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The Magnitude of Psychological Distress Among Interns During COVID-19 Pandemic: A Multicentric Cross-Sectional Study

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ABSTRACT

Background: COVID-19 has raised serious concerns about the wellbeing of frontline health care workers. Healthcare staff are at increased risk of psychological health problems when dealing with challenges of the COVID-19 pandemic. Among the healthcare professionals, the most commonly affected are those working on the frontline, who are the first to come in contact with the patients.

Objectives: To determine the levels of depression, anxiety and stress among interns during COVID-19 pandemic, and, to assess the factors affecting mental health of the interns during COVID-19 pandemic.

Methodology: This was a web-based multicentric cross-sectional study conducted among interns of various tertiary care teaching hospitals providing COVID care services, during July – August 2021. Data was collected using a self-administered online questionnaire based on the standard DASS-21 scale that assessed the various domains of psychological distress.

Result: Among the study subjects 46% suffered with all three psychological domains like depression, anxiety and stress, 15% had only anxiety, around 10% had anxiety and depression during the COVID-19 pandemic while 22.5% had no psychological problems.

Conclusions: Significant proportions of interns were suffering from depression, anxiety and stress. Fear of COVID-19, long working hours, usage of PPE, COVID vaccination status, and COVID-19 infection status were identified as potential predictors of psychological distress.

Key Words: Interns, Depression, Anxiety, Stress, COVID-19

INTRODUCTION

COVID-19 has raised serious concerns about the wellbeing of frontline health care workers.[1-5] Healthcare staff are at increased risk of psychological health problems when dealing with challenges of the COVID-19 pandemic.[6]

Among the healthcare professionals, the most affected are those working on the frontline, who are the first to come in contact with the patients. Those on the frontline primarily comprise of specialists, resident doctors, interns, nursing and paramedical staff. In tertiary teaching hospitals, this group is further constrained, leaving majority of the burden of providing care on the interns alone. They thus suffer from severe psychological illnesses which may be due to extremely long working hours, heavy workload, and inadequate supply of personal protective

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equipment's (PPE), and high rate of infection among the handling staff.[7] As a result, they will be under overwhelming psychological pressure which may lead to various psychological problems, such as anxiety, fear, depression, and stress.[8]

Mental health concerns and treatment usually take a backseat in settings with limited resources that were geared for pandemic containment. History suggests that any infectious disease outbreak or pandemic brings with it a major setback in the mental health front.[9] Sooner or later, health systems will be faced with widespread demand to address these COVID-19-related mental health needs. International organizations, including WHO, advocate for the integration of mental health and psychosocial support into the COVID-19 response.[10]

Unfortunately, there is very less scientific data on mental health of Health care professionals during COVID-19 from India. To fill this gap, the present study sought to study the levels of depression, anxiety and stress among interns during COVID-19 pandemic and to assess factors affecting the mental health of interns during pandemic.

OBJECTIVES:

The study was conducted to determine the levels of depression, anxiety and stress among interns during COVID-19 pandemic and to assess factors affecting mental health of interns during COVID-19 pandemic.

METHODOLOGY

This was a web based multicentric cross-sectional study conducted from July-August 2021 among interns working in various COVID care areas of different teaching hospitals. This study was conducted through an online platform, accessible via mobile phone and computer. The questionnaire was built using Google forms and was disseminated through various social media applications like WhatsApp, Instagram, Telegram and via e-mail. Non-probability purposive snowball sampling was used to circulate it widely.

Sample size was calculated using the formula $n=4pq/L^2$ considering prevalence of depression as 47.4%[11] (p) with allowable error of 10% (L) and q= 100-p (52.6%). The calculated sample size was 444.

The Google form included, firstly, an Informed Consent section and continued with subsections like demographic details and assessment of psychological distress by using DASS-21 scale. After completion of data collection, the questionnaire was channelled to the Google platform and the resultant data was downloaded as Microsoft excel sheet. The data was then analysed using IBM SPSS statistics version 20. Data has been presented in the form of numbers and percentages for categorical variables, as means for continuous variable, and logistic regression model was used to measure odd's ratios and hence test the significance of associations.

For the assessment of psychological distress, the DASS-21 scale was used. It is a self-administered questionnaire consisting of 21 questions, 7 each on depression, anxiety and stress. Each question was scored from 0-3. The individuals were categorised as normal, mild, moderate, severe and extremely severe, on the basis of these scores.[12]

RESULTS

The present study was conducted among interns during the second wave of COVID-19 in India, which was associated with severe Covid fear due to the sudden rise in infection rate and death rate as well as deficiencies of minimum essential services such as ICU beds and Oxygen supply. The second wave of COVID-19 also saw increased impatience and intolerance among the general public, exposing the interns and resident doctors to further fear and psychological distress. Table 1 shows the baseline characteristics of the study subjects.

