

ONLINE LEARNING: DEPRESSION, ANXIETY AND STRESS SYMPTOMATOLOGY AMONG STUDENTS OF WAH MEDICAL COLLEGE DURING COVID-19 QUARANTINE

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ABSTRACT

Introduction: The students faced new worries and issues with the discontinuation of on-campus teaching and the change to online education during the COVID-19 quarantine. This significant change had a detrimental effect on their mental health and cognitive functioning.

Objectives:

1. To assess depression, anxiety & stress among medical students during online learning.
2. To determine the association of depression, anxiety & stress with gender & residential status of the students.

Study Design: Cross-sectional study.

Place and Duration of Study: Wah Medical College, Wah Cantt. 06 months (December 2020-May 2021).

Material and Methods: Data collection was done by Google Forms, using Depression, Anxiety & Stress Scale (DASS) 21 questionnaire (Cronbach alpha >0.70). The Google form link was shared with all 500 MBBS students through their class WhatsApp groups. Only 180 students submitted the response giving a response rate of 36%. Statistical Package for Social Sciences (SPSS) version 26 was used for data analysis. The descriptive variables were determined as Means & Standard Deviation (SD), frequencies & percentages. The Chi-square test executed the inferential analyses, with a predetermined alpha (α) < 0.05.

Results: Male students were 60(33.3 %) and female students were 120(66.6%) . The proportion of rural students was 32 (17.8%) and 148 (82.2%) were urban students. Stress was reported more than anxiety and depression among the students. Gender did not significantly correlate with depression, anxiety, or stress (p-value>0.5). Depression was significantly more reported among rural students than urban students (p-value <0.05).

Conclusion: In terms of mental health, both male and female students were equally affected by online learning during the quarantine period of COVID-19.

Keywords: Anxiety, COVID-19, Depression, e-learning, Medical students, Online learning, Stress.

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INTRODUCTION

COVID-19 was deemed a worldwide public health emergency in January 2020. The World Health Organisation (WHO) labelled it a pandemic on March 11, 2020. Many countries implemented strict precautions for their citizens to prevent the spread of infection¹. A stressful situation was created for all societies due to lockdown instructions. Without social

interaction or face-to-face communication, people were isolated and went through phases of loneliness, rage, anxiety, boredom, and melancholy². The pandemic affected all the domains of life, including education. Health education was challenging during the pandemic. Face-to-face teaching sessions were terminated. To address the disruption in learning caused by the pandemic, numerous universities globally shifted onto emergency remote teaching (ERT) or e-learning by using online platforms for video lectures or live streams^{1,3,4}. The initial shift to digital learning caused significant confusion, particularly with subjects that are more difficult to teach online, such as those in health sciences⁵.

Students are usually vulnerable to developing stress disorders and depression. Disease outbreaks have badly affected the mental health & well-being of individuals¹. Because of the

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psychologically taxing circumstances they were in, throughout the COVID-19 quarantine, the likelihood of such consequences was significantly higher^{2,5}.

The switch from transitional teaching to emergency remote teaching has increased student anxiety³. Difficulties & limitations experienced by the students through online learning increased the level of stress in the students. Women aged between 16 and 24 years were the most vulnerable group for developing psychological distress^{1,2}. Procrastination can be the result of social isolation and decreased physical activity during period of quarantine which may augment anxiety & depression among students⁵. Students were anxious and depressed, which had a severe bearing on their cognitive functioning & learning, as students of a medical school^{4,6}. Particular to this study, prior research has shown how pandemics can impact students' psychological health, resulting in severe anxiety and depression³. Research has been done in several countries regarding medical students' anxiety and depression during the pandemic. The results demonstrated that, even in the preclinical setting, medical students experienced higher levels of anxiety and sadness during the COVID-19 pandemic⁶. Studies also showed that during the H1N1 pandemic, depression and feelings of emotional disturbance were reported. A population-based survey during the SARS outbreak reported post-crisis mental distress. During Middle East Respiratory Stress (MERS) in KSA, a comparatively high level of stress was reported among medical students¹.

