

Stressors perceived by the clinical undergraduate medical students towards the end of course

Md. Ahsan Habib, Md. Azizur Rahman, Anjuman Ara, Mahmuda Ayub, Nasrin Begum and Sharmin Hossain

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Department of Anatomy, Armed Forces Medical College, Dhaka Cantonment, Dhaka, Bangladesh

For Correspondence:

Md. Ahsan Habib
doctorahsan@gmail.com

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Abstract

Response or reaction of the mind to the pressure of life is stress. Medical students of Bangladesh are in stress to meet the demands of the curriculum. This study was conducted on the regularly passed final year students of a medical college to find out the nature of stresses perceived by them. The response was collected on a validated structured set of questionnaire, 3 weeks prior to the University level summative examination and 63 students (33 male and 30 female) participated in the study. Stress was expressed in five levels and scored as 0 to 4. Academic related factors were identified as maximum stress provoking (2.5 ± 1.3) than group activity (1.6 ± 1.4), drive (1.4 ± 1.5), teaching-learning (2.3 ± 1.3), personnel (1.8 ± 1.6) or social (1.9 ± 1.5) related factors. Of that group of stress, 'falling behind reading schedule' and 'large amount of content to be learned' were revealed as heavy stressors. Examination was identified as a severe stressor in 42.4% male, but was marked less (16.7%) in the female. 'Too much restriction in the campus' was observed as heavy stressors among the factors other than the academic related stressors. Students may be motivated to develop a coping strategy for academic and teaching-learning related stress.

Introduction

There is no consensus amongst the educators about the optimal way to teach the future generation. Various disciplines are advancing in their way to run an undergraduate program, resulting in competitive overloading of the course content by the educators. The students are also taking the pressure to go ahead leaving another behind to be an idol of the time. Nonspecific response or reaction of the mind to this pressure is stress. Stressors are actually driving force to accomplish the job and have a role in improving mental ability.¹ The problem arises when it exceeds a threshold. Some of the medical students struggle with the demands of the course and feel immense pressure. Those stressors become severe in a handsome fraction of that population and lead to psychiatric illness.

Patil et al. (2016) in a study on MBBS students of different years of course period observed that the level of stress was significant ($p < 0.05$) in relatively senior batches.² The study revealed that the busy schedule and the length of the syllabus were the most stressor area at all levels of the course. Abdulghani et al. (2011) in a study conducted at a medical college of Saudi Arabia observed that the prevalence of stress of all levels was 63.8% and that of severe stress was 25.2% ($n=774$). The female students had a

higher prevalence of stress than the males (odds ratio = 2.3, $p < 0.0001$).³ This study revealed that prevalence was progressively lower in senior batches ($p < 0.0001$). This stress induces a change in lifestyle, like a decrease in sleep, leisure and recreational activities, and change in personality of an individual as a decrease in human feelings or inter-personal sensitivity, aloofness with a shift to a hedonistic personality.⁴

Students with uncontrolled stress develop psychiatric illness of which depression and anxiety are quite common. Alkot et al. (2017) in a study on students of the different discipline of a public university observed that both male and female medical students had the highest rate of depression compared to non-medical students.⁵ In a random-effects meta-analysis Rotenstein et al. (2016) extracted data from 167 cross-sectional studies ($n=1,16,628$) and 16 longitudinal studies ($n=5,728$) from 43 countries and observed prevalence of depression or depressive symptoms among 27.2% medical students and that of suicidal ideation among 11.1% (means 13,581) medical students.⁶ The early identification of individuals belonging to the risk group is important. In time, identification of the nature of stressor and the development of coping capability can preserve the sound mental health of tomorrow's doctors. Pinto et al. (2018) observed that one-third of the study



population was having the stress of different degree and half of them could develop stress management techniques to adequately manage their stress.² The author expressed the need for conducting a screening program for stress in medical students and implementing measures that may equip them with skills to manage their stresses.

Stress induces drive for the progress. Starting from the student-life medical personnel faces stresses that are different from other ways of life. Bearing stress continually for a long time induces psychological deviation and outburst. Students may be encouraged to develop coping strategies and gain the ability to convert the stressor to a positive drive. This study was designed to find out the nature and intensity of stressors perceived by the undergraduate medical students (final phase) of Armed Forces Medical College before the final summative examination.

