

## Severity of stress in Pakistani medical students

Haider Ghazanfar, Ibad-ul Haq, Joshua Rahat Aleman Bhatti, Saad Hameed, Muhammad Saeed Shafi, Ashraf Hussain, Arshad Javaid, Sajida Naseem

Shifa College of Medicine, Shifa Tameer-e-Millat University, Islamabad, Pakistan

**Objective:** To determine the effect and severity of stress on medical students.

**Methodology:** We conducted a cross-sectional study on Pakistani medical students from May 2012 to January 2015. Questionnaire was distributed among medical students all over Pakistan in 8 government and 8 private medical colleges. Medical students fulfilling the inclusion criteria were enrolled through consecutive non-probability sampling. The data obtained was analyzed by SPSS version 21.

**Results:** Among the 6231 medical students, who filled the questionnaire 49.3% were unable to concentrate/focus on study, 43.4% were restless and 40.9% were angry most of the time because

of stress. Gender, year of medical education, interaction with family members, choosing medical profession with free will and significant health problems were found to be significantly ( $p < 0.05$ ) associated with severity of stress.

**Conclusion:** A large number of medical students are suffering from different effects of stress with varying severity. The study highlights all these effects of stress which affect the physical, mental and social well-being and also the level of severity of stress of the individual. (Rawal Med J 201;41:116-120).

**Key Words:** Medical, Depression, Anxiety, Suicidal ideation

### INTRODUCTION

Mental stress among medical students from around the globe has been well documented.<sup>1-3</sup> Many students are seen to have developed certain behaviors such as pulling of hair, nail biting, and still others report concerns about changes in weight, and even substance abuse.<sup>4-5</sup> Although stress is very common among Pakistani medical students, they rarely undergo treatment because of their lack of awareness of stress management and treatment resources. However, most students would still not go for treatment because of the disgrace they think this might bring to their name and career, which is why, according to Quince et al, medical institutions should encourage them to seek help.<sup>6</sup> The stressful environment that these students are living in does not only affect their academic performance but also their clinical skills and their interaction with patients as young doctors in the near future.<sup>7</sup>

Among the many effects of stress on students,

depression is the one that requires particular attention. Depression is prevalent not only among medical students but also among students of dentistry, pharmacy, nursing and even non-medical fields.<sup>8-9</sup> Sometimes, a small amount of stress may prove beneficial and act as an impetus for the student to work hard; but if the student is unable to deal with that stress, it may persist and result in depression.<sup>10</sup> Each student is affected differently by the stress ordeal that stands before him/her: some may seriously think about leaving medical school<sup>11</sup> or committing suicide;<sup>12</sup> while others may experience lack of empathy towards patients.<sup>13</sup> This article aims to highlight all the effects of stress on medical students so that interventions aiming at alleviating the stressors resulting in such effects may be developed and implemented.

### METHODOLOGY

This descriptive cross sectional study was

performed among medical students of various colleges from all provinces of Pakistan from 2012 to January 2015. A self-made questionnaire comprising of 14 items was distributed among 16 medical colleges of which 8 were government and 8 were private. Students were selected through consecutive non-probability sampling. Only students currently enrolled in MBBS in Pakistan for more than two months were included. Medical students with an already diagnosed psychiatric problem were not included in the study. Identity of respondents was kept anonymous. Informed consent was obtained from all student.

The questionnaire used in the study consisted of several sections concerning the demographic data of the students and related symptoms. We gave a total of 8000 forms out of which, 6231 were filled. 20 minutes were provided to each student to allow the filling of the form without interference. One of the members of research group was always present with the students so that any query that arose could be resolved. Cronbach's alpha value for the questionnaire was found to be 0.723. A person was said to have mild stress if he or she had: Less than or equal to 3 effects of stress; Moderate if he had more than 3 effects but less than 7 effects and severe if he had more than 7 effects.

Data were analyzed using SPSS version 21. Chi square test was used to compare the difference in severity of stress among students in relation to demographic variables. A p value of less than 0.05 was considered significant.

