

ORIGINAL ARTICLE

Depression, Anxiety, and Stress Among Frontline Healthcare Workers During COVID-19

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ABSTRACT

Objective: To determine the frequency of depression, anxiety, and stress during COVID-19 among frontline healthcare workers (doctors vs. rescuers) in Pakistan.

Study Design: Cross-sectional online questionnaire survey.

Place and Duration of Study: Centre for Islamic Psychology, Riphah International University, Lahore Campus from 25th April 2020 to 20th June 2020.

Materials and Methods: A total of 364 frontline healthcare workers (n=182 doctors and n=182 rescuers) were included in the final analysis. The Depression, Anxiety, Stress Scale (DASS-21) was used to collect online data via Google form through convenience sampling. Statistical data analysis was done using the Statistical Packages for Social Sciences (SPSS-23), and the frequencies, percentages, mean, and standard deviation were calculated. Independent samples-*t* test was employed to identify differences between doctors and rescuers on depression, anxiety, and stress scale.

Results: The mean age of the participants was 28.79 ± 5.46 years. The study identified highly significant difference in depression ($t(363) = 11.10, p < .01$), anxiety ($t(363) = 7.30, p < .01$), and stress ($t(363) = 10.21, p < .01$) between doctors and rescue workers during COVID-19. The majority of doctors reported a moderate level of depression (41%), extremely severe anxiety (30%), and a moderate level of stress (22%), while the majority of rescue workers reported a moderate level of depression (21%), moderate anxiety (14%) and extremely severe stress (10%).

Conclusion: The frequency of depression, anxiety, and stress is higher among doctors as compared to rescuers. The study has manifold implications for healthcare workers and psychological health professionals to implement preventive and intervention programs to combat psychological problems.

Key Words: *Anxiety, Covid-19, Depression, Frontline Workers, Stress.*

Introduction

A constant threat of confronting both natural and man-made disasters is faced by healthcare workers. From swine flu pandemics in 2009 to the earthquake, tsunami in Northern Japan, and the recent Corona Virus cases initially reported in Wuhan have changed healthcare workers, especially doctors and rescue workers perception of disaster preparedness. From Wuhan, China a fatal respiratory disease (COVID-19) started and became a major physical and mental health threat for almost 160 countries.¹ In 2020, the

World Health Organization (WHO) declared COVID-19 as a fatal respiratory disease with a public health emergency of global concern. WHO provided some guidelines to manage this novel virus at the primary level COVID-19 is the third pandemic after SARS and MERS.² Evidence from these epidemics also indicates that the sudden onset and life-threatening disease exposed healthcare professionals to long-lasting mental health problems.³ To prevent the rapid transmission rate of this disease, one of the major guidelines is social distancing. However, doctors and rescuers were the only volunteers who instead of distancing themselves provided first-hand treatment to the sufferers.

Doctors are front-line workers treating patients with a transmittable pathogen, COVID-19 positive, and those who are suspected cases. Dealing with the mass quarantine of patients is also a causal factor of stress and anxiety among healthcare workers. During the outbreak of severe acute respiratory syndrome,

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it was identified that healthcare workers experienced anxiety, fear, depression, and frustration.^{4,5} All healthcare professionals were involved, directly and indirectly, in working with patients during the COVID-19 epidemic. The Rescue 1122 Team was formulated specially to work as a rapid-response crisis management team to combat the crisis and traumatic events. Providing pre-hospital services during the pandemic eventually increases their vulnerability to stress and other psychological or emotional problems among healthcare professionals.⁶ Many studies found that without safeguarding their mental health and receiving adequate training in the medical and psychosocial management of this pandemic, healthcare workers experienced many mental health problems.⁷

To the patients, the quality of healthcare services may be affected by the psychological problems faced by healthcare workers because of a prolonged and high level of work-related stress. For healthcare workers to ensure psychological well-being, a planned strategy is thus required. Mental health problems and the risk of infections are highest for the people working in hospitals⁸. Globally, the pervasiveness of depression, anxiety, and stress during the pandemic varied among various frontline workers. The reason may be an active number of cases and available resources to combat the COVID-19 pandemic.⁹ A Chinese study reported almost half of the health care workers experienced depression 50.4%, anxiety 44.6%, insomnia 34% and 71.5% reported distress.¹⁰ The healthcare workers are life savors for their nation to care for and manage the pandemic COVID-19. Frontline healthcare workers who ultimately save human lives, their own physical and psychological health is most important.¹¹ There is limited literature available in Pakistan on psychological issues faced by frontline health care workers (doctors vs. rescuers) and likewise, there is the unavailability of any evidence-based training manual/ guide for disaster preparedness of health care workers and their psychological well-being. Therefore, there is a need to assess the psychological health of workers (doctors vs. rescuers) who were serving at their official locations during an epidemic situation in Pakistan. The present study was conducted to examine the incidence of psychological

