

Assessment of Nurses Fear Working in COVID-19 Pandemic Hospitals

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Abstract

Introduction: Nurses play pivotal roles in various facets of managing the COVID-19 epidemic, encompassing tasks such as identifying potential cases with infections, managing suspected patients, conducting patient assessments, and providing critical care to individuals afflicted with COVID-19.

Objective: The objective of this study was to assess the level of COVID-19 fear among nurses who care for infected or suspected COVID-19 patients in pandemic hospitals.

Methods: A cross-sectional study was conducted on 260 nurses employed at COVID-19 hospitals in Palestine. The Fear of COVID-19 Scale (FCV-19S) was employed to measure participants' fear levels. The scale's potential values range from 7 to 35, with higher scores indicating a greater fear of COVID-19. Independent t-tests and ANOVA tests were utilized to evaluate differences between the variables.

Results: The analysis revealed that the mean total fear score of the nurses was 25.22 ± 5.07 (ranging from 7 to 35), indicating a high level of fear. Married nurses exhibited a fear mean score of 27.0 ± 4.9 ($p < 0.05$). Similarly, nurses with children scored a mean fear level of 29.0 ± 4.6 ($p < 0.05$). Additionally, nurses engaged in rotating shift work reported a fear mean score of 27.9 ± 4.4 ($p < 0.05$). Furthermore, nurses who received COVID-19 training exhibited a fear mean score of 24.6 ± 4.8 ($p < 0.05$). Likewise, nurses who experienced patient loss due to COVID-19 reported a fear mean score of 23.2 ± 4.5 ($p < 0.05$).

Conclusion: The study confirmed that nurses in Palestine exhibit a significant level of fear concerning COVID-19. Marital status, having children, working schedule, experiencing the loss of a patient due to COVID-19, and receiving training related to COVID-19 were identified as factors associated with the fear of COVID-19 among nurses.

Keywords

fear, COVID-19, nurses, pandemic hospitals

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Introduction

At the end of 2019, the spread of COVID-19, which was originally noticed in Wuhan City, China, had severe impacts on society globally (Wang et al., 2020; Zhu et al., 2020). The epidemic of COVID-19 has resulted in a considerable worldwide in the global economy. Some nations where COVID-19 was first detected gave insight on the pandemic's consequences on the healthcare professionals and healthcare system (Alfieri et al., 2020; Armocida et al., 2020; Oliva et al., 2020).

Beyond the rapid transmission of cases, the evolving understanding of COVID-19 and reports of elevated morbidity and mortality rates have instilled widespread fear and concern (Bao et al., 2020; Shigemura et al., 2020). Moreover, stress-inducing factors such as the heightened risk of infection, financial setbacks, the threat of viral

spread, quarantine measures, implementation of social distancing protocols, and increased mortality rates have collectively contributed to heightened levels of fear and anxiety among the populace (Ayed & Zabn, 2021; Brooks et al., 2020; Harper et al., 2021).

Nurses, tasked with extended work hours and additional shifts to accommodate the care needs of COVID-19 patients and their families, face heightened health risks (Nie et al., 2020). Throughout the pandemic, nurses attending to COVID-19 patients have grappled with severe physical and

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emotional exhaustion, alongside persistent worries and fears (Aqtam et al., 2023).

Since the declaration of a state of emergency in response to the first COVID-19 cases in Palestine, the Ministry of Health (MOH) has asserted its readiness to provide comprehensive services to COVID-19 patients. Many private hospitals have proven effective in delivering care and monitoring COVID-19 patients, equipped with ventilators and staff trained to manage COVID-19 cases (MOH, 2020).

Review of Literature

Fear and worry stemming from potential illness can exact a significant and detrimental psychological toll, leading to mental health issues, weakening of the immune system, and a decreased ability of the body to fend off diseases (Belash et al., 2021). Fear and anxiety represent complex psychological and physiological states characterized by emotional, cognitive, and behavioral factors (Shen et al., 2021). Based on the context, these negative emotions may serve as motivators or cause to reluctance in adhering to protective measures. Suppressing the expression of these feelings can exacerbate their intensity or, if left unaddressed, lead to emotional strain (Ayed & Amoudi, 2020; Malinowska-Lipień et al., 2021). A study conducted among nurses caring for COVID-19 patients in Pakistan during the pandemic revealed that 92.3% of the nurses experienced moderate to severe anxiety (Alwani et al., 2020). Similarly, a study in China reported that 71.5% of healthcare personnel attending to COVID-19 patients expressed worry, while 44.6% reported feelings of anxiety (Lai et al., 2020).

