

Psychological Responses Among Healthcare Workers Providing Care for Patients with COVID-19: A Web-Based Cross-Sectional Survey in Riyadh, Saudi Arabia

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ABSTRACT

Introduction: Coronavirus disease (COVID-19) is a pandemic of international concern that has caused significant physical and psychological health challenges to healthcare workers worldwide. This study aimed to assess and evaluate the psychological responses of healthcare workers who provided hands-on care for patients with COVID-19 at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia, as it was converted to a dedicated COVID-19 hospital during the pandemic. **Methods:** This study used a descriptive cross-sectional design to recruit 500 participants at KFMC between April 10 and May 5, 2020. This study used the 21-item Depression, Anxiety, and Stress Scale (DASS-21) to assess the psychological responses among the study participants. **Results:** The findings of this study showed that of 500 respondents, 304 (60.9%) reported having depressive symptoms, 281 (56.3%), 318 (63.3%) having stress and anxiety symptoms. Moreover, 250 participants (50%) who lived with their families reported severe stress and anxiety. However, the results of our study indicated that healthcare workers were committed to providing care to COVID-19 patients. **Conclusions:** Depression, anxiety, and stress symptoms were highly prevalent among healthcare workers at KFMC. Therefore, there is an urgent need for psychological interventions to identify healthcare workers with heavy psychological burdens.

Keywords: stress, anxiety, depression, pandemic, COVID-19, Saudi Arabia

INTRODUCTION

In December 2019, a novel infectious disease known as coronavirus (COVID-19), emerged in Wuhan, China. Later, this virus spread worldwide and the World Health Organization announced COVID-19 as a pandemic of international concern.^[1] Global communities have responded with drastic measures to contain the virus, such as allocating specific hospitals for treating coronavirus patients.

In Saudi Arabia, the first case of COVID-19 was confirmed on March 2, 2020.^[2] In April 2020, Saudi Arabia reported the highest number of confirmed cases in the Middle Eastern region and Persian Gulf.^[3] King Fahad Medical City (KFMC), Riyadh, Saudi Arabia, is one of the leading tertiary hospitals in the area, allocated to receive COVID-19 cases. KFMC is one of the largest medical cities in the Middle East and North Africa region, comprising eight hospitals and centers with a total bed capacity of 1200.

Table 1. Demographic data of participants during the COVID-19 pandemic.

Parameter	Value
Age, mean \pm SD, y	36.05 \pm 8.69
Sex, <i>n</i> (%)	
Female	336 (67.3)
Male	164 (32.7)
Marital status, <i>n</i> (%)	
Married	310 (61.9)
Single	190 (36.9)
Divorced	4.0 (0.8)
Widowed	2.0 (0.4)
Have child/children, <i>n</i> (%)	
Yes	289 (57.7)
No	187 (37.7)
Not Applicable	25 (5.0)
Housing, <i>n</i> (%)	
Living alone	250 (50)
Living with parents	60 (12)
Living with spouse and children	190 (38)
Medical comorbidity, <i>n</i> (%)	
Yes	98 (19.6)
No	402 (80.4)
Working with patients with COVID-19, <i>n</i> (%)	
Yes	370 (74)
No	130 (26)

COVID-19: coronavirus disease 2019.

However, the uncertainty of this unknown pandemic imposed high levels of psychological pressure and stress on healthcare workers. In general, the COVID-19 pandemic resulted in unprecedented levels of psychological distress and restlessness among healthcare workers fighting this pandemic^[4,5]; this could be attributed to the lack of knowledge, experience, and expectations about COVID-19. Preliminary research has shown that healthcare workers directly involved in the diagnosis, treatment, and care of patients with COVID-19 were likely to experience mental health difficulties.^[5]

The average number of daily inpatient COVID-19 cases across KFMC was approximately 450 across KFMC units and wards. Further, KFMC assigned a multidisciplinary team that included nurses, respiratory therapists, and physicians as permanent teams in each unit and other healthcare workers like radiology technicians as per request. However, studies that reported high levels of depression, anxiety, and stress among workers in hospitals prepared to receive patients with COVID-19.

This study used the 21-item Depression, Anxiety, and Stress Scale (DASS-21).^[6] KFMC was chosen because it is a tertiary hospital that was designated only for patients with COVID-19 from the Riyadh area during the pandemic (April 1, 2020–January 2021).

METHODS

According to the KFMC institutional review board, this study was exempt from ethical approval (log no. 20-186). Participants were given the option to consent or refuse to

participate in the study upon logging into the online survey.

