

The Risk Factors Causing Deleterious Effects on Medical Students and their Mental Health

ATTYIA RASHID¹, HUSSAIN AHMAD KHAQAN², NAMRA SHAHID³

ABSTRACT

Background: Medical education is always being perceived as a stressful profession and this fact is well established. Due to this stress, not only the worth and value of this sacred profession is compromised but it also deteriorates the mental health and the academic performance of the students.

Aim: To identify the risk factors called stressors which are causing deleterious effects on medical students and their mental health and also to quantify the magnitude of these stressors. In the long run, as a teacher, we can address that issues and if possible, can take some steps to rectify them.

Material: This is cross sectional descriptive study which was conducted in obstetric/Gynae department of University College of Medicine And Dentistry (UCMD), University Of Lahore. It was a questionnaire based study in which validated Medical Student Stressor Questionnaire (MSSQ) was given to the students to identify the sources of stress in MBBS students of UCMD. Then stress level was calculated against 40 items of this questionnaire, which were divided into six domains. Six Likert scale was used for scoring system.

Result: Data from 382 students were analyzed-approximately 70% were female and 30% were male. . Sample size was calculated by WHO sample size calculator where the prevalence of stress were found 46.2% among medical students with 95% of confidence interval and 5% of margin of error, the calculated sample size was (n=382) The academic related stressors and teaching & learning related stressors were found to be major stressors causing moderate to severe stress.

Conclusion The prevalence of stress is high in medical students. High stress is caused by our academic system, syllabus and curriculum as Domain 1 and Domain 11 which include our teaching and learning strategies. Domain 11 also causes mild to moderate stress while IV, V and VI cause mild stress in medical students.

Keywords: Mental health, risk factor, deleterious effect

INTRODUCTION

Medical training in tertiary care hospitals has always being considered a very stressful job. There are many studies which have proved that anxiety and stress in medical students is associated with negative effects on mental and physical health of the students. (Abdulghani, AlKanhah, Mahmoud, Ponnampuruma, & Alfari, 2011) .It has been seen that students remain under stress throughout of their career, in pre-clinical, clinical and academic era. Another worldwide study has shown that the stress level in medical students is quite higher than general population (Dyrbye, Thomas, 2006).

Stress causes anxiety, substance abuse, burnout which lead to withdraw from studies and suicidal attempts. (Nandi, Sarkar, Mondal, Ghosal, & Hazra, 2012)

Stress is the non-specific response of body or reaction in response of the disturbing events of life. Those issues which causes emotional and environmental disturbances are called stressors. (Sadock, Sadock, & Ruiz, n.d.)

It is a complex cascade which student has to face throughout the academic and clinical period. Initially he or she tries. But later on, some students fail to cope that difficult situations and challenges and become the chronic patients of depression. (Jadoon, Yaqoob, Raza, Shehzad, 2010)

No doubt, stress deteriorates the chances of the best outcome of the students but some sort of stresses are mandatory for the students, these are called favorable stresses. It means that when you perceive a stressful situation as an opportunity that will lead to a good outcome." This stress can lead you to accomplish your goals and allow you to be successful but there is a study which shows that early stress effect the neuroimmunology of the brain and lead to long term hazardous effects on the health of the students..

¹Assistant Professor, UCMD, University of Lahore

²Associate Prof, Ameerud Din Medical College, PGMI LGH, Lahore

³HO, GMC/DHQ Hospital, Gujranwala

Correspondence to .Dr. Hussain Ahmad Khagan
Email: drkhagan@hotmail.com, Cell: 03004270233

(Hostinar, Nusslock, & Miller, 2018) On the other hand, those stresses which inhibit or suppress the learning are called unfavorable stressors.

High prevalence of stress among the medical students is very alarming because it impairs the behavior of the students, compromises their learning skills and deteriorates positive mental health. It also affects the social relations and doctor patient relationship. (Nandi et al., 2012)

Medical students have to face different types of challenges like rigorous academic curriculum associated with frequent examination schedule, their feedback, progress report, rotation in next ward, different teachers, their teaching attitude and their behavior are prominent stressors in our list. (Anuradha, Dutta, Raja, Sivaprakasam, & Patil, 2017) Personal issues like staying away from family, not enough time for family and friends, verbal or physical abuses from other students or teachers and parental expectations are important risk factors, which were included in the MSSQ.

Medical teaching and examination system in Pakistan and all around the world is quite stressful from first year to final year. In view of rapid pace in which new medical institutions are coming up in Pakistan, there is need to identify those unfavorable stressors which can be minimized without affecting the mandatory curriculum and clinical training. Many deficiencies are found in our teaching and learning methods like inappropriate tasks or assignments, focus on irrelevant things, deficient teacher's feedback or support to the student.

MATERIAL AND METHOD

The sample size for this study was 382 which comprised the undergraduates (MBBS) of University College of Medicine and Dentistry, Lahore, Pakistan. To identify and to measure the level of stress by different risk factors, they were asked to fill the MSSQ questionnaire after consent. Female response was good while male students did not complete the questionnaire. 265 (69.3%) were the females while 117 (30.8%) were males.

