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Anxiety, Depression and Stress among Medical Students during COVID- 19 Pandemic and their Coping Strategies

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ABSTRACT

Background: The COVID-19 pandemic has exacerbated mental health challenges among medical students, already a vulnerable group to mental health disorders. Recent evidence underscores a significant rise in anxiety, depression, and stress among this demographic globally, necessitating a deeper understanding of their mental health status and effective interventions. **Objective:** This study aims to assess the socio-demographic profile, prevalence rates of depression, anxiety, and stress, as well as coping strategies employed by medical students during the COVID-19 pandemic, with a focus on identifying effective interventions for managing their mental health crises. **Methods:** A cross-sectional study was conducted among 1st to 4th year MBBS students at ACSR Government Medical College, Nellore, during August and September 2020. Data were collected online using Google Forms, incorporating demographic details and the Depression, Anxiety, and Stress Scale (DASS-21). Descriptive statistics and chi-square tests were utilized for data analysis. **Results:** The study included 400 participants, 57% of whom were female, with a mean age of 23 $\pm$ 2 years. Significant proportions reported experiencing depression (20.2%), anxiety (13%), or stress (51.3%), with notable rates of past psychiatric symptoms. Coping mechanisms included video chatting (35%) and online entertainment (32.2%), while professional help utilization was low (5.5%). COVID-19 repercussions extended beyond mental health, impacting various facets of daily life. **Conclusion:** This study found various mental health challenges faced by medical students during the pandemic, emphasising the need for ongoing monitoring and psychological support. Additionally, a low rate of seeking professional help was found. Early training in handling pandemic-like situations and mental health is recommended. However, further research is necessary to track mental health progression and ensure accurate diagnosis through individual clinical assessments.

KEYWORDS: mental health, Scale, Socio-demographic, Depression, DASS -21

INTRODUCTION:

The COVID-19 pandemic has precipitated an unparalleled mental health crisis among medical students, which is already a high-risk group for mental health disorders. [1] This period has been characterized by an increased prevalence of anxiety, depression, stress, insomnia, and fear thereby altering the methods of medical education and clinical training. [2] Recent studies, including a comprehensive 2023 meta-analysis, indicate a significant increase in mental health issues among this group globally, signifying the pandemic's deeper impact. [3]

The disruption caused by the pandemic extended beyond the risk of infection, affecting academic routines, clinical exposure, and social interactions. The sudden shift to online learning platforms and the reduction in patient interaction not only disturbed the traditional learning methods but also contributed to feelings of inadequacy among students. [4, 5]

Despite the World Health Organization's assertion as early as 1954 about the indivisibility of physical and mental health, mental disorders often remain underestimated, particularly in lower socioeconomic groups. [6] Socioeconomic status and regional differences have influenced these experiences, with students from lower socioeconomic backgrounds facing unique challenges.These factors, play a crucial role in the mental health and academic performance of medical students. [7]

Medical students, dealing with high academic standards and professional demands, often hesitate to talk about their mental health concerns because they fear being judged, which puts them at greater risk. As a result of social isolation and emotional distress, there has been a notable increase in anxiety, depression, self-harm, and suicidal thoughts among medical students during the COVID-19 pandemic. [8, 9]

To address these difficulties, strategies such as cognitive-behavioural techniques and health-promoting activities like yoga, progressive muscle relaxation, breathing exercises, meditation, and mental imagery have arisen as possible methods for stress management. [10] However, there is a requirement for further research to assess the usefulness of these interventions, particularly designed for medical students during pandemics.

This study is conducted to understand the mental health status of medical students during the COVID-19 pandemic and to identify effective interventions for managing their mental health crises.

METHODOLOGY:

Study Setting:

- **Population:** The study population comprised 1st to 4th year MBBS students at ACSR Government Medical College, Nellore, during the COVID-19 lockdown period in August and September 2020.
- **Study Design:** This was a cross-sectional study conducted entirely online, as all students were confined to their homes during the lockdown period.
- **Sampling:** Simple random sampling was employed batch-wise to select 400 study subjects from the total population of 700 students. Specifically, 100 students were randomly chosen from each academic year using a random number generator.
- **Sample Size:** The estimated sample size was calculated to be 400, based on a prevalence rate assumption of 50% for psychiatric comorbidity conditions like anxiety, depression, and stress, with a desired precision of 5% and a 95% confidence interval.

Ethical Considerations:

Informed consent was obtained from all participants before their inclusion in the study. Those students who declined to participate were excluded from the study. Incompletely filled forms were also excluded from the analysis.

Data Collection:

A Google Form was created and distributed via email to the selected students for an online survey. Demographic details and a history of anxiety, depression, and stress were collected, with the latter assessed based on previous treatment history.