Materials and Methods

A cross-sectional descriptive study was designed involving the final year cadets of Armed Forces Medical College, Dhaka Cantonment. The study was conducted during the period from July to December 2018. Regularly passed cadets of phase IV were included in the study and the response was collected in the first week of October 2018 (3 weeks prior to the beginning of University level summa-

tive examination). The purpose and the process of data collection were explained to the cadets and a structured questionnaire was distributed to the volunteers of the target population only. The foreign students were excluded from the study. A total of 63 students (33 males and 30 females) participated in the study. Validated structured set of a questionnaire (Medical student stressor questionnaire - MSSQ)³ was selected for the study. For better and easy understanding, questions were translated into the local language (Bangla) and were slightly modified for better adaptation to the topic of the study. Collected data was analyzed in Microsoft Excel and SPSS 19.

Results

Students opined that of the academic related stressors (Table I) all factors were in between mild to moderate in nature except 'falling behind reading schedule', 'heavy workload', 'not enough scope of medical skill practice' and 'large amount of content to be learnt', which were respectively more than heavy stressor and close to heavy stressor. In both sexes, the nature of academic related stressors was similar except 'content to be learned'. Males significantly ($p=0.01$) perceived more stress than female in this field. Other than the academic related stressors 'too much restriction in the campus' was revealed as heavy stress provoking which was

Table I

Frequency distribution of Academic Related Stress (ARS) with their mean scores (n = 63)

SL No.	Factors (at which level following causes stress in you)	Level of stress (Score 0 to 4)					Score Mean \pm SD
		No f	Mild f	Moderate f	Heavy f	Severe f ^b	
1	Tests/examinations	3	11	13	17	19	2.6 \pm 1.2
2	Falling behind in reading schedule (n= 61)	1	2	6	27	25	3.2 \pm 0.9
3	Large amount of content to be learned	4	6	14	19	20	2.7 \pm 1.2
4	Having difficulty in understanding the content	1	6	27	13	16	2.6 \pm 1.0
5	Getting poor marks	3	8	16	22	14	2.6 \pm 1.1
6	Quota system in examination (n=61)	7	7	13	16	18	2.7 \pm 1.8
7	Lack of time to review what has been learned	4	7	16	16	20	2.7 \pm 1.2
8	Need to do well (self-expectation)	13	22	11	9	8	1.6 \pm 1.3
9	Learning context is full of competition	10	21	9	11	12	1.9 \pm 1.4
10	Unable to answer the questions of the teachers (n=61)	0	11	15	19	16	2.7 \pm 1.1
11	Heavy workload	2	8	11	17	25	2.9 \pm 1.2
12	Unjustified grading process	6	16	13	10	18	2.3 \pm 1.4
13	Not enough scope of medical skill practice	2	9	14	17	21	2.7 \pm 1.2
14	Feeling guilt during rest	23	10	8	12	10	1.6 \pm 1.5

ANOVA

df= 13; F= 8.222; ^ap= 0.000

^aThe difference is significant. ^bf= frequency

Table II

Frequency distribution of GARS (serial 1 to 4), DRS (serial 5 to 7), TLRs (serial 8 to 14), IRS (serial 15 to 21), SRS (serial 22 to 28) with their mean scores (n=63)

