is pre-clinical year (basic sciences) and is grounded in basic human sciences such as anatomy, physiology and biochemistry; and in the later clinical years students have clinical rotations through the hospital. Questionnaires were given to medical students to fill, a month before beginning of the examination period so as to avoid measurement bias. The students were allowed to take their own time. The Kessler10 Psychological Distress (K10) has been developed by Kessler and colleagues, to measure current (1-month) distress. It has been designed to measure the level of distress and severity associated with psychological symptoms in population surveys. The five possible responses range from “none of the time” to “all of the time” and are scored from 1 to 5. A score of less than 20 was considered not to represent a ‘case’ possibility of stress. A score of 20-24 was considered to present a mild stress, 25-29 was considered to present moderate stress and >30 was considered to represent as severe stress. These coding were used according to the instructions of the authors¹⁴. Data was entered, checked for entry errors, explored and cleaned and then analyzed using SPSS version 16 statistical software. Data was interpreted using an alpha set at 0.05 and confidence interval of 95%. Chi-square test and odds ratio were used to observe and quantify an association between the categorical outcome and different study variables. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 245 (98.39%) out of 249 student population completed and returned the questionnaires. All the 3 years were approximately equally represented: 85 (34.85%) from first year, 92 (37.52) from second year, 68 (27.63%) from third year. Several religions were represented in the sample. 177(72.15%) were Hindus, 48 (19.75%) were Christians and 20(8.1%) were Muslims. The mean age of study sample was 19.27±1. Prevalence of stress of all types , that is mild, moderate and severe, was 58.88%.The prevalence of stress among medical students is shown in Table 1.The distribution of academic year, regular to academic course and physical problems are shown in Table 2. The prevalence of stress was higher (70.59%) in first year of study followed by second year (53.27%) and third year (51.48%).

There is statistically significant association between the year of study and the stress levels. As the students progressed through the academic years, the prevalence of stress decreased, which is statistically significant ($X^2 = 6.452, p= 0,040$). The odds ratios (OR) 2.615 (first year) and 0.969 (second year) when third year was considered as reference category also indicates statistically significant association. The odds of student having stress are higher in first year, whereas the odds are decreasing in second year as shown in table 3. There is no statistically significant association between the regularity to the academic course and the stress levels of study subjects. The student being either regular or irregular to the academic course ($X^2= 0.271, p =0.603$) doesn't alter the distribution of stress and significance. The corresponding odds ratios also show non significant association (OR= 0.785, 95% Confidence Interval (C.I): 0.315-1.957). The prevalence of physical problems is not statistically significantly associated with the stress levels ($X^2= 0.690, p= 0.406$).

Table 1 Distribution of stress levels among medical students

	Number	Percentage
Not stressed	101	41.12
Mild	63	25.56
Moderate	47	19.58
Severe	34	13.74
Total	n= 245	100%

The OR 0.717(CI=95%) shows the odds of getting into stress is lower with mild to moderate and severe physical problems when compared with no physical problems as shown in table 4. When compared with the subjects with no stress (2.31 days) ,the mean number of days unable to work (4.47 days) was higher in subjects who had stress .This is statistically significant (t = 2.79, p= 0.0060). The mean number of days cut down (3.41 days) was higher in subjects, who had stress, when compared with subjects with no stress (1.77 days) which is statistically significant (t = 3.08, p= 0.0030).

Table 2 Distribution of academic year, Regular to academic course and physical problems among medical students.

	Number	Percentage
Academic level (n=245)		
First year	85	34.85
Second year	92	37.52
Third year	68	27.63
Regular to academic course(n=245)		
Yes	51	20.75
No	194	79.25
Physical problems(n=245)		
No	180	73.64
Mild to moderate	65	26.36
Severe	0	0

Table 3 Association of stress and year of study

Academic year	Stress no (%)		Odds ratio	95% CI	P value
	No	Yes			
1 st year	25 (29.41)	60 (70.59)	2.625	1.010-6.774	<0.05
2 nd year	43 (46.73)	49 (53.27)	0.958	0.375-2.343	>0.05
3 rd year	33 (48.52)	35 (51.48)	1	-	-

$X^2 = 6.452, p= 0,040$ 1* = baseline

Table 4 Association between stress and regular to academic course and physical problems

	Stress no (%) no	Stress no (%) yes	Odds ratio	95% CI	P value
Regular to academic course(n=245)					
Yes	22(9.10)	29 (11.35)	0.775	0.315-1.957	>0.05
No	90(39.62)	104(40.90)	1	-	
Physical problems(n=245)					
No	83 (33.21)	97 (39.13)	1	-	
Mild to moderate	35 (15.27)	30(13.72)	0.717	0.326-1.575	>0.05
Severe	0	0	0	0	0

¹: X²= 0.271, p =0.603, ²: X²= 0.690, p= 0.406

DISCUSSION

The relatively high response rate in this study (98.39%) is higher than the 70%–80% response rate obtained by other studies^{3,22}. This is perhaps an indication of the strength of students’ feelings and their perceived need for a medical education curriculum that minimizes their stress during the course of medical studies. Based on previous studies, stress prevalence among medical students ranges from 30% to 50%^{1-5,32,33}. This level of stress is high in comparison to that of the general population³ and that of students in other courses of study¹. Stress was found to be more in first year medical students rather than second and third years. Overall prevalence of stress in this study is 58.88.% which is comparable to the Thai³⁴ (61.4%) and Saudi Arabia³⁵ study (57%) and Indian study done by Bhrambhatt (42.5%)⁴⁶. our result is higher than Malaysian (41.9%)³⁸ and British study (31.2%)³⁸ and significantly lower than Indian studies done by Priti Solanky(96.8%)⁴⁵. This study showed that the level of stress decreases as the year of study increases. The results of this study are in agreement to the results of studies done by Guthrie E³⁶ and Saipanish R³⁷ where students found medical course stressful during the first year but not in subsequent years. This issue can be addressed in many ways. Medical students may need to be provided more time and facilities for recreation and sports. Inadequate social activity was linked to impaired psychological health among medical students³⁹, and that leisure activities can reduce stress in medical schools⁴⁰. students are constantly worried about finance, which is an important cause of their stress⁴¹. Providing them with an adequate amount of stipend might ease that problem. Our results suggest that first year students who have higher level of stress should be supported by student consultancy center. Medical schools in western countries like United States and Canada have started health promotion programs and have produced positive results in reducing the negative effects of stress upon medical students^{42,43,44}.

CONCLUSION

The results indicate that there is a decrease in the psychological health of first year medical students. It should be accepted that total elimination of stress from medical colleges is impossible. Anyhow more leisure time activities, advisory services and peer counseling could do a lot to reduce the stress. The students should be taught different stress management techniques to improve their ability to cope with a demanding professional course.

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