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## **Analysis of impact of COVID-19 on stress, anxiety and depression among 1st & 2nd MBBS medical students in central India: A cross sectional study**

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**Abstract**--Background- The mental health of students has been significantly impacted by the COVID-19 pandemic. Therefore, it is of the utmost importance to keep an eye on and supervise students' mental health during emergencies like pandemics. The purpose of this study is to evaluate the results of previous investigations into the incidence of stress, anxiety, and depressive symptoms among medical students during the COVID-19 pandemic. Objective Analysis of Impact of COVID-19 on stress, anxiety and depression among 1st & 2nd MBBS medical students in central India : A cross sectional study" Materials and Methods: Methodology- This online cross-sectional survey-based study was conducted on undergraduate medical students after it was given permission by the institution's ethics committee. For the collection of baseline socio-demographic information, a structured pre-validated questionnaire was used, and a standard DASS 21 (twenty one items) questionnaire was used for the

measurement of depression, anxiety, and stress among undergraduate medical students. Result- 12.3% of participants had extremely severe depression, and 10.9% had severe depression. 27% of participants scored moderately depressed, and 18.2% scored mildly. 39% of participants were normal. 20.7% of people showed extremely severe anxiety, 11.9% severe anxiety, 21.8% moderate anxiety, and 10.9% mild anxiety. 34.7% showed no anxiety. 51.6% of people reported no stress, 15.1% mild anxiety, 16.5% moderate anxiety, 11.6% severe anxiety, and 5.3% very severe anxiety. Conclusion - COVID-19 causes physical and psychological disorders. New coronavirus can affect medical students' mental health. During the COVID-19 pandemic, it is essential to preserve mental health and develop psychological interventions.

**Keywords**--medical students, DASS-21, anxiety, stress, depression.

## **Introduction**

Covid-19, or Coronavirus disease, is thought to have originated in Wuhan, China, at a wet market. Since then, it has spread around the world, causing hospitalizations and deaths (Wang et al. 2020). Around the world, 23,000 cases had been reported as of April 18. (Worldometers 2020). Covid-19 was not yet treatable or vaccinated at the time of this writing (Sanders et al. 2020). To stop the virus from spreading, one-third of the world's population is on lockdown (Kaplan et al. 2020). Keep a safe distance from people, wear a mask, and wash your hands often (Cheng et al. 2020). When it comes to lockdown, India is like the rest of the globe (Sahu et al. 2020). Challenges in the medical industry increase Indians' stress (Chetterje 2020). People fear infection during an epidemic, which produces anxiety, stress, and sadness (Hall et al. 2008). Stress is mental and bodily tension when our homeostasis is endangered (Selye 1956).

Anxiety, the body's natural stress response, is the fear of the unknown (Holland 2018). Depression is bored with ordinary tasks. People confronting a pandemic without immunisation may be worried, stressed, and depressed from fear (in this case, the coronavirus). Xiang et al. (2020) call for immediate intervention on mental health during the Covid-19 epidemic, given concerns about psychological discomfort. The WHO 2020 has established public interest guidelines to address any psychological concerns. Concerning is the rise in coronavirus-related suicides (Goyal et al. 2020; Mamun and Griffiths 2020). According to study (Wang et al. 2020), Chinese nationals faced substantial psychological anguish during Covid-19. Stress, anxiety, and sadness are frequent among Chinese individuals, according to a survey (Qiu et al. 2020). SARS had a negative influence on mental health. In a study (Leung et al. 2003) found that SARS patients were nervous.

Stress, depression, and anxiety were frequent during SARS (McAlonan et al. 2007), but higher in high-risk groups like health workers. People quarantined during SARS reported considerable psychological anguish, as per another study (Hawryluck et al 2004). Sociality is a human attribute that allows social connection, and when our motions are constrained, we experience psychological

pain (Usher et al. 2020). Pandemics cause worry, stress, panic, trauma, powerlessness, and other psychological disorders, according to other studies (Van Bortel et al. 2016 and Kumar and Nayar 2020). It seems the lockdown in India impacts people differently based on their sex, occupation, social level, or where they live. A person who is with family and has basic needs satisfied may be less anxious. In addition, front-line workers (such as health care providers) would be more affected by the crisis (such as software engineers). Lockdown's impact is determined by migration, according to another study (Dandekar and Ghai 2020).

Alarming migrant plight draws international attention (Ellis-Petersen and Rahman 2020). Pandemic anxiety is indicated by people scurrying around grocery stores and making frantic purchases (Nicola et al. 2020). Students all throughout the world are anxious about exams, careers, and other chances. Despite teachers' best efforts, online instruction isn't ideal. Students can't afford to use online platforms and transfer to online study successfully, which can hurt their careers (Agha 2020). According to other study (Cao et al. 2020), anxiety among Covid-19 students is linked the difficulties they face in their daily lives, as well as in their educational pursuits. According to another study, Indians were anxious during the outbreak of Covid-19 (Roy et al. 2020). We don't know if India has studied medical students' distress (depression, anxiety, and stress) during COVID-19. Current work attempts to overcome this gap so practitioners and policymakers can plan better mental health treatment for medical students.