Previous studies investigating fear levels among nurses during the COVID-19 pandemic have revealed a spectrum of responses, ranging from moderate to high levels of fear. A study conducted in Saudi Arabia highlighted the presence of high levels of perceived stress and fear among nurses while caring for patients afflicted with COVID-19 (Tayyib & Alsolami, 2020). Similarly, another study involving nurses working across public and private hospitals in Saudi Arabia reported moderate levels of fear regarding COVID-19 (Moussa et al., 2021). Furthermore, an Indonesian study found that a substantial portion, approximately 70.7%, of nurses expressed fear related to COVID-19 (Huda et al., 2023). Notably, nurses reported experiencing particularly heightened levels of fear in close proximity to COVID-19 patients (Moradi & Sharififar, 2023), and fear levels were notably elevated among nurses working in intensive care units (Diğın et al., 2022). These findings underscore the multifaceted nature of nurses' responses to the challenges caused by the COVID-19 pandemic, reflecting varying degrees of apprehension and concern within different contexts of care delivery.

Nurses predominantly working in high-risk wards caring for COVID-19 patients are more susceptible to both physical and mental effects compared to those in lower risk

environments. Psychological reactions such as fear can significantly influence individuals' behaviors, leading to impaired cognitive function, heightened panic, and increased risk of burnout. Therefore, it is imperative to assess the psychological responses of healthcare professionals to the COVID-19 pandemic (Ahorsu et al., 2022; Taylor et al., 2020; Wu et al., 2020). Studies have indicated that higher levels of fear regarding COVID-19 are associated with various factors, including inadequate training about the infection, experiencing patient loss due to COVID-19, possessing more job experience, and being older (Ünver & Yeniğün, 2021). Additionally, gender and staffing shortages have been identified as contributing factors to nurses' fear of working during the COVID-19 pandemic (Savsar & Karayurt, 2023).

Given the personalized nature of nursing care and the paramount importance of patient safety in delivering high-quality care (Mihdawi et al., 2020; Vaismoradi et al., 2020), it becomes imperative to evaluate the fear levels of nurses working in pandemic units during the COVID-19 crisis. As a result, the objective of this study was to assess the level of COVID-19 fear among nurses who care for infected or suspected COVID-19 patients in pandemic hospitals.

Methods

Design

A cross-sectional study was conducted from June to August 2020.

Research Questions

1. What is the fear level of COVID-19 among nurses?
2. What are factors related to the fear of COVID-19 among nurses?

Sample

This study was conducted at all COVID-19 hospitals across Palestine, which include Hugo Chavez Hospital in Ramallah Governorate, Red Crescent Hospital in Hebron Governorate, Military Hospital, Red Crescent Hospital in Nablus Governorate, Dora Hospital for COVID, Red Crescent in Tulkarm, Omar Al-Qasim Hospital in Qalqilya Governorate, and Turkish Friendship Hospital in the southern governorates. These hospitals have been meticulously equipped with ventilators, and the medical staff have undergone comprehensive training to handle COVID patients with the utmost proficiency and care (MOH, 2020).

The study included a convenience of nurses who are working in COVID-19 hospitals. The sample size was

determined using the Raosoft program with a population of 625, a confidence level of 95%, a margin of error of 5%, and an estimated response rate of 50% (Raosoft, 2008). Initially, the calculated sample size was determined to be a minimum of 239 nurses. To account for potential attrition, the sample size was increased to 270 nurses. However, the final number of nurses who completed the questionnaires were 260 nurses

Inclusion/Exclusion Criteria

The inclusion criteria were being willing to participate in this study, working in a pandemic hospital, and handling infected or suspected COVID-19 patients. Exclusion criteria were nurses working part time.

Instruments

The questionnaire comprised three parts. The first part covered demographic characteristics (7 items) such as age, gender, educational status, marital status, having a child, working schedule, and years of experience. The second part covered experience with COVID-19 (5 items), including the status of receiving training related to COVID-19, losing patients because of COVID-19, had a relative diagnosed with COVID-19, being diagnosed with COVID-19, and having or losing a relative diagnosed with COVID-19.

The last part addressed the fear of COVID-19. The Fear of COVID-19 Scale (FCV-19S), created by Ahorsu et al. (2022), was used. This 7-item scale was rated on a 5-point Likert scale ranging from strongly disagree to strongly agree. The potential values range from 7 to 35, with a higher score suggesting a higher fear of COVID-19 (Ahorsu et al., 2022; Stahel, 2020; Satici et al., 2021). In addition, the degree of fear was characterized as low (score 7-21) or high (scoring 22-35) (Ahorsu et al., 2022; Belash et al., 2021). Previous studies found that the scale has strong predictive validity and reliability (Ahorsu et al., 2022; Gritsenko et al., 2021). In the present study, Cronbach's alpha value was found to be 0.92.

Data Collection

Because collecting data face-to-face was challenging during the epidemic, nurses were recruited for the research using a social media platform (WhatsApp) that is utilized at the hospital and contains the mobile phone numbers of all hospital nurses. The questionnaire was generated on Google Drive, and the link was sent to the target nurses via email. The questionnaire was designed so that it would not be displayed a second time once the user had filled it in, and it was protected from editing after submission. At the beginning of the survey form, each nurse electronically provided informed consent.

