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Original Research Article

Stress and burnout among first year undergraduate medical students of a private medical college: a cross-sectional study

Ngamba Akham, Soram Goutam*, Toijam Gambhir Singh

Department of Community Medicine, Shija Academy of Health Sciences, Langol, Imphal West, Manipur, India

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***Correspondence:**
Dr. Soram Goutam,
E-mail: soram.goutam@gmail.com

ABSTRACT

Background: Stress can be considered as a double-edged sword. Various studies have provided evidence of stress amongst medical students. There have been no studies regarding prevalence of various stress factors among the medical students of the only private medical college in Manipur.
Methods: A cross-sectional study was conducted at Shija Academy of Health Sciences, Langol amongst the first MBBS Batch 2022. Convenience sampling method was adopted. medical students stress questionnaire was used for assessing Stress and Maslach burnout inventory-student survey was used for assessing Burnout of the medical students.
Results: A total of 148 medical students participated. For stress predictor domains, the academic related stressor was found to have the highest mean score (2.30±0.65). There were statistically significant associations between the social related stressor score with location of home of students and academic related stressor with self-graded academic performance. There was also significant association between group activities related stressor and self-graded academic performance of students. for burnout domains, the employment/occupational exhaustion had the highest mean score (26.54±9.37). Statistically significant associations were found between depersonalization with gender and location of home of students, and occupational exhaustion with self-graded academic performance of students.
Conclusions: This study reveals the need for stress management modules development for students with special focus on academic and social related stressors.

Keywords: Stress, Burnout, Medical students, Medical student stress questionnaire

INTRODUCTION

Stress as defined by Hans Selye, Father of Stress is "a state manifested by a specific syndrome which consists of all the non-specifically induced changes within the biological system".[1] Lazarus, Psychologist also has defined stress as a process whereby an individual perceives and responds to events that he appraises as overwhelming or threatening to his well-being.[2] Stress can be considered a double-edged sword. 'Eustress' can be to better performance to an individual while 'distress' can lead to adverse mental health condition such as anxiety, burnout maladaptive coping such as substance abuse or suicide in worst case. Various studies conducted across different nations have provided evidence of prevalence of stress amongst medical students.[1,3-5] Self-efficacy and resilient way of various coping strategies affect perceived stress and help in modulation of side effects such as anxiety and depression.[6] There have been no studies regarding the prevalence of stress and its predictors in the only private medical college in the state of Manipur. Hence, the rational of the study.

Objectives

Objectives of current study were to determine the level of stress and burnout predictors among medical students and to determine association of selected variables with stress and burnout levels.

METHODS

Study design, location, duration and population

The study was a Cross-sectional study conducted at Shija Academy of Health Sciences, Langol (SAHS), Imphal, Manipur, India. SAHS is the first Private medical college in Manipur. The Study was conducted during 22 August to 22 September, 2022. The study was conducted amongst the population of MBBS students of SAHS. SAHS has an annual intake capacity of 150 MBBS students and currently there are 148 students (First Batch).

Table 1: Medical students stress questionnaire.[7]

Stressor Domains	Mild*	Moderate*	High*	Severe*
Academic related stressors (ARS), Intrapersonal and interpersonal related stressors (IRS), Teaching and learning-related stressors (TLRS), Social related stressors (SRS), Drive and desire related stressors (DRS)	Indicates that it does not cause any stress on you. Even if it does, it just causes mild stress.	Indicates that it reasonably causes stress on you. However, you can manage it well.	Indicates that it causes a lot of stress on you. Your emotions seem to be disturbed by it. Your daily activities are mildly compromised due to it.	Indicates that it severely causes stress on you. It disturbs your emotions badly. Your daily activities are compromised due to it.

*Mean domain score: 0.00-1.00=mild, 2.01-3.00=high, 1.01-2.00=moderate, 3.01-4.00=severe

Table 2:Maslach Burnout Score.[8]

Employment/Occupational exhaustion (EE)	EE <17	EE 18-29	EE >30
	Low degree	**Moderate degree**	**High degree**
Depersonalisation/Loss of empathy (DP)	DP <5	DP 6-11	DP >12
	Low degree	Moderate degree	High Degree
Personal Accomplishment assessment (PA)	PA <33	PA 34-39	PA >40
	Low degree	Moderate degree	High degree

Sample size and sampling method

A total of 148 students were included in the study. Universal sampling method was applied for selecting the study participants. We have included all those who gave consent and excluded those who could not be contacted even after 2 attempts through phone calls/SMSs/ WhatsApp.