## **Materials and Methods**

This online cross-sectional survey-based study was conducted on undergraduate medical students after it was given permission by the institution's ethics committee. For the collection of baseline socio-demographic information, a structured pre-validated questionnaire was used, and a standard DASS 21 (twenty one items) questionnaire was used for the measurement of depression, anxiety, and stress among undergraduate medical students. The Depression, Anxiety, and Stress Scale-21 (DASS-21) is one of the instruments that is utilized most frequently in the diagnosis and preliminary screening of mood and anxiety disorders. Through an online survey link that was crafted by us using Google form, a structured and pre-validated questionnaire was distributed to all 330 medical students with the request for their voluntary participation. And 285 students participated in the survey on their own free will. Excel and an online statistical website were used to compile and analyse the data that was collected.

## **Result**

Out of 300 students, 285 gave their consent to participate in the study. Table 1 demonstrates that there is a preponderance of the female gender among participants, with 52.6 percent being female and 47.4 percent being male and 71.6 percent falling into the 20–30 age range, compared to 28.4 percent who were younger than 20. Participants made up 58.59 percent of the first professional year and 41.41 percent of the second. When the pandemic hit, the majority of people (49.12 percent) fled to urban areas, leaving rural areas (33.68 percent) and semi-urban areas (semi-urban areas) behind (17.19 percent ). 10.17 percent of participants had an annual family income of more than 10 lac, compared to 29.82

percent who had between 5 and 10 lac, 34.73 percent who had between 2 and 5 lac, and another 29.82 percent who had less than 2 lac. At the time of the pandemic, 3.86 percent of participants were living alone, compared to 34.03 percent living in a joint family and 62.10 percent in a nuclear family.

Table 1  
Demographic Profile of Participants

Particulars	Sub-particulars	N	Percent
Age	<20 year	81	28.42
	20-30 year	204	71.57
Gender	Male	135	47.36
	Female	150	52.63
Professional Year	MBBS 1 <sup>st</sup> Prof	167	58.59
	MBBS 2 <sup>nd</sup> Prof	118	41.40
Residential area	Rural	96	33.68
	Semi-Urban	49	17.19
	Urban	140	49.12
Family Income per year	< 2 Lac	85	29.82
	>10 Lac	29	10.17
	2-5 Lac	99	34.73
	5-10 Lac	85	29.82
Living pattern	Alone	11	3.86
	With joint Family	97	34.03
	With nuclearfamily	177	62.10

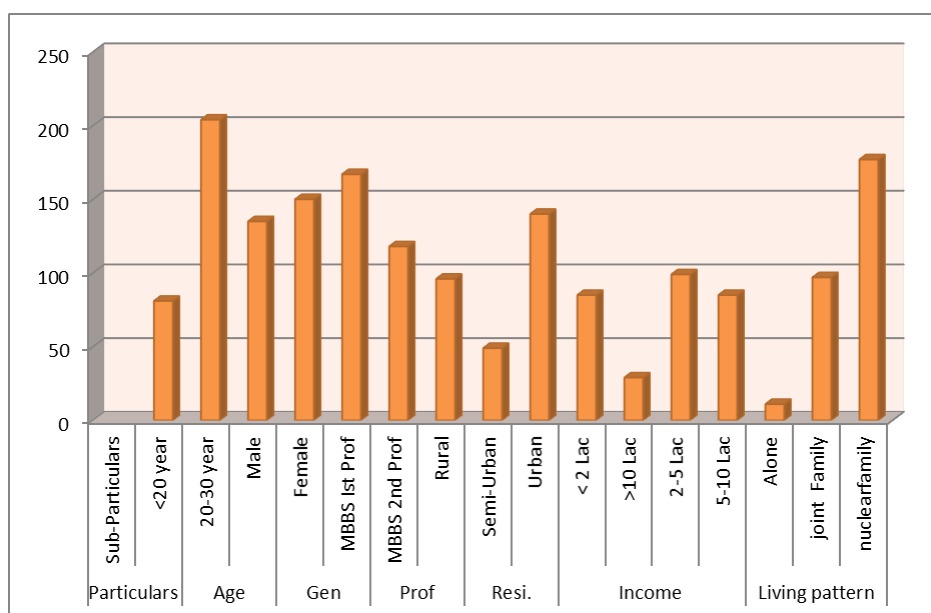


Figure 1. Demographic profile of participants

The results of the Depression, Anxiety, and Stress scale-21 (DASS-21) are presented in Table 2. An extremely severe depression score was found in 12.3 percent of the participants, while 10.9 percent showed a severe score. Twenty-seven percent of the participants fell within the range of a moderate depression score, and 18.2 percent showed mild depression. However, 37.9 percent of the participants were considered to be completely normal. There were 20.7 percent of people who showed signs of extremely severe anxiety, 11.9 percent of people who showed signs of severe anxiety, 21.8 percent of people who showed signs of moderate anxiety, and 10.9 percent of people who showed signs of mild anxiety. 34.7 percent of people exhibited no signs of anxiety. The stress score found that 51.6% of people were not experiencing any stress, 15.1% showed mild anxiety, 16.5% showed moderate anxiety, 11.6% showed severe anxiety, and 5.3% showed very severe anxiety pattern.