Ethical Considerations

The study had been approved by Arab American University. Only the researchers have access to the study forms. Participants received an electronic consent form. Participation in this study was entirely optional, and participants' personal information was not requested.

Data Analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS, version 23). Descriptive statistics, including frequency, percentages, means, and standard deviations, were utilized to describe the characteristics of the study variables. Furthermore, independent t-tests and ANOVA tests were employed to assess the differences between the variables.

Results

Sample Characteristics

Two hundred and sixty out of 270 nurses participated in this study, with a response rate of 96.3%. The analysis revealed that 180 (69.2%) were aged 20–29 years. The majority of the participants, 187 (71.9%), were male, and 170 (65.4%) were single. Additionally, 69 (76.6%) of the married nurses had a child. Moreover, 190 (73.1%) held a bachelor's degree, and 181 (69.6%) had less than 5 years of experience. Most of them, 238 (91.5%), worked rotating shifts, as seen in Table 1.

The analysis revealed that 177 (68.1%) received training related to COVID-19. Additionally, 42 (16.2%) reported that they were diagnosed with COVID-19, and 109 (41.9%)

Table 1. Description of Nurses' Characteristics (N = 260).

Characteristic		N(%)
Age	20–29	180(69.2)
	30–39	70(27.0)
	40 and above	10(3.8)
Gender	Male	187(71.9)
	Female	73(28.1)
Marital status	Single	170(65.4)
	Married	90(34.6)
If married, having a child?	Yes	69(76.7)
	No	21(23.3)
Years of experience	<5 years	181(69.6)
	5–10 years	57(21.9)
	More than 10 years	22(8.5)
Educational status	Diploma	67(25.8)
	Bachelor	190(73.1)
	Master and above	3(1.1)
Working schedule	Day shift	22(8.5)
	Rotation	238(91.5)

Table 2. Description of Nurses' Experience of COVID-19 (N = 260).

Item		N(%)
"Received training related to COVID-19"	Yes	177(68.1)
	No	83(31.9)
"Diagnosed with COVID-19"	Yes	42(16.2)
	No	218(83.8)
"Had a relative diagnosed with COVID-19"	Yes	109(41.9)
	No	151(58.1)
"Lost relative because of COVID-19"	Yes	16(6.2)
	No	244(93.8)
"Lost patient because of COVID-19"	Yes	118(45.4)
	No	142(54.6)

Table 3. Item Scores Received from the Fear of COVID-19 Scale.

Item	M	SD
1. "I am most afraid of coronavirus-19".	4.1	.91
2. "It makes me uncomfortable to think about coronavirus-19".	3.78	.87
3. "My hands become clammy when I think about coronavirus-19".	3.20	.79
4. "I am afraid of losing my life because of coronavirus-19".	3.59	.84
5. "When watching news and stories about coronavirus-19 on social media, I become nervous or anxious".	3.68	.83
6. "I cannot sleep because I am worrying about getting coronavirus-19".	3.42	.83
7. "My heart races or palpitates when I think about getting coronavirus-19".	3.50	.85
TOTAL	25.22	5.07

reported having a relative diagnosed with COVID-19. Moreover, 16 (6.2%) reported that they lost a relative because of COVID-19, and 118 (45.4%) reported losing a patient because of COVID-19, as seen in Table 2.

Research Questions Results

The analysis revealed that the mean total fear score of the nurses was found to be 25.2 ± 5.1 (range 7–35), indicating a high level of fear. Furthermore, item analysis of the fear scale revealed that the highest mean scores were for "I am most afraid of coronavirus-19" and "It makes me uncomfortable to think about coronavirus" (4.1 (SD = 0.9) and 3.8 (SD = 0.87), respectively), as seen in Table 3.

An independent t-test and ANOVA test were utilized to assess the differences between mean scores of fear and participants' characteristics. The analysis revealed statistically significant differences between fear scores and marital status, having a child, and working schedule ($p < 0.05$). Married nurses had a fear mean score of 27.0 ± 4.9 , which was

Table 4. Differences Between Mean Scores of Fear and Participants' Characteristics (N = 260).

Characteristic		M(SD)	Statistical test	p-value
Age	20–29	24.8(5.1)	F = 1.802	.167
	30–39	26.1(5.2)		
	40 and above	26.1(4.1)		
Gender	Male	24.9(5.1)	t = 1.500	0.135
	Female	26.0(5.0)		
Marital status	Single	24.3(4.9)	t = 4.365	0.001
	Married	27.0(4.9)		
If married, having a child?	Yes	29.0(4.6)	t = 2.164	0.033
	No	26.4(4.9)		
Years of experience	<5 years	24.8(5.0)	F = 2.409	.092
	5–10 years	25.8(5.1)		
	10 years or more	27.0(4.8)		
Educational status	Diploma	24.6(4.4)	F = .702	.496
	Bachelor	25.4(5.3)		
	Master and above	24.0(1.7)		
Working schedule	Day shift	25.0(5.1)	t = 2.629	0.009
	Rotation	27.9(4.4)		

Table 5. Differences Between Mean Scores of Fear and Participants' Experience of COVID-19 (N = 260).