## RESULTS

Out of the total sample size of 6231; 43.9% (2734) were male and 53.9% (3497) were female. Students were divided into two groups: Preclinical (1st and 2nd year-46.1% (2871)); and, Clinical (3rd, 4th and 5th year-53.9% ((3360)). Of the total, 43.1% (2686) were enrolled in Government Medical College while 56.9%( 3545) were enrolled in Private Medical College. Demographic variables are presented in Table 1.

**Table 1. Demographic Variables.**

Gender	Male	43.9%
	Female	56.1%
Year of Medical Education	Preclinical (1 <sup>st</sup> and 2 <sup>nd</sup> year-	46.1%
	Clinical (3 <sup>rd</sup> , 4 <sup>th</sup> and 5 <sup>th</sup> year)	53.9%
Medical College	Government	43.1%
	Private	56.9%
Living with	Parents	47.1%
	In a hostel single room	28.8%
	In a hostel shared room	15.8%
	Relative	3.5%
	Private Apartment	4.9%
Parents are able to afford Medical Education	Yes	92.9%
	No	7.1%
Interaction with family members?	Good	81.9%
	Satisfactory	15.9%
	Poor	2.2%
Choose Medical Profession with free will?	Yes	82.9%
	No	17.1%
Fully satisfied with Medical College?	Yes	62.7%
	No	37.3%
Any Significant Health Problems	Yes	18.6%
	No	81.4%

The top three effects of stress were inability to concentrate/focus on studies, which was found in 49.3% of students, restlessness was found in 43.4% and anger was found in 40.9% of students (Table 2).

**Table 2. Effect of stress on medical students.**

Effect of stress	Percentage
Restlessness	43.4% (2707)
Inability to concentrate /focus on studies	49.3% (3073)
Increased appetite	19.6% (1221)
Decrease Appetite	19.8% (1232)
Headache	37.9% (2369)
Burden on eye	24.6% (1532)
Anger	40.9% (2551)
Desire to harm yourself	9.1% (570)
Fainting spells / dizziness / blackouts / nausea	5.1% (320)
Feeling of being unworthy	18.6% (1161)
Thoughts of leaving medical education	14.3% (894)
Fighting with others	20.5% (1276)
Suicidal idea	6.7% (93.3%)

**Table 3. Degree of severity of stress.**

		Mild(Less than or equal to 3 effects)	Moderate (More than 3 but less than 7)	Severe (More than 7 effects)	P-value
Gender	Male	1902	732	100	<0.01
	Female	1937	1380	180	
Year of Medical education	Pre-clinical Year	1847	948	76	<0.01
	Clinical Year	1992	1164	204	
Interaction with family members	Good	3334	1620	148	<0.01
	Satisfactory	461	432	96	
	Poor	44	60	36	
Choose Medical Profession with free will?	Yes	3321	1704	140	<0.01
	No	518	408	140	
Any significant health problem?	Yes	588	480	88	<0.01
	No	3251	1632	192	

Severity of stress in relation to demographic variables showed significant relationship ( $p$ -value  $<0.01$ ) for gender, year of medical education, interaction with family members and choosing medical profession with free will. Mild level of stress was found in 61.6% (3839) students, moderate in 33.9% (2112) students while severe level of stress was found in 4.5%(280) students (Table 3).

## DISCUSSION

Given our primary goal of highlighting the effects of stress on medical students, we came across results that were not very different from those found in other studies.<sup>14-15</sup> Females were more vulnerable to psychological stress as compared to men. A study from Sweden showed that level of stress was higher in female gender as compared to males.<sup>16</sup> Another study on Serbian medical students showed females to have a higher score in almost all of depression dimensions.<sup>17</sup> A study on first year medical students using CES-D scoring system found that anxiety and depressive symptoms were more frequent in women.<sup>18</sup> Our study had similar results.