The MSSQ questionnaire contains 40 items/questions which are divided into six categories: Academic related stress (ARS) is Domain I which deals with events, occur in university, college, education and examination system. This domain I also include assessment methods, grading method, academic method, student activities, content and its burden like difficulty in understanding the content, lack of time for revision and having difficulty in answering the question to teacher. Domain II (IRS) intrapersonal and interpersonal related stress. This part contains questions related to stress due to any relationship with one's own self and also others. It also include poor motivation to study and self-conflict. It also includes verbal, physical and emotional abuse by other students, teachers and relatives. Domain III is called teaching and learning related stress (TLRS) it contains questions that refers to stressors related to teaching skills, methodology, teacher's feedback, behavior, recognition and support to the student. Domain IV is called social related stressors (SRS) it contains questions related to community and societal relationship that can cause stress. Domain V is called drive and desire related stress (DRS). These stressors are related to any external and internal forces that affects the student's attitude, emotions and thoughts.

Stress was calculated by scoring system as no stress, mild, moderate high and severe.

Data analysis/ statistical analysis procedure: Data was analyzed using SPSS version 21 for windows. Descriptive statistics like frequency and percentage were computed for categorical variables. Reliability of the questionnaire already approved by Cronbach's alpha. Medical student stressor score was calculated by Likert scale and total score of each domain expressed as Mean and Standard deviation.

RESULTS

A total of 382 students of MBBS, 3rd year, 4th year and 5th year were the participants in this study. Out of total number of the participants 265 (69.37%) were females while 117 (30.62%) were males. 191 questionnaires were completely filled from 3rd year, 4th year and 5th year respectively. Participants possessed mean age of 21.82 ± 4.58 years and median age was 22 years. The value of Cronbach's alpha for the stressor scale was 83.7% indicating high reliability in questionnaire with high consistency in responses. Mean score of academic related stressor was 2.6 ± 0.54 , which shown high stress among the medical students. Although, mean score of academic related stressor (ARS) was 2.7 ± 0.78 indicating the main source of high stress. Furthermore, we look the pattern of teaching and learning related stressor (TLRS), mean score 2.4 ± 1.03 was quite higher and revealed that the components of teaching and learning process to determine the high causes of stress on the students. We also observed that social related stressors (SRS) refer to any form of community and society relationships can also cause stress. It also depicted that the mean score was 2.0 ± 0.34 determined the mild to moderate stress to spending time in social and community activities. The mean score of the drive and desire related stressor (DRS) was 1.58 ± 0.92 expressed the mild to moderate stress. Similarly, our study also observed the results of group activities related stressor (GARS) and the mean score was 2.1 ± 0.43 . Students were having the difficulty with group activities then the person was easily distressed.

		Mean	SD
Domain 1	Academic Related Stressor	2.75	0.75
Domain 2	Interpersonal & Intrapersonal related Stressor	2.32	0.82
Domain 3	Teaching and Learning Related Stressor	2.46	1.35
Domain 4	Social Related Stressor	2.02	0.34
Domain 5	Drive & Desire Related Stressor	1.58	0.95
Domain 6	Group Activities Related Stressor	2.13	0.43

DISCUSSION

The response rate was good in this study 70% as similar to other studies like a cross sectional study conducted at College Of Medical in Saudi Arab. (Abdulghani et al., 2011) showed that response rate was 71% and stress in medical students is higher than general population This high response rate is showing that the student are strongly involved in the need of changing the curriculum and strategies to minimize the stress.

There is no doubt that medical programs are graded in the most difficult programs of world and only competitive students can go through it. Academic stress can throw some students in psychiatric illnesses and sleep disorders. (Tjia, Givens, & Shea, 2005) (Daud, Shaikh, Ahmad, & Awan, 2014).

The world Health Organization has announced that there is need to promote positive mental health that "foundation for well-being and effective functioning for both the individual and the community " and WHO defined that individual need to know their abilities, productivity for work and able to make contribution to their community" (Organization, 2005)

The overall prevalence of stress in study was 29% which was nearly equal to the study conducted in Sains Malaysia Health Campus. (Saiful, Bahri, Fuad, & R, 2010) while less than the study (61.4%) conducted in Thai. (Saipanish, 2003) Also found to be equal to study in Egypt, Saudi Arab and in a British study (31.2%) (Firth, 1986)

The interesting thing of this study is that questionnaire is based on six domains that covers all the aspects of the life of a medical students that can constrain stress.

These domains include questions related to academic stress, examination methodology, teacher's methodology, social relationship with family, friends and patients. This questionnaire also includes risk factors for stress related to students own motivation and parental stress. It was also seen that prevalence of stress is higher in female students as compare to male students. Although it can be due to increase number of females students in the study.