Item		M(SD)	Statistical test	p-value
"Received training related to COVID-19"	Yes	24.6(4.8)	t = 3.031	0.003
	No	26.6(5.4)		
"Diagnosed with COVID-19"	Yes	24.9(4.7)	t = 0.405	0.686
	No	25.3(5.2)		
"Had a relative diagnosed with COVID-19"	Yes	25.1(5.1)	t = 2.633	0.096
	No	24.9(4.8)		
"Lost relative because of COVID-19"	Yes	25.5(4.6)	t = 0.228	0.820
	No	25.2(5.1)		
"Lost patient because of COVID-19"	Yes	23.2(4.5)	t = 6.195	0.001
	No	26.9(5.0)		

higher than that of single nurses (24.3 ± 4.9). Additionally, nurses who had a child had a fear mean score of 29.0 ± 4.6 , which was higher than that of those who didn't have a child (26.4 ± 4.9). Furthermore, nurses with rotating shift work had a fear mean score of 27.9 ± 4.4 , which was higher than that of nurses who worked day shifts (25.0 ± 5.1), as seen in Table 4.

Moreover, an independent t-test was conducted to assess the differences between mean fear scores and participants' experiences of COVID-19 as seen in Table 5. The analysis revealed statistically significant differences between fear scores and both receiving training related to COVID-19 and losing patients because of COVID-19 ($p < 0.05$). Nurses who received training related to COVID-19 had a

fear mean score of 24.6 ± 4.8 , which was lower than that of those who didn't (26.6 ± 5.4). Similarly, nurses who lost patients because of COVID-19 had a fear mean score of 23.2 ± 4.5 , which was lower than that of those who didn't (26.9 ± 5.0). This could potentially be attributed to potential desensitization and a heightened sense of control gained through firsthand experience, fostering coping mechanisms and resilience.

Discussion

The current study was conducted during the peak of the COVID-19 pandemic when fear of the virus was particularly intense.

According to the findings, nurses who handle COVID-19 patients reported a strong fear of the disease. This could be explained by the challenges nurses face in new situations, fear of infection, job burnout due to long hours and protective equipment, difficulty handling patient conditions, and managing relationships in these stressful situations. However, there exists a range of perspectives in the literature regarding the severity of COVID-19-related fear among nurses (Alnazly et al., 2021; Çalışkan & Kargın, 2021; Çayır Yılmaz & Uysal, 2021; Çelik & Dağlı, 2021; Baysal et al., 2022; Hu et al., 2020; Moussa et al., 2021; Ünver & Yeniğün, 2021; Labrague & de Los Santos, 2021). Some studies, such as those by Çayır Yılmaz and Uysal (2021) and Moussa et al. (2021), have reported moderate levels of fear among nurses, findings that are consistent with the current study. Conversely, other research, including that conducted by Alnazly et al. (2021), Çalışkan and Kargın (2021), and Hu et al. (2020), have identified a higher degree of fear among nurses. Additionally, a multinational study involving nurses from Spain, Italy, Brazil, and Turkey found that nurses exhibited anxiety levels beyond the moderate range concerning COVID-19 (Baysal et al., 2022). Overall, nurses appear to be particularly vulnerable to experiencing fear, anxiety, and depression as a result of the pandemic, compared to other healthcare professionals. This heightened vulnerability has been noted in various studies across different countries, including Spain, Italy, Brazil, and Turkey (Aksoy & Koçak, 2020; Apisarnthanarak et al., 2020; Kackin et al., 2021; Saracoglu et al., 2020).

Also, the study found that nurses who received COVID-19 training had lower fear scores than those who did not. COVID-19 fear was observed to be higher among nurses who had not received COVID-19 training (Labrague & de Los Santos, 2021; Ünver & Yeniğün, 2021). Nurses' COVID-19 fears can be reduced by having better information and knowledge to handle emergency scenarios (Mubarak et al., 2021). Cui et al. (2020) found that attending infection prevention training significantly improved nurses' stress coping abilities, leading to a decrease in fear levels. Similarly, Labrague and de Los Santos (2021) observed that frontline nurses who received COVID-19 training

exhibited lower levels of fear compared to those who did not receive such training. Moreover, the findings by Alwani et al. (2020) further support the notion that educating nurses about COVID-19 can positively impact their emotional well-being by reducing feelings of fear.

