

A Study to Evaluate the Effect of the COVID-19 Pandemic on the Mental Health of Junior Doctors of a Government Medical College in West Bengal

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ABSTRACT

Background: The COVID-19 pandemic had posed huge challenges to junior doctors as they had to work as frontline health workers during this emergency. **Objectives:** To evaluate the mental health status of junior doctors during the present pandemic using Depression, Anxiety, Stress Scale-21 (DASS-21) and impact of even scale-revised (IES-R) scale scores. **Methods and Participants:** This longitudinal study was conducted over a time period of 8 months after taking Institutional Ethical Clearance and informed consent of 220 participants. This online survey was conducted using Google Forms and DASS-21 and IES-R scores were evaluated twice in an interval of 6 months. **Results:** Depression scores, anxiety scores, and stress scores were significantly increased on the second assessment. Gradation of depression, anxiety, and stress in month 1 among participants were as follows: **Depression scores** (normal; mild; moderate; severe; extremely severe): 82; 40; 52; 33; 13. **Anxiety scores** (normal; mild; moderate; severe; extremely severe): 113; 21; 55; 16; 15. **Stress scores** (normal; mild; moderate; severe; extremely severe): 137; 33; 41; 8; 1. **ISE-R scores:** <24 = 98; 24–32 = 39; 33–36 = 15; ≥37 = 68. Gradation of depression, anxiety, and stress in month 6 were the following: **Depression scores** (normal; mild; moderate; severe; extremely severe): 50; 19; 63; 26; 62. **Anxiety scores** (normal; mild; moderate; severe; extremely severe): 34; 5; 67; 25; 89. **Stress scores** (normal; mild; moderate; severe; extremely severe): 61; 12; 42; 38; 67. **ISE-R Scores:** <24 = 73; 24–32 = 34; 33–36 = 11; ≥37 = 102. **Conclusions:** Junior doctors working during the COVID-19 pandemic developed increased levels of stress, anxiety, and depression with the progression of the pandemic. They were the major frontline health workers to combat COVID-19 which may be the cause of their decreased psychological resilience resulting in mental health issues. Psychological counseling sessions can be used among these young doctors to build up their mental resilience.

KEYWORDS: DASS-21, impact of even scale-revised (IES-R), junior doctors, pandemic

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INTRODUCTION

The COVID-19 pandemic had posed huge challenges to junior doctors as they had to work as frontline health workers during this emergency. The pandemic with its huge infectivity and huge patient load, inadequate manpower, and lack of adequate infrastructure increased the burden on frontline health workers.^[1] Several studies have demonstrated that doctors often find it difficult to share their mental health

difficulties with even close associates, and are also often reluctant to get professional help.^[1-5]

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In tertiary government-sponsored medical institutions in densely populated developing countries, there is always a huge patient load and managing patients with limited resources often puts health care professionals in ethical dilemmas and increases burnout. There is also a huge workload and limited resources that increase burnout among healthcare professionals and these adversely affect the mental health of the frontline health workers as well as patient care in the long run.^[6]

The onset of the pandemic was sudden and the whole world was not prepared to face the pandemic, more so in developing countries like India. Compounding this stress was the shortage of personal protective equipment during the pandemic. This heightened risk for doctors and nurses getting infected due to their greater exposure to the respiratory secretions of patients. The other stressor was the increased risk of infection for the families of healthcare professionals on the front line. One established way for front-line doctors to decrease the transmission of infection risk to their families is through social distancing, but social distancing deprives an individual of a crucial buffer against mental health difficulties more so when they are at greater risk of stress.^[7-9] Many doctors had to isolate themselves from their families to decrease the chance of infection transmission and this impacted their mental health status negatively.^[10]

Bartholomew *et al.*^[10] in their study observed that COVID-19 anxiety symptoms among junior doctors were unrelated to caring for COVID-19 patients. COVID-19-related anxiety among these frontline health workers was mostly due to concern about the safety of family and friends.

