

## Psychological effects of the COVID-19 pandemic and nurses' coping mechanisms: A correlational study



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### ABSTRACT

Many nurses have suffered mental health problems as a result of the COVID-19 pandemic. Nurses' workload and stress have increased as they care for infected patients and their families. Lockdowns and quarantines have exacerbated the problem, causing psychological distress. To determine the psychological impact of COVID-19 on hospital nurses and their coping mechanisms. A cross-sectional design and convenience sampling study using the original impact event scale (IES) and stress scale (SS) in the analysis. A total of 241 nurses from government and private hospitals in the Hail region of Saudi Arabia participated voluntarily. Most respondents were female (96.7%), 31-40 years old (48.1%), married (61.8%), dominant participants were Filipino nurses (47.7%), the majority worked in private hospitals (54.8%), and those with more than ten years of hospital experience were the largest group (39.4%). COVID-19 had a significant psychological impact on 81.33% of the respondents and a severe impact on 9.5%. The respondents' coping mechanisms are adaptive ( $MS=37.56$ ,  $STD=4.02$ ) in terms of complete problem-solving ( $MS=14.76$ ,  $STD=2.93$ ) and symptom management ( $MS=8.93$ ,  $STD=1.90$ ). There is a significant relationship between psychological impact and coping mechanisms, specifically in terms of social support ( $p$ -value-0.000) and symptom management ( $p$ -value-0.047). Healthcare institutions should prioritize programs to support nurses, especially during outbreaks, as this can improve patient outcomes and care for all. Healthcare workers need social support and adaptability training from policymakers to cope with stress and uncertainty.

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### 1. Introduction

Psychological impact refers to an event or situation's emotional, cognitive, and behavioral effects on a person's mental and emotional well-being. It may include changes in mood, thought patterns, behaviors, and overall functioning related to psychological distress. The psychological impact can occur due to various factors like stress, trauma, grief, anxiety, and fear and can have long-lasting effects on individuals' mental health and well-being. In the context of the COVID-19 pandemic, psychological impacts may arise from prolonged periods of isolation, uncertainty, and fear of infection, among other factors (Serafini et al., 2020;

Pedrosa et al., 2020; Saladino et al., 2020; Manchia et al., 2022). Conversely, coping mechanisms refer to individuals' strategies, behaviors, or mental processes to regulate emotions, manage stress, and adapt to challenging situations effectively. Coping approaches can take many forms, such as asking friends and family for social support, doing stress-relieving exercises or mindfulness exercises, rewiring negative thoughts into more positive ones, or changing behaviors to lessen feelings of being overwhelmed or burnout. Effective coping mechanisms allow individuals to manage difficult or stressful situations healthily, reducing the risk of experiencing long-term emotional or psychological distress (Algorani and Gupta, 2023; Sierakowska and Doroszkiewicz, 2022; Dardas and Ahmad, 2013).

According to several studies, nurses experienced a variety of psychological symptoms during the COVID-19 pandemic, with many of them developing depressive symptoms (Huerta-González et al., 2021; Al Maqbali and Al Khadhuri, 2021; Sun et al., 2021; Bahamdan, 2021). The fear of contracting or

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becoming infected with the disease was one of the main worries expressed by nurses (Ali et al., 2020; Moussa et al., 2021; Çelik and Kiliç, 2022). Other detrimental effects that nurses encountered as the pandemic spread included feelings of rage, obsessions, changes in behavior such as increased compulsivity and introversion, constant anxiety, a sense of helplessness, altered perceptions of space and time, and physical symptoms without a clear cause (Huerta-González et al., 2021; Bartzik et al., 2021). It is essential to recognize these detrimental psychological effects and take steps to assist healthcare providers to help lessen the pandemic's long-term effects on their mental health and well-being.