The current study highlights the significant impact of patient deaths due to COVID-19 on nurses' fear levels. Nurses who have experienced the loss of a patient due to COVID-19 express less levels of fear compared to those who have not encountered such situations. This may indicate that nurses who have directly experienced the loss of patients due to COVID-19 may have become desensitized to the fear associated with the pandemic over time. Continuous exposure to challenging and distressing situations can lead individuals to develop coping mechanisms and resilience, thereby reducing their overall fear levels. Also, it may be that nurses who have encountered patient loss have undergone a process of psychological adjustment, wherein they have come to terms with the realities of the pandemic and accepted the associated risks and uncertainties. This acceptance may lead to a reduction in fear as they develop a more realistic perspective on the situation. However, this finding is inconsistent with previous research by Alharbi et al. (2020) and Pappa et al. (2020), which suggests that witnessing patient deaths from COVID-19 can induce fear among healthcare professionals. The fear experienced by nurses is compounded by the distressing nature of COVID-19 deaths, as noted by Galehdar et al. (2020). Furthermore, Galehdar et al. (2020) found that nurses caring for COVID-19 patients perceive these deaths as particularly painful, especially when younger patients are involved. This emotional connection with patients is further emphasized by the strong empathy that nurses develop towards those under their care, as identified by Nelson and Lee-Winn (2020). Qualitative studies, such as the one conducted by Kackin et al. (2021), shed light on the multifaceted nature of nurses' fears. Nurses not only fear for their own health but also express distress over the potential loss of family members. Moreover, concerns about the handling of deceased patients, including the sealing of bodies, contribute to nurses' apprehension and distress. Spoorthy et al. (2020) summarize the cumulative impact of patient deaths on nurses, highlighting how these experiences contribute to their fear and stress levels.

There were statistically significant associations between fear and marital status, having a child, and a working schedule. These findings align with previous research conducted by Fu et al. (2021), which identified married nurses with children as having higher levels of fear compared to unmarried counterparts. One plausible explanation for the elevated fear levels among married nurses with children is the concern about transmitting the infection from their workplace to their homes. As primary caregivers, these nurses may feel a heightened sense of responsibility for the health and safety of their families, thereby increasing their anxiety about

potential exposure to COVID-19 in the healthcare setting. Research by Majumdar et al. (2020) indicates that working irregular shifts can lead to poor sleep quality and compromised physical and mental health. The irregularity in work schedules disrupts the body's natural circadian rhythm, contributing to fatigue, stress, and overall deterioration in well-being among nurses.

Limitations of the Study

There are certain limitations to this study that should be noted. First, consider that a cross-sectional design study cannot demonstrate causality and express views at a point in time. Also, this study was self-administered, which may have resulted in bias. Finally, only nurses with an internet connection were eligible to participate in the study. As a result, the current study suggests that more research be conducted to investigate the factors that impact pandemic fear in nurses at different times, as well as the effects of training programs on nurses' fear levels.

Implications for Practice

It is interesting to study the fear consequences of the COVID-19 outbreak on nurses. Furthermore, psychological care and counseling for nurses is crucial in order to enhance their mental health and help them to handle the problems offered by pandemics.

Conclusion

The study confirmed that that nurses in the region experience a notable level of fear regarding COVID-19. Several factors were identified as being associated with this fear among nurses, including marital status, having children, working schedule, experiences of losing patients due to COVID-19, and receiving training related to COVID-19. To minimize mental health challenges or psychological harm, healthcare administrators should prioritize assessing the degree of fear and stress among nurses working during the COVID-19 pandemic. Also, healthcare administrators should provide training session to nurses on how to handle fear. The conclusion of our study enriches the existing literature by offering a nuanced understanding of fear during the COVID-19 pandemic. This knowledge can inform evidence-based interventions and policies aimed at effectively managing the ongoing threat posed by the virus and its associated impacts on society.