The Depression, Anxiety, and Stress Scale (DASS-21) was utilized to assess anxiety, depression, and stress levels. The DASS-21 is a reliable, valid, and easy-to-administer self-reported scale with well-validated psychometric properties.

Analysis:

Data analysis was performed using SPSS version 20. Descriptive statistics including mean, standard deviation, frequency, and percentages were used to represent the data. The relationship between variables was assessed using the Chi-square test, with a significance level set at $P < 0.05$.

RESULTS

The present study examined the mental health status of 400 MBBS students during the COVID-19 pandemic lockdown, revealing significant insights into the prevalence rates of depression, anxiety, and stress, as well as associated factors and coping mechanisms.

The mean age of the study participants was 23 $\pm$ 2 years, with a predominantly female representation (57%) compared to males (43%). Additionally, an even distribution across academic years was observed, with approximately 25% of students from each batch. Most participants hailed from local residences (60%) and belonged to nuclear families (84.5%). **(Table 1)**

Utilizing the Depression, Anxiety, and Stress Scale (DASS-21), the mean scores for depression, anxiety, and stress were calculated as 13.62 $\pm$ 9.67, 18.37 $\pm$ 6.70, and 21.29 $\pm$ 7.90, respectively**. (Table 2)** Analysis revealed that 45.7% of respondents reported experiencing either depression, anxiety, or stress during the pandemic, with depression, anxiety, and stress prevalence rates recorded at 20.2%, 13%, and 51.3%, respectively**.** (Figure 1) Notably, a proportion of participants had a history of psychiatric symptoms, with 4.9% reporting past depression, 8.7% anxiety, and 29% stress.

Regarding coping mechanisms, a significant proportion of individuals engaged in activities such as video chatting with friends (35%) and watching movies online (32.2%), while a minority sought professional help (5.5%) to manage their mental health during the pandemic. **(Table 3)**

The effects of COVID-19 went beyond mental health concerns, affecting various aspects of daily life. Participants reported negative impacts on studies (83%), physical activities (90%), dietary habits (84%), sleeping patterns (82%), and financial stress (98%). Conversely, positive impacts were rare, with minimal reported instances. **(Figure 2)**

Analysis of demographic factors showed higher rates of depression, anxiety, and stress among older age groups (78.8% for 24 and above), males (65.7%), and certain academic years, particularly the 1st and 4th years. Additionally, individuals from nuclear families exhibited higher susceptibility to mental health issues compared to those from

Variables	No (%) (n=400)
Age (Mean±SD)	23 ± 2
SEX	
Female	228 (57%)
Male	172 (43%)
Academic year	
1^{st}	100 (25%)
2^{nd}	100 (25%)
3^{rd}	100 (25%)
4^{th}	100 (25%)
Residence	
Local	240 (60%)
Non- Local	169 (40%)
Type of Family	
Joint Family	62 (15.5%)
Nuclear Family	338 (84.5%)

Table 1: Socio-demographic characteristic of study subjects

SCALE	MEAN (SD)
DASS -21 Depression	13.62 (9. 67)
DASS -21Anxiety	18. 37 (6.70)
DASS -21 Stress	21.29 (7.90)

Table 2: Responses on the psychological symptoms

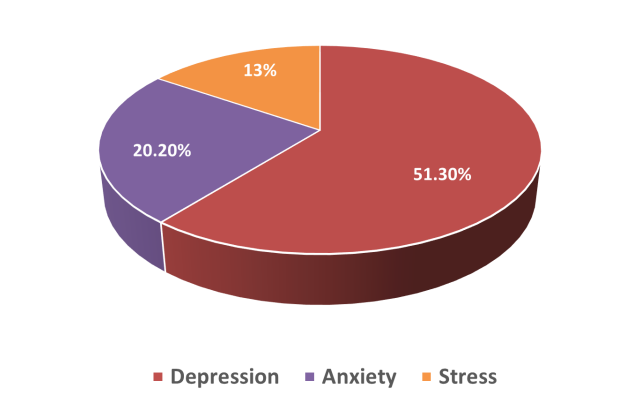

Figure 1: Occurrence of Depression, Anxiety & Stress during Pandemic

Coping Strategies	No. (N= 183)
Talking with parents	26 (14.2%)
Video chats with friends	64 (35%)
Watching movies online	59 (32.2%)
Physical activity	24 (13.1%)
Taking doctors help	10 (5.5%)

