

## ORIGINAL ARTICLE

**Prevalence of Post-traumatic Stress Disorder in Medical Students**OSAMA HABIB<sup>1</sup>, MUNAZA JAVED<sup>2</sup>, KHALID MAHMOOD<sup>3</sup>, MUHAMMAD ATIF QURESHI<sup>4</sup>, NAUMAN ISMAT BUTT<sup>5</sup>, FAHMINA ASHFAQ<sup>6</sup><sup>1</sup>Associate Professor of Psychiatry, Department of Medicine and Allied, Azra Naheed Medical College, Superior University, Lahore<sup>2</sup>Professor of Medicine, Department of Medicine and Allied, Azra Naheed Medical College, Superior University, Lahore<sup>3</sup>Assistant Professor of Medicine, Department of Medicine and Allied, Azra Naheed Medical College, Superior University, Lahore<sup>4</sup>Professor of Medicine, Department of Medicine and Allied, Azra Naheed Medical College, Superior University, Lahore<sup>5</sup>Assistant Professor of Medicine, Department of Medicine and Allied, Azra Naheed Medical College, Superior University, Lahore<sup>6</sup>Assistant Professor of Medicine, Department of Medicine and Allied, Azra Naheed Medical College, Superior University, LahoreCorrespondence to: Osama Habib, Email: [drohabib@yahoo.com](mailto:drohabib@yahoo.com), Cell: 03314781463**ABSTRACT****Objective and background:** Previous studies have reported a high prevalence of depressive and anxiety disorders in medical students. The aim of the current study was to investigate the prevalence of PTSD symptoms among 1<sup>st</sup> to 3<sup>rd</sup> year MBBS students.Place and duration: The study was conducted at Azra Naheed Medical College, Superior University, Lahore, Pakistan from 15<sup>th</sup> of August to 15<sup>th</sup> of September 2022.**Methodology:** A Google form was developed by authors of the study that comprised demographic questions as well as items of post-traumatic stress disorder checklist-Civilian version (PCL-C). The form was posted in the official WhatsApp group of each class and the rationale and purpose of the study were communicated to students. Confidentiality of the data was ensured and anonymity of the participants maintained at all stages. The study was formally approved by the Institutional review board of Azra Naheed Medical College, Lahore. Descriptive statistics, independent samples T-test and the ANOVA test were employed to analyze and report the findings. SPSS version 26 was used for reporting and analyzing the data.**Results:** A total of 223 medical students (45.4% males) participated in the study. Nearly three quarters of medical students (73.4%) had either moderate, (29.1%) or severe (44.3%) PTSD symptoms. No significant difference was found between the students with regards to gender, age group and year of study. Students who belonged to a mixed rural/urban background had significantly higher PTSD symptoms as compared to students from a predominantly rural or urban background.

Practical Implication Medical students should be routinely assessed for the presence of anxiety/depressive disorders, as successful treatment of these disorders may improve the quality of life as well as the academic performance of the students.

**Conclusions:** The prevalence of PTSD symptoms in medical students participating in this study is very high. Future studies should investigate the reasons as well as the risk factors associated with PTSD in medical students.**Keywords:** Post Traumatic stress disorder, Medical students, Anxiety**INTRODUCTION**

PTSD generally results a result of being exposed to an extremely threatening or horrific event or series of events. There are three main groups of symptoms that characterize PTSD; (A) Re-experiencing the traumatic event/events in the form of nightmares, flashbacks or intrusive memories (B) avoidance of situations, events or people associated with the traumatic event and (C) hyper-vigilance or hyper-arousal symptoms e.g. heightened startle response. The development of PTSD generally results in significant impairment of personal, social, occupational and family functioning<sup>1</sup>.

Navigating through the rigors of medical training is a stressful experience and numerous high quality studies show that medical students are at increased risk of suffering from depression as well suicidal ideation as compared to their age fellows from the general population<sup>2, 3</sup>. Similarly, the prevalence of anxiety disorders in medical students is higher than the general population and one in three medical students screen positive for the presence of an anxiety disorder<sup>4</sup>. A Canadian study found that more than a third of medical students were seeking professional help for psychological/psychiatric problems<sup>5</sup>. Post-traumatic stress disorder (PTSD) was found to be the second most common anxiety disorder (after generalized anxiety disorder) in a study of Nigerian medical students<sup>6</sup>. Experiencing PTSD symptoms affects academic achievement of students in an adverse manner. Female students have higher prevalence of PTSD as compared to male students<sup>7</sup>.