Medical teaching involves interaction with the patients and is different from other teaching. We were on e-learning during the pandemic for almost one and half years and we were facing so many hurdles and barriers in both teaching and learning. This study was done to evaluate the effect of online learning on the mental well-being of medical students. The primary aim was to find out the symptomatology of stress, anxiety, and depression in Wah Medical College students during the COVID-19 pandemic, with an emphasis on the shift to online instruction. **Rationale:** Unprecedented difficulties were introduced by the COVID-19 pandemic, affecting various aspects of life, including education. Medical students face unique stressors due to the nature of their studies. The pandemic and its associated restrictions such as lockdowns, social distancing measures, and transition to online learning have significantly impacted mental health, globally. Students, especially those pursuing medical education, are more vulnerable to mental health issues because of the rigorous nature of their coursework, exposure to distressing clinical scenarios, long study hours, and limited work-life balance. Currently, the literature reveals a dearth of data on the well-being and mental health issues of students of higher studies during this pandemic, particularly in Asian nations. More information is needed, particularly from

developing nations, to investigate students' mental health status for prevention and intervention. Understanding the prevalence & severity of depression, anxiety, and stress in medical students during pandemic days has value for the identification of risk

factors, specific to this population. Findings from this study can tell us about the development and implementation of targeted interventions to strengthen the mental health & well-being of medical students during and beyond this pandemic. This study can potentially add useful insights to the existing literature and help guide relevant future research.

MATERIAL AND METHODS

A Cross-sectional study was done in Wah Medical College, Wah Cantt, from Dec 2020 to May 2021. A Sample of 374 was calculated by applying the WHO sample

size formula taking the prevalence of severe depression at 42.09 % (1) and α of 0.05

$$n = z^2 PQ / e^2$$

$$n = (1.96)^2 0.42 \times 0.58 / (0.05)^2 = 374$$

Convenience sampling technique was adopted for data collection. All enrolled students of Wah Medical College who had been involved in online learning were included in the study except for diagnosed cases of any psychiatric illness. A structured questionnaire, Depression, Anxiety & Stress Scale (DASS) 21, was utilized for the assessment of mental health status of medical students, undertaking online learning during the COVID-19 quarantine. Few questions related to demographic variables were included in the questionnaire. DASS-21 is a psychometrically accurate, reliable and valid tool (Cronbach alpha >.70). It is a 03 self-report scales set, to determine the emotional states of depression, anxiety & stress. Seven elements are there in each scale, further categorized in subscales of related information. The response to each item is recorded in a 04-point Likert scale, from 0 ("did not apply to me at all") to 3 ("applied to me very much or most of the time"). The scores of different subscales were obtained by adding the scores of individual items. The cut-off points of each dimension were set, to assess depression, anxiety and stress levels, as of Lovibond². Data was collected through Google Forms. Google form link was shared in the WhatsApp groups of all five years of MBBS. All enrolled students of Wah Medical College who were involved in online learning during the phase of home quarantine were included in the study. In the Google form, a brief description of the aim of the study was given. Students were informed about the confidentiality of the data. Consent was written on the questionnaire and taking part in the study was voluntary. Out of 500 students, 180 students returned the questionnaire giving a response rate of 36%. Statistical Package for Social Sciences (SPSS) version 26 was used for analysis. Descriptive and inferential analysis was done. The chi-square test determined the association of depression, anxiety & stress with gender and residential status. Predetermined alpha (α) was taken at <0.05.

CAPSULE SUMMARY

During learning transition to online format during COVID-19 lockdown, stress levels were notably higher compared to depression and anxiety in medical students, affecting male and female students equally, with rural students experiencing higher levels of depression as compared to urban students.

Operational definition: The cut-off points for depression, anxiety & stress were as of DASS 21 manual by Lovibond ².

Depression: Students scoring 0-9 were labelled normal, 10-12 as having mild depression, 14-20 as having moderate depression, 20-27 as severe depression & 28+ as having extremely severe depression.

Anxiety: A score from 0 to 7 was considered normal for anxiety, 8 & 9 were categorized as mild anxiety, 10-14 as moderate, 15-19 as severe and a 20+ score, as extremely severe.