Table 3: Coping Strategies among medical students

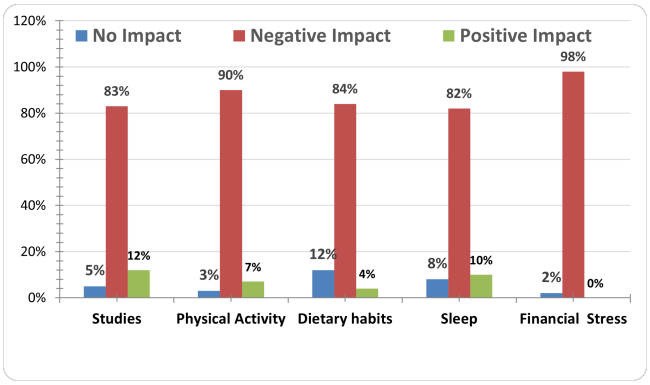

Figure 2: Impact of Covid-19 on different aspects of medical students lives

joint families, and a statistical significance was observed, (p = 0.008). **(Table 4)**

DISCUSSION:

This study aimed to investigate how the COVID-19 pandemic has affected the mental well-being of medical students enrolled in a government-approved medical college, which also served as a treatment centre for COVID-19 patients.

Specifically, the mean (± SD) scores were calculated as 13.62 (± 9.67) for depression, 18.37 (± 6.70) for anxiety, and 21.29 (± 7.90) for stress, respectively. These findings are consistent with the findings of the study by Mallaram G et al. and AlHarthi AS et al., which also reported similar levels of stress, anxiety, and depression among medical students. [10, 11] Such a higher prevalence of stress compared to depression and anxiety demands further investigation. This could be due to the academic demands of medical studies, possibly increased by disturbances caused by the pandemic. [12] Financial stress reported by nearly all participants (98%) likely increased the psychological strain.

Many studies showed that it is always challenging for medical students to cope with pandemic situations, they require support from their family, and social and emotional support to fight against challenges. [13] In our study commonly used coping strategies were video chatting with friends 35%

Depression	Yes	No	Total	p-value
Age Group (in yrs) No. (%)				
18 -20	72 (62.1)	44 (37.9)	116 (29)	0.020
21-23	119 (66.1)	61 (33.9)	180 (45)	
24 & above	82 (78.8)	22 (21.2)	104 (26)	
Gender No. (%)				
Female	132 (57.8)	96 (42.2)	228 (57)	0.138
Male	113 (65.7)	59 (34.3)	172 (43)	
Academic Year No. (%)				
1st	76 (76)	24 (24)	100 (25)	0.003
2nd	58 (58)	42 (42)	100 (25)	
3rd	63 (63)	37 (37)	100 (25)	
4th	78 (78)	22 (22)	100 (25)	
Type of Family No. (%)				
Joint Family	28 (45.1)	34 (54.9)	62 (15.5)	0.008
Nuclear Family	216 (63.9)	122 (36.1)	338 (84.5)	

Table 4: Association between socio-demographic factors with Depression, Anxiety & stress (N= 400)

and 32.2% watching movies online & only 5.5% took doctor help. In a study conducted by Mohammad Abdulghani et al. reported watching online movies & playing online games, online fun with family and friends, religious activities, and learning to live in a COVID-19 situation as common coping strategies. [14]

As reported in our study, medical students experienced negative impacts on their studies (83%), physical activities (90%), dietary habits (84%), and sleeping patterns (82%), as well as financial stress (98%). Biswas et al., in their study, similarly found that due to lockdown measures, medical students were facing reduced physical activity, changes in living circumstances, and increased employment pressure. [15]

Our study revealed that depression, anxiety, and stress were more prevalent in the 24 and above age group (78.8%) compared to the 18 to 20-year-olds (62.1%), and it was higher in males (65.7%) than females (57.8%). A study conducted by Aashiq MAR et al. [9] in Bangladesh reported similar findings regarding age groups, but they found that females were more affected than males. Additionally, our study indicated that medical students in the 1st year (76%) and 4th year (78%) were more affected compared to those in the 2nd year (58%) and 3rd year (63%), with a statistically significant p-value of 0.0003. Studies conducted in Saudi Arabia and Turkey also support these findings, which were also statistically significant. [14, 16]

CONCLUSION:

This study found various mental health challenges faced by medical students during the pandemic, emphasising the need for ongoing monitoring and psychological support. Additionally, a low rate of seeking professional help was found. There is an increasing need to track the mental health status of all medical students and provide psychological care and counselling. Medical students should be trained from first year to face pandemic like situations.

LIMITATIONS:

- Study shows the mental status of medical students at certain point of time and does not follow the progression of their stress, anxiety and depressive symptoms.
- Direct individual clinical assessment is required to diagnose stress, anxiety and depression

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