In Saudi Arabia, nurses were not exempted or immune from the mental concerns the COVID-19 pandemic generated. Studies have shown that some Saudi nurses experience depression due to long working hours, physical stress, and burnout (Almalki et al., 2021; Alqutub et al., 2021). In terms of the coping mechanisms of nurses during the COVID-19 pandemic, there is available literature; however, it is limited to critical hospital areas where nurses have higher exposure to COVID-19. This knowledge gap has prompted researchers to conduct a study involving nurses assigned to different clinical areas in hospital settings to determine the impact of the COVID-19 pandemic on nurses and identify coping mechanisms they adopted. It was thought that the research's results would contribute some helpful insights for the hospital organizations to determine specific support they can provide to reduce psychological impacts on nurses and ensure their well-being during these challenging times.

## 2. Materials and methods

### 2.1. Study design

This is correlational research designed to examine the psychological effects of the COVID-19 pandemic on hospital nurses and their coping mechanisms.

### 2.2. Setting/population/sampling

This study was limited to the Hail Region of Saudi Arabia and was conducted in two months, from April to May 2022. The target group was healthcare workers who have dealt with traumatic events and employing some coping mechanisms. The respondents were selected through convenience sampling from a pool of staff nurses in government and private hospitals with experience caring for patients infected with the Coronavirus. Nurses with management roles, including those who worked primarily in clinics or outpatient departments and those on leave while the study was being done, were excluded. A total of two hundred forty-one (241) hospital nurses voluntarily participated.

### 2.3. The instrument

The original impact event scale (IES) developed by Horowitz et al. (1979) and a modified stress scale (SS) constructed by Tesfaye (2018) were adapted and used as tools in this study.

The demographic features of respondents covered in Part 1 of the questionnaire include information on their gender, age, marital status, nationality, affiliated institutions, and years of experience.

Part two (IES tool) consisted of 15 items with four options for the respondents to select from: "0" meant not at all, "1" meant rarely, "3" meant sometimes, and "5" meant often.

Part 3 contains the modified stress scale questionnaire consisting of 18 items relating to coping strategies in five subscales: 1) planful problem solving (5 items), 2) self-control mechanisms (2 items), 3) social support (3 items), and 4) symptom management mechanisms (3 items). The answers were drawn from the four-point Likert scale options: 1) "I never do this" 2) "I sometimes do this" 3) "I frequently do this," and 4) "I always do this."

The study participants were students from the second-year to fourth-year levels of the Bachelor of Science in Nursing program during the first semester of the academic year 2021-2022.

### 2.4. Data collection

The approval of the administrations of the prospective hospitals for research and an orientation to the respondents was first sought before the data collection started. It involved internet or online communications, so the survey questionnaire was sent to each participant through a Google link.

The study's internal consistency of the instrument used was tested through 15 primary healthcare workers of the Hail City who acted as respondents. The survey questions were reliable, as determined by the Cronbach alpha reliability analysis. With an alpha coefficient of 0.87, it indicates moderate reliability.

### 2.5. Data analysis

Several tools, such as the IES and the Stress Scale, were used in analyzing the information gathered. Using the IES system developed by Horowitz et al. (1979), the scores were interpreted according to the score obtained from the 15-item questionnaire. The scores range from 0 to 75, and they are derived from the values of the answers to the questions, which are not at all (0), rarely (1), sometimes (3), and often (5). A score of less than 8 indicates no meaningful impact, while a score between 9 and 25 would mean the event has little impact or the subject person could be affected by the event. Nevertheless, if the score is between 26 and 43, the event had a powerful impact, or the person was indeed affected. In

contrast, a higher score of 44 to 75 signifies severe impact, which can alter the ability to function. Furthermore, according to the tool developers, a total score of more than 26 indicates an extreme stress level. A 27 or higher score suggests a 75% likelihood of post-traumatic stress disorder (PTSD), while a score of 35 or higher indicates a diagnosis of PTSD. The preferred coping strategy is determined by getting the sum of the scores of Questions 1 through 18 in section 3 of the questionnaire, which represents the adaptive coping strategy. The minimum score is 13, and the maximum is 52. The higher the score, the greater the preference for that coping strategy. Questions 14-18 deal with the maladaptive approach. The sum of the scores of the five items ranges from a minimum of 5 to a maximum of 20. The high score indicates that the respondents preferred a maladapted coping strategy.

