Psychological Factors Associated With COVID-19 Among Nurses Working In The Emergency Department

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Abstract:
Background: *The coronavirus pandemic, known as COVID-19, remains a global concern. Many control measures were taken to restrict spread of the disease. Because emergency departments (EDs) were the frontline, health care workers and their mental well-being were major concerns.*
Aim: *This study aims to identify psychological distress among nurses working in the ED during a time of crisis.*
Method: *A cross-sectional (retrospective) survey was used, Online survey responses were collected and evaluated using the Kessler scale K10 to measure anxiety, depression, and psychological distress among EDs nurses.*
Results: *Of the 218 frontline nurses who completed the study, nearly165(75%) reported moderate to severe psychological distress, and about 22% were likely to be well.*
Discussion: *The COVID-19 pandemic has affected all population worldwide, especially health care workers, our finding showed that health care workers, specifically those working in EDs are more susceptible to experiencing psychological distress, in addition, we found that pediatric hospital nurses were less likely to experience depression or anxiety overall than nurses who cared for adult patients in general hospitals during the COVID-19 crisis.*
Implications for Practice: *Provides an introductory and evidence-based study for nursing leaders and stakeholders of the existing situation and suggests possible enhancements and strategies to improve psychological wellbeing.*
Conclusion: *Psychological distress was found among three-fourths of the study population. A significant risk of developing psychological problems was identified among ED nurses.*
Psychological distress was measured between two different ED scopes of service, and a high percentage of stress was associated with younger staff and those working in the adult ED.
Keywords: *Psychological distress, Emergency department, Covid19, Cross sectional, Pandemic, Mental health, Nurses.*

Accessible Summary

Introduction: Infectious disease outbreaks, such as COVID-19, have a psychological impact on nurses, increasing the risk of psychological distress and other mental health symptoms. Rewards and appreciation can encourage staff and eliminate negative psychological effects.

Aim/Question: This study aims to identify the psychological impact of COVID-19 among nurses working in an emergency department.

Method: We used an electronic questionnaire that adopted the Kessler psychological distress scale. The questionnaire was posted electronically to our colleagues in the emergency department to assess their experience during the peak of COVID-19.

What is known on the subject?

Any outbreak of infectious disease is known to have a psychological impact on health care workers and the general population as well, and previous studies have suggested that the mental health situation of medical staff is worse than that of the general population, The COVID-19 pandemic has affected all population worldwide**,** nurses are the first line providers in many health care settings, health care workers, specifically those working in EDs, are more susceptible to experiencing psychological distress.

What the paper add to existing knowledge?

Our finding, which was in line with that of previous studies, showed that health care workers, specifically those working in EDs are more susceptible to experiencing psychological distress, in addition, we found that pediatric hospital nurses were less likely to experience depression or anxiety overall than nurses who cared for

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adult patients in general hospitals during the COVID-19 crisis, also nurses who were <30 years old scored highest in severe psychological distress, and those who were older than 30 years showed the lowest rates of severe distress.

What are the implication of practice?

Provides an introductory and evidence-based study for nursing leaders and stakeholders of the existing situation, the psychological pressure faced by frontline health care providers is increasing, and actions for psychological support and interventions to protect their mental health should be adopted promptly especially for nurses.

I.Introduction

COVID-19 is a respiratory disease that causes pneumonia and difficulty breathing and in some cases leads to death. It is an outbreak of a mysterious pneumonia characterized by fever, dry cough, and fatigue and occasional gastrointestinal symptoms (Lancet, 2020). Coronavirus is an enveloped, positive single-strand RNA virus. The World Health Organization (WHO) acknowledged the worldwide outbreak of COVID-19 in January 2020 and subsequently declared it a pandemic (Domenico, 2020).

The outbreak COVID-19 caused daily existential distress as a result of the loss of numerous patients, colleagues, and loved ones (WHO, 2020b). The rapid spread of the disease and the unique form of transmission forced governments around the world to take strict measures (International Monetary Fund, 2020).