disorders i.e., depression, anxiety, and stress among frontline healthcare workers and rescuers in the peak times of COVID-19 in Pakistan. For this purpose, the two groups, doctors and rescuers, were selected to measure the levels of depression, anxiety, and stress. This study has manifold implications such as it will guide the importance of the development of a manual for disaster preparedness for healthcare workers and psychological intervention at the primary level. The objective of this present study was to determine the incidence of depression, anxiety, and stress among frontline healthcare workers and rescuers in Pakistan during COVID-19.

Materials and Methods

In the present study, a cross-sectional online questionnaire survey design was employed. It was conducted between 25th April 2020 to 20th June 2020, in different sectors such as Services Hospital, Jinnah Hospital, Lahore; District Health Authority, Sialkot, Coronavirus Field Hospital Hockey Stadium, Sialkot to collect data from doctors. Whereas the different rescue stations from Lahore, Sheikupura, Kasur, Sialkot, Gujranwala, and Gujrat were targeted to collect data from rescuers during the strict lockdown due to COVID-19 in Pakistan. The 364-sample size of both groups doctors and rescuers were gathered online on Google software form through Whatsapp and Emails by using convenience sampling and 360 valid responses were gathered (Response Rate = 72%).

The present research was conducted by following all ethical principles. Foremost, Ethical Committee Approval was sought from The Departmental Academic & Research Committee (DARC) which works as an Institutional Review Board (IRB). After that, informed consent was taken from every participant by adding it at the beginning of the Google software form. The aim and nature of the research were clarified to them. Further, a demographic sheet was attached along with the depression, anxiety, and stress scale after the informed consent. Participants were assured of the provision of secrecy and confidentiality of data, and the significance of the current study. The participants' anonymity was reserved by giving the code to every response sheet.

The participants included in the study were medical doctors who were providing tertiary care to patients

diagnosed with COVID-19 in Coronavirus wards and emergencies. In addition, some rescuers work to bring people out of harm after a disaster, such as receiving the patients from their doors, giving emergency treatments, and caring for them on their way to treatment centers and hospitals. The exclusion criteria of this study participants were doctors and rescuers not directly dealing with the patients diagnosed with COVID-19 and not available round the clock in emergency settings.

Besides the demographic sheet, to measure depression, anxiety, and stress levels, DASS Questionnaire was used. It is developed by Loviband and it consists of 21 items.¹² It includes three self-reported subscales i.e., depression, anxiety, and stress. Every subscale comprised of 7 items with a 0 to 4-point Likert scale from (0) did not apply to me, (3) applied to me very much to rate the level of severity that an individual experienced in every state from the past week. The reliability coefficient is 92. The subscale depression measures the dysphoric mood, depreciation of life, desperation, self-criticism, anhedonia, and inertia while the subscale anxiety evaluates autonomic stimulation, muscular effects, a feeling of anxiousness, and anxiety from situations. The subscale stress assesses chronic unspecified arousal, being disturbed, perplexed, nervousness, impulsiveness, irritability, being spontaneous, and impatient. The cumulative score can be obtained by the sum of each subscale. A high score showed a high level of respective construct and vice versa. This measure provides the range of scorers from normal to mild, moderate to severe, and extremely severe.

Subsequently, data entry, data analysis, and data reporting were accomplished fairly. The data was analyzed on Statistical Packages for Social Sciences (SPSS-23). The frequency of depression, anxiety, and stress were measured through descriptive statics including frequencies, percentages, mean and standard deviation of demographic variables represented in tabular as well as graphical form. Further, t-test analysis was used to see the differences among doctors and rescue workers on depression, anxiety, and stress.

Results

The mean age of the participants in this study was 28.79 ± 5.46 years. A total of 254 (69.8%) participants

were less than 30 years, 95 (26%) were of age range 30 – 40 years and 15 (4%) were above 40 years. A total of 250 (68.7%) participants were male and 114 (31%) were female and majority of the participants 153 (42%) reported the major source of information regarding COVID-19 to be TV News. Furthermore, t test revealed highly significant difference in depression ($t(363) = 11.10, p < .01$), anxiety ($t(363) = 7.30, p < .01$), and stress ($t(363) = 10.21, p < .01$) between doctors and rescue workers during COVID-19.