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References

- Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2022). The fear of COVID-19 scale: Development and initial validation. *International Journal of Mental Health and Addiction, 20*, 1537–1545. <https://doi.org/10.1007/s11469-020-00270-8>
- Aksoy, Y. E., & Koçak, V. (2020). Psychological effects of nurses and midwives due to COVID-19 outbreak: The case of Turkey. *Archives of Psychiatric Nursing, 34*(5), 427–433. <https://doi.org/10.1016/j.apnu.2020.07.011>
- Alfieri, N., Manodoro, S., & Marconi, A. M. (2020). COVID-19 does not stop obstetrics: What we need to change to go on safely birthing. The experience of a university obstetrics and gynecology department in Milan. *Journal of Perinatal Medicine, 48*(9), 997–1000. <https://doi.org/10.1515/jpm-2020-0218>
- Alharbi, J., Jackson, D., & Usher, K. (2020). The potential for COVID-19 to contribute to compassion fatigue in critical care nurses. *Journal of Clinical Nursing, 29*(15-16), 2762. <https://doi.org/10.1111/jocn.15314>
- Alnazly, E., Khraisat, O. M., Al-Bashaireh, A. M., & Bryant, C. L. (2021). Anxiety, depression, stress, fear and social support during COVID-19 pandemic among Jordanian healthcare workers. *Plos one, 16*(3), e0247679. <https://doi.org/10.1371/journal.pone.0247679>
- Alwani, S. S., Majeed, M. M., Ramzan, Z., Rauf, S., Syed, M. S., Shah, S. H., & Hamirani, F. (2020). Evaluation of knowledge, practices, attitude, and anxiety of nurses towards COVID-19 during the current outbreak in Karachi, Pakistan. *Pakistan Journal of Public Health, 10*(2), 82–90. <https://doi.org/10.1101/2020.06.05.20123703>
- Apisarnthanarak, A., Apisarnthanarak, P., Siripaparat, C., Saengaram, P., Leeprechanon, N., & Weber, D. J. (2020). Impact of anxiety and fear for COVID-19 toward infection control practices among Thai healthcare workers. *Infection Control & Hospital Epidemiology, 41*(9), 1093–1094. <https://doi.org/https://doi.org/10.1017/ice.2020.280>
- Aqtam, I., Ayed, A., Toqan, D., Salameh, B., Abd Elhay, E. S., Zaben, K., & Mohammad Shouli, M. (2023). The relationship between stress and resilience of nurses in intensive care units during the COVID-19 pandemic. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing, 60*, 469580231179876. <https://doi.org/10.1177/00469580231179876>
- Armocida, B., Formenti, B., Ussai, S., Palestra, F., & Missoni, E. (2020). The Italian health system and the COVID-19 challenge. *The Lancet Public Health, 5*(5), e253. [https://doi.org/10.1016/S2468-2667\(20\)30074-8](https://doi.org/10.1016/S2468-2667(20)30074-8)