Nursing is a profession focused on the care of both critical and noncritical patients. Nurses are the first line providers in many health care settings, providing traditional regulation and working in collaboration with other health care professionals to improve the quality of life of their patients. They are also crucial to maintaining public health, and they are the best-placed professions to acquire an all-encompassing view of patient well-being (Jill Maben, 2020).

However, nurses are generally inspired to join the profession because they want to help people regain and sustain their health (Debra Jackson, 2020).

In the emergency department, nurses provide care and mentorship in addition to troubleshooting patient requirements on one hand and medical orders on the other hand. The risk of exposure to patients with COVID-19 necessitates the implementation of safety measures for all health care providers. However, nurses are considered to have the most contact with patients, as they attend to patients' needs in a 24/7 manner. One of their main roles is to obtain the first assessment of patients with or without COVID-19, which is a challenge with risky consequences, they are at risk of developing psychological factors contributing to the development of personality disorders, health maintenance issues, and the etiology of mental and behavioral disorders (American Psychological Association), including mental health symptoms as anxiety, insomnia, depression, and phobia. Studies have confirmed that most nurses and health care providers are afraid of spreading infection to their families and friends (Liu et al., 2020)

Any outbreak of infectious disease is known to have a psychological impact on health care workers and the general population as well, and previous studies have suggested that the mental health situation of medical staff is worse than that of the general population (Kristen. R. Choi, 2020).

Moreover, nurses worry about their health and the possibility of transmitting the infection to their families and friends (Kristen. R. Choi, 2020). Studies showed poor sleep quality primarily in females and a high prevalence of general anxiety disorder. Staff that were younger than 30 years were also affected by anxiety symptoms, which were more likely to occur in those who are focusing much on the percentages of outbreak. Differences in gender were also found, in that some studies reported that women more likely to develop anxiety symptoms than men were, and some studies found that a history of anxiety or depression in health care workers was associated with anxiety symptoms.

A lack of knowledge on the influence of raising anxiety levels on stress necessitates studies on the virus pattern and how to deal with it. Some studies have reported that following the news is also reflected in mental health and by creating more stress, and with the uncontrolled spreading of news, the risk of false information quickly increases. This information overload has been defined as an "infodemic." Due to the very rapid spread of the Internet, a large amount of uncontrolled news creates uncertainties and worries. Another consequence of the pandemic on mental health practices may be that psychiatric harms have been considered less significant than physical ones. There is a significant difference in the level of stress based on limits put on the amount of unofficial information (Mohammed Al Maqbali, 2020).

The psychological pressure faced by frontline health care providers is increasing, and actions for psychological support and interventions to protect their mental health should be adopted promptly, as depicted from previous experience. The well-being and emotional flexibility of health care workers are key components in maintaining necessary health care services during the COVID-19 pandemic. Because COVID-19 has mutated several times and the medical system and culture varies among countries, more research is needed on the psychological experience of frontline nurses fighting against COVID-19.

Psychological support, rewards, and appreciation play important roles in encouraging staff and eliminating negative psychological effects.

II.Material and Methods

Study design

We conducted a cross-sectional study assessing the psychological factors associated with COVID-19 among nurses working in the Kingdom of Saudi Arabia, Riyadh, KSMC Emergency Department, during the COVID-19 pandemic, the stud was approved by the local institutional review board (IRB) OF King Saud Medical City, we include nurses working in emergency department who agreed to participate in the survey and provided online informed consent. Data were collected from January 10 2022, to march 15, 2022. Before to start the study, the purpose, benefit, and safety of the study were explained, and all potential participant were informed that participation was entirely voluntary. Participant were also assured confidentiality, their right to withdraw from the study any time was guaranteed.

Study Duration:
From Jan 2022, to July 2022

Study participants

The study population included nurses of any nationality working in the pediatric and adult emergency departments (EDs). We used a nonprobability, convenient sampling system to recruit the participants. The research questionnaire was accessible through Microsoft forms in the English language. With a confidence level of 95%, the sample size was 218 participants, and the questionnaire was completed by 218 participants, of whom 218 met the inclusion criteria.

Inclusion criteria:
Staff nurses who working in emergency department.

Exclusion criteria:
Staff nurses outside emergency department.