SL No.	Factors (at which level following causes stress in you)	Level of stress (Score 0 to 4)					Score Mean \pm SD
		No f	Mild f	Moderate f	Heavy f	Severe f#	
1	Participation in class discussion	27	8	19	6	3	1.2 \pm 1.2
2	Participation in class presentation	20	11	21	4	7	1.5 \pm 1.3
3	Need to do well (imposed by others)	12	20	16	6	8	1.7 \pm 1.3
4	Feeling of incompetence	12	12	12	11	16	2.1 \pm 1.5
5	Unwillingness to study medicine	33	8	5	5	8	1.1 \pm 1.5
6	Parental wish to study medicine	31	7	8	8	7	1.2 \pm 1.5
7	Family responsibilities	14	11	17	13	7	1.8 \pm 1.3
8	Teacher with lack of teaching skills	15	8	16	14	8	1.9 \pm 1.4
9	Not having enough study material	11	14	10	15	11	2.0 \pm 1.4
10	Inappropriate assignments	9	8	22	8	16	2.2 \pm 1.4
11	Lack of guidance from teacher(s)	4	4	28	8	17	2.5 \pm 1.2
12	Not enough feedback from teacher	2	10	17	15	16	2.6 \pm 1.2
13	Uncertainty of what is expected of students	4	12	17	14	16	2.4 \pm 1.2
14	Lack of recognition for work done by students	7	9	19	9	17	2.3 \pm 1.3
15	Conflicts with other students	20	15	8	11	9	1.6 \pm 1.5
16	Poor motivation to learn	10	12	19	9	12	2.0 \pm 1.3
17	Verbal or physical abuse by other student(s)	25	6	10	8	14	1.7 \pm 1.6
18	Verbal or physical abuse by teacher	13	9	16	7	18	2.1 \pm 1.5
19	Verbal or physical abuse by personnel	24	5	10	10	14	1.8 \pm 1.6
20	Conflict with other personnel	21	7	14	7	13	1.7 \pm 1.6
21	Conflict with the teacher	23	8	6	6	19	1.8 \pm 1.7
22	Lack of time for family and friends	10	16	14	15	8	1.9 \pm 1.3
23	Unable to answer questions from patients	16	10	17	10	10	1.8 \pm 1.4
24	Talking to patients about personal problems	14	8	13	15	13	2.1 \pm 1.5
25	Facing illness or death of the patients	15	11	13	11	13	1.9 \pm 1.5
26	Working with computers	34	12	8	5	4	0.9 \pm 1.3
27	Frequent interruption of my work by others	18	11	15	10	9	1.7 \pm 1.4
28	Too much restriction in campus	10	4	9	17	23	2.6 \pm 1.4

#f= frequency

followed by 'not enough feedback from the teacher' and 'lack of guidance from the teacher' (Table II). Other social related stressors (SRS) were observed as mild stressors in both sexes. The examination was expressed as heavy to severe form of the stressor by 57.1% of respondents. It was a severe stressor in 42.4% male and 16.7% of female students.

While opining on the group activity related factors, 25.4% respondent expressed 'feeling of incompetence' as a severe stressor. Respectively 25.4, 27, 25.4, 24.5, 27% of the respondents identified teaching-learning related factors, 'inappropriate

assignments', 'lack of guidance from teacher', 'not enough feedback from teacher', 'uncertainty of what is expected of students' and 'lack of recognition for work done by student' as severe stressors. Of the respondents, 28.6% expressed, 'verbal or physical abuse by teacher' and 30.2% expressed, 'conflict with the teacher' as a severe stressor for them.

Of the six types of stressors considered in this study, academic related stressor revealed to be significantly more ($p=0.000$) intense in nature (Table III) in both sexes and teaching and learning related stressor (TLRS) in male.

Table III

Nature of different types of stressors (n=63)

SL No.	Type of stressor	Stressor score: Mean \pm SD		
		Male	Female	Total
1	Academic Related Stress (ARS)	2.5 \pm 1.4	2.5 \pm 1.3	2.5 \pm 1.3
2	Group Activity Related Stressor (GARS)	1.6 \pm 1.4	1.6 \pm 1.3	1.6 \pm 1.4
3	Drive & Desire Related Stressor (DRS)	1.6 \pm 1.5	1.1 \pm 1.3	1.4 \pm 1.5
4	Teaching & Learning Related Stressor (TLRS)	2.4 \pm 1.2	2.1 \pm 1.4	2.3 \pm 1.3
5	Intra- & Inter-personnel Related Stressor (IRS)	1.7 \pm 1.6	2.0 \pm 1.5	1.8 \pm 1.6
6	Social Related Stressor (SRS)	1.9 \pm 1.4	1.8 \pm 1.5	1.9 \pm 1.5

Discussion

In the present study, academic related factors were identified as maximum stress provoking (95% confidence interval of the mean scores 1.9 to 3.1) than group activity, drive, teaching-learning or social related factors and was identified as more than moderate in form. Of that group 'falling behind reading schedule', 'heavy workload', 'not enough scope of medical skill practice' and 'large amount of content to be learned' were identified as high stressors. The examination was identified as close to the heavy stressor and was the severe stressor in 42.4% male of the study population. But the fraction of female was marked less (16.7%). While opining on the activity related factors, 25.4% respondent expressed 'feeling of incompetence' as a severe stressor. More than one-fourth of the respondents identified teaching related factors, 'inappropriate assignments', 'lack of guidance from the teacher', 'not enough feedback from teacher' uncertainty of what is expected of students' and 'lack of recognition for work done by student' as severe stressors. About 30% of respondents expressed that 'verbal or physical abuse by teacher and 'conflict with the teacher' were a severe stressor for them. Male students of this study expressed more dissatisfaction ($p=0.011$) regarding teaching-learning related factors.

