

A Study to Assess the Emotional Disorders with Special Reference to Stress of Medical Students of Agartala Government Medical College and Govinda Ballabh Pant Hospital

Taranga Reang, Himadri Bhattacharjya

Department of Community Medicine, Agartala Government Medical College and Govinda Ballabh Pant Hospital, Agartala, Tripura, India

ABSTRACT

Background: Stress is very common psychological phenomena where medical students faced in day to day activities. Epidemiological studies have asserted that about 70-80% of the diseases may be related to stress. Research related to this stress especially among medical students is essential, considering their learning, role and responsibilities as a future physician and health intervention programs. **Objectives:** To estimate the prevalence of stress and identify stressors among medical students. **Materials and Methods:** A Cross-sectional study was carried out among undergraduate medical students and self administered GHQ-12 and stressor questionnaire were used to collect information regarding stress. Binary logistic regression analysis was performed to calculate odds ratio (OR). **Results:** Prevalence of stress was 94.52% and more common among females. 33.56% students felt constantly under strain and 25.34% had loss of sleep over worry. Majority of the students of all semesters had stress ($P > 0.05$) and stressors viz. 'competition for marks' ($P = 0.005$), 'frequent examination' ($P = 0.001$), 'difficulty in finding time for recreation' ($P = 0.014$) and 'being away from home' ($P = 0.027$) were predominantly experienced by the 1st year medical students. Multiple logistic regression analysis revealed the causal effect of main parameter on the GHQ caseness and students who found difficulties in following teaching language among the caseness had 81.59% higher chance of developing stress (OR = 8.159, CI = 1.228-54.213). **Conclusion:** The stress experience was more common due to academics and seen among all year of medical students. Strategy development for eliminating stressors is necessary for promoting healthy life.

Keywords: Medical college, medical students, sources of stress, stress

Introduction

Epidemiological studies have asserted that about 70-80% of the diseases may be related to stress.⁽¹⁾ Stress is defined as the body's nonspecific response or reaction to demands made on it, or to disturbing events in the environment.⁽²⁾

It is not just a stimulus or a response but it is a process by which we perceive and cope with environmental threats and challenges.⁽³⁾ The same stressors may be perceived differently by different individuals, depending on cultural background, coping skills etc.⁽⁴⁾ A stressor is defined as a personal or environmental events that causes stress.⁽⁵⁾

Access this article online	
Quick Response Code:	Website: www.ijcm.org.in
	DOI: 10.4103/0970-0218.120154

Materials and Methods

The study was conducted in Agartala Government Medical College during the period of 29th March to 28th April 2012. Sample size calculated based on recommended ratio of 10 subjects per item⁽⁶⁾ with 20% non response rate was 144 ~ 150 subjects. Medical students on

Address for correspondence:

Dr. Taranga Reang, Department of Community Medicine, Agartala Government Medical College and Govinda Ballabh Pant Hospital, Agartala - 799 006, Tripura, India. E-mail: tarangareang@gmail.com

Received: 31-12-12, **Accepted:** 01-08-13

antipsychotic drugs, absentees on the day of survey and those who refused to participate were excluded from the study. The General Health Questionnaire (GHQ)⁽⁷⁾ was a screening test used for screening the stress symptoms. The GHQ-12 items were rated under four (4) categories of responses; not at all, no more than usual, more than usual, much more than usual for statements: 1, 2, 7, 10, 11 and 12 whereas, for the rest of the statements the responses were more than usual, no more than usual, less than usual and much less than usual. The GHQ scoring was more normally distributed than Likert scale, so adopted for this study. The scoring method was binary scoring method whereby the two least symptomatic answers score 0 and the two most symptomatic answers score 1 - i.e., 0-0-1-1 for positive items and 0-1-1-1 for negative items. The minimum GHQ-12 total score was 0 and the maximum of 12. The sensitivity and specificity of the GHQ-12 score at cut-off point of 4 were 81.3% and 75.3% respectively with positive predictive value of 62.9% and therefore, participants who scored GHQ-12 equal to 4 and above were considered as having significant stress and taken as 'caseness' in this study.^(4,8) The stratified random sampling technique was employed to select the number of students from different semesters under study. Then the individual unit of the sample was chosen on the day of the each session from a whole semester using simple random technique. Altogether 150 questionnaire were distributed to students. Permission was sought from the Institutional Ethics Committee and verbal consent was taken from the participants before conducting study.