Spiers *et al.*^[11] observed that during the pandemic personal challenges of junior doctors included helplessness and the trauma of seeing many patients dying without adequate care. Fears about safety were another major problem. Work-related challenges included increasing workloads and social isolation. These caused several participants in the study to have moved from coping to helplessness. The psychological trauma that junior doctors faced while working during the pandemic led to powerlessness and a reduction of individual coping strategies which resulted in feelings of resignation.^[11]

In most Institutions, junior doctors usually stay in hostels where they have to share common washrooms and rooms, so whenever junior doctors were infected during the COVID-19 pandemic they had to go and stay in isolation and different places prepared by the government for positive patients. They were kept in

isolation for at least three weeks and had nearly no access to any communication or technology during this period of time. They were totally isolated from the external world, which immensely increased their mental pressure. They could not get in touch with their family members and could not travel due to the lockdown. All these issues had a negative impact on their psychological well-being.^[6,10,11]

The present study was conducted to evaluate the mental health status of junior doctors during the present pandemic using the Depression, Anxiety, Stress Scale-21 (DASS-21)^[12] and impact of event scale-revised (IES-R)^[13] scores in a peripheral medical college in West Bengal so that they could be made aware of their mental health issues and provided with support if necessary.

METHODS AND PARTICIPANTS

This observational longitudinal study was conducted in a time span of 8 months after taking institutional ethical clearance (Memo No: BMC/IEC/20 dated 8/1/21) and written informed consent of the participants. Data were collected between January 10, 2021 (first survey) and August 31, 2021 (second survey).

Research design

Observational longitudinal.

Study area

Burdwan Medical College and Hospital.

Inclusion criteria

All junior doctors (interns and house surgeons) in the age group of 23–30 years who were willing to participate in the study.

Exclusion criteria

Junior doctors under psychiatric treatment with severe mental disorders.

Sample size

The sample size was calculated using an online sample size calculator at (confidence level: 95%; margin of error 5%; population proportion considered as 50%). There are 300 junior doctors (intern and house staff) working in this institution. The calculated sample size was 169.

Random numbers were generated and the link was sent to junior doctors in WhatsApp numbers and email as received from official records. Thinking of nonresponse as experienced from previous online surveys we had conducted 250 junior doctors were sent links. Two hundred and twenty junior doctors participated in the study.

The survey was conducted carried using Google Forms and strict confidentiality of the data were maintained. In

the first section of the form relevance of the study was explained and informed consent was taken. In the second part of the link, DASS-21 and IES-R scale components were included. After the first survey participants were given feedback online regarding their mental health status, and it was assumed that this awareness would help them to cope with their mental health challenges. So reassessment was done after 6 months to see if there was any impact of the increase in awareness of their mental health status.

Tools for assessments

DASS-21

Mental health status was measured using the DASS-21. It is a valid screening instrument with a self-reported 21-item system. The DASS-21 stress subscale score is divided into depression subscale, anxiety subscale, and stress subscale. Cut off score >9 , >7 , and >14 represents a positive screening of depression, anxiety, and stress respectively.^[12]

The IES-R

The IES-R questionnaire is a self-reported scale and has 22 questions. Five of which were added to the original Horowitz (IES-R) to better capture the American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorder (DSM) criteria for posttraumatic stress disorder (PTSD).^[13]

Participants were provided with feedback regarding their mental health using the email provided in the Google Form.

Statistical analysis

Jamovi software was used for the analysis of data. Wilcoxon signed-rank test was used to compare the DASS-21 and IES-R scores assessed at 6 months intervals. The Chi-square test was used to assess qualitative data. P value <0.05 was considered statistically significant. The Spearman rank-order correlation coefficient was calculated to observe the correlation between DASS-21 and IES-R scores.

RESULTS

The present study was conducted among 220 doctors working in a peripheral medical college during the COVID-19 pandemic. DASS-21 and IES-R scores were measured at 6 months intervals. One-hundred and fourteen male doctors and 106 female doctors participated in the study. Depression scores on first and second estimation (12.4 ± 9.5 vs. 20.3 ± 11.7 ; P value $<0.01^{**}$), anxiety scores on first and second estimation (7.97 ± 6.9 vs. 18.3 ± 7.5 ; P value $<0.01^{**}$), stress scores on first and second estimation. (12.09 ± 7.87 vs. 25.23 ± 13.3 ;

