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ORIGINAL ARTICLE

A study of Psychological stress in undergraduate Medical students at S N Medical College, Bagalkot, Karnataka

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ABSTRACT

Background: Medical students are known to be the victims of tremendous mental stress. In recent years, mental stress has been on the rise and this may affect their learning and academic performances. They face tremendous competition and fear of failure. Very few studies on this subject have been reported by Indian researchers.
Objectives: To study the levels of psychological stress and its relationship with personal/ curricular variables in undergraduate medical students.
Materials and Methods: Setting: Descriptive cross sectional study in undergraduate medical students.
Sample size: 251 students
Scores used in the study: The scores have been given on the basis of the Presumptive Stressful Life Events Scale [PSLES].
Statistical test used: Chi-square test
Results: 42.63% of the study subjects had experienced less/moderate stress and 47.01% of them had experienced severe stress. 78.26% of the smokers and 68.97% of the alcoholics had severe stress. The statistical association between the history of alcohol intake, smoking and the PSLES results was found to be significant. The stress was found to be more among repeaters and the association between them was statistically significant.
Conclusion: The students with psychological stress were found to be involved in habits like tobacco chewing and smoking, as well as alcohol intake. The repeater students had significantly higher stress as compared to their regular batch counterparts.

Keywords: Psychological stress, Medical students, and Personal/Curricular variables.

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Stress is a term in Psychology and Biology, which in the more recent decades, has become a common place of popular parlance. It refers to the consequence of the failure of an organism-human or animal to respond appropriately to emotional or physical threats, whether are either actual or imagined [1]. The term 'stress' was first employed in the 1930's by the endocrinologist Hans Selye [2].

Psychological stress is common among medical students and it is associated with depression [3]. Students are subjected to different kind of stresses, such as pressure of academics with an obligation to succeed and an uncertain future. The students also face social, emotional, physical and family problems which may affect their learning ability and academic performances [4],[5].Too much stress can cause physical and mental health problems, it reduces the students' self esteem and it may affect the student's academic achievements [6],[7]. Studies have classified stress into three areas: academic pressure, social issues and financial problems[8]. The students of S. Nijalingappa Medical College, Bagalkot hailed from different parts of the country. The students

came from diverse cultural, socio-economic and educational backgrounds. They were exposed to new learning environments. This may have caused the stress. The studies on psychological stress, its sources and severity are less among medical students. This study helps us in designing appropriate intervention strategies to enhance the students' learning abilities. Hence, this study was undertaken with the following objectives.

Objectives:

1. To study the levels of psychological stress in undergraduate medical students.
2. To study the relationship between personal/ curricular variables and psychological stress, including substance abuse.

Materials and methods

Setting: This descriptive cross sectional study was designed and performed on all the currently enrolled and studying undergraduate medical students of S.Nijalingappa Medical College, Bagalkot.

Study Period: The time taken for the study was one year, that is, from September 2008 to August 2009.

Sampling technique and Sample size: As all the students from the first year to the final year students were included and hence, no specific sampling technique was required. The total student strength was 300. In the case of the students who were absent at the time of the first session, mop up rounds were undertaken to cover the remaining subjects. (Still, few students remained untraceable after 3 rounds and incomplete and irrelevant answer forms were excluded from the study n=49). Hence, the sample size was 251 Students.

Data collection: The data for the present study was obtained through a specially designed Self Reporting Questionnaire (SRQ) schedule which contained a set of questions which were related to

1) Socio-demographic profiles
2) Psychological stress and
3) Unhealthy habits

Pre-tested, self administered and anonymous questionnaires were provided to the individual students of each academic year. The subjects were clearly told about the aims and objectives of the study. They were requested to fill the proforma with full assurance about the confidentiality and anonymity of their information. The subjects were assured that the data would be used only for scientific purpose of the study.

Scores used in the study [9]

Psychological stress score:

This score has been given on the basis of the Presumptive Stressful Life Events Scale [PSLES].