The data were analyzed in computer using Microsoft excel 2007 and Epi-info™ version 6.0. (Centers for Disease Control and Prevention, 1600 Clifton Road, Atlanta, GA 30333, USA). The percentage, mean, standard deviations were calculated and Chi-square test, Fisher's exact test, multiple logistic regression etc. were employed in analysis of data.

Results

The present study was conducted among 150 medical students where 146 completed the questionnaire. Prevalence of stress was 94.52% and predominantly (97.4%) among 8th semester students. Males constituted 56.8% and 43.2% were females. Majority belonged to 20-22 years age group. The age ranged from 18-24 years with a mean (SD) of 20.64 (\pm 1.264) years. The mean (SD) GHQ score for male, female and overall were 6.08 (\pm 2.182), 6.86 (\pm 1.109) and 6.42 (\pm 2.177) respectively. The commonest GHQ score 6 was observed among 22.6% of the participants. Severity of stress was graded on the basis of scoring in the GHQ scale.⁽⁹⁾ The mild, moderate and severe stress were 51.4% (GHQ score of 4-6), 32.2% (GHQ score 7-9) and 11.0% (GHQ score 10-12) respectively. No significant association of

psychological stress with sex ($p=0.071$), caste (0.285), year of study (0.406), location of family (0.424) and family income (0.609) [Table 1]. The stress symptom viz. felt constantly under strain, [Table 1] experienced by 33.56% of the students [Table 2]. The academic stressors were predominantly experienced by males whereas

Table 1: Association of psychological stress with sex, caste, year of study, location of family and family income of the respondents

Associated factors	Caseness (≥ 4) N (%)	Non-caseness (< 4) N (%)	P value
Gender			
Male	76 (91.57)	7 (8.43)	0.071
Female	63 (98.41)	1 (1.59)	
Total	138 (94.52)	8 (5.48)	
Caste			
S.T.	34 (94.44)	2 (5.56)	0.285
S.C.	18 (100.0)	0 (0.0)	
O.B.C.	23 (95.83)	1 (4.17)	
Gen.	63 (92.65)	5 (7.35)	
Year of study in medical school			
1 st year (2 nd semester)	38 (92.68)	3 (7.32)	0.406
2 nd year (4 th semester)	33 (94.29)	2 (5.71)	
3 rd year (6 th semester)	29 (93.55)	2 (6.45)	
4 th year (8 th semester)	38 (97.44)	1 (2.56)	
Location of family			
Urban	106 (93.81)	7 (6.19)	0.424
Rural	32 (96.97)	1 (3.03)	
Family income (Rs.)			
$\leq 15,000$	30 (90.63)	3 (9.37)	0.609
15,001-30,000	67 (94.37)	4 (5.63)	
30,001-50,000	24 (96.00)	1 (4.00)	
$> 50,000$	17 (100.00)	0 (0.00)	

Table 2: Symptoms of psychological stress among respondents

Symptoms	Number*	Percentage	Mean
Unable to concentrate	31	21.23	0.267
Loss of sleep over worry	37	25.34	0.253
Unable to play a useful part	24	16.44	0.164
Not capable of making decisions	21	14.38	0.143
Felt constantly under strain	49	33.56	0.335
Unable to overcome difficulties	28	19.18	0.191
Unable to enjoy day to day activities	27	18.49	0.184
Unable to face problems	12	8.21	0.082
Feeling unhappy and depressed	34	23.29	0.233
Losing confidence in own self	29	19.86	0.198
Thinking of self as worthless	13	8.90	0.089
Unable to feel reasonably happy	20	13.70	0.137

*Multiple response

non academic by females [Table 3] and among 1st year students [Table 4]. The causal effect of main parameter on the GHQ caseness and students who found difficulties in following teaching language among the caseness had 81.59% higher chance of developing stress (OR = 8.159, CI = 1.228-54.213) [Table 5].