Numerous factors can contribute towards the high prevalence of anxiety disorders including PTSD in medical students. The high burden of the studies as well as extensive time on clinical rotation is one of major factors<sup>5</sup>. The atmosphere in the dissection hall is anxiety provoking and many students report symptoms suggestive of PTSD after performing dissection of

cadavers<sup>8</sup>. Similarly, mistreatment of students at medical school by seniors or fellow students can also result in the development of PTSD symptoms<sup>9</sup>. Providing support and care to victims of psychological and physical trauma can itself produce symptoms of PTSD (also termed as secondary traumatic stress) in healthcare workers<sup>10</sup>. Positive appraisal of self, family and others is associated with a reduced frequency of PTSD symptoms<sup>11</sup>.

The aim of the current study was to investigate the prevalence of PTSD symptoms in medical students studying at a private medical college in Lahore. Very few studies have previously investigated the prevalence of PTSD symptoms in this population.

**MATERIALS AND METHODS**

Students of 1<sup>st</sup> year, 2<sup>nd</sup> year and 3<sup>rd</sup> year MBBS at Azra Naheed Medical College, Lahore were invited to participate in this cross sectional descriptive study. A survey form which included some demographic questions as well as the individual questions on the PTSD checklist (Civilian version) was developed on Google Forms. The form was posted in the Official WhatsApp groups of all the three classes and a brief explanation was provided to the students regarding the rationale and objectives of the study. Two reminders were sent in the group for students who did not complete the form on the first invitation. The study was conducted from the 15<sup>th</sup> of August 2022 to 15<sup>th</sup> of September 2022.

The Post traumatic stress disorder checklist-civilian version (PCL-C)<sup>12</sup> is a validated and reliable method<sup>13, 14</sup> of assessing symptoms of post-traumatic stress disorder (PTSD). It comprises of 17 items that correspond to the key symptoms for PTSD. Two versions of PTSD checklist are in use: PCL-M is for use in screening for symptoms that arise as a result of military experiences while PCL-C is used for symptoms that result from any kind of trauma. PCL-C is a self-rated questionnaire and the responses to questions are scored on a likert scale from 0 (not at all) to 5 (extremely). The range of possible scores on PCL-C is from 17 to 85. Scores from 17-29 generally represent minimal

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PTSD symptoms, scores from 30 to 44 moderate PTSD symptoms and scores from 45 to 85 represent severe PTSD symptoms<sup>12</sup>.

Confidentiality of data was ensured during the whole process of data acquisition, analysis and reporting. Email addresses of participating students were not collected and hence it was not possible to identify individual students from the responses received. The study was formally approved by the Institutional review board of Azra Naheed Medical College, Lahore. The collected data was analyzed by the authors of the study and no one apart from the authors had access to the data.

Descriptive statistics was used to report the frequencies and percentages of students' individual responses. Independent samples T-test was employed to report the differences between students on measures of gender, age and the year of study. Analysis of variance (ANOVA) was employed to report the differences between students belonging to rural, urban or mixed background.

**RESULTS**

A total of 223 medical students participated in this study (45.3% males), which consisted of 78 students from 1<sup>st</sup> year, 117 students from 2<sup>nd</sup> year 28 students from 3<sup>rd</sup> year MBBS. A large majority of students (84%) belonged to the younger age group 17-21. Nearly half of the student's belonged to urban background, almost an equal number to a mixed rural and urban background and less than 9% of the students belonged to purely rural background. Table 1 outlines the frequencies and percentages of students on individual demographic attributes of gender, age, residential background.

The number of students with moderate PTSD symptoms (scores from 30 to 44) was 65 (29.1%) while the number of students with severe PTSD symptoms (scores from 45 to 85) was

99 (44.3%). Slightly above one-fourth of the students (26.4%) had minimal PTSD symptoms (scores from 17 to 29) (Figure 1). There was no significant difference between male (Mean= 40.43) and female (Mean= 44.04) students on the total score on PCL-C (p= 0.108). Similarly, there was no significant difference between students who were 17-21 years old (Mean= 41.64) as compared to students who were 22-26 years old (Mean= 47.55), although there was a trend towards higher scores in older students (p=0.07). There was no significant difference between the students of 1<sup>st</sup> year, 2<sup>nd</sup> year or 3<sup>rd</sup> year MBBS classes on the ANOVA test (p= 0.77). However, there was a significant difference between the students on the ANOVA test in relation to their residential background (p= 0.001). Students who identified themselves as belonging to a mixed urban/rural background scored significantly higher than students who identified themselves as having either urban or rural background.

Table 1: Number of students (percentages) on the demographic attributes of gender, age, study year and residential background.