The standardized and statistically tested PSLES Scale was designed by Indian scientist Gurmeetsigh. In this scale, 51 different variables (life events) were found to be experienced by the normal Indian population in the past one year. For each life event, amean stress score was given. The detailed account of the PSLES scale was mentioned in the appendix seperately. All the students were asked to tick the life events which were applicable to them (Yes/No). The total score was obtained for each student by adding all the applicable life events scores. Accordingly they were categorised into no stress, less/moderate stress and severe stress.

Score	Stress
Upto 40	No stress
41-200	Less/moderate stress
More than 200	Severe stress

Statistical test used: The Chi-square test (to find out the association between the selected variables and psychological stress), Mean and Standard Deviation.

Results

The mean age of the study subjects was 19.94 years, with a standard deviation of 1.29 years and a range of 17-23 years. 54.98% of the subjects were males. Most of the study subjects were Hindus (90.84%). 89.64% of the subjects had an urban background with a nuclear type of family (79.28%). A majority of the subjects (86.06%) belonged to the upper socio-economic class. Most of the students (86.06%) belonged to regular batches. 86.45% of the students were staying at hostels. The

dietary pattern of the study subjects was mainly the mixed type (62.95%). 71.71% of the students were performing physical exercises. 9.16% and 11.55% of the students had a habit of smoking and alcohol intake, respectively.

(Table/Fig 1) Profile of PSLES results in study subjects

Stress	Number	%
No Stress, (Upto 40 score)	26	10.36
Less/Moderate(41-200)	107	42.63
Severe stress(> 200)	118	47.01
Total	251	100

(Table/Fig 2) PSLES results in relation to alcohol habit

Alcohol habit	No Stress		Less/Moderate		Severe		Total	
	No.	%	No.	%	No.	%	No.	%
Yes	3	10.34	6	20.69	20	68.97	29	100
No	23	10.36	101	45.50	98	44.14	222	100
Total	26	10.36	107	42.63	118	47.01	251	100

$X^2 = 7.06$, d.f=2, P=0.029

(Table/Fig 3) PSLES results in relation to tobacco abuse

Tobacco abuse	No Stress		Less/Moderate		Severe		Total	
	No.	%	No.	%	No.	%	No.	%
Yes	0	0	5	21.74	18	78.26	23	100
No	26	11.40	102	44.74	100	43.86	228	100
Total	26	10.36	107	42.63	118	47.01	251	100

$X^2 = 10.47$, d.f=2, P=0.05

(Table/Fig 4) PSLES results in relation to Regular/Repeater students

Regular/ Repeater students	No stress		Less/Moderate		Severe		Total	
	No.	%	No.	%	No.	%	No	%
Regular	25	11.57	97	44.91	94	43.52	216	100
Repeater	1	2.86	10	28.57	24	68.57	35	100
Total	26	10.36	107	42.63	118	47.01	251	100

$X^2 = 8.12$, d.f=2, P=0.017

Discussion

In our study, 42.63% of the study subjects were found to have experienced less/moderate stress and 47.01% of them had experienced severe stress. A total of 89.64% of the study subjects had experienced stress. A similar observation was made in a study from the Agha Khan University Pakistan, wherein 90% of the students felt stress at one time or the other during the course [10]. A similar study by Supe AN from India, reported that 73% of the students had perceived stress at one time or the other during their medical school course [11]. Saipanish R in his study reported that 61.4% of the students in a Thai medical school had experienced some degrees of stress, as measured by the Thai stress test [12]. Cesar A Aristeignieta (1998) noted that the prevalence of mental illness among medical students, including substance abuse, was more than that found in the general population [13]. Amr etal, in their study during 2008, found that the mean age of the subjects was 20.6 years. Overall stress was reported by 94.5% [14] of the subjects. Abdul Ghani, in his study during 2008, stated that the mean age of the subjects was 21.4 years. 57% of the students were stressed and 20% were severely stressed [15]. EL-Ghilani AH etal, in their study during 2008, found that 95% medical students in an Egyptian school and 92% medical students in a Saudi school reported one or more kinds of stress [16]. Chandrashekar T et al, in their study, stated that, the overall prevalence of psychological morbidity was 20.9 % [17]. Mosley Thomas H et al. in their study titled "stress, coping and well being among third year medical students", conducted in 1992-93, found that 23% of the subjects reported clinically significant levels of stress [18]. Studies from developing countries like India, Pakistan, Thailand and Malaysia have reported stress among medical students and have underscored the role of academics as a source of stress [10],[11],[12].