Discussion

The actual cut-off score was chosen depending on the purpose and context of each study, and related to the relative importance of sensitivity and specificity. Despite the variability of cut-offs used to estimate the prevalence of stress reported in our study can be considered as high (94.52%) which was comparable with a study from Malaysia.⁽¹⁰⁾ A study from Mumbai, India⁽¹¹⁾ reported 73% of the students had perceived stress at one time or the other during their medical school. Thai Medical School reported that 61.4% of students had experienced some degree of stress as measured by the Thai Stress Test.⁽¹²⁾ The study result had clinical importance in regard to the general health status and quality of life of the students. The mean age of respondents was similar with the studies from Manipal Medical Campus, India⁽¹³⁾ and Agha Khan University, Pakistan.⁽¹⁴⁾

The mean GHQ score found in the present study was lower than the report of Jenny Firth (11.66 [\pm 5.16]),⁽¹⁵⁾

whereas Sherina *et al.*⁽¹⁰⁾ found it to be 1.03 (\pm 0.178), which was lower than the present study. The difference in the observations made by other authors again pointed that stress was a matter of perception and all were not affected equally. Different individuals had different ways of looking at stressful conditions.

Gender, location of family, caste, religion, number of family members, income etc., had no significant relationship with positive GHQ-caseness of medical students and almost similar results were reported from Nepal, Manipal College of Medical Sciences⁽¹⁷⁾ and from a private medical school in Malaysia.⁽¹⁶⁾ Though the prevalence of stress symptoms were high in all the semesters but it was not significant. An almost similar conclusions was made by Sherina *et al.*⁽¹⁰⁾ However, it differed from a study conducted in Mumbai, India, where stress was significantly more among 2nd and 3rd year compared to first year MBBS students.⁽¹¹⁾ Again, contradictory results were observed from the studies conducted in Malaysia⁽¹⁷⁾ and Riyadh, Saudi Arabia⁽¹⁸⁾ that stress significantly decreased with the increment of year of study, except for the final year. A study in Multan also found significant association between the prevalence of anxiety and depression with the respective year of medical college.⁽¹⁹⁾

Table 3: Association of stressors with sex of the participants

Stressors	Response	Sex		Total N, (%)	P value
		Male, N (%)	Female, N (%)		
Academic stressors					
With the amount/course of information to be learnt	Yes	47 (66.2)	24 (33.8)	71 (100.0)	0.006
	No	33 (44.3)	42 (56.0)	75 (100.0)	
With competition for marks	Yes	42 (63.6)	24 (36.4)	66 (100.0)	0.037
	No	38 (47.5)	42 (52.5)	80 (100.0)	
In communicating with/approaching teachers	Yes	36 (64.3)	20 (35.7)	56 (100.0)	0.049
	No	44 (48.9)	46 (51.1)	90 (100.0)	
Non-academic stressors					
With financial problems	Yes	26 (70.3)	11 (29.7)	37 (100.0)	0.022
	No	54 (49.5)	55 (50.5)	109 (100.0)	

Table 4: Association of stressors with semesters

Stressors	Response	Semesters				Total N (%)	P value
		2 nd N (%)	4 th N (%)	6 th N (%)	8 th N (%)		
Academic stressor							
With competition for marks	Yes	28 (41.2)	16 (23.5)	9 (13.2)	15 (22.1)	68 (100.0)	0.005
	No	13 (16.7)	19 (24.4)	22 (28.2)	24 (30.8)	78 (100.0)	
With frequent examinations	Yes	29 (35.8)	23 (28.4)	8 (9.9)	21 (25.9)	81 (100.0)	0.001
	No	12 (18.5)	12 (18.5)	23 (35.4)	18 (27.7)	65 (100.0)	
Non-academic stressors							
In finding time for recreation	Yes	24 (42.9)	9 (16.1)	9 (16.1)	14 (25.0)	56 (100.0)	0.014
	No	17 (18.9)	26 (28.9)	22 (24.4)	25 (27.8)	90 (100.0)	
In being away from home	Yes	24 (34.8)	21 (30.4)	10 (14.5)	14 (20.3)	69 (100.0)	0.027
	No	17 (22.1)	14 (18.2)	21 (27.3)	25 (32.5)	77 (100.0)	