Table 2  
DASS-21 Score of Participants

Score Range	D score		A score		S score	
	N	Percent	N	Percent	N	Percent
Normal	108	37.9 %	99	34.7%	147	51.6%
Mild	52	18.2%	31	10.9%	43	15.1%
Moderate	59	20.7%	62	21.8%	47	16.5%
Severe	31	10.9%	34	11.9%	33	11.6%
Extremely Severe	35	12.3%	59	20.7%	15	5.3%
Total	285	100.0%	285	100.0%	285	100.0%

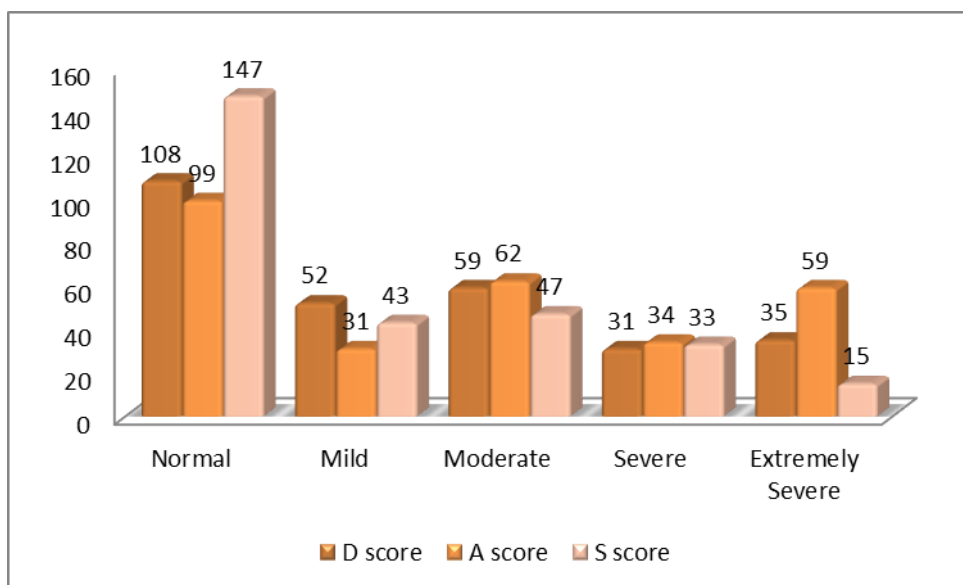


Figure 2. DASS-21 Score of Participants

## **Discussion**

The primary goal of this study was to examine the levels of psychological distress (stress, anxiety, and depression) among medical students. In terms of gender differences in stress, anxiety, and depression, both men and women appeared to suffer equally. Stress and depression were found to be mild to moderate, whereas anxiety was moderate to severe in both males and females. It's possible that this is due to the fact that the current lockdown and the fear of getting infected with Covid-19 are so widespread that people of both sexes are experiencing distressingly similar reactions. Also, the results of this study show how medical students suffered during the pandemic, which is in consistent with what other studies have found (Sahu 2020; Cao et al. 2020; Law 2020).

Overall, both first-year and second-year students said they were mildly stressed. These findings could be attributed to the closure of universities and colleges, which provide limited technological support and knowledge, leaving students uncertain about their future. The current pandemic puts pressure on both students and teachers to adapt to online learning, albeit with limited resources, resulting in higher-than-normal stress levels. In terms of anxiety, students reported a moderate to very severe level of anxiety. These findings could be explained by the fact that medical students frequently and physically interact with one another in a social setting. With the closure of college during lockdown, such physical and social interaction was restricted, causing stress. Students must use online platforms that they may not be familiar with or competent with in order to learn. Furthermore, due to technological issues, online learning may be disruptive, jeopardising their future careers. Furthermore, in the current study, students were found to be mild to moderately depressed, which can most likely be attributed to changes in their daily lives and teaching-learning activities. Evidence suggests that people in general are in distress and are seeking the services of mental health professionals (Bansal 2020). The low correlation indicates that depression, anxiety, and stress are not only related to a family's financial resources, but also to its socioeconomic status. Indeed, people with a good or high socioeconomic status may have adequate supplies, making them less vulnerable to psychological distress

## **Conclusion**

The current study is a leading light in the investigation of levels of anxiety, stress, and depression among medical students. The study's findings suggest that medical students require special attention due to their higher levels of psychological distress.

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Ethical approval: taken

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