It was observed that group activities among students to improve their learning and domain 11 (interpersonal and intrapersonal issues) are also moderate stress inducers. Though, group interaction teaching strategies are proved to be the best tool but still they are identified risk factors. (Bonwell & Eison, 1991)

Medical students bear moderate to high stress in Domain 1 academic related stress (ARS) and teaching and learning related stress (TIRS) domain III. It means that the inappropriate tasks given by teacher, poor quality feedback, incompetency of teacher in teaching, failure in recognition and support to the students are very important identified risk factors, which are required to address.

Academic stress is relevant to lack of time for revision, difficulty, in understanding the content, competition, high expectations, assessment methods, grading methods and academic schedule. The important discussion is that mandatory and favorable stresses regarding medical education which help in achieving the goals, cannot be decreased but we can help the students and guide them that how to cope with that stress. We can reduce the related anxiety by modifying our content, tasks and syllabus.

The result of Domain 11 was also very unexpected. According to the students verbal, emotional and physical abuse caused by other students, teachers, staff and colleagues also provoke mild to moderate stress.

Drive and desire related stress seems to be controlled by students themselves but students, interest and motivation is mandatory.

The stress calculated for social related stress and desire and drive related stress was relatively low.

The overall frequency of students who suffered moderate stress was higher, it means generally stress prevalence is higher that lead to sleep and mental disorders in medical students and effect their academic performance. (Abdulghani et al., 2012) (Barikana A, n.d.) Stress can develop professional ramification like damaging ethical conduct and empathy due to overburden and stress.

Regarding different domains, academic related stress factors and teaching and learning related stress factors are higher than other domains which was expected as in other studies. .

It is the need of time to evaluate ourselves, our system of medical education and modification of teaching techniques to reduce the level of stress in all the domains.

CONCLUSION

The MSSQ is very useful and effective questionnaire. We concluded that academic related factors (domain 1) and teaching and learning related factors (domain 11) are the main sources of stress in our students, although other domains also stress provoking but the level of stress is relatively low.

The impact of my study is that the medical educationist and medical teachers came to know that there is need to focus on these issues, if possible then make efforts to rectify them.

The limitation of my study was that questionnaire was very elaborative but some students did not fill it completely.

Although, there are many studies which have proved that MBBS students have to face great stress due to different stressors but still we need to seek for further work to calculate the magnitude of these stressors.

In the long run, we should draw the attention of medical fraternity and educationist towards modification and improvement in curriculum, assessment methods, examination system so that a change in teaching and learning styles may create a relatively less stressful life of a MBBS student.

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The Medical Student Stressor Questionnaire (MSSQ)

Sr. no	Questions/Items	No stress=0	Mild Stress=1	Moderate Stress=2	High stress=3	Severe stress= 4
1.	Tests and examination causes stress					
2.	Falling behind in reading schedule causes stress					
3.	If large amount of material to be learnt is left,causes stress.					
4.	Getting poor marks causes stress.					
5.	Quota examination system causes stress.					
6.	Lack of time for revision causes stress.					
7.	Having difficulty in understanding causes stress.					
8.	Need to do well causes stress.					
9.	Learning competition environment causes stress.					
10.	Unable to answer questions from teachers causes stress.					
11.	Heavy workload causes stress.					
12.	Participation in class discussion causes stress.					
13.	Participation in class presentation.					
14.	Need to do well (imposed by group) causes stress.					
15.	Feeling of incompetence causes stress.					
16.	Unjustified goading system causes stress.					
17.	Deficient medical skill practices causes stress.					
18.	Lack of time for family and friends is a stressor.					
19.	Teacher – lack of teaching skills causes stress.					
20.	Not enough study material availability produce stress.					
21.	Unable to answer questions from patients causes stress.					
22.	Inappropriate assignment causes stress.					
23.	Talking to patient about personal problems.					
24.	Facing illnesses or deaths of patients causes stress.					
25.	Conflict with other students causes stress.					
26.	Poor motivation to learn causes stress.					
27.	Verbal or physical abuse by other students causes stress.					
28.	Verbal or physical abuse by teachers causes stress.					
29.	Verbal or physical abuse by personal causes stress.					
30.	Conflict with personals.					
31.	Conflict with teachers.					
32.	Not interested in studying medicine is a stressor.					
33.	Parental wish to study medicine.					
34.	Lack of guidance from teachers.					
35.	Uncertainty of what is expected from me causes stress.					
36.	Not enough feedbacks from teachers causes stress.					
37.	Lack of recognition for work done.					
38.	Working with computers causes stress.					
39.	Frequent interruption of my work by others.					
40.	Family responsibilities causes stress.					

Scoring system of MSSQ

1 st	I	II	III	IV	V	VI
Total A						
Total B						
Total						

1 st	I	II	III	IV	V	VI
Total A						
Total B						
Total						

0 – 1.00 = CAUSE MILD STRESS
1.01 – 2.00 = CAUSE MODERATE STRESS
2.01 – 3.00 = CAUSE HIGH STRESS
3.01 – 4.00 = CAUSE SEVERE STRESS