

## ORIGINAL ARTICLE

# Impact of COVID-19 on the Mental Health of Medical Students of Karachi, Pakistan

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## ABSTRACT

**Background:** The biggest dilemma of today's world is COVID-19. This pandemic situation has completely engulfed the globe with a rapidly increasing number of cases and has affected a great number of lives along with their lifestyle including the educational sector.

**Objective:** This study explores the impact of COVID-19, how frequent lockdown, and online learning have affected the mental health of the students of medical college.

**Methods:** A cross-sectional study was conducted among the medical students of Karachi, in September 2021, in Jinnah Medical and Dental College. A total of 312 medical students were enrolled in the study. Out of which 208 were females and 104 were males. Depression Anxiety Stress Scale-21 (DASS-21) was used to assess the mental health of students of medical college.

**Results:** The results of the study revealed that a total of 312 medical students were enrolled in the study; belonging to the age group of (18-25) years. Approximately 104 (66 %) of female students experienced depression, 44 (21%) anxiety, and 60 (28%) stress. Hence gender and year of study of the participants were found to be significant ( $p$ -value<0.05). The odds of first-year students showed high levels of anxiety as compared to final-year students (OR = 1.679, 95% CI [1.202–2.634],  $P$  = 0.002).

**Conclusion:** This study will help in making relevant policies, mental health strategies and providing a better framework for the medical colleges and universities which is essential for the mental health of students.

**Keywords:** Anxiety, COVID-19, Depression, Karachi, Medical Students, Stress

## INTRODUCTION

The COVID-19 was initiated from China and captured approximately 20 countries of the world. On 25 February 2020, the first case of COVID-19 appeared and on 29 March 2020 first death was reported (1). With time, the cases were rising and the situation of the city was becoming devastating (2). In this situation, medical students of universities had to face various problems such as frequent lockdown, online teaching, and the hybrid system has created havoc leading to anxiety and depression among the masses, especially the students who were worried for their future as their studies were affected (3). Eventually with time complete lockdown was seen all around the world. Different agencies, platforms of social media, and other organizations have played a pivotal role in creating awareness regarding COVID-19. Hence further it was observed that only health care providers were allowed to travel during the complete lockdown. In this situation, all schools and universities were also closed due to which students had to suffer (4). It is normal human psychology that whenever there is distressing situation stress is observed. According to Hans Selye, in 1936 who was known as the father of stress defined stress as "a nonspecific response of the body to any demand" (5). American Psychological Association (APA) defined anxiety as "an emotion characterized by feelings of tension, worried thoughts, and physical changes". Hence stress and anxiety are the most common forms of mental health which are observed nowadays very often among people

belonging to all age groups (6). The impact of pandemic was seen in all aspects of life such as education, business, economic and levels of psychological (7). During COVID-19 different strategies were implemented to restrict the spread of the virus. Many public health specialists believe that the strategy of quarantine is the most effective way to deal with pandemics (8). The literature has shown that medical students usually experience more stress and anxiety as compared to students of other academic fields. Medicine is always considered a complicated and stressful subject (9). As medical students have to go through stress and workload during their studies and then Pandemic added more stress in life (10). In any pandemic situation, society plays an important role in the spread of disease and in the development of emotional distress which directly affects the mental health of an individual leading to suicide in extreme conditions (11). The idea of mental health was not incorporated into medical students before the COVID-19 lockdown. Hence many studies have been conducted in different countries of the world to address the issue of mental health among the medical students of Karachi, Pakistan. This study was conducted to assess the impact of COVID-19 on the mental health of medical students by using a validated (DASS-21) scale.

## MATERIALS AND SUBJECTS

A cross-sectional study was conducted in September 2021 in Jinnah Medical Dental College medical college in Karachi among the medical students. The sample size was

calculated using Open-Epi Software. Considering default, Prevalence=50% students revealed that they are being depressed and stressed due to loss of studies during Pandemic at the confidence level of 95% and bound of error of 5%. Therefore, a total of n=312 students were selected by random sampling. Out of which 208 were female and 104 were male. This study included those students who had more than six months in the university and those who were physically fit. An online questionnaire was distributed among the medical students through their email addresses. (DASS-21) Depression, Anxiety, and Stress scale were used to assess the mental health of medical students. This questionnaire has 21 questions that measure normal, mild, moderate, severe, and extremely severe levels of depression, anxiety, and stress by using the Likert scale. These three scales have seven items which are further divided into subscales. Hence, (DASS-21) has acceptable reliability and validity. Data were analyzed by using SPSS. Chi-square test, Man-Whitney, and Kruskal-Walis test were applied. For all tests, the significant

value was evaluated as  $P < 0.05$ . The study was approved by the ethical committee of Jinnah Medical and Dental College. All the students were informed regarding the purpose of the study and consent was taken.