Study tools

A pre-designed Google form based on validated Medical Students Stress Questionnaire (MSSQ) for assessing Stress and Maslach Burnout Inventory-Student Survey (MBISS) for assessing Burnout was used for data collection.[7,8]

Operational definitions

Medical Students Stress Questionnaire will assess Stress domains.[7]

Data collection and analysis

Data were collected during one of the designated theory class schedules for the Department of Community Medicine. After a briefing of 15 minutes and taking verbal consent, a Pre-designed Google form was shared to the students using Google form platform and was self-administered by students. It was collected back after 45 minutes.

Those absent in the class were approached through phone calls/SMSs/Social Media platforms for consent and sending the Google form. For descriptive statistics, frequency, percentages and mean was used. For performing statistical significance test, t-test, ANOVA, was used taking $p<0.05$ to be statistically significant. Privacy and confidentiality of data was maintained. Data collected kept locked under the custody of Department of Community Medicine. Verbal consent from each respondent was taken.

RESULTS

Participants' background

Nearly three-fourth (103, 69.6%) of the participants were females. Local students constituted a little more than three-fourth (113, 76.4%) of the participants. Majority of the participants (122, 82.4%) were staying at hostel. Almost three-fourth (113, 76%) of the students graded their academic performance as unsatisfied (Table 3).

Table 3: Participants' background details (n=148).

Variables		N	%
Gender	Female	103	69.6
	Male	44	29.7
	Transgender	1	0.7
Home location	Local	113	76.4
	Other states	35	23.6
Place of residence	Urban	106	71.6
	Local	42	28.4
Specialist branch planning after MBBS	Medicine allied	92	62.2
	Surgery allied	37	25.0
	Not decided	19	12.8
Staying at hostel	Yes	122	82.4
	No	26	17.6
How do you grade your academic performance in MBBS course?	Satisfied	35	23.6

Table 4: Mean scores in MSSQ domains.

Variables	ARS	IRS	TLRS	SRS	DRS	GARS
Mean	2.30	1.66	1.63	1.62	1.55	1.69
SD	0.65	0.84	0.70	0.59	0.83	0.79
Range	0.00 -4.00					

Table 5: Mean scores in burnout domains.

Variables	Occupational Exhaustion	Depersonalization	Personal Accomplishment
Mean	26.54	9.16	25.02
SD	9.37	5.17	8.77
Range	0 – 54	0 - 30	0 - 48

Stress and burnout predictors

Among the Stress predictors, the mean score of the ARS was 2.30 ± 0.65 and the highest followed by GARS with a mean score of 1.69±0.79 (Table 4). Regarding Burnout among the students, the mean score of Burnout domain was highest in Employment/Occupational Exhaustion with mean of 26.54±9.37 and it was followed by Personal Accomplishment domain with mean of 25.02±8.77 (Table 5). For ARS, high degree of stress was found in more than half (85, 57.4%) of the students. For IRS, a little more than one-fourth (56, 37.8%) of the students had responded having moderate degree stress. Half (82, 55.4%) of the students also responded having moderate degree stress in TLRS. Almost half (75, 50.7%) of the students responded having moderate degree stress in SRS. Nearly half of the students responded having moderate stress in SRS (64, 43%) and DRS (69, 46.6%) also (Table 6). For burnout domains, nearly half (70, 47%) of the students responded having moderate degree of burnout related to EE. Nearly half (67, 45%) of the students responded having moderate degree of burnout regarding DP and more than three-fourth (126, 85%) of the students had low degree of burnout regarding PA (Table 7).

Test of association between MSSQ domains and variables

The mean score of SRS for local students was 1.69±0.56 and for students from other States was 1.4±0.64 and it was found to be statistically significant (Table 8). The mean score of ARS regarding Self-Graded Academic Performance was 1.99±0.67 in those satisfied students and 2.39±0.61 in unsatisfied students and it was found to be statistically significant. IRS mean score among satisfied students was 1.37±0.87 compared to unsatisfactory students mean of 1.75±0.82 and it was statistically significant. TLRS mean score for satisfied was 1.36±0.6 and 1.71±0.71 for unsatisfied students and it was found significant statistically. The mean score for SRS for satisfied students was 1.41±0.61 and for those of unsatisfied students was 1.68±0.79 and found statistically significant.

