

Examination Stress During COVID-19 and Its Coping Interventions Used by Medical Students of Pakistan

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ABSTRACT

Objective: To determine the examination stress and anxiety score during COVID-19 pandemic and to identify coping mechanisms adapted by medical students.

Study Design: Cross-sectional study.

Place and Duration of Study: Sir Syed College of Medical Sciences for Girls, Karachi, from Apr-May 2021.

Methodology: A total of 250 students were recruited in the study and validated questionnaire was used for data collection. Test anxiety scores were calculated from a previous study scale by Nist and Diehl (1990). Data was analyzed by using SPSS-23.

Results: The mean age of students was 20.1 ± 0.6 years. 74 (29.6%) students felt stress sometimes, 40 (16.0%) students felt always and 30 (12.0%) students never felt stressed before examination. Students who reported improved performance during the examination due to stress were 121 (48.4%). 76 (30.4%) students reported decrease in performance and 53 (21.2%) reported that their stress did not affect their performance. Students were inquired regarding the methods to cope the stress. 78 (31.2%) students reported that they took study break, 66 (26.4%) students spent time with family and friends, 49 (19.6%) found solace in sleep, 30 (12.0%) students listened to music, 13 (5.2%) used beverages (tea, coffee), 11 (4.4%) used numerous combinations of methods, and only 3 (1.2%) students exercised. It was found that 158 (77%) students experienced healthy anxiety, 68 (27.2%) unhealthy anxiety, and 22 (8.8%) students were anxiety-free.

Conclusion: Examination stress among medical students has increased during COVID-19 and various coping methods are used by the students to prevent anxiety. College administration must address stressors to improve the learning and mental health of the students.

Keywords: COVID-19, Exam, Education, MBBS, Medical, Mental health, Stress.

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INTRODUCTION

COVID-19 is a global crisis that has adversely affected the health, economic and educational sectors.¹ Academics have suffered globally due to sudden closure of institutions. Almost all the universities have switched from traditional teaching methods to online learning.² In Pakistan, due to intermittent lockdowns, education sector suffered a lot. Few classes were taken face to face and while most of the classes were taken online, making it a hybrid model.³ The hostellers suffered additional stress of traveling because of the unavailability of transport and internet issues at the home. Even before the pandemic onset, previous studies have shown that medical students experience a high level of stress during their undergraduate courses.⁴ Several studies during COVID-19 have shown deterioration of mental and physical well-being of students due to economic stressors, effects on routine life activities and academic delays.⁵ It is a massive

challenge for both the teachers and students in medical college during the pandemic to adapt online learning methods in Pakistan. Online learning has its challenges and designing its curriculum needed more reflection, communication and flexibility to engage students for a positive learning experience.⁶⁻⁸ Examination stress is one of the major problems among the medical students in COVID-19 because of frequent and changing assessment strategies. A review of the available literature showed that many factors have increased stress in medical students in different countries during COVID-19.⁹

Examination stress leads to a negative impact on the psychological and physical well-being of students, it also de-motivates and affects the quality of performance. According to the World Health Organization, college students have always been vulnerable to stress leading to mental health disorders. Stress management is the first step in the road to prevent anxiety, panic attacks, bipolar depression and suicidal ideation in the students.¹⁰ In Pakistan, COVID-19 has led to periods of lockdown with alternating face-to-face curriculum delivery. This led to unforeseen and drastic changes in

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the delivery and assessment of the curriculum. It was tough for both faculty and students to adapt, understand and perform within this scenario. Some components of examination went online, some components were taken physically with guidelines changing too rapidly and many times, faculty was unsure of what outcomes to expect. Examination stress is one entity of stressful experience of a student where COVID-19 has especially changed the dynamics of theory and OSPE assessment in the current year. Therefore, this study was aimed to determine the level of examination stress and identify coping strategies adapted by medical students during COVID-19.