Stress: A stress score from 0 to 14 was taken as normal, from 15 to 18 as mild, from 19 to 25 as moderate, from 26 to 33 as severe and 34+ as extremely severe.

RESULTS

Our sample consisted of 180 undergraduate medical students of Wah Medical College who were involved in online learning at the time of the lockdown. Out of 180 students, 120 (66.6%) were females and 60(33.3 %) were males. According to age, students were categorized into three main categories. Students belonging to the age category of 21-23 years were 134 (74.4%), 38 (21.1%) belonged to the age group of 18-20 years and 8(4.4%) were > 23 years of age. The residential distribution of the participants showed that 148 (82.2%) participants were from urban areas and 32(17.8%) were from rural areas. Students from all the five years of MBBS took part in the study. Participants from the first year were 42 (23.3%), from 2nd year were 23(12.8%), from 3rd year were 64(35.6%) from 4th year were 45(25%) and 6(3.3%) students were from the final year of MBBS.

Descriptive analysis was done to determine depression, anxiety & stress among medical students. Mean score of depression was 9.13 ± 5.68 , mean score of anxiety was 7.67 ± 5.27 and mean score of stress was 9.49 ± 5.33 . Detailed results are given in Table 1.

Table 1: Depression, Anxiety & Stress Scale (Mean \pm SD)

	Minimum	Maximum	Mean	SD
Depression	0	21	9.13	5.68
Anxiety			7.67	5.27
Stress			9.49	5.33

The three dimensions of DASS-21 were assessed as of the mentioned cut-off points, some scores indicate varying levels of depression, stress & anxiety. The descriptive analysis for various levels of depression, anxiety & stress are depicted in Table 2.

The chi-square test determined the difference between male and female students associated with recorded levels of depression, anxiety and stress. Analysis showed insignificance (p- value 0.9, 0.57, 0.15 respectively).

A significant difference on the level of depression (p- value 0.05) among rural and urban residents was observed on analysis. The rural residents were more depressed as compared to the urban residents. However, analysis showed insignificant difference in the level of anxiety and stress (p- value 0.74 & 0.58 respectively) among rural and urban residents.

DISCUSSION

The academic life of medical students makes them prone to depression & anxiety. Situations, such as a pandemic, might amplify the negative feelings. Coping with online education methods could be challenging for the students. This encompasses students' technological proficiency, a reliable internet connection, and sufficient home resources facilitating online learning. This research indicated that a significant portion of the students fell within normal ranges of anxiety stress and depression. Stress was more reported among the students than anxiety and depression and a notable number came out to be experiencing significant mental health challenges highlighting the widespread impact of online learning on student well-being. These results are similar to the ^{2,4-10}. Due to the lack of contact throughout the social distancing stage, these psychological reactions are more likely to arise and worsen. Isolation can have detrimental effects on the mental health of many. In addition, academic, social & financial difficulties can also cause stress and lead to anxiety and depression.

The insignificant difference in depression, anxiety, and stress with gender was reported by the current study. This finding is similar to that of Kira D, et al and in contrast to some studies which claimed that women have higher rates of stress, anxiety, and depression^{2,4-6,11-12}. Whereas Azmi FM, et al stated that males have higher depressive symptoms than females¹³. This

Table 2: Level of Severity, Frequency and Percentage of Depression, Anxiety & Stress among Medical Students

Severity	Depression		Anxiety		Stress	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Normal	103	57.2	91	50.6	143	79.4
Mild	36	20	22	12.2	28	14.4
Moderate	36	20	45	25	100	61
Severe	5	2.8	21	11.7	0	0
Extremely severe	0	0	1	0.6	0	0

contrast may be attributed to the unequal distribution of males and females in the sample of our study.

The current study’s findings show a significant association between depression, anxiety & stress in students from rural and urban settings. Rural students were found to be more depressed. This finding is similar to that of Jiang N, et al and in contrast to that of Azmi FM, et al which found those living in urban areas to have increased levels of anxiety & depression^{2,13}. The disparity in resources between urban and rural areas in terms of economic, cultural, social, and educational aspects could be the cause. The urban community has better educational resources and provides students with greater opportunities as compared to the rural community. In addition, internet facilities are also ahead in the urban sector, which helps students maintain communication with their friends and family, through social media, when they are unable to meet them in person due to the pandemic.