Study Design and Participants

Descriptive cross-sectional data were collected at KFMC. The study participants were healthcare workers, including nurses, respiratory therapists, physicians, and other healthcare professionals (Table 1). The study used a web-based English questionnaire through a Google form in which the respondents were able to answer the questionnaire between April 10 and May 5, 2020. Before proceeding to the questionnaire, a digital consent was established when logging into the online survey. A link was sent to all healthcare workers at KFMC through email and smartphone, including the details about the survey, which was entitled “Psychological responses among healthcare workers providing care for coronavirus patients.” These data were collected between April 10 and May 5, 2020, where the number of cases was approximately 450 patients per day. A total of 650 questionnaires were sent to healthcare workers at KFMC, and a total of 512 responses were received. Twelve responses were redundant and excluded from the study, resulting in a final sample size of 500 responses. The purpose was to assess and evaluate the psychological reactions and related factors of healthcare workers during the COVID-19 outbreak. DASS-21 was used to assess the levels of depression, anxiety, and stress.

Study Measures

DASS-21 is a valid and reliable scale commonly used to assess the behavioral and emotional reactions associated with depression, anxiety, and stress.^[7] A total of 500 online surveys were conducted with participants from different units across KFMC. The data were analyzed using SPSS version 25 (IBM).^[8] This tool comprises three self-reporting scales aimed at measuring the emotional state of an individual in terms of depression, anxiety, and stress. These three scales are subdivided into seven items separated into more subscales with similar contents.^[9]

Study Population

Our population included nurses, respiratory therapists, and physicians working with patients with COVID-19. The respondents were from the eight KFMC hospitals and centers distributed across intensive care units, inpatient and outpatient wards, and emergency rooms. The majority of the participants were working closely with COVID-19 cases. As the number of the cases increased, there was a need to pull staff from other non-COVID-19 areas. Most of the staff at KFMC from non-COVID-19 wards or units were sent for cross-training in the COVID-19 areas to be ready for any disaster and meet staffing needs due to the pandemic demand. We included nurses, respiratory therapists, and physicians working with non-COVID-19 patients (cases were transferred to other building until discharged from

KFMC) to assess their psychological well-being because the entire KFMC team was dealing with this catastrophe.

RESULTS

A total of 500 healthcare workers participated in this study from different healthcare professions at KFMC. Most of them worked as nurses, respiratory therapists, and physicians, everyone completed the questionnaire during the first phase of the COVID-19 outbreak in Saudi Arabia. The majority of participants were nurses and respiratory therapists, only 50 out of 150 physicians participated.

The overall response rate to the 650 questionnaires sent was 79%, with 512 responses. Twelve responses were redundant and excluded from the study, resulting in a final sample size of 500 responses. Of the 500 respondents, 33 (6.6%) were female, 164 (32.8%) were male, and 482 (96.4%) were in the age group of 20 to 50 years. More than 90% of healthcare workers were either nurses (353 of 500; 70.6%) or respiratory therapists (102 of 500; 20.4%). Most of the participants were married (310 of 500; 62%) and lived with their families (289 of 500; 57.8%). A further 197 (39.4%) had young children and older adults in their families, and 464 (92.8%) had enough information about COVID-19, whereas 437 (87.4%) received enough education about COVID-19.

Of the 500 respondents, approximately 305 (61%) reported symptoms of depression, 317 (63.4%) experienced symptoms of anxiety, whereas 282 (56.4%) reported symptoms of stress (Fig. 1). A significant difference was found in the levels of anxiety ($p < 0.001$) and depression ($p = 0.001$) across different professions. Nurses and respiratory therapists reported a higher proportion of anxiety, depression, and stress than individuals from other professions.

DISCUSSION

In this study, we examined the levels of psychological status, specifically depression, anxiety, and stress, among healthcare workers at KFMC during the initial phase of the COVID-19 pandemic between April and May 2020. In general, it is essential to closely monitor the risk, safety, and psychological factors of healthcare workers during such a pandemic. Frontline healthcare workers require early support to help them with their psychological concerns and issues.^[4] First, healthcare facilities should have a clear plan for addressing challenges associated with pandemics,^[10] such as designated beds, workforce, workload, stress, and logistics. Second, social support and guidelines provided by healthcare facilities should be used in a timely and efficient manner to decrease the psychological impact on healthcare workers.^[11] Third, proper self-awareness and team support are required as part of a healthcare facility's response to a pandemic.^[12] Healthcare workers should prioritize their well-being by addressing their essential needs (e.g., food,