METHODOLOGY

This cross-sectional study was conducted at the Sir Syed College of Medical Sciences for Girls in Karachi, Pakistan, from April to May, 2021.

Inclusion Criteria: Undergraduate medical students from first to final year were recruited in the study.

Exclusion Criteria: Students with a medical history of neurological and psychological disorders were excluded from the study.

The sample size was calculated using Open-

students clearly about the focus of this research on the examination stress regarding online exams in lock down, not the general stress faced by COVID-19. The Likert scale was used to record the responses of students ranging from never (0) to always (5). All the information was kept confidential in secure folders. In next step, we calculated test anxiety scores using a scale from Nist and Diehl 1990,¹¹ with scores ranging from 10 to 50. A low score (10-19 points) indicated that students were anxiety-free and scores over 35 indicated unhealthy anxiety. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 23. The *p*-value of ≤ 0.05 was considered significant.

RESULTS

A total of 250 students were recruited in the study. The mean age of respondents was 20.1 ± 0.6 years. Table-I showed the frequency of stress in medical students before exams and year-wise comparison. 74 (29.6%) students felt stress sometimes, 40 (16.0%) students felt always and 30 (12.0%) students never felt stressed before examination. Students who reported improved performance during the examination due to stress were 121 (48.4%). 76 (30.4%) students reported decrease in performance and 53 (21.2%) reported that

Table-I: Frequency of stress in medical students and year wise comparison.

Characteristics		MBBSS- I n=50	MBSS-II n=50	MBBS-III n=50	MBBS-IV n=50	MBBS-V n=50	Total Students n=250
Frequency of Stress	Never	1 (0.4%)	2 (0.8%)	7 (2.8%)	4 (1.6%)	16 (6.4)	30 (12.0%)
	Rarely	4 (1.6%)	1 (0.4%)	11 (4.4%)	16 (6.4%)	19 (7.6)	51 (20.4%)
	Sometimes	16 (6.4%)	14 (5.6%)	15 (6.0%)	19 (7.6%)	10 (4%)	74 (29.6%)
	Often	10 (4.0%)	12 (8.8%)	11 (4.4%)	8 (3.2%)	4 (1.6%)	55 (22.0%)
	Always	19 (7.6%)	11 (4.4%)	6 (2.4%)	2 (0.8%)	2 (0.8%)	40 (16.0%)

Epi Software. We enrolled 250 students through consecutive sampling. As attendance was poor after the reopening of college post-lockdown, we enrolled 50 students from each year of MBBS to ensure a representative sample from each year. Ethical approval was taken from the Sir Syed Ethics and Dental review Committee (sscms/college/principal (dental)/2021/022) before the start of data collection.

The 23 points-structured questionnaire, having three distinctive sections, was used with permission from Mittal *et al*, 2018.¹⁰ Section one, investigated the demographics section, including the age, gender, and medical year of the students. Section two, gathered information on the stress before exams and how it affected performance during exams. Section three, inquired about different methods used by students to cope with stress. Data collectors were trained to collect data physically in lecture halls and informed the

their stress did not affect their performance.

Figure-1 showed the adopted coping techniques to decrease the stress among medical students. 110 (44.0%) students felt that there was a marked improvement in their performance due to the practiced method, 102 (40.8%) had little improvement, whereas 29 (11.6%) students found no effect on their performance.

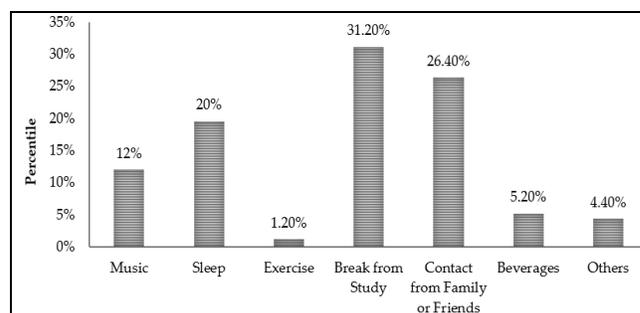


Figure-1: Coping techniques to decrease the level of stress among medical students.