**2.6. Statistical analysis**

The researchers utilized frequency and percentage analysis to determine the psychological impact of COVID-19 on hospital nurses. Additionally, the standard deviation was used to analyze the coping mechanisms employed by nurses. To explore the association between nurses' coping strategies and the psychological effects of the COVID-19 pandemic, the researchers conducted chi-square tests. The data was analyzed using SPSS Statistics 29.

**3. Results of the study**

Based on the data in Table 1, nurses who participated in this study were impacted by the COVID-19 pandemic but in varying degrees or severity. One hundred ninety-six (196) of them (81.33%) were powerfully impacted, and 22, or 9.13%, received just a little or low impact, while twenty-three (23), or 9.13%, were severely impacted. The respondents believed that the COVID-19 event affected their psychological well-being so much. The evaluation of the responses using the IES indicates that 219, or almost 91% of participants,

have Post Traumatic Stress Disorder (PTSD). Based on the decision guidelines, preclinical symptoms have been observed or visible in this group. They have a 75% likelihood of being diagnosed with PTSD, which is significant enough for the responders' immune systems to be compromised.

Furthermore, the capability to perform 23 responders (9.54%) who fell into severe impact events can possibly be altered. This group of respondents, therefore, needs guidance and counseling because of the severe impact.

**Table 1:** Psychological impact of the COVID-19 pandemic on hospital nurses

Impact	Frequency	Percentage
No meaningful impact	0	0%
Impact event	22	9.13%
Powerful impact event	196	81.33%
Severe impact event	23	9.54%

Table 2 shows that the total adaptive coping score is 72.23% (mean=37.56, SD=4.02), indicating a preferred coping strategy. Whereas adaptive subscale symptom management scored 74.45% and planful problem solving scored 73.77%, this demonstrates the highest coping subscale.

Table 3 presents the study's results on the relationship between the psychological impact of the COVID-19 pandemic on hospital nurses and their coping mechanisms. The chi-square test was used in analyzing the variables, and an alpha level of 0.05 was set for statistical significance.

**4. Discussion**

The psychological toll of the COVID-19 pandemic on healthcare workers, especially nurses, must not be disregarded. The above findings of 81.33% of all the participating nurses experiencing intense psychological distress associated with the pandemic and another 9.5% severely impacted are indicative of the seriousness of the matter within the health institutions of Hail Region. It should be noted that continuous depression, anxiety, PTSD, and stress can lead to various mental health issues.

**Table 2:** Coping mechanism utilized by hospital nurses during the COVID-19 pandemic

Coping strategy	Subscale	Mean	Standard deviation	Mean (%)	Minimum (%)	Maximum (%)
Adaptive	Planful problem solving	14.76	2.93	73.77	25	100
	Self-control mechanism	5.22	1.45	65.25	25	100
	Social support	8.65	2.10	72.10	25	100
	Symptom management	8.93	1.90	74.45	25	100
	Total adaptive score	37.56	4.02	72.23	25	100
Maladaptive	Escape avoidance	11.39	3.19	63.25	25	100

**Table 3:** Relationship between the psychological impact of the COVID-19 pandemic on hospital nurses and their coping mechanisms

Impact	df	Critical values	X <sup>2</sup>	P-value	Verbal interpretation
Planful problem solving	9	16.919	3.686	0.931	Insignificant
Self-control mechanism	9	16.919	11.858	0.221	Insignificant
Social support	9	16.919	44.718	0.000**	Significant
Symptoms management	6	12.592	12.748	0.047**	Significant
Escape avoidance	9	16.919	5.433	0.837	Insignificant

\*\* : Significant at 0.05

It can be said that this study has validated the investigations done by Hur et al. (2022) and Martin-

Rodriguez et al. (2022) on the psychological burden healthcare workers confront, particularly during

pandemic scenarios. Nurses exposed to COVID-19 patients or working in nursing homes were identified to suffer from severe symptoms of mental disturbances.