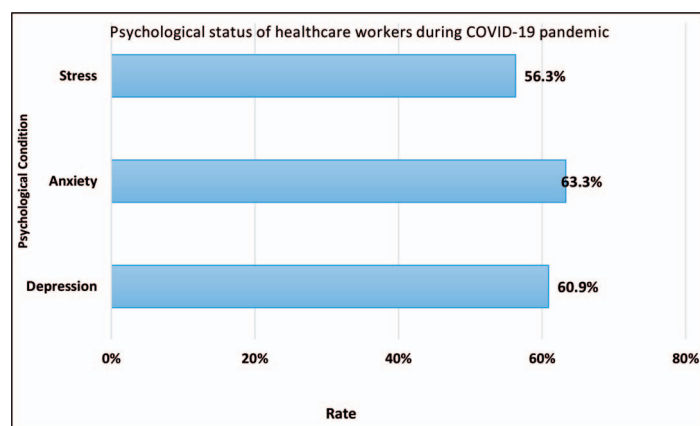


Figure 1. Psychological status of healthcare workers during the COVID-19 pandemic. COVID-19: coronavirus disease 2019.

rest, and treatment options) and understanding the importance of effective communication to promptly address their psychological issues to eliminate further stress.

This situation is a reminder of the various approaches that were previously followed to combat outbreaks. The most significant finding in our research is that nurses and respiratory therapists are more likely to develop anxiety than other healthcare professionals. In a study from Nepal, it has also been shown that individuals working in COVID-19 units experience more unfavorable psychological health outcomes than other healthcare professionals.^[13] A similar discovery was made during the SARS epidemic in Canada, in which nurses and respiratory therapists reported high levels of psychological distress due to fear, social isolation, and work pressure.^[10,14] To sum up, it is important to closely monitor the mental health status of healthcare professionals^[15] by hiring health agencies that can help them manage their workload, provide emotional support, and respond to their and their family members' personal needs.^[16]

Most of the respondents in this study were directly exposed to COVID-19 cases but did not report any physical symptoms; they also presented with a good health status. However, the majority (95%) reported being worried about their family members regarding COVID-19 but believed that they would survive if they became infected and that everything would be fine.

The results obtained in this study provide invaluable information on the early psychological responses of individuals working in COVID-19 at KFMC more than 1 month after the outbreak. The results of this study can directly aid in the development of psychological strategies to decrease the related psychological effects of such a pandemic and provide a framework for assessing preventive, control, and treatment efforts during the rest of the pandemic, which is still ongoing at the time of the preparation of this manuscript.

Limitations

The results of this study should be viewed with its limitations. For example, this study was performed during the initial phase of the pandemic. Thus, the psychological health outcomes observed might reflect conditions that existed even before the pandemic, when no experience or clear information was available about the pandemic. The study also used a cross-sectional design in which it precludes a cause-and-effect relationship. Despite these limitations, this study provides early indications of the psychological status of healthcare workers engaging with COVID-19 cases at KFMC. The results may be of interest to strategic planners and policymakers, health facility managers, and those on the frontlines with COVID-19 or any other future epidemic.

Recommendations

With COVID-19 as a new and unexpected pandemic, it is very important to monitor the workers' psychological status and to have clear and effective communication to enhance the work environment. Teams should encourage each other and find different approaches to assist their fellow healthcare workers to make them feel safe and valued. In light of this pandemic, everyone must be responsible and accountable to prevent its spread and improve the psychological and treatment outcomes associated with it. Learning from this pandemic has been a unique experience and provided an opportunity to enhance the work environment; therefore, workers should be more prepared for any future pandemic or crisis. From this learning opportunity, the lessons should be shared and a no-blame culture should be adopted when resolving issues; this approach should help improve the psychological status of healthcare workers during pandemics.

In addition, it is important to build a proper working environment; one with less stress and anxiety. Also, it is necessary to perform educational interventions to keep healthcare workers up to date regarding COVID-19 and provide adequate logistic support to increase their levels of protection and satisfaction.

CONCLUSIONS

COVID-19 has had a strong psychological impact on healthcare workers. In this study, we found that the prevalence of depression, anxiety, and stress was of concern. Thus, psychological interventions identifying and targeting healthcare workers with high levels of psychological reactions are required. Our findings can be used to develop and update strategies or plans concerning psychological status during pandemics, such as policies concerning our institution, and considered as a learning opportunity. We recommend further studies that investigate the psychological reactions and their correlate to formulate effective response to support healthcare workers during this pandemic.

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Data Sharing

Raw data are available from the corresponding author upon reasonable request.

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