- Ayed, A., & Amoudi, M. (2020). Stress sources of physical therapy students' and behaviors of coping in clinical practice: A Palestinian perspective. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, *57*, 0046958020944642. <https://doi.org/10.1177/0046958020944642>
- Ayed, A., & Zabn, K. (2021). Knowledge and attitude towards COVID-19 among nursing students: Palestinian perspective. *SAGE Open Nursing*, *7*, 23779608211015150. <https://doi.org/10.1177/23779608211015150>
- Bao, Y., Sun, Y., Meng, S., Shi, J., & Lu, L. (2020). 2019-nCoV epidemic: Address mental health care to empower society. *The Lancet*, *395*(10224), e37–e38. [https://doi.org/10.1016/S0140-6736\(20\)30309-3](https://doi.org/10.1016/S0140-6736(20)30309-3)
- Baysal, E., Selçuk, A. K., Aktan, G. G., Andrade, E. F., Notarnicola, I., Stievano, A., & Blaque, R. R. (2022). An examination of the fear of COVID-19 and professional quality of life among nurses: A multicultural study. *Journal of Nursing Management*, *30*(4), 849–863. <https://doi.org/10.1111/jonm.13550>
- Belash, I., Barzagar, F., Mousavi, G., Janbazian, K., Aghasi, Z., Ladari, A. T., & Rahnamaei, K. (2021). COVID-19 pandemic and death anxiety among intensive care nurses working at the hospitals affiliated to Tehran university of medical science. *Journal of Family Medicine and Primary Care*, *10*(7), 2499. https://doi.org/10.4103/jfmpc.jfmpc_2105_20
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, *395*(10227), 912–920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Çalışkan, E., & Kargin, M. (2021). The relationship between coronavirus 19 fear and occupational fatigue, burnout and recovery levels in healthcare professionals in Turkey. *Archives of Environmental & Occupational Health*, *77*(9), 711–720. <https://doi.org/10.1080/19338244.2021.2002796>
- Çayır Yılmaz, M., & Uysal, N. (2021). Determining the fear of COVID-19 and the level of professional commitment in clinician nurses. *Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi*, *4*(3), 316–325. <https://doi.org/10.38108/ouhcd.886634>
- Çelik, F., & Dağlı, R. (2021). Fear of COVID-19: A cross-sectional study on the psychological state of the surgical team. *Fırat University Medical Journal Health Science*, *35*(2), 107–112. <https://doi.org/https://search.trdizin.gov.tr/yayin/detay/484670/>
- Cui, S., Jiang, Y., Shi, Q., Zhang, L., Kong, D., Qian, M., & Chu, J. (2020). Impact of COVID-19 on psychology of nurses working in the emergency and fever outpatient: A cross-sectional survey. <https://doi.org/10.21203/rs.3.rs-20777/v1>
- Diğın, F., Özkan, Z. K., Güçlü, F., & Gözde, E. R. O. L. (2022). Fear of coronavirus in intensive care nurses: A cross-sectional study. *Journal of Surgery and Medicine*, *6*(4), 419–423. <https://doi.org/10.28982/josam.938582>
- Fu, C., Ren, Y., Wang, G., Shi, X., & Cao, F. (2021). Fear of future workplace violence and its influencing factors among nurses in shandong, China: A cross-sectional study. *BMC Nursing*, *20*, 123. <https://doi.org/10.1186/s12912-021-00644-w>
- Galehdar, N., Kamran, A., Toulabi, T., & Heydari, H. (2020). Exploring nurses' experiences of psychological distress during care of patients with COVID-19: A qualitative study. *BMC psychiatry*, *20*(1), 1–9. <https://doi.org/10.1186/s12888-020-02898-1>
- Gritsenko, V., Skugarevsky, O., Konstantinov, V., Khamenka, N., Marinova, T., Reznik, A., & Isralowitz, R. (2021). COVID 19 fear, stress, anxiety, and substance use among Russian and Belarusian university students. *International Journal of Mental Health and Addiction*, *19*, 2362–2368. <https://doi.org/10.1007/s11469-020-00330-z>
- Harper, C. A., Satchell, L. P., Fido, D., & Litzman, R. D. (2021). Functional fear predicts public health compliance in the COVID-19 pandemic. *International Journal of Mental Health and Addiction*, *19*(5), 1875–1888. <https://doi.org/10.1007/s11469-020-00281-5>
- Hu, D., Kong, Y., Li, W., Han, Q., Zhang, X., Zhu, L. X., & Zhu, J. (2020). Frontline nurses' burnout, anxiety, depression, and fear statuses and their associated factors during the COVID-19 outbreak in Wuhan, China: A large-scale cross-sectional study. *EClinicalMedicine*, *24*, 100424. <https://doi.org/10.1016/j.eclinm.2020.100424>
- Huda, N., Deli, H., Shaw, M. K., & Efendi, M. R. (2023). Fear of COVID-19 among Indonesian nurses: A descriptive cross-sectional study. *KnE Medicine*, *2023*, 100–108.
- Kackin, O., Ciydem, E., Aci, O. S., & Kutlu, F. Y. (2021). Experiences and psychosocial problems of nurses caring for patients diagnosed with COVID-19 in Turkey: A qualitative study. *International Journal of Social Psychiatry*, *67*(2), 158–167. <https://doi.org/10.1177/0020764020942788>
- Labrague, L. J., & de Los Santos, J. A. A. (2021). Fear of COVID-19, psychological distress, work satisfaction and turnover intention among frontline nurses. *Journal of Nursing Management*, *29*(3), 395–403. <https://doi.org/10.1111/jonm.13168>
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., & Hu, S. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*, *3*(3), e203976–e203976. <https://doi.org/10.1001/jamanetworkopen.2020.3976>
- Majumdar, P., Barman, A., Chakraborty, P., & Sahu, S. (2020). COVID-19 pandemic and rotational shift work: Impact on physical and mental health of Indian nurses. *International Journal of Research*, *6*(2), 60–72.
- Malinowska-Lipień, I., Wadas, T., Sułkowska, J., Suder, M., Gabryś, T., Kózka, M., & Brzostek, T. (2021). Emotional control among nurses against work conditions and the support received during the SARS-CoV-2 pandemic. *International Journal of Environmental Research and Public Health*, *18*(17), 9415. <https://doi.org/10.3390/ijerph18179415>
- Mihdawi, M., Al-Amer, R., Darwish, R., Randall, S., & Afaneh, T. (2020). The influence of nursing work environment on patient safety. *Workplace Health & Safety*, *68*(8), 384–390. <https://doi.org/10.1177/2165079920901533>
- MOH. (2020). Health Status in Palestine. Annual Report. Palestinian National Authority, Ramallah, Palestine.
- Moradi, M., & Sharififar, S. (2023). Level of fear in front-line nurses during the COVID-19 pandemic, a cross-sectional study in Iran. *Disaster Medicine and Public Health Preparedness*, *17*, e206. <https://doi.org/10.1017/dmp.2022.168>
- Moussa, M. L., Moussa, F. L., Alharbi, H. A., Omer, T., Khallaf, S. A., Al Harbi, H. S., & Albarqi, A. A. (2021). Fear of nurses during COVID-19 pandemic in Saudi Arabia: A cross-sectional assessment. *Frontiers in Psychology*, *12*, 736103. <https://doi.org/10.3389/fpsyg.2021.736103>
- Mubarak, N., Safdar, S., Faiz, S., Khan, J., & Jaafar, M. (2021). Impact of public health education on undue fear of COVID-19 among nurses: The mediating role of psychological capital.