The mean score for DRS among those satisfied students was 1.14±0.61 compared to unsatisfied students' mean of 1.68±0.58 and it was statistically significant. For GARS, the mean of satisfied students was 1.39±0.86 and 1.78±0.74 for the unsatisfied students and it was found to be statistically significant (Table 9).

Table 6: Distribution of responses to MSSQ domains (n=148).

Domain	Mild Degree N (%)	Moderate Degree N (%)	High Degree N (%)	Severe Degree N (%)	Total N (%)
ARS	8 (5.4)	40 (27)	85 (57.4)	15 (10.2)	148(100)
IRS	45 (30.4)	56 (37.8)	37 (25)	10 (6.8)	
TLRS	31 (20.9)	82 (55.4)	33 (22.3)	2 (1.4)	
SRS	36 (24.3)	75 (50.7)	37 (25)	0 (0)	
DRS	50 (33.8)	64 (43.2)	30 (20.3)	4 (2.7)	
GARS	38 (25.7)	69 (46.6)	33 (22.3)	8 (5.4)	

Table 7: Distribution of responses to burnout domains (n=148).

Domain	Low Degree N (%)	Moderate Degree N (%)	High Degree N (%)	Total N (%)
Employment/occupational exhaustion (EE)	21(14.2)	70(47.3)	57(38.5)	148(100)
Depersonalization (DP)	35(23.6)	67(45.3)	46(31.1)	
Personal Accomplishment (PA)	126(85.1)	15(10.1)	7(4.7)	

Table 8: Association of MSSQ domains with location of home of students.

MSSQ Domain	Variable			T value	P value
		Local N=113	Other States N=35		
ARS	Mean	2.32	2.20	0.95	0.34
	SD	0.66	0.59		
IRS	Mean	1.70	1.52	1.08	0.27
	SD	0.86	0.8		
TLRS	Mean	1.69	1.43	1.87	0.06
	SD	0.7	0.66		
SRS	Mean	1.69	1.4	2.55	0.01*
	SD	0.56	0.64		
DRS	Mean	1.53	1.62	-0.59	0.55
	SD	0.83	0.81		
GARS	Mean	1.73	1.73	1.19	0.23
	SD	0.76	0.76		

*Statistically Significant; p<0.05

Table 9: Association of MSSQ domains with self-graded academic performance.

MSSQ Domain	Variable			T value	P value
		Satisfied N=35	Unsatisfied N=113		
ARS	Mean	1.99	2.39	-3.26	0.01*
	SD	0.67	0.61		
IRS	Mean	1.37	1.75	-2.29	0.02*
	SD	0.87	0.82		
TLRS	Mean	1.36	1.71	-2.61	0.01*
	SD	0.60	0.71		
SRS	Mean	1.41	1.68	-2.44	0.01*
	SD	0.61	0.58		
DRS	Mean	1.14	1.68	-3.49	0.01*
	SD	0.81	0.79		
GARS	Mean	1.39	1.78	-2.64	0.01*
	SD	0.86	0.74		

*Statistically Significant; p<0.05

Test of association between Burnout domains and variables

The mean score of Depersonalization domain for male students was 10.68±6.05, female students' mean was 8.46±4.61 and mean for transgender students was 9.16±5.17 and found to be statistically significant (Table 10). The mean score of local students for Depersonalization domain was 8.52±4.55 compared to mean score of 11.23±6.44 for students from other States it was and found to be statistically significant (Table 11).

Table 10: Association of burnout domains with gender of participants.

Domain	Variables	Male n=4	Female n=103	Transgender n=1	F value	P value
Employment/occupational exhaustion (EE)	Mean	26.11	26.61	26.54	0.79	0.45
	SD	8.98	9.55	9.37		
Depersonalization (DP)	Mean	10.68	8.46	9.16	3.61	0.02*
	SD	6.05	4.61	5.17		
Personal Accomplishment (PA)	Mean	24.95	25.06	25.02	0.01	0.99
	SD	8.54	8.93	8.77		

*Statistically Significant; p<0.05

Table 11: Association of burnout domains with location of home of students.