In our study, 68.97% of the students who had the habit of alcohol intake and 78.26% of the smokers had experienced severe stress. This meant, that the stress was more in students who had consumed alcohol and had smoked tobacco. The statistical association between the history of alcohol intake, tobacco abuse and the PSLES results was found to be significant. This indicated that the two substances were indulged in as a method of stress relief. Studies from the United Kingdom had reported the use of alcohol, tobacco and drugs as common coping strategies adopted by the medical students [19],[20],[21],[22],[23]. In our study, 9.16% of the students smoked tobacco and 11.55% had the alcohol habit. Zulfikar and Vankar observed in their study, that among medical

students 3% used smokeless tobacco, 12% smoked cigarettes and 12.5% had the alcohol abuse habit [24]. Naskar and Bhattacharya in their study on undergraduate medical students, observed that 12.5% used tobacco and 3.6% had the alcohol abuse habit [25]. Gurmeetsingh in his study on medical students, observed that 58.4% used alcohol and 36.6% used tobacco [26].

In this study, 68.57% of the repeaters had severe stress as compared to 43.52% stress cases among regular students. The stress was found to be more among repeaters and the association between them was statistically significant. Repeater students had to lose some academic terms and could not continue their education with their parent batch. They had significantly higher psychological stress as compared to their regular batch counterparts. So, any failure seemed to have put a lot of psychological stress on the medical students. Previous studies have also reported that academics/examinations are the common source of stress among medical students [19], [27], [28].

Conclusion

47.01% of the students showed severe psychological stress by the Presumptive Stressful Life Events Scale (PSLES) results and 42.63% of the students showed a moderate degree of psychological stress. Repeater students had significantly higher stress as compared to their regular batch counterparts. It was observed that a majority of the students with stress were involved in the abuse of tobacco and alcohol.

Recommendations

1. Scientific studies similar to this study should be undertaken in various medical colleges.
2. There is an urgent necessity to recognize the menace of psychological stress and its ill effects. This requires a selection of the best available screening methods for the early detection of students who are vulnerable to these disorders.
3. Stress releasing activities and exercises e.g. extra-curricular activities, yoga, meditation, etc should be encouraged.
4. Serious efforts in the form of health education, counseling and monitoring are required for curbing tobacco, alcohol and other drugs abuse in medical students.

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AppendixPresumptive stressful life events scale (psles)[9]
Following table shows mean stress score of common life events

Sr.No	Life Events in last one year period	Yes/No	Mean Stress Score
1	Death of spouse		95
2	Extra marital relation of spouse		80
3	Marital separation/divorce		77
4	Suspension or dismissed from job		76
5	Detention in jail of self or close family member		72
6	Lack of child		67
7	Death of close family member		66
8	Marital conflict		64
9	Property of crops damaged		61
10	Death of friend		60
11	Robbery or theft		59
12	Excessive alcohol or drug use by family member		58
13	Conflict with in-law (other than over dowry)		57
14	Broken engagement or love affair (Love failure)		57
15	Major personal illness or injury		56
16	Son or daughter leaving home		55
17	Financial loss or problems		54
18	Illness of family member		52
19	Trouble at work with colleagues, superiors or subordinates		52
20	Prophesy of astrologer or palmist etc		52
21	Preganancy of wife		52
22	Conflict over dowry		51
23	Sexual problems		51
24	Self or family members unemployed		51
25	Lack of Son		51
26	Large Loan		49
27	Marriage of daughter or dependent sister		49
28	Minor violation of law		48
29	Family conflict		47
30	Break up with friend		47
31	Major purchase or construction of house		46
32	Death of pet		44
33	Failure in examination		43
34	Appearing for examination or interview		43
35	Getting married or engaged		43
36	Trouble with neighbour		40
37	Unfulfilled commitments		40
38	Change in residence		39
39	Change or expansion of business		37
40	Outstanding personal achievements		37
41	Begin/mid/end of college		36
42	Retirement voluntary/involuntary of parents		35
43	Change in working conditions or transfer		33