As also illustrated in figure 1, the majority of doctors' responses depict that they experience different levels of depression, anxiety, and stress during COVID-19. The responses of doctors showed that the average level of depression, anxiety, and stress experienced was (10.4%: 14.8%: and 28.6% respectively). Furthermore, the mild level of depression, anxiety, and stress was (15.9%: 15.4%: 15.9% respectively) and the moderate level of depression, anxiety, and stress was reported to be (40.7%: 18.1%: 26.4% respectively). Severe levels of depression, anxiety, and stress experienced by the doctors emerged to be (12.1%: 22.0%: and 15.4% respectively). The participant responses indicate that the extremely severe level of depression, anxiety, and stress was (20.9%: 29.7%: and 13.7% respectively). The responses of the doctors indicated that participants could manage stress during COVID-19, and the results of the participants show a greater degree of depression and anxiety over COVID-19.

Figure 2 illustrates the number of rescue workers experiencing different levels of depression, anxiety, and stress during COVID-19. The majority of participants' rescue worker's responses showed that the average level of depression, anxiety, and stress was (50.5%: 42.9%: and 75.3% respectively). The results of the participants showed that mild level of depression, anxiety, and stress was (21.5%: 19.8%: and 5.5% respectively). The result of moderate depression anxiety and stress was (21.5%: 13.7%: and 7.7% respectively). The participants' responses indicate that the levels of severe depression, anxiety, and stress were (2.7%: 13.2%: and 7.1% respectively). The ratio of extremely severe depression, anxiety, and stress was (3.8%: 10.4%: and 4.4% respectively). The results of rescue workers showed that participants manage their depression,

anxiety, and stress in a better way during COVID-19. The psychometric properties of the questionnaire revealed Cronbach's Alpha reliability coefficient $r = .88$ for the depression subscale, anxiety $r = .78$, and stress $r = .88$.

Table I: Descriptive Statistics of Demographic Variables of the Sample (N=364)

| Variables | f | % | M ± SD |
|-------------------------------------|-----|------|--------------|
| Age | | | 28.79 ± 5.46 |
| < 30 | 254 | 69.8 | |
| 31-40 | 95 | 26.1 | |
| > 40 | 15 | 4.1 | |
| Gender | | | |
| Male | 250 | 68.7 | |
| Female | 114 | 31.3 | |
| Profession | | | |
| Doctors | 182 | 50.0 | |
| Rescuers | 182 | 50.0 | |
| Main Source of Information COVID-19 | | | |
| TV News | 153 | 42.0 | |
| Whatsapp | 98 | 26.9 | |
| Facebook | 34 | 9.3 | |
| Newspaper | 33 | 9.1 | |
| Friends | 33 | 9.1 | |
| Twitter | 13 | 3.6 | |

Note. F = Frequency, % = Percentage, M = Mean

Table II: Differences between Doctors and Rescuers in the Study Variables (N = 364).

| Variable | Profession | | | | | | | | |
|------------|------------|------|----------------|------|--------|-----|---------|------|---------|
| | Doctors | | Rescue Workers | | | | | | |
| | (n=182) | | (n=182) | | | | | | |
| | M | SD | M | SD | t(363) | p | 95 % CL | | Cohen's |
| Depression | 9.51 | 4.46 | 4.74 | 3.67 | 11.10 | .00 | 3.92 | 5.60 | 1.16 |
| Anxiety | 7.95 | 4.19 | 4.96 | 3.58 | 7.30 | .00 | 2.18 | 3.79 | 0.76 |
| Stress | 10.58 | 4.57 | 5.66 | 4.59 | 10.21 | .00 | 3.96 | 5.85 | 1.07 |

Note. *** $p < .001$, LL = lower limit, UL = upper limit CI = Confidence Interval

Discussion

The findings of the current study depict that frontline health care workers (both doctors and rescue workers) experienced depression, anxiety and stress during covid-19 outbreak. Highly significant difference in depression, anxiety, and stress between

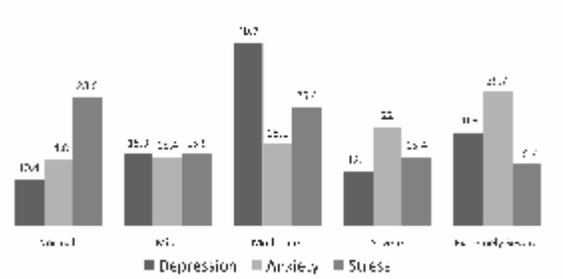


Fig. 1: Doctors Experiencing Depression, Anxiety, and Stress During COVID-19 (n=182).