Students reported the use of medications/drugs

Healthy anxiety with the score between 20 to 25 was found in 158 (77%) students. Unhealthy anxiety with the score of more than 35 was found in 68 (27.2%)

Table-II: Use of medications/drugs to relieve stress.

Use of Medications/Drugs	Never=1	Rarely=2	Sometimes=3	Often=4	Always=5
Does medication/drugs decrease the level of stress	237 (94.8%)	40 (16.0%)	3 (1.2%)	2 (8%)	8 (3.2%)
Repeated use of medication/drugs to relieve the stress	238 (95.2%)	52 (20.8%)	2 (0.8%)	8 (3.2%)	6 (2.4%)
Recommended medication/drugs to other students	241 (96.4%)	3 (1.2%)	2 (0.8%)	3 (1.2%)	1 (0.4%)
Use of beverages during exams for alertness	43 (17.2%)	29 (11.6%)	64 (25.6%)	65 (26%)	49 (19.6%)
Effect of beverages in the alertness	55 (22%)	54 (21.6%)	57 (22.8%)	56 (22.4%)	59 (15.6%)
Repeated use of beverages to stay alert	36 (14.4%)	62 (24.8%)	57 (22.8%)	56 (22.4%)	59 (15.6%)
Recommended beverages to other students	23 (9.2%)	41 (16.4%)	53 (21.1%)	83 (33.2%)	49 (19.6%)

to relieve stress as shown in Table-II.

Among 250 students, 204 (81.6%) students never used medicine, 18 (7.2%) rarely used medicine, 15 (6.0%) sometime used medicine and 13 (5.2%) students often used medicine to relieve stress. The medicines identified were over the counter painkillers, antidepressants and sedatives. No side-effects were reported by 243 (97.2%) of students while remaining 7 (2.8%) of the students experienced side effects as they used antidepressants. These medications/drugs did not affect exam performance in 238 (95.2%) of the students while 10 (4.0%) felt marked improvement and only 2 (0.8%) students reported slight decline in exam performance with the use of medicines. One of the coping mechanisms to relieve stress was chocolates used by 49 (19.6%) students, tea and coffee in 94 (37.6%) and 34 (13.6%) students respectively. The impact of used beverages on exam performance showed marked improvement in 60 (24.0%) students and less improvement seen in 63 (37.8%) students.

The test anxiety score was calculated from 10 to 50 for each participant from the responses shown in Table-III.

students. No anxiety during the examination was felt in 22 (8.8%) students with the low score of 10 to 19.

DISCUSSION

This study assessed the examination stress among the medical students of Karachi during COVID-19. When stress is not managed, it leads to anxiety, depression and other mental health disorders. In our study, we used Nist and Diehl (1990),¹¹ study scale to identify the level of anxiety experienced by our medical students. Examination stress leads to a negative impact on the psychological and physical well-being of students; it also demotivates and affects the quality of performance. The results of our study revealed that MBBS students (n=250) felt statistically significant stress in examination during a pandemic. The findings of our study revealed that severe anxiety with the score of more than 35 was found in 68 (27.2%) students. Marcén-Román *et al*, conducted a study on the students of University of Zaragoza (Spain) for one year post-pandemic. They reported 71.4% students had anxiety, 81% depression and 13.1% students had stress. This also suggested the importance of stress management coping skills to prevent anxiety and other mental

Table-III: Test Anxiety Questionnaire (Nist and Diehl,¹¹).