Research instrument

The research tool used in this study consisted of 15 questions distributed in two sections as follows:

Section 1 consisted of five questions covering participants' sociodemographic characteristics, including age, gender, marital status, living condition, and emergency department area. Section 2 included the Kessler psychological distress scale (K10), which was used to assess psychological distress among participants. The K10 is a 10-item scale that assesses the frequency of nonspecific psychological distress symptoms and is a self-report measure based on questions about anxiety and depression symptoms. The two main subscale scores are also presented:

• Depression (items 1, 4, 7, 8, 9, 10)
• Anxiety (items 2, 3, 5, 6).

Each question has five levels of severity using a 5-point scale ranging from 1 = *none of the time*, 2 = *a little of the time*, 3 = *some of the time*, 4 = *most of the time*, and 5 = *all of the time*. As a general rule, participants who most commonly selected a rating of *some of the time* or *all of the time* were at risk of developing a psychological disorder. Conversely, participants who most commonly used a rating of *a little of the time* or *none of the time* may benefit from early intervention and promotional information to help raise awareness of the conditions of depression and anxiety as well as strategies to avoid future mental health issues. The results indicated the likelihood of mental health issues as follow: <20, well; 20–24, mild mental disorder; 25–29, moderate mental disorder; and >30, severe mental disorder.

III.Results

Table 1 shows the demographic characteristics of the 218 nurses who completed the study. More than half of the participants were from the adult hospital (55.5%). Most participants were female (89%), and most (74.8%) were older than 30 years. More than half of the participants were married (63.3%) and living with family (61.5%).

Results of the K10

The mean total K10 distress score was 29.94 (SD = 10.861). The mean K10 distress score was slightly higher among nurses working in the adult emergency department (mean = 31.96, SD = 10.181) compared with nurses working in the pediatric emergency department (mean = 27.64, SD = 11.197); the Wilcoxon rank-sum test showed that this difference was statistically significant (P= 0.003). With regard to age, the Kolmogorov–Smirnov

test revealed a statistically significant ($P = 0.001$) inverse relationship between age and total K10 distress score, indicating that younger age groups were more likely to have higher total K10 distress scores.

Among the five response choices on the K10 distress questions, the choice with the highest percentage of responses in Q1–Q2 and Q8 was *most of the time*, which scored four points on the K10 distress scale, whereas *some of the time* scored three points and received the highest percentage in Q3. *None of the time*, which scored one point, received the highest percentage of responses in Q10. More details regarding the response percentages for each question and answer are demonstrated in Table 2.

With regard to the psychological distress severity categorization, most respondents were regarded as having severe psychological distress (n = 116, 63.2%), followed by no psychological distress (n = 48, 22%), mild psychological distress (n = 31, 14.2%), and moderate psychological distress (n = 23, 10. 6%). Tables 3 and 4 show the results of the K10 psychological distress scale by severity and gender, respectively.

Of the 218 nurses who participated in the survey, 25 (11.5%) felt so nervous that nothing could calm them down, 32 (14.7%) felt hopeless, 36 (16.5%) felt restless and fidgety, 29 (13.3%) felt so restless that they could not sit still, 40 (18.3%) felt depressed, 39 (17.9%) *felt that everything was an effort, 34 (15.6%) felt so sad, and 29 (13.3%) felt worthless. The most commonly reported symptom was headache (54 [24.8%]), with a large number of participants (43 [19.7%]) reporting feeling nervous.

IV.Discussion

In this study, we used the K10 tool to measure psychological distress. Our results showed that more than three-fourths of the study population suffered from different degrees of psychological distress, and about 22% were likely to be well. There was a significant positive correlation between psychological distress and working in the front line of the emergency department. In addition, nurses, who make up the largest group of health care professionals, are more susceptible to psychological distress because they are on the front lines of the health care system's response to pandemics such as COVID-19.

Our finding, which was in line with that of previous studies, showed that health care workers, specifically those working in EDs are more susceptible to experiencing psychological distress (Naushad et al., 2019). A recent meta-analysis and systematic literature review covering the literature of the prepandemic COVID-19 period suggest that 7%–75% of health care workers have experienced burnout.