Various scales of measuring the stress were evaluated during the preparation of the protocol of present study⁸⁻¹¹ and Medical student stressor questionnaire (MSSQ)⁸ was observed to be more suitable for the target population because of the nature of questions. In a study conducted by the same group of the researcher on the students of phase I and phase II of the same institution observed that in addition to academic related factors respectively intra- and inter-related factors and social related factors were prominent.¹² Probably with the time senior students could adjust

with the environment, but could not come out of academic stressors.

Behzadnia et al. (2018) in a study on preclinical as well as on clinical medical students in Malaysia using MSSQ observed ARS as the major stressor and the mean score observed was 2.6 which is little more than the present study. The "tests and examinations" produced severe stress in the maximum population (72.3%)¹³ and is also different from finding of the present study. This may be because of the variation of style of examination and inclusion of preclinical students in the study. Examination as a stressor is different from other academic stressor factors as it rises to its maximum level before examination decreases automatically after examination.¹⁴

After reviewing 23 studies of different countries Lyndon et al. (2014) opined that in spite of the degree of heterogeneity between these studies 'assessment' was observed to evoke stress or anxiety and was more so for female medical students.¹⁵ In this study, male students were observed to be in more stress. Of course, the sample size of this study was very small. On the other hand, the high workloads and frequent work shift schedules were also observed as stress provoking in physicians and other health personnel by Beser and Cevik (2018).¹⁶

Students' self-perception of feeling incompetent and feeling of need to do well were observed to be significant sources of stress in Malaysian study.¹³ An interesting finding came out of the study of Brooks et al. (2018) on primary care residents training at outpatient clinics in the US that they were in stress because of a feeling of inadequately trained as primary care physicians.¹⁷

A study conducted at Karolinska Institute Medical University, Stockholm, Sweden revealed 'non-supportive climate' as the stressor.¹⁸ Inadequate feedback, the uncertainty of teachers' expectation, the inadequate guideline from the teacher and lack of recognition of work done are the usual non-supportive environment.

Verbal abuse or bullying is an existing problem in medical education. The study has proposed an adaption of policy against bullying and harassment in all of the medical colleges to support students.¹⁹ This research revealed that more than one quarter (28.0%) of the surveyed students reported exposure to some sort of bullying during their clinical rotations and among those reported insults, 90% were verbal abuse. A cross-sectional questionnaire survey on final year medical students in six medical colleges of Pakistan showed that 52% of respondents had faced bullying or harassment during their medical education and about 28% of them experiencing it once a month or even more frequently.²⁰ The matter also came out as an observation in the present study.

Various social factors are encouraging institutions to impose various rules and restriction. For total academic engagement various facilities, like accommodation, reading space & materials, food and overall feeling of safety is required which is possible in a campus environment, though this study revealed that campus environment was stress provoking especially in the male. Turley and Wodtke (2010) conducted a study on 2,011 students (age ranged from 18 to 25 years) of postsecondary institutions in the United States, of them, 54% lived on the campus and rest outside campus with or without family. The study observed that those who live on the campus had significantly higher GPAs than similar students at the same institution lived out of the campus with family.²¹

Examination related anxiety is the most suffered problem perceived by a student. This is more in medical education because of the peculiarity of the nature of its curriculum. Soon after entering the course with great interest, a fraction of the team losses interest, become backbencher and develops stress related disorders. Persons experiencing emotional suffering usually manifest as feelings of stress, anxiety, depressed mood, and burn-out. Alarming issue is that Dahlin et al. (2005) conducted a study in Sweden on 309 medical students of different years and observed that 28.8% of them thought for suicide ever and 8 (2.7%) attempted for suicide because of stress.¹⁸ Many a time stress is not reflected in performance and remains unfocused. Poor correlation was noted between psychological distress and academic performance by study too.²² Sullivan recommendations for conscious efforts to regulate emotion, behavior, physiology and the environment in response to stressful events or circumstances may be an effective preventive measure.²³

Conclusion

Various academic factors, frequency of evaluation and the competitive environment create stress which are unavoidable. Medical students have to take the pressure as challenge to be a doctor and must adopt strategy to confront that.

Ethical Issue

Ethical clearance was taken from the appropriate authority of Armed Forces Medical College, Dhaka Cantonment submitting a protocol (LM/Anatomy/Sep2017). Permission of publishing the paper in BSMMU journal has also been taken from the appropriate authority.

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