Majority (61.4%) of the participants were females and mean age of the study subjects is 22.88$\pm$ 0.96 years. Mean working hours was 59.4$\pm$ 17.8 hours per week. Majority of them reported fear of acquiring COVID-19 infection at workplaces like emergency areas 64.8%, in-patient wards 63.9%, outpatient department 39.6% and quarantine/isolation centre 14.4%. Around 3/4th (74.7%) subjects were fully vaccinated. 15% of the study subjects had acquired COVID-19 infection after vaccination and 24.4% had acquired the infection before vaccination. Less than half (48.6%) of the study subjects reported availability to adequate PPE. Only 34% had availability of hand washing facility.

From figure 1, it is observed that 18% of the study subjects had moderate and extremely severe depression during COVID-19 pandemic. 30.2% of the study subjects had extremely severe anxiety as compared to 25.7% having moderate anxiety. Around half of the study subjects were stress free.

20% of the females had extremely severe and moderate depression as compared to 13.6% and 15.9% among males. Anxiety was more among females as compared to males and the severity of anxiety was statistically significant. Depression, anxiety and stress levels were more among those who had fear of acquiring COVID-19 infection. Among those who worked for more than 72 hours per week, 41.6% had extremely severe depression, 42.9% had severe anxiety and 27.3% had severe stress levels. As the working hours increased, the severity of depression, anxiety and stress were also increasing among the study subjects. Severity of depression and stress levels were more among those who had not used PPE. There is statistically significant association between COVID-19 fear, working hours, COVID vaccination status, COVID-19 infection status, usage of PPE anddepression, anxiety and stress.

Table 1: Baseline characteristics of the study subjects (n=444)

Variable	Participants (%)
Gender	
Male	176 (39.6)
Female	268 (61.4)
Covid fear	
Yes	368 (82.8)
No	76 (17.2)
***Covid fear at work setting**	
Emergency areas	288 (64.8)
In-patient wards	284 (63.9)
Out-patient department	176 (39.6)
Quarantine/Isolation centre	64 (14.4)
Work hours per week	
≤48 hours	132 (29.7)
>48 hours	312 (70.3)
Covid vaccination status	
Not vaccinated	16 (3.7)
Partially vaccinated	96 (21.6)
Fully vaccinated	332 (74.7)
Have you ever been diagnosed as COVID-19 positive	
No	272 (61.2)
Yes, before vaccination	108 (24.4)
After 1st dose of vaccine	48 (10.8)
After 2 doses of vaccine	16 (3.6)
PPE availability	
Yes	216 (48.6)
No	228 (51.4)
Hand washing facility	
Present	151 (34)
Absent	293 (66)

*Multiple responses

The basic Venn diagram as shown in figure 2 represents the pattern of psychological distress in the study population, among the study subjects 46% suffered with all three psychological domains like depression, anxiety and stress, 15% had only anxiety, around 10% had anxiety and depression during the COVID-19 pandemic while 22.5% had no psychological problems. This shows that the pandemic has affected the mental health of more than three quarters of the study population.

Upon univariate logistic regression analysis from table 2, it was found that the fear of acquiring COVID-19 infection was positively associated with depression (OR=2.79, CI=1.67-4.65, p=0.0001), anxiety (OR=4.90, CI=2.90-8.25, p=0.0001) and stress (OR=7.32, CI=3.82-14.04, p=0.0001). Similarly, past history of COVID-19 infection was also positively associated with depression (OR=1.95, CI=1.31-2.90, p=0.001), anxiety (OR=1.69, CI=1.06-2.70, p=0.026) and stress (OR=2.23, CI=1.51-3.30, p=0.0001). However, working without the use of recommended PPE was found to be significantly associated with only depression (OR=0.32, CI=0.10-0.99, p=0.048) and stress (OR=0.24, CI=0.07-0.73, p=0.012). Incomplete or non-vaccinated status was also found to be significantly associated with only depression (OR=0.45, CI=0.28-0.71, p=0.0008) and stress (OR=0.58, CI=0.37-0.89, p=0.014). It was found that exposure to prolonged working hours (>48 hours per week) was positively associated with the presence of anxiety (OR=0.48, CI=0.28-0.82) and stress (OR=0.53, CI=0.35-0.81) and this association was found to be statistically significant (p-values 0.008, 0.003 respectively).