We found that nearly three-fourths of the study sample suffered a moderate to severe psychological impact, which is consistent with a study in Mexico reporting that 46.72% of nurses suffered moderate to severe psychological distress. Similarly, China's frontline nurses had depression and anxiety prevalence rates of 40% and 45%, respectively (Hu et al., 2020). |

One approach to understanding this issue is to compare mental health distress between the frontline nurses working in adult and pediatric hospital EDs. Our results showed a significant correlation between working in an adult hospital and dealing with suspected as well as confirmed COVID-19 patients and the elevation in the rate of psychological distress. In addition, we found that pediatric hospital nurses were less likely to experience depression or anxiety overall than nurses who cared for adult patients in general hospitals during the COVID-19 crisis. Severe psychological distress was significantly higher among nurses in the adult hospital emergency department. This finding is in line with other studies showing that pediatric patients with COVID-19 had mainly mild/moderate illness, whereas adults, especially the elderly, tended to be more severe/critical. The clinical symptoms of COVID-19 in adults are more complicated than those in children, although fever and cough are the main clinical manifestations for both adults and children (ChengXian 2020) As compared with adults, children with COVID-19 had fewer comorbid conditions and complications. The treatment modalities for adult COVID-19 patients were more complicated than those for children with COVID-19. Children with COVID-19 recovered well, whereas the COVID-19 prognosis in adults was relatively worse with respect to the clinical outcome. Recent research has reported the incredibly low prevalence of the COVID-19 incidence among children.

A closer look into the results shows that 63.8% of study sample had severe distress. This is in line with the findings of Andrea Naldi (2021), who reported severe distress in 39% of their study sample. Moreover, moderate psychological distress was found in 10.6% of the study sample, which, although it may not be as serious as severe distress, still had limitations in the study, including gender, the number of female nurses as compared with male nurses, and the greater number of women included as compared with men, which affected the representativeness of our sample and bound the generalizability of the result.

Furthermore, in a recent study, Liang et al. (2020) examined the relationship between age and depression symptoms. To provide an appropriate intervention, the target population should be identified. In the current study, age had significant positive correlation with psychological distress. People who were <30 years old scored highest in severe psychological distress, and those who were older than 30 years showed the lowest rates of severe distress (17.9%, respectively). However, younger health care experts (30 years) showed greater self-rated depression levels than older staff did (30 years). In addition, recent research by Elhessewi et al. (2021) was conducted to

assess psychological distress and its risk during the COVID-19 pandemic in Saudi Arabia, which showed a similar result to our study in terms of age.

Additionally, staff who were married displayed an increased psychological distress level. A recent study measured the effect of marital status during COVID-19 among health care workers in a major COVID-19 center and reported that unmarried participants exhibited higher levels of psychological distress, which was not strongly significant in this study (Alyami et al., 2022).

Nurses, as frontline staff, struggle against the infection, which keeps them under great physical and psychological distress. For the staff nurses in King Saud Medical City, staying free from infection was their main concern, as they worried most that they might infect their families with COVID-19. They had the greatest concern regarding the viral transmission to their families, possibly because most had young children and living parents in their households. However, the relationship between COVID-19–associated psychological factors and living status of the nurses was not significant in our study, which is in contrast to other previous research, which reported the highest prevalence in this concern (Haozheng Cai, 2020) (Nadia Yanet, 2020).

The results of our study confirmed the previous study of psychological distress among nursing. More attention must be paid to the mental health of staff nurses, and psychological interventions need to be implemented by both psychologists and psychiatrists to provide psychoeducation and mental health counseling. The significance of implementing and expanding psychological services and intervention programs throughout all countries affected by the COVID-19 epidemic is thus highlighted by this finding.

Recommendation

Nursing leaders need to understand the level of stress faced by their staff and carefully take into consideration ways to maintain the mental well-being of staff nurses. Moreover, to decrease the level of nurses' distress, different strategies must be applied, such as providing psychological counseling services, raising nurses' awareness regarding psychological distress strategies, providing full support and affective communication, as well as allowing for flexible scheduling and a vacation plan.