Demographic attribute	Number of students (percentages)			
	Gender	Males	Females	
	101 (45.3%)	122 (54.7%)		
Year of study	First year MBBS	2 <sup>nd</sup> year MBBS	3rd year MBBS	
	78 (34.9%)	117 (52.4%)	28 (12.5%)	
Age group	17-21	22-26		
	194 (87%)	29 (13%)		
Residential background	Urban	Rural	Mixed	
	110 (49.3%)	19 (8.5%)	94 (42.2%)	

Table 2: Post-hoc analysis (Tukey's) on the ANOVA test of students 'scores in relation to their residential background.

(I) Which population do you belong to?	(J) Which population do you belong to?	Mean difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Urban	Mixed	-8.15242*	2.28414	.001	-13.5423	-2.7626
	Rural	1.98756	4.04007	.875	-7.5457	11.5209
Mixed	Urban	8.15242*	2.28414	.001	2.7626	13.5423
	Rural	10.13998*	4.09040	.037	.4879	19.7920
Rural	Urban	-1.98756	4.04007	.875	-11.5209	7.5457
	Mixed	-10.13998*	4.09040	.037	-19.7920	-4.879

\* The mean difference is significant at the 0.05 level.

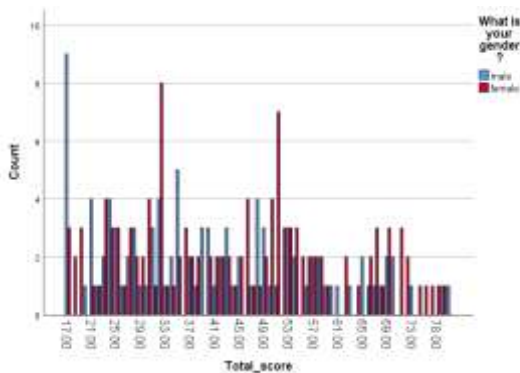


Figure 1: Bar chart of total score of male and female students on the PCL-C

**DISCUSSION**

A high prevalence of PTSD symptoms was reported in this study of first to third year MBBS students. Almost half of the students in this study (44.3%) had severe PTSD symptoms while an additional 30% of the students had moderate PTSD symptoms. Thus, overall nearly three fourth of the students (73.4%) of the students had either moderate or severe PTSD symptoms. In a study conducted at a medical college in Riyadh, Saudi Arabia which used the

impact of event scale-revised (IES-R) the authors reported that 47% of the students scored above the cut-off score. Additionally, 29% of the study participants had scores which were likely to contribute to immunosuppression<sup>15</sup>.

A study of 388 university students from Afghanistan reported a prevalence rate of PTSD of 71.6%<sup>16</sup>. This is very close to the prevalence rate found in our study, however, it is worth noting that Afghanistan has been a major conflict zone and had been severely affected by war and terrorism. It is surprising to find a very similar prevalence rate of PTSD in Pakistani medical students. Although Pakistan suffered through terrorism in the first one and a half decade of this century, the situation has been relatively peaceful in the last few years. However, Pakistani citizens have been facing severe political instability, rising inflation and rampant corruption in the society. It is possible that the overall impact of all these factors on the mental health of the population in general, and the medical students in particular, is similar to the effects of being a resident of a major conflict zone.

A study of medical students from Iraq reported that the prevalence rate of complex PTSD (which consists of 6 groups of symptoms instead of the classical 3 groups of symptoms) was 25% and that 98.4% of the students reported experiencing at least one traumatic event<sup>17</sup>. Jackson and colleagues investigated 1904 medical residents from seven specialties of Medicine and Surgery and reported an overall PTSD prevalence rate of 20% (range 14%

to 23%). They did not find any significant difference between specialties in the prevalence of PTSD.<sup>18</sup>

No significant difference between the genders was reported in our study, although females had numerically higher mean scores (44.04) as compared to males (40.43). Jackson and colleagues however reported that belonging to female gender was a significant risk factor for the development of PTSD<sup>18</sup>. Similarly Iftikhar and colleagues from Saudi Arabia also reported a significantly higher prevalence of possible PTSD in female students<sup>15</sup>. No significant difference was found in our study between students of 1<sup>st</sup> year, second year and 3<sup>rd</sup> year MBBS. However, a meta-analysis of six studies of studies conducted from 2019 to 2021 among university students reported that the prevalence of PTSD among university students was 23% overall and that this prevalence was higher in older students<sup>19</sup>.

## CONCLUSIONS

We found an alarmingly high rate of PTSD in medical students studying in first, second and third year MBBS. It is important to investigate the prevalence as well as the risk factors associated with the development of PTSD in medical students in future studies. This is important as effective treatment strategies are available for PTSD and the earlier recognition and treatment of this disorder can result in higher quality of life as well as improved academic performance of medical students.

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