DISCUSSION

The current web-based multicentre cross-sectional study was conducted with the objective to determine the levels of depression, anxiety and stress and factors affecting the mental health during the second wave of COVID-19 pandemic among interns who are the very first line youngest medical professionals exposed directly to COVID-19 patients. The present study reported that among 444 interns 46% suffered with all three psychological domains like depression, anxiety and stress, 15% had only anxiety, around 10% had anxiety and depression during the COVID-19 pandemic while 22.5% had no psychological problems, which is relatively high when compared with various studies done in different settings.

Table 2: Univariate logistic regression analysis (n=444)

Variable	Depression			Anxiety			Stress		
	Yes (%)	No (%)	OR(95% C.I) P value	Yes (%)	No (%)	OR(95% C.I) P value	Yes (%)	No (%)	OR(95% C.I) P value
n	**256**	**188**		**336**	**108**		**225**	**219**	
Covid Fear									
Yes (368)	228(89)	140(74.6)	2.79(1.67-4.65)	300(89.3)	68(63)	4.9(2.90-8.25)	213(94.7)	155(70.8)	7.3(3.82-14.04)
No (76)	28(11)	48(25.4)	**0.0001***	36(10.7)	40 (37)	**0.0001***	12(5.3)	64(29.2)	**0.0001***
Usage of PPE									
Yes (424)	240(93.8)	184(97.9)	0.32(0.10-0.99)	320(95)	104(96.3)	0.8(0.25-2.35)	209(93)	215(98.2)	0.2(0.07-0.73)
No (20)	16(6.2)	4(2.1)	**0.0483***	16(5)	4(3.7)	0.645	16(7)	4(1.8)	**0.012***
Covid vaccination status									
Vaccinated (332)	176(68.8)	156(83)	0.45(0.28-0.71)	244(72.6)	88(81.5)	0.6(0.35-1.03)	157(69.8)	175(80)	0.6(0.37-0.89)
Unvaccinated(112)	80(31.2)	32(17)	**0.0008***	92(27.4)	20(18.5)	0.066	68(30.2)	44(20)	**0.0145***
Have you ever been diagnosed as COVID-19 positive									
Yes (172)	116(45.3)	56(29.8)	1.95(1.31-2.90)	140(41.7)	32(29.6)	1.7(1.06-2.70)	108(48)	64(29.2)	2.2(1.51-3.30)
No (272)	140(54.7)	132(70.2)	**0.001***	196(58.3)	76(70.4)	**0.026***	117(52)	155(70.8)	**0.0001***
Work hours									
≤48 hours (132)	81(31.6)	51(27.1)	0.80(0.53-1.21)	111(33)	21(19.4)	0.5(0.28-0.82)	81(36)	51(23.3)	0.5(0.35-0.81)
>48 hours (312)	175(68.4)	137(72.9)	0.30	225(67)	87(80.6)	**0.008***	144(64)	168(76.7)	**0.003***

* Significant P value

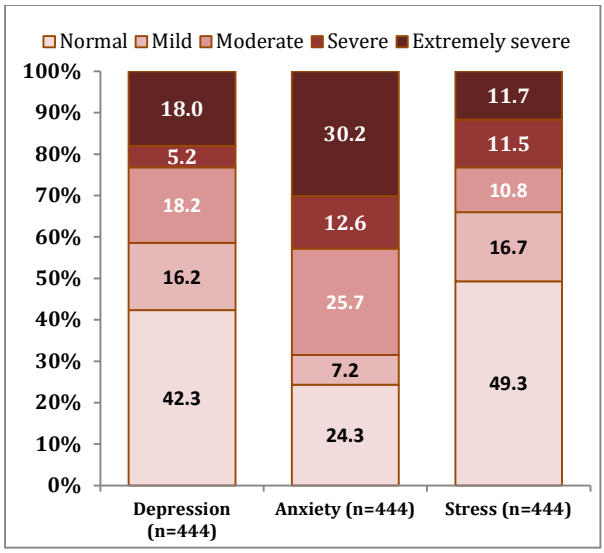

Figure 1: Severity of Depression, Anxiety and Stress among the study subjects (n=444)

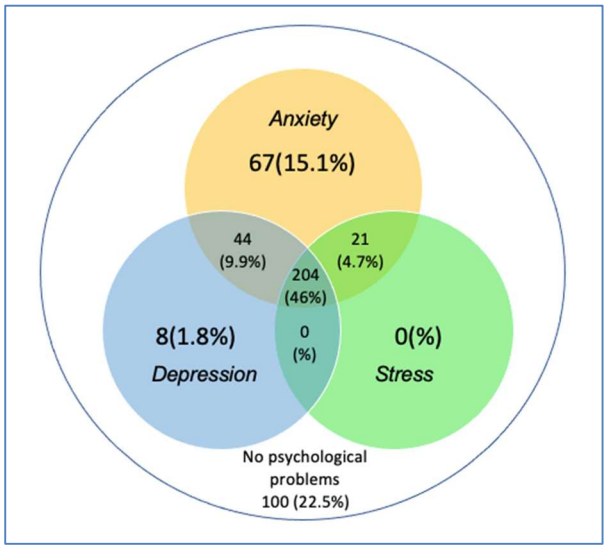

Figure 2: Venn Diagram showing proportions of depression, anxiety and stress (n=444)