About 49.3% participants expressed complaints of feeling restless, 40.9% students also admitted to

feeling angry most of the time and 20.5% participants even admitted to having fights with others frequently. It must be noted that inability to focus on studies resulting in poor academic performance was the most common effect seen among the students. Another study from India on 155 third year medical students reported similar results.<sup>7</sup>

One of the most important findings of our study was the inability of the students to concentrate on their studies. This results in many students having serious thoughts of dropping out of medical school, which in our case, was seen in 14.3% (894) participants. Dyrbye et al in his study conducted amongst seven medical schools of the US found that 11% students each year seriously considered leaving medical school.<sup>11</sup> From this, they concluded that students who experience burnout are more likely to consider dropping out of medical school.

Year of medical education is an important factor for vulnerability of stress. Although we equally distributed the questionnaires among pre-clinical and clinical year students, the greatest response came from the clinical years. It appears that the clinical year students are more enthusiastic in participating in such activities and also in voicing

their opinions. A somewhat different approach should be used to interest more of the clinical year students as they are the ones most burdened by academic stress and they are the ones who will be moving out into the field of clinical practice in the near future; catering to their needs will prove more beneficial for the doctor-patient relationship. Also, students in their clinical years are under greater stress because they have to perform a balancing act of keeping pace with their studies and their clinical rotations. In a 4 year longitudinal study on medical students it was found out that Type A behavior is relatively less in the first three years of medical education. It reaches its highest during the fourth year and even exceeds the levels found in the first 9 months of medical school. Overall the type A behavior was found to be more in clinical years as compared to non-clinical years.<sup>19</sup> Severity of stress was found to be more in clinical year students as compared to pre-clinical year students in our study as well.

Severe stress was experienced by medical students who had poor interaction with their family members as compared to medical students who enjoyed a good relationship with their family. Social support is of paramount importance in decreasing the level of stress among medical students. Students having good relationship with their family are able to discuss their problems and relieve their stress. In a study done on work-induced stress it was found out that social support had a significant buffering value in attenuating the effects of stress.<sup>20</sup>

A study from Bangkok showed people with health related stress had 5.93 times more risk of developing depressive disorder as compared to people with no health related stress.<sup>21</sup> Scott et al concluded that individuals with positive family history for depression were more likely to experience depressive symptoms in their life as compared to individuals with negative family history.<sup>22</sup> A study on Danish Medical students concluded that stress levels were significantly associated with depression.<sup>23</sup> Our study had similar findings.

## CONCLUSION

A large number of medical students were suffering

from different effects of stress with varying severity. The study highlights thoughts of leaving medical education, fighting with others and suicidal ideas. We would like this study to be a measuring tool according to which, institutional reforms regarding the alleviation of stress and the development of a study environment and curriculum that is both congenial and conducive to learning, are made.

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### Author Contributions:

Conception and design: Haider Ghazanfar, Ibad-ul Haq, Joshua Rahat Aleman Bhatti, Saad Hameed, Muhammad Saeed Shafi, Ashraf Hussain, Arshad Javaid, Sajida Naseem

Collection and assembly of data: Haider Ghazanfar, Ibad-ul Haq, Joshua Rahat Aleman Bhatti, Saad Hameed

Analysis and interpretation of the data: Haider Ghazanfar, Sajida Naseem

Drafting of the article: Haider Ghazanfar, Ibad-ul Haq, Joshua Rahat Aleman Bhatti, Saad Hameed, Muhammad Saeed Shafi, Ashraf Hussain, Arshad Javaid, Sajida Naseem

Critical revision of the article for important intellectual content: Haider Ghazanfar, Ibad-ul Haq, Joshua Rahat Aleman Bhatti, Saad Hameed, Muhammad Saeed Shafi, Ashraf Hussain, Arshad Javaid, Sajida Naseem

Statistical expertise: Haider Ghazanfar, Sajida Naseem

Final approval and guarantor of the article: Haider Ghazanfar, Sajida Naseem

**Corresponding author email:** Haider Ghazanfar:

Haidergh@gmail.com

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