P value $<0.01^{**}$). DASS were significantly increased on the second assessment [Table 1]. IES-R and component scores on first and second measurement-IES-R: 26.92 ± 16.19 vs. 31.63 ± 15.76 (P -value: 0.154); intrusion scores: 9.76 ± 6.19 vs. 10.37 ± 7.07 (P -value: 0.198); avoidance scores: 10.37 ± 7.07 vs. 11.07 ± 6.65 (P -value: 0.104); hyperarousal scores: 6.5 ± 5.65 vs. 7.59 ± 4.76 (P -value: 0.161). Gradation of depression, anxiety, stress in month 1 among participants were as follows: **Depression scores** (normal; mild; moderate; severe; extremely severe): 82; 40; 52; 33; 13. **Anxiety scores** (normal; mild; moderate; severe; extremely severe): 113; 21; 55; 16; 15. **Stress scores** (normal; mild; moderate; severe; extremely severe): 137; 33; 41; 8; 1 [Table 2]. **ISE-R scores**: $<24 = 98$; $24-32 = 39$; $33-36 = 15$; $\geq 37 = 68$. Gradation of depression, anxiety, stress in month 6 were the following: **Depression scores** (normal; mild; moderate; severe; extremely severe): 50; 19; 63; 26; 62. **Anxiety scores** (normal; mild; moderate; severe; extremely severe): 34; 5; 67; 25; 89. **Stress scores** (normal; mild; moderate; severe; extremely severe): 61; 12; 42; 38; 67. **ISE-R scores**: $<24 = 73$; $24-32 = 34$; $33-36 = 11$; $\geq 37 = 102$.

Depression scores: Chi-square value, 49.13; P value $<0.0001^{**}$, anxiety scores: Chi-square value, 108.11; P value $<0.0001^{**}$, stress scores: Chi-square value, 122.6; P value $<0.0001^{**}$, ISE-R scores: Chi-square value, 11.41; P value $<0.009^{**}$. IES-R scores were positively correlated with DASS (r -value: 0.087; 0.11; 0.095, respectively).

DISCUSSION

In the present study conducted among 220 junior doctors in a Government Medical College in West Bengal, it was observed that DASS-21 scores and severity of depression, anxiety, and stress increased with the progress of time. The first survey was done after January 1, 2021 and the second survey after 6 months following the first one. We could not conduct the survey as per our plan to assess the mental health of the participants during the first wave of the pandemic as IEC meetings were not regular during that period of time.

In a cross-sectional study conducted by Amy *et al.*^[14] in Australian hospitals. This was the largest Australian study to examine the workplace, financial, social, and

Table 1: Comparison of DASS-21 scores

Parameters	Month 1	Month 6	P
Depression	12.4 ± 9.5	20.3 ± 11.66	$<0.01^{**}$
Anxiety	7.97 ± 6.93	18.27 ± 7.5	$<0.01^{**}$
Stress	12.09 ± 7.87	25.23 ± 13.3	$<0.01^{**}$

Depression scores, Anxiety scores, and Stress scores (P -value $<0.01^{**}$) were significantly increased on the second assessment.

Table 2: Number of participants with different levels of depression, anxiety, and stress on the first and second assessment

Parameters	Normal	Mild	Moderate	Severe	Extremely severe
Depression levels (First Assessment)	82	40	52	33	13
Depression levels (Second Assessment)	50	19	63	26	62
Anxiety levels (First Assessment)	113	21	55	16	15
Anxiety levels (Second Assessment)	34	5	67	25	89
Stress levels (First Assessment)	137	33	41	8	1
Stress levels (Second Assessment)	61	12	42	38	67

mental health impacts of the COVID-19 pandemic doctors. Symptoms of anxiety, depression, and posttraumatic stress disorder were common in junior doctors, with junior doctors particularly susceptible to harm to mental health. The findings of the present study are similar to this study.^[14] The present study was longitudinal and single centered.

De Kock *et al.*^[15] conducted a review to study the impact of COVID-19 on the mental health of health care workers. Twenty-four studies were included in this study. Female nurses with close contact with COVID-19 patients were found to have the most to gain from efforts aimed at supporting psychological well-being. The authors suggested that psychological interventions aimed at enhancing resilience may be of benefit. We did not provide any intervention in the present study. We only gave feedback to the participants regarding their mental health status.

The study findings of Rahman *et al.*^[16] in Bangladesh suggested that the mental health of physicians was negatively affected by the pandemic. The study demonstrated heightened depression in younger physicians. Our study also showed high levels of depression among junior doctors but we did not include the senior doctors in the present study.