Domain	Variable	Local n=113	Other states n=35	T value	P value
Employment/occupational exhaustion (EE)	Mean	26.66	26.14	0.28	0.77
	SD	8.68	11.45		
Depersonalization (DP)	Mean	8.52	11.23	**-2.76**	**0.01***
	SD	4.55	6.44		
Personal Accomplishment (PA)	Mean	24.96	25.20	-0.13	0.89
	SD	8.68	9.16		

*Statistically Significant; p<0.05

Table 12: Association of burnout domains with self-graded academic performance.

Domain	Variable	Satisfied n=35	Unsatisfied n=113	T value	P value
Employment/occupational exhaustion (EE)	Mean	23.20	27.58	-2.45	0.01*
	SD	9.07	9.26		
Depersonalization (DP)	Mean	7.8	9.58	-1.79	0.07
	SD	4.2	5.37		
Personal Accomplishment (PA)	Mean	27.26	24.33	1.73	0.08
	SD	7.35	9.08		

*Statistically Significant; p<0.05

For Occupational Exhaustion domain regarding Self-Graded Academic Performance, the mean score of satisfied students was 23.20±9.07 compared to 27.58±9.26 for unsatisfied students. It was found to be statistically significant (Table 12).

DISCUSSION

Current study has revealed that among the 6 Stressor domains of MSSQ, the Academic Related Stressors provides a major contribution. This outcome has been supported by other studies done inside and outside India.[4,9-12] The reason could be due to sudden insights of the students into the vastness of the medical curriculum

and syllabus. Besides this, the students might be facing time constraints and at times few precious days of class are lost to holidays, strikes or bandhs in the state and leading to fall behind schedule and poor performance.

The Social Related Stressors was found higher among the students of local residence compared to those from outside the state and it was statistically significant. This finding was found to be in contrast with the study done by Jain et al.[12] As defined by Yusoff et al it refers to any form of community and societal relationships that cause stress. A high score of this domain indicates that societal and community events are the main source of stress. This indirectly indicates that students have difficulty spending their time in social and community activities.[7] Interestingly, in our study, the score of all the stressor domains of MSSQ was found higher in students who self-graded their own academic performance as unsatisfied compared to those satisfied students. This result was found in-line with studies done at developing countries like Malaysia, Thailand and Pakistan.[13-15] Medical students are exposed to new adaptive environments in which the massive syllabus, input overload and frequency of the assessments leave only a meagre amount of time to the students to relax and invigorate. Besides this, they

also deal with emotional and physical hurdles while concurrently adapting and adjusting to the new environment. The standards of expectations from the parents and peers and also commitment to success can further pose a negative impact on their psychological well-being. Our study also found out that the Emotional Exhaustion domain of burnout was comparatively higher than other domains among the students. Studies from India, England, New Zealand and Nigeria have shown similar results in rates of burnout. Emotional exhaustion, as defined by Maslach et al is typically connected to a relationship with work that is perceived as difficult, tiring and stressful.[8] Reportedly, Indian medical education structure is mostly based on knowledge domain compared to clinical skills and attitude and assessment is based on subjective evaluation by the examiner.[16] Our study is probably the first study in the North-east region exploring the stress and burnout among medical students in a private medical college using a standardized and valid study instrument. The study period was done during month of August, where there was no upcoming assessment examination. This may have helped us to capture the true picture of stress and burnout. The study however has certain short falls. The generalizability of the study findings may be affected due to single-centre study and a small study sample size. There were no screening of the personality or pattern of behaviours of the students that might influence on the stress or burnout before the study. Possible confounding factors such as lack of sleep or exercise parameters were not assessed.

CONCLUSION

This study reveals the need for stress management modules development for students with special focus on academic and social related stressors.

Recommendations

This study has revealed that there is need for stress management modules development for students with special focus on academic and social related stressors. Students use various coping mechanisms to process their perceived stress and burnout so strategies to impart life skills such as problem solving, positive reinterpretation and expression of emotion may help facilitate student adaptation.[17-20] It is critical for medical educators to understand the prevalence and severity of stress and burnout of the students timely by implementation of screening strategy through the curriculum implementation programme for avoiding potential adverse consequences in students' health.

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