- International Journal of Mental Health Nursing*, 30(2), 544–552. <https://doi.org/10.1111/inm.12819>
- Nelson, S. M., & Lee-Winn, A. E. (2020). The mental turmoil of hospital nurses in the COVID-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1), S126. <https://doi.org/10.1037/tra0000810>
- Nie, A., Su, X., Zhang, S., Guan, W., & Li, J. (2020). Psychological impact of COVID-19 outbreak on frontline nurses: A cross-sectional survey study. *Journal of Clinical Nursing*, 29(21–22), 4217–4226. <https://doi.org/10.1111/jocn.15454>
- Oliva, A., Caputo, M., Grassi, S., Vetrugno, G., Marazza, M., Ponzanelli, G., Cauda, R., Scambia, G., Forti, G., Bellantone, R., & Pascali, V. L. (2020). Liability of health care professionals and institutions during COVID-19 pandemic in Italy: Symposium proceedings and position statement. *Journal of Patient Safety*, 16(4), e299–e302. <https://doi.org/10.1097/PTS.0000000000000793>
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*, 88, 901–907. <https://doi.org/10.1016/j.bbi.2020.05.026>
- Raosoft. (2008). An online sample size calculator. <http://www.raosoft.com/samplesize.html>
- Saracoglu, K. T., Simsek, T., Kahraman, S., Bombaci, E., Sezen, Ö, Saracoglu, A., & Demirhan, R. (2020). The psychological impact of COVID-19 disease is more severe on intensive care unit healthcare providers: A cross-sectional study. *Clinical Psychopharmacology and Neuroscience*, 18(4), 607. <https://doi.org/10.9758/cpn.2020.18.4.607>
- Satici, B., Gocet-Tekin, E., Deniz, M. E., & Satici, S. A. (2021). Adaptation of the fear of COVID-19 scale: Its association with psychological distress and life satisfaction in Turkey. *International Journal of Mental Health and Addiction*, 19, 1980–1988. <https://doi.org/10.1007/s11469-020-00294-0>
- Savsar, A., & Karayurt, Ö. (2023). Factors affecting COVID-19-related fear and burnout in surgical nurses. *Irish Journal of Medical Science (1971 -)*, 192(6), 3011–3021. <https://doi.org/10.1007/s11845-023-03347-0>
- Shen, Y., Zhan, Y., Zheng, H., Liu, H., Wan, Y., & Zhou, W. (2021). Anxiety and its association with perceived stress and insomnia among nurses fighting against COVID-19 in Wuhan: A cross-sectional survey. *Journal of Clinical Nursing*, 30(17–18), 2654–2664. <https://doi.org/10.1111/jocn.15678>
- Shigemura, J., Ursano, R. J., Morganstein, J. C., Kurosawa, M., & Benedek, D. M. (2020). Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: Mental health consequences and target populations. *Psychiatry and Clinical Neurosciences*, 74(4), 281. <https://doi.org/10.1111/pcn.12988>
- Spoorthy, M. S., Pratapa, S. K., & Mahant, S. (2020). Mental health problems faced by healthcare workers due to the COVID-19 pandemic—A review. *Asian Journal of Psychiatry*, 51, 102119. <https://doi.org/10.1016/j.ajp.2020.102119>
- Stahel, P. F. (2020). How to risk-stratify elective surgery during the COVID-19 pandemic? *Patient Safety in Surgery*, 14(1), 1–4. <https://doi.org/10.1186/s13037-020-00235-9>
- Taylor, S., Landry, C. A., Rachor, G. S., Paluszek, M. M., & Asmundson, G. J. (2020). Fear and avoidance of healthcare workers: An important, under-recognized form of stigmatization during the COVID-19 pandemic. *Journal of Anxiety Disorders*, 75, 102289. <https://doi.org/10.1016/j.janxdis.2020.102289>
- Tayyib, N. A., & Alsolami, F. J. (2020). Measuring the extent of stress and fear among Registered Nurses in KSA during the COVID-19 Outbreak. *Journal of Taibah University Medical Sciences*, 15(5), 410–416. <https://doi.org/10.1016/j.jtumed.2020.07.012>
- Ünver, S., & Yeniğün, S. C. (2021). COVID-19 fear level of surgical nurses working in pandemic and surgical units. *Journal of PeriAnesthesia Nursing*, 36(6), 711–716. <https://doi.org/10.1016/j.jopan.2021.04.014>
- Vaismoradi, M., Tella, S., Logan, P. A., Khakurel, J., & Vizcaya-Moreno, F. (2020). Nurses' adherence to patient safety principles: A systematic review. *International Journal of Environmental Research and Public Health*, 17(6), 2028. <https://doi.org/10.3390/ijerph17062028>
- Wang, C., Horby, P. W., Hayden, F. G., & Gao, G. F. (2020). A novel coronavirus outbreak of global health concern. *The Lancet*, 395(10223), 470–473. [https://doi.org/10.1016/S0140-6736\(20\)30185-9](https://doi.org/10.1016/S0140-6736(20)30185-9)
- Wu, Y., Wang, J., Luo, C., Hu, S., Lin, X., Anderson, A. E., & Qian, Y. (2020). A comparison of burnout frequency among oncology physicians and nurses working on the frontline and usual wards during the COVID-19 epidemic in Wuhan, China. *Journal of Pain and Symptom Management*, 60(1), e60–e65. <https://doi.org/10.1016/j.jpainsymman.2020.04.008>
- Zhu, H., Wei, L., & Niu, P. (2020). The novel coronavirus outbreak in Wuhan, China. *Global Health Research and Policy*, 5(1), 6. <https://doi.org/10.1186/s41256-020-00135-6>