CONCLUSION

Our research evaluated depression, anxiety, & stress levels among medical students during COVID-19 lockdown, when learning transitioned to an online format. Stress levels were notably higher compared to depression and anxiety. The pandemic emotionally affected both male and female students, with rural students experiencing higher levels of depression during online learning.

To address these challenges, it is essential to develop interventions targeting the stress, anxiety, and depression associated with online learning. Integrating new courses in the curriculum to improve computer-using skills, which in turn will lead to improvement in the online learning experience. Additionally, improving internet accessibility in rural areas is imperative. Further research is necessary to devise more effective interventions to support students in managing their mental health during online education.

Limitations

- The sample size was small with a low response rate.
- Self-selection-based participation in the survey.
- Asymmetry of sample in terms of gender and study year.

AUTHORS’ CONTRIBUTION

Raima Siddiqui	Drafting the Article
Sidra Farooq, Mohsin Raza	Analysis and interpretation of data
Anwar Bibi	Conception and design
Robina Mushtaq	Acquisition of data
Anwar Bibi, Aashi Ahmed	Critical revision

REFERENCES

1. AlAteeq D A, Aljhani S, AlEesa D. Perceived stress among students in virtual classrooms during the COVID-19 outbreak in KSA. *J Taibah Univ Med Sci.* 2020;15(5):398-403.
2. Jiang N, Siaw YL, Pamanee K, et al. Depression, Anxiety, and Stress During the COVID-19 Pandemic: Comparison Among Higher Education Students in Four Countries in the Asia-Pacific Region. *J Popul Soc Stud.* 2021; 29: 370-383.
3. Jabeen S, Muhammad A, Sadiq F. Students’ satisfaction from E-learning system. *Int J E-Adoption.* 2014; 6(2):1-13.
4. Abdulghani H, Ahmed T, Sattar K, et al. Association of COVID-19 Pandemic with undergraduate Medical Students' Perceived Stress and Coping. *Psychol Res Behav Manag.* 2020; 13(1): 871-881.
5. Fawaz M, Samaha A. E-learning: Depression, anxiety, and stress symptomatology among Lebanese university students during COVID19 quarantine. *Nurs Forum.* 2021;56(1):52-57.
6. Manuaba IBAP , Darmayani IGAS , Sindhughosa DA. Levels of anxiety and depression of students and responses to online learning methods during the COVID-19 pandemic. *Bali Med J* 2023; 12(1): 550-555.
7. Son C, Hegde S, Smith A, et al. Effects of COVID-19 on College Students’ Mental Health in the United States: Interview Survey Study. *J Med Internet Res.* 2020; 22(9): 1-14.
8. Kira D, Nebebe, f, Saadé RG. The persistence of anxiety experienced by new generation in online learning. In: Eli Cohen editor. *Proceedings of the informing science and information technology education conference; 2018 June 23-28; Santa Rosa, CA. Informing science institute; 2018.p.79-78.*
9. Faisal RA, Jobe MC, Ahmed O, et al. Mental Health Status, Anxiety, and Depression Levels of Bangladeshi University Students During the COVID-19 Pandemic. *Int J Ment Health Addict.* 2022;20(3):1500-1515.
10. Cao W, Fang Z, Hou G, et al. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res.* 2020 ;287: 112934-112938.
11. Shah T D, Pol T. Prevalence of depression and anxiety in college students. *J Mental Health Hum Behav.* 2020;25(1):10-13.
12. Islam M A, Barna S D, Raihan H,et al. Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey. *PLoS ONE.* 2020;15(8):e0238162-238173.
13. Azmi FM, Khan HN, Azmi AM. The impact of virtual learning on students' educational behavior and pervasiveness of depression among university students due to the COVID-19 pandemic. *Global Health.* 2022 Jul 14;18(1):70-78.