Khatun *et al.*^[17] conducted a cross-sectional study exploring the mental health status of physicians in Bangladesh during the present pandemic. Evaluation of the prevalence and associated potential risk factors of anxiety and depression was conducted on 114 physicians using an online survey. The generalized anxiety disorder (GAD-7) scale and Patient Health Questionnaire (PHQ-9) were used. to measure anxiety and depression, respectively. The prevalence of anxiety and depression were 32.5% and 34.2%, respectively.

Ferreira *et al.*^[18] conducted an online study to evaluate the impact of the COVID-19 pandemic on the mental health of junior doctors from the three medical schools in Sergipe-NE-Brazil. It was observed that the pandemic had a negative impact on the mental health of medical students and newly graduated doctors. Family physical distance was

associated with anxiety symptoms in the study. We also observed high depression, anxiety, and stress levels among junior doctors in the present study. We have not measured family physical distance as a variable in the present study.

During the pandemic, while providing treatment junior doctors felt helpless, attempting to do their job under unforeseen and unprecedented circumstances. In most of the workplaces physical and psychological well-being of doctors was overlooked as the onset of the pandemic was sudden and there was a lack of preparedness to face the challenges in most countries across the globe. This lack of care further added up to the problem of the rapidly changing and uncertain working conditions. These were some of the sources of stress for the frontline health workers, who were exposed to increased working hours and responsibilities during the emergency. Increased anxiety and pressure were causes that led to patients and colleagues becoming more aggressive and irritable and thus negatively affecting working relationships.^[11]

We conducted a cross-sectional study previously to assess perceived stress levels, burnout, and job satisfaction of doctors and nonmedical staff in the same institution during the COVID-19 pandemic. We did not include junior doctors in that study. Findings of our previous study indicated that doctors, as well as nonmedical staff, perceived high stress during the pandemic, but they were mostly satisfied with their jobs and burnout scores were not alarming.^[6]

A study by Mukherjee *et al.*^[19] aimed to compare the correlation between perceived stress and insomnia among health professionals. Senior doctors participated in the study. Four scales were used: Perceived Stress Scale (PSS) of Sheldon Cohen, Pittsburgh Sleep Quality Index (PSQI), Insomnia Severity Index (ISI), and Job Satisfaction Scale (JSS). PSS scores positively correlated to both severities of insomnia and poor quality of sleep among participants and perceived stress levels were observed to be a significant contributor to insomnia and poor sleep quality among health professionals.^[19]

The results of the present study indicate that junior doctors experienced extreme emotional challenges

during the pandemic and failed to cope with these and the psychological well-being of junior doctors was affected. These findings are similar to the findings of different studies across different countries we have highlighted here.

The current implication of the study: We have observed high DASS-21 scores among many junior doctors and the administrative authorities have been made aware of this issue, some interventional measures are on the way to support junior doctors regarding their mental health issues. A recent study on Resident doctors observed that the prevalence of burnout was seen more in clinical doctors (55.47) with resilience more in preclinical doctors (88.9) and the researchers suggested therapy sessions for clinical doctors facing burnout to build up resilience.^[20]

A study was aimed to assess the consequences of dealing with patients during the COVID-19 pandemic lockdown period on their mental state and to compare the mental health of male and female doctors. All doctors were observed to have developed anxiety and depression.^[21] Our study was conducted not during the lockdown period. An Indian cross-sectional study was conducted to study in September 2020 to assess and compare depression, anxiety, stress, and sleep disturbances among doctors and the general population during the pandemic. Physicians demonstrated higher anxiety and stress compared to the general population in the study.^[22] We did not include the general population in our study and conducted our study in 2021.

Strengths and limitations

In the present study, DASS-21 and IES-R scores were evaluated twice among the 220 participants in a single Institution and the results demonstrated the negative impact of the pandemic on the mental health of junior doctors and this was positively correlated with the progression of the pandemic. A multicentric study may have evaluated the problem with better precision.

Further implications

The present study observed that depression, anxiety, and stress are common in young doctors. The findings will help us to plan therapeutic programs to reduce stress in the workplace. Easily accessible and effective mental health programs need to be established to provide psychological help to the young doctors to cope with their mental health issues.

CONCLUSIONS

Junior doctors working during the COVID-19 pandemic developed increased levels of stress, anxiety, and depression with the progression of the pandemic. They

were the major frontline health workers to combat COVID-19 which may be the cause of their decreased psychological resilience resulting in mental health issues. Psychological counseling sessions can be used among these young doctors to build up their mental resilience.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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