Questions	Never =1	Rarely=2	Sometimes=3	Often=4	Always=5
I have trouble sleeping the night before the exam	60 (24.0%)	50 (20%)	39 (15.6%)	33 (13.2%)	68 (27.9)
I have visible signs of nervousness such as sweaty palms, shaky hands, palpitations, and so on right before the exam	42 (18.8%)	92 (36.8%)	57 (22.8%)	20 (8%)	39 (15.6%)
I feel anxious and have a nervous feeling in my stomach before the exam	53 (21.2%)	71 (28.4%)	44 (17.6%)	29 (11.6%)	53 (21.2)
I feel nauseated before the exam	116 (46.6%)	52 (20.8%)	42 (16.8)	16 (6.4%)	24 (9.6%)
I panic before and during an exam	41 (16.4%)	93 (37.2%)	66 (26.4%)	16 (6.4%)	34 (13.6%)
I read through the test and feel that I do not know any of the answers	46 (18.4%)	86 (34.4%)	75 (30.0%)	18 (7.2%)	25 (10.0%)
My mind goes blank during the exam	52 (20.8%)	91 (36.4%)	67 (26.8%)	24 (9.8%)	16 (6.4%)
I have trouble choosing or deciding answers	27 (10.8%)	75 (30.0%)	104 (41.6%)	30 (12.0%)	14 (5.6%)
I make mistakes on the easy question or put answers in the wrong places	23 (9.2%)	74 (29.6%)	100 (40.0%)	36 (6.8%)	17 (6.8%)
I recollect the answers that once I come out of the exam hall	26 (10.4%)	43 (17.2%)	91 (36.4%)	43 (17.2%)	47 (18.8%)

health disorders.¹² A similar study was conducted in China revealed that 82.3% of the students experienced moderate to high levels of stress in COVID-19. E-examinations during COVID-19 have their own set of challenges creating stress for both students and faculty.¹³ Karki, a medical student from Nepal shared his e-learning experience and its challenges,¹⁴ such as distractions during online lectures and internet connectivity. There are different stress coping mechanisms to deal with the stress, such strategies help in identifying, whether the stress has a positive or a negative impact on one's personality. Our study reported that most of the students took a break from study suggested by family and friends. Poor social support has been identified by Oura *et al*, as a factor that increases the stress in medical students.¹⁵

When the coping interventions were investigated in our study, it showed that 44% students reported reduced stress level by coping interventions. Among 250 students, only 14 (5.6%) used medicines which were identified as analgesics and sedatives. The results of our study were consistent with a study conducted by Lina *et al*, at the Jordan University of Science and Technology that also revealed that almost 23.98% of the university students used analgesics to relieve the stress of examination during pandemic. Analgesics were the most common drugs used by medical students to relieve stress.¹⁶

Caffeine was considered an important coping strategy used by the students of medical universities to relieve stress and to create alertness. The most prevalent stimulant used by students is coffee, followed by tea and other forms of caffeine like sugary energy drinks.¹⁷ The results of our study reported that the consumption of tea and coffee were 94 (37.6%) and 34 (13.6%) respectively. Another study conducted among the university students of Lebanon revealed that the use of caffeine during exams was more than the required dose approved by Food and Drug Administration (FDA).¹⁸ Elsaleem *et al*, reported that around half of the students had more stress during remote e-exams.¹⁹ Consumption of chocolates was identified in 49 (19.6%) of our students to relieve exam stress which was similar to a study conducted by Michels *et al*, in Belgium. They reported that examination-induced stress harmed dietary choices, with increased consumption of unhealthy food.²⁰

Colleges and universities should have mentorship programs to help students tackle the challenges in their

learning process.²¹ During these unprecedented times, the universities should involve the students.

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CONCLUSION

Examination stress among medical students has increased during COVID-19 and various coping methods are used by the students to prevent anxiety. College administration must address stressors to improve the learning and mental health of the students.

Conflict of Interest: None.

Authors' Contribution

SS: Conception, data analysis, writing, SI: Data analysis, interpretation, MJ: Design, data collection, FF: Design writing, SM: Data analysis, writing, HRS: Conception, review.

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