Table 5: Predictors of GHQ-caseness by logistic regression analysis

Variable	Number	Number of GHQ caseness (%)	OR	95% CI	P value
Phase of study					
2 nd semester	41	38 (92.68)	1		
Others (4 th , 6 th , 8 th)	105	100 (95.24)	1.813	0.265	12.417
Caste					
General	68	63 (92.65)	1		
Others (SC, OBC, S/T)	78	75 (96.15)	4.109	0.615	27.460
Location of family					
Rural	33	32 (96.97)	1		
Urban	113	106 (93.80)	0.304	0.023	3.977
Occurrence of academic stressors					
In following the teaching language					
Yes	28	24 (85.71)	1		
No	118	114 (96.61)	8.159	1.228	54.213
With the amount/course of information to be learnt					
Yes	71	66 (92.96)	1		
No	75	72 (96.0)	1.400	0.221	8.873
Competition for marks					
Yes	68	65 (95.59)	1		
No	78	73 (93.59)	0.430	0.072	2.557
With workload					
Yes	88	85 (96.59)	1		
No	58	53 (91.38)	0.266	0.043	1.632
Occurrence of non-academic stressors					
In being away from home					
Yes	69	65 (94.20)	1		
No	77	73 (94.80)	1.689	0.280	10.195

GHQ: General health questionnaire, OR: Odds ratio, CI: Confidence interval

In present study the proportion of participants having severe stress was lower than a study conducted in Surat, India where 55.6% reported mild to moderate stress and 41.2% had severe stress.⁽⁹⁾ A study from Riyadh, Saudi Arabia showed that prevalence of severe stress was 25%.⁽¹⁸⁾ Conversely, it was higher than the findings of Spanish R where 2.4% had severe stress.⁽¹²⁾ Again, the prevalence of mild and moderate stress in our study was higher than the finding from a study conducted in Gorgan, Iran.⁽²⁰⁾ When the severity of stress was examined in relation to the semester (or year) of study of the participants, it emerged that the prevalence of severe stress was highest among the final year students ($P > 0.05$). A similar result was reported by Priti Solanky *et al.*⁽⁹⁾ This may be due to the vast course to be covered as well as acquiring of clinical acumen and unrealistic expectations both from their parents as well as themselves. The thought that they were actually on the verge of completing their undergraduate study may also add to the stress in this group. Yet another point of concurrence among these two studies was that the prevalence of severe stress was lowest among the second year students although the absolute percentage reported from a study in Surat, India⁽⁹⁾ was higher than the present study. The prevalence of mild stress was highest among the second year students as compared to others suggesting that the

severity of stress in this year was relatively less, which was similar to the findings of a study conducted in Surat, India⁽⁹⁾ On the contrary, Mahajan⁽²¹⁾ and Miller,⁽²²⁾ reported that the first year was the period of maximum stress.

The common symptoms of psychological stress were comparable to a study from University Putra, Malaysia.⁽¹⁰⁾ Higher percentage of students were found 'not feeling reasonably happy' (78.8% vs. 13.70%) and having 'problems in sleeping when worried' (71.0% vs. 25.35%) in the present study.⁽¹⁶⁾ The reason for a higher percentage of stress among students could be due to their awareness regarding stress symptoms and ability to adapt quickly.

The academic/non-academic stressors were more commonly seen among male medical students ($P < 0.05$) and comparable to a study conducted in Perak, Malaysia.⁽²³⁾ Significant association was also observed between semesters and stressors and was comparable to a study from Melaka Manipal Medical College; India⁽¹³⁾ except 'with difficulty in keeping pace', 'with the amount of information that had to be mastered' and "finding time for recreation". 41.10% faced difficulties in approaching the teachers. The 1st year students experienced higher

proportion of stressors, which was comparable to studies from Manipal College of Medical Sciences, Nepal⁽¹⁶⁾ and a private Medical School in Malaysia.⁽¹⁷⁾ This indicated that the student-teacher relationship needs further improvement.

The Multiple logistic regression analysis explained the causal effect of main parameters on the GHQ caseness and comparable to a study from Manipal College of Medical Sciences, Nepal.⁽¹⁶⁾

Conclusion

The stressors experienced were more common to academics and seen among all year of medical students. Strategy development for eliminating stressors is necessary for promoting healthy life.

Acknowledgments

We acknowledge the cooperation offered by the study participants, without which this study would have not been possible.