### RESULTS

A total of 312 medical students participated in the study belonging to the (18-25) years of age group. Out of which 208 were female participants and 104 were male participants. Hence female medical students experienced 104 (50%), 44 (21%), and 60 (28%) depression, anxiety, and stress respectively. The results of the study revealed that gender and year of study of the participants were found to be significant ( $p\text{-value} < 0.05$ ). The odds of first-year students showed high levels of anxiety as compared to final-year students ( $OR = 1.679$ , 95% CI [1.202–2.634],  $P = 0.002$ ). Hence gender and educational level show a significant association with depression, anxiety, and stress ( $p\text{-value} < 0.05$ ).

Table 1: Socio-demographic features of medical students of Karachi by using (DASS-21) scale

Socio-demographic characteristics	Mental health status					
	Depression	p-value	Anxiety	p-value	Stress	p-value
Gender	60 (57%)	<0.001	34(32%)	<0.001	10(9.6%)	
• Male (104)	104(50%)		44(21%)		60(28%)	<0.001
• Female (208)						
Educational level	187(59%)	<0.001	35(11%)	<0.001	90(28%)	<0.001
• First-year	156(50%)		71(22%)		85(27%)	
• Second-year	152(48%)		78(25%)		82(26%)	
• Third-year	132(42%)		82(26%)		98(31%)	
• Final-year						
Fathers occupation	78(25%)	0.183	69(22%)	0.255	62(19%)	0.501
• Health-related profession	234(75%)		243(77%)		250(80%)	
• Non-health related profession						
Mothers occupation	72(23%)	0.165	58(18%)	0.890	54(17%)	0.675
• Health-related profession	240 (76%)		254(81%)		258(82%)	
• Non-health related profession						

### DISCUSSION

This study was conducted to assess the impact of COVID-19 on the mental health of medical students of Karachi, Pakistan. For this purpose, a reliable scale called (DASS-21) was used to measure the levels of depression, anxiety, and stress. Globally, the COVID-19 situation has significantly affected the mental health of all the population but unfortunately, this disease has affected health care providers more. Along with COVID-19, the medical school itself is one of the major causes of stress (12). As soon as this situation was declared pandemic mental health issues were on the rise. The impact of COVID-19 on the mental health of medical students was more as they were at high risk, the fear to get COVID-19 was at rising among them and the most difficult thing for the students was to get familiar with a new online teaching method (13). Many studies have been conducted all around the world to determine the prevalence, etiology, incidence, and various forms of depression, anxiety, and stress experienced by medical students. In the Middle East and Asia, studies

have been conducted among medical students during COVID-19 which have shown that disorders of mood, depression, and anxiety are significantly high (14, 15). The literature has shown that the mental health of medical students is affected by various etiological factors such as excessive pressure of work, lack of understanding between students and professors, lack of sleep, fear of being unable to meet the deadlines of assignments (16, 17). In our society, it is one of the biggest dilemmas that people do not visit a psychiatrist whenever there is any mental health-related problem. The main reason behind this is the social stigma that is attached to it (18). Previous research has also highlighted that the main barrier to seeking medical assistance from a psychiatrist is the existence of stigma (19). The results of the study revealed that depression, anxiety, and stress are more common among female medical students as compared to male students (20). Many studies conducted in different parts of the world have revealed that women are more likely to experience depression, anxiety, and stress as compared to men (21). The results of the study revealed that among all the

medical students, females had varying degrees of stress and depression which is similar to a study conducted by Iqbal S, et al. where females experienced more mental stress showing significant association as compared to males (22). Hence, the level of stress has been reported differently among both genders where females are more vulnerable to stress as compared to males (23). Hence, the medical students experience more mental health distress the day they enter medical school. The reason for the rising depression is due to frequent changes in academic policies and stress of work. It was also seen that first-year medical students experienced more depression, anxiety, and stress during COVID-19 which is similar to a study conducted by Huckins J et al (19). Usually, the students of first-year medical experience more stress as compared to senior students as they are unable to understand the course, unable to bear the pressure of studies due to continuous assessments and exams (23). This is similar to a study conducted by Shabbir et al. (24). In this devastating situation, universities and medical colleges should provide the utmost mental, emotional support to students and reduce the negative consequences of COVID-19. The main limitation of this study is the limited sample size and single-center study. More studies can be conducted to make the results more generalizable. This study also lacks basic information of medical students regarding their mental status at the time of admission to the medical university. If a student has any mental health issue it may affect the learning procedure due to which the student will try to quit the studies, attempt to do suicide, and will be able to perform daily life activities effectively (25). To deal with the consequences of medical university various coping strategies should be introduced along with extra circular activities.

## CONCLUSION

The results of the study conclude that gender and medical year have a significant association affecting the mental health of the students. Medical students have more anxiety levels as compared to non-medical students. With the rise of COVID-19, a fear was developed among medical students. Medical universities need to have mental health counselors to address the mental health issue which is commonly found among medical students. In this way, the mental status of future physicians can be strengthened due to which an efficient health care system can be achieved.

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