In response to the challenges, healthcare institutions should develop support programs that help nurses deal with the psychological stressors of their work during these demanding times. These programs may include psychological support, stress management strategies, and other initiatives to reduce burnout and promote well-being among healthcare workers. Investing in a support system for nursing staff prioritizes healthcare professionals' physical and emotional well-being and translates into high-quality patient care.

The coping mechanisms nurses use during the COVID-19 pandemic are essential in ensuring their psychological well-being. According to the most recent research, nurses have shown a more adaptive coping style, with a percentage of 72.23, compared to maladaptive approaches, with a result of 63.25%. Several of the coping mechanisms utilized by nurses during the COVID-19 pandemic were discussed in studies done by [Biegańska-Banaś and Makara-Studzińska \(2020\)](#), [Sierakowska and Doroszkiewicz \(2022\)](#), and [Sehularo et al. \(2021\)](#). However, specific coping methods, such as the adaptive problem-solving strategy, have yet to be extensively explored in the literature. Despite this, recent research results show that nurses are resilient and able to adapt to the stressors associated with pandemics and other public health crises. It is proposed that healthcare organizations continue providing adequate support for nursing staff to ensure they can access effective coping strategies tailored to their needs. By doing so, healthcare organizations can protect their employees' psychological well-being, resulting in better outcomes for healthcare providers and patients.

The psychological impact of the COVID-19 pandemic on hospital nurses is significantly correlated with coping mechanisms, specifically regarding social support and symptom management. This suggests that effective coping strategies for nurses during the pandemic include cultivating supportive relationships with colleagues and addressing specific symptoms, such as anxiety or depression. This recent study is consistent with the previous study by [Li et al. \(2021\)](#), which found that individuals who are better able to adapt to challenging situations have better mental health outcomes. Furthermore, those who struggle to cope can still benefit from a robust social support system, which can mitigate the negative effect on their psychological health. These findings highlight the need for healthcare institutions and policymakers to prioritize promoting and facilitating access to social support resources for healthcare workers. In addition, training on adaptability techniques can help healthcare professionals manage the challenges they face during times of stress and uncertainty, such as the pandemic.

## 5. Conclusion

The COVID-19 pandemic had a significant psychological impact on the nurses working in both the government and private hospitals of the Hail Region of Saudi Arabia, with many experiencing intense distress and mental health issues. This study highlighted the need for healthcare institutions to develop support programs, including psychological support and stress management strategies, to promote well-being and reduce burnout among healthcare workers. Despite the challenges, nurses have shown adaptability and resilience in coping with the stressors of their work during the pandemic through supportive relationships with colleagues and symptom management strategies. Healthcare institutions should provide adequate support to nurses, reducing the impact of stressors on their psychological well-being and improving patient care outcomes simultaneously.

## Compliance with ethical standards

### Ethical consideration

To ensure responsibility, accountability, and transparency, the researchers presented the research proposal to the ethics review committee for approval. Following the approval, the proponents coordinated and lobbied with the various hospital administrations to conduct the study. Orientations and briefings on the study's significance, objectives, and advantages for the respondents followed. In addition, the researchers initiated a full briefing on strict adherence to ethical norms, including confidentiality. The nurses who voluntarily participated offered their prior informed consent by signing the consent form with the assurance that they may discontinue at any time should the questionnaire make them feel uneasy or threatened. It was also ensured that any data or information they provided would be kept confidential and well-secured on a hard drive, accessible only to the researchers. As the last step, the study's results will be shared with all the hospitals and participating nurses.

### Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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