V. Conclusion

During the COVID-19 global pandemic, a high proportion of nurses suffered from different anxiety and depression symptoms during outbreaks, and psychological distress was detected among three-fourths of the current study sample during crisis. This finding was significant among the younger age groups, staff nurses who were married, and those who worked in the adult emergency department. These results, which are in line with the findings of a systematic review conducted to assess the impact of psychological distress on health, in which all studies reported a negative effect on health, are alarming and require well-planned interventions. It is therefore paramount to offer psychological support for nurses, especially during a pandemic. However, further studies are needed to evaluate the effectiveness of psychological intervention.

Tables
Table 1. Demographic Variables of the Nurses

Demographic	n	%
*Hospital		
Adult	116	53.2
Pediatric	102	46.8
*Gender		
Female	194	89
Male	24	11
*Age in years		
30 ☐	55	25.2
>30	136	74.8
*Marital status		
Single	80	36.7
Married	138	63.3
*Living status		
With family	134	61.5
alone	84	38.5

Table 2. Nurses' Response to the Kessler Psychological Distress Scale

During the COVID-19 crisis	None of the time	A little of time, 5 or fewer times per month	Some of time, about 10 times per month	Most of time, about 15 times per month	All of the time, about 20 times per month
*Felt tired for no reason, n (%)	20 (9.2%)	27 (12.4%)	60 (27.5%)	57 (26.1%)	54 (24.8%)
*Felt nervous, n (%)	20 (9.2%)	41 (18.8%)	55 (25.2%)	59 (27.1%)	43 (19.7%)
*Felt so nervous that nothing could calm you down, n (%)	48 (22.0%)	46 (21.1%)	61 (28.0%)	38 (17.4%)	25 (11.5%)
*Felt hopeless, n (%)	53 (24.3%)	42 (19.3%)	49 (22.5%)	42 (19.3%)	32 (14.7%)
*Felt restless or fidgety, n (%)	47 (21.6%)	45 (20.6%)	45 (20.6%)	45 (20.6%)	36 (16.5%)
*Felt so restless you could not sit still, n (%)	43 (19.7%)	45 (20.6%)	52 (23.9%)	49 (22.5%)	29 (13.3%)
*Felt depressed, n (%)	40 (18.3%)	48 (22.0%)	44 (20.2%)	46 (21.1%)	40 (18.3%)
*Felt that everything was an effort, n (%)	23 (10.6%)	44 (20.2%)	40 (18.3%)	72 (33.0%)	39 (17.9%)
*Felt so sad that nothing could cheer me up, n (%)	46 (21.1%)	42 (19.3%)	50 (22.9%)	46 (21.1%)	34 (15.6%)
*Felt worthless, n (%)	64 (29.4%)	39 (17.9%)	49 (22.5%)	37 (17%)	29 (13.3%)

Table 3. Association between Demographics and Psychological Distress Scale Scores

Demographic	Likely to Be Well	Likely to Have a Mild Disorder	Likely to Have a Moderate Disorder	Likely to Have a Severe Disorder	ChiSquare Value	*P* Value
*Hospital						
Adult	16 (7.3%)	16 (7.3%)	10 (4.6%)	74 (33.9%)		
Pediatric	32 (14.7%	15 (6.9%)	13 (6%)	42 (19.3%)	13.742	0.003*
Gender						
Female	43 (19.7%)	27 (12.4%)	22 (10.1%)	102 (46.8%)		
Male	5 (2.3%)	4 (1.8%)	1 (0.5%)	14 (6.4%)	1.305	0.728
*Age in years						
30☐	6 (2.8%)	4 (1.8%)	6 (2.8%)	39 (17.9%)		
>30	42 (19.3%	27 (12.4%)	17 (7.8%)	77 (35.3%)	10.959	0.012
*Marital status						
Single	14 (6.4%)	10 (4.6%)	6 (2.8%)	50 (22.9%)		
Married	34 (15.6%)	21 (9.6%)	17 (7.8%)	66 (30.3%)	4.599	0.204
*Living status						
With family	34 (15.6%)	16 (7.3%)	12 (5.5%)	72 (33%)		
Alone	14 (6.4%)	15 (6.9%)	11 (5%)	44 (20.2%)	3.905	0.272

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