This explains that more number of healthcare workers have experienced some form of psychological distress during this pandemic, of these frontline workers are indeed the worst hit. In tertiary care teaching hospitals, medical interns are the major component of frontline workers providing health care services to the community in general and also in times of health crisis. A skilled and healthy workforce is vital for fulfilling the ever-growing need of safe and effective health services to the community, this need has been at its peak during the time of COVID-19.[13] So addressing health care needs of the front-line health care providers and safeguarding them from physical and mental disorders will definitely improve the quality of medical services.

According to the meta-analysis by VizhehM et al[14], the lowest reported prevalence of anxiety, depression, and stress among Health Care Workers was 24.1%, 12.1%, and 29.8%, respectively. In addition, the highest reported values for the afore mentioned parameters were 67.55%, 55.89%, and 62.99%, respectively and the study also revealed that front-line health care workers and younger medical staff reported more severe degrees of all psychological symptoms than other health care workers. Similarly, various studies have also shown substantial rise in depression, anxiety and stress among health care professionals during COVID-19 pandemic. A study done by Saumik Chakraborty et al[12] revealed the proportion of anxiety, stress and depression among the study subjects was 52.4%, 31.9% and 45.3% respectively. Another online survey conducted in China by Zhang WR et al.[15], found that healthcare workers were at increased risk of developing insomnia, anxiety, depression, obsessive-compulsive, and traumatisation disorders as compared to their non-medical counterparts.

During the COVID-19 pandemic, Health Care Workers had high prevalence of depression, anxiety and stress.[16]According to this study, 46% reported having all the three psychological domains, i.e., depression, anxiety and stress, and this finding is higher than the study conducted by Saumik Chakraborty et al[12], among Medical Students and Junior Doctors during the COVID-19 pandemic, wherein only 38.4% had all the psychological domains.

While providing care, health-care workers are directly in contact with the patient. They are more likely to get infected than the general population.[17] This will inculcate a fear of contagion, concern for one's own, family health, interpersonal isolation, trust in and support from their organization, and stigma.[18-20]The current study also reported that there is significant association in the severity of depression, anxiety and stress with fear of acquiring COVID-19 infection, usage of PPE and increase in the working hours, among the study subjects.

According to Sitanggang et al[21], higher working hours per week and intense fear of COVID-19 incrementally increased the risk for depression, anxiety, and stress. Consistent hand hygiene behaviour was also found to be an independent protective factor for anxiety and depression. Similarly, Malik et al[22] study stated that doctors with severe levels of fear of COVID-19 had significantly higher levels of workplace panic and anxiety. Shaukat N et al[23] found that longer working hours was a major risk factor for depression, anxiety, and stress. In line with the current study, a systematic review by De Brier N et al[24] stated a relatively large body of evidence in the level of disease exposure and health fear, and less compelling evidence was found about providing physical safety as a protective factor.

The COVID-19 Pandemic has disrupted the mental health and psychological well-being of people causing adverse psychological outcomes among young frontline health care workers, especially interns, emerging need for mental health services which

shouldn't be overlooked. It is high time to provide psychological support, early screening and interventions at all levels, for maintaining highest level of mental health and wellbeing of interns. This study also draws the need for support systems and coping strategies that may help reduce stress, anxiety, and depression among health-care workers.

CONCLUSIONS

The study reports a significant proportion of interns were suffering from depression, anxiety and stress, and the identified predictors associated with these psychological effects were: fear of COVID-19, long working hours, and COVID-19 infection status as negative predictors; usage of PPE, and complete COVID vaccination status were the positive predictors. Thus, the Health care workers should be given priority in the prevention of mental health problems as they are the front-line workers in the health crisis.

RECOMMENDATIONS

Due to heavy workload during the pandemic, the front-line workers, especially interns, were not given adequate time for quarantine or rest in between their scheduled duties. Inclusion of regular counselling sessions at the end of COVID duties and compulsory period of rest can greatly aid in recovering from the strenuous effects of the COVID duties and thus help in maintaining the physical, mental health and wellbeing of the interns.

STRENGTHS AND LIMITATIONS

Utilization of standard measurable scale for assessment of subjective domains such as psychological distress is a major strength of this study. However, the small sample size and lack of follow up are two limitations hindering the present study which can be overcome by subsequent larger studies.

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