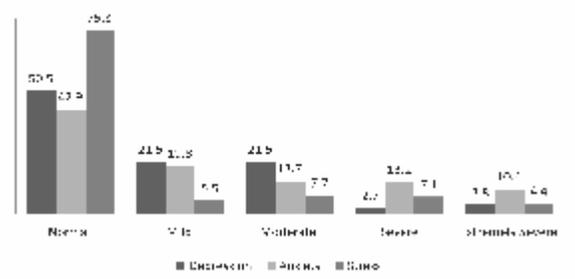


Fig. 2: Rescue Workers Experiencing Depression, Anxiety, and Stress During COVID-19 (n=182)

doctors and rescue workers emerged which further indicates that doctors are more likely to experience it comparatively. The results of the present study are in congruence with the studies that highlight differences between frontline health care workers i.e. doctors vs. rescue workers experiencing psychological problems. The findings of the study by Elbay et al. (2020) indicate that the frontline workers are more prone to mental health problems due to increased working hours, and increased no of covid-19 patients cared for. It was found that 64.7% of doctors reported depressive symptoms, anxiety 51.6%, and 41.2% stress-related symptoms.^{13, 14} In another study that was conducted by Vagni, Maiorano, Giostra, and Pajardi (2020), the findings showed that healthcare workers were more prone to stress and arousal than other workers in emergency settings. Furthermore, the medical professionals dealing directly with the patients of COVID-19 and are involved in their treatment were experiencing more levels of stress and were more susceptible to developing secondary trauma.¹⁵ The findings of the study also revealed that the majority of the doctors experienced moderate levels of depression. Whereas few doctors also reported

severe anxiety and an extremely severe form of stress. The results are consistent with the findings by Amin et al. (2022) in which the prevalence rate of depression/anxiety was (43%) reported among frontline physicians in Pakistan.^{16,17} Ullah et al. (2022) reported one-third of healthcare workers had depression while half had anxiety during this outbreak of covid-19.¹⁸ Salman et al. (2022) also supported the current study by reporting the higher level of depression in frontline healthcare workers including doctors, nurses, and pharmacists.¹⁹ Its evident from the literature also that major threat to COVID-19 were the speculations regarding rapid transmission and unavailability of prevention protocols and vaccination and subsequently the development of psychological problems.¹⁶

In the current study majority of the rescuers also reported moderate level of depression. Few rescuers also had reported severe anxiety and extremely severe stress. The findings of the existing study are in line with the findings by Ahmad et al. (2015), the rescue workers experienced severe and extreme severe levels of depression and anxiety symptoms during their daily life.²⁰ A study conducted by Sandesh et al. (2020) provides similar findings such as the highest levels of depression, anxiety and stress levels of healthcare employees emerge from the pandemic and in emergencies.²¹

The findings showed 32.6 and 45.7 percent of the participants were experiencing severe and extremely severe levels of depressive and anxiety symptoms respectively.

Moreover, the source of information regarding COVID-19 was requested from respondents. The majority of the sample (42%) relied on television news and others take an update from social media networks including WhatsApp, Facebook, Twitter, and also from newspapers, TV programs, and friends. The media coverage created more distressing consequences during the outbreak of SARS.^{15,22} Hence, the intensity of depression, anxiety, and stress may increase because of consistent exposure to media.

Limitations

Firstly, a total of 182 doctors and 182 rescue workers' data was retained (Response Rate = 72%). The dropout rate was high due to doctors' and rescuers' hectic routines, responsibilities, and time

constraints. Secondly, the research was based on a self-administered questionnaire and thus, could not confidently depend on self-reported data on depression, anxiety, and stress. Also, the participant's engagement in dealing with Coronavirus was not directly observed and assessed. Thirdly, this study couldn't differentiate the specialization among doctors that work with joint hands in this pandemic phase. Fourthly, it doesn't include the other health care workers such as nurses, and paramedical staff.

Recommendations

During pandemics and emergency settings, healthcare workers (doctors, nurses, and paramedical staff) and rescuers are the frontline employees that provide essential services to the general public. Therefore, it was a dire need to design a study that targets the assessment of mental health risks among these groups. Thus in addition to this study, qualitative research (Interviews and case studies) can generate more rich data that would further guide the need of developing crisis intervention strategies at the national level.¹⁶ It is further recommended that outcome-based studies should be designed that investigate the efficacy of psychological treatment programs among healthcare workers.

Conclusion

Both doctors and rescuers are always on the front line in face of any calamity. Both professions are associated with a risk of mental health problems. However, doctors are more prone to experience depression, anxiety, and stress as compared to rescuers. Almost half of the doctors experienced moderate levels of depression, one-third had anxiety and stress whereas the 1/4th of rescuers experienced moderate levels of depression and only few had experienced severe anxiety and severe stress.

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CONFLICT OF INTEREST

Authors declared no conflicts of Interest.

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DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon request.

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