References

- Smith EE, Nolen-Hoeksema S, Frederickson B, Loftus GR. Atkinson and Hilgard's Introduction to Psychology, 14th edn. Thomson Wadsworth, USA: 2003.
- Rosenham DL, Seligman ME. Abnormal psychology, 2nd edn. New York: Norton, 1989.
- Myers DG. Stress and Health, in: Exploring Psychology, 6th edn., pp. 402. New York: Worth Publishers, 2005.
- Muhamad SBY, Ahmad FAR and Yaacob MJ. The development and validity of the Medical Student Stressor Questionnaire (MSSQ), ASEAN Journal of Psychiatry 2010; 11:1-15.
- Lazarus RS. Theory-Based Stress Measurement, Psychology Inquiry 1990;1:3-13.
- Aktekin M, Karaman T, Senol YY, Erdem S, Erengin H, Akaydin M. Anxiety, depression and stressful life events among medical students: a prospective study in Antalya, Turkey. Medical Education 2001;35:12-7.
- Costello Anna B, Jason Osborne. Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis, PARE 2005;10:173-8.
- Goldberg DP, Gater R, Sartorius N, Ustun T B, Piccinelli M, Gureje O, Rutter C. The validity of two versions of the GHQ in the WHO study of mental illness in general health care. Psychol Med 1997;27:191-7.
- Solanky P, Desai B, Kavishwar A, Kantharia SL. Study of psychological stress among undergraduate medical students of Government Medical College, Surat. Int J Med Sci Public Health 2012;1:38-42.
- Sherina MS, Rampal L, Kaneson N. Psychological stress among undergraduate medical students. Med J Malaysia 2004;59:207-11.
- Supe AN. A study of stress in medical students at Seth G.S. Medical College. J Postgrad Med 1998;44:1-6.
- Saipanish R. Stress among medical students in a Thai Medical School. Med Teach 2003;25:502-6.
- Abraham RR, Zulkifli EM, Fan ES, Xin GN, Lim JT. A report on stress among first year students in an Indian medical school. SouthEastAsianJMedEduc2009;3:78-81.
- Shaikh BT, Kahloon A, Kazmi M, Khalid H, Nawaz K, Khan N, *et al.* Students, stress and coping strategies: A case of Pakistani Medical School. Educ Health (Abingdon) 2004;17:346-53.
- Firth J. Levels and sources of stress in medical students. Br Med J (Clin Res Ed) 1986;292:1177-80.
- Sreeramareddy CT, Shankar PR, Binu VS, Mukhopadhyay C, Ray B, Menezes RG. Psychological morbidity, sources of stress and coping strategies among undergraduate medical students of Nepal. BMC Med Educ 2007;7:26.
- Zaid ZA, Chan SC, Ho JJ. Emotional disorders among medical students in a Malaysian private medical school. Singapore Med J 2007;48:895-9.
- Abdulghani HM, Alkanhal AA, Mahmoud ES, Ponnampereuma GG, Alfaris EA. Stress and its effects on medical Students: a cross-sectional study at a college of medicine in Saudi Arabia. J Health Popul Nutr 2011;29:516-22.
- Jadoon NA, Yaqoob R, Raza A, Shehzad MA, Zeshan SC. Anxiety and depression among medical students: A cross-sectional study. J Pak Med Assoc 2010;60:699-702.
- Marjani A, Gharavi AM, Jahanshahi M, Vahidirad A, Alizadeh F. Stress among medical students of Gorgan (South East of Caspian Sea), Iran. Kathmandu University Medical Journal 2008;6:421-5.
- Mahajan AS. Stress in Medical Education: a global issue or Much Ado About Nothing specific? South-East Asian Journal of Medical Education 2010;4:9-13.
- Miller, PMc C. The first year at medical school, some findings and students perceptions, Medical Education 1994;28:5-7.
- Johari AB, I Noor Hassim. Stress and coping strategies among medical students in National University of Malaysia, Malaysia University of Sabah and Universiti Kuala Lumpur Royal College of Medicine Perak. Journal of Community Health 2009;15: 107-15.

How to cite this article: Reang T, Bhattacharjya H. A study to assess the emotional disorders with special reference to stress of medical students of Agartala government medical college and Govinda ballabh pant hospital. Indian J Community Med 2013;38:207-11.

Source of Support: Nil, **Conflict of Interest:** None declared.