Received: 2 July 2022 | Accepted: 28 September 2022

DOI: 10.1111/nuf.12808

RESEARCH ARTICLE

NURSING FORUM AN INDEPENDENT VOICE FOR NURSING WILEY

Psychological distress among the nursing workforce in the United Arab Emirates: Comparing levels before and during the COVID-19 pandemic

Nabeel Al-Yateem PhD[1,2] | Fatma Refaat Ahmed PhD[1] | Mohamad Alameddine PhD[2,3] | Jacqueline Maria Dias PhD[1] | Ahmad Rajeh Saifan PhD[4] | Muhamad Arsyad Subu PhD[1] | Heba Hijazi PhD[2,5] | Mohannad Eid AbuRuz PhD[4]

[1]Nursing Department, College of Health Sciences, University of Sharjah, Sharjah, UAE

[2]Research Institute of Medical & Health Sciences - Health and Workforce Studies Research Group, University of Sharjah, Sharjah, United Arab Emirates

[3]Health Service Administration Department, Faculty of Health Sciences, University of Sharjah, Sharjah, UAE

[4]Clinical Nursing Department, Applied Science Private University, Amman, Jordan

[5]Department of Health Management and Policy, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan

Correspondence
Nabeel Al-Yateem, PhD, Nursing Department, Faculty of Health Sciences, University of Sharjah, Sharjah, UAE.
Email: nalyateem@sharjah.ac.ae

Funding information
University of Sharjah

Abstract

Background: Nurses make up the majority of the healthcare workforce. They contribute to the development of healthcare systems and the provision of high-quality, effective, and patient-centered healthcare services. However, nurses need good mental and emotional well-being to provide adequate care and the necessary physical and mental health support for their clients. This study aimed to determine the level of generalized psychological distress among nurses in the United Arab Emirates. As this study was initiated before the coronavirus disease 2019 (COVID-19) pandemic, we were able to compare data gathered before and during the pandemic.

Method: This study used a cross-sectional correlational design. The Kessler Psychological Distress Scale (K10) was used to measure generalized psychological distress. Nurses' distress levels were measured and compared before and during the COVID-19 pandemic.

Results: In total, 988 participants completed the questionnaire. The majority (n = 629, 63.7%) were employed in hospitals and the remainder worked in primary healthcare settings (n = 359, 36.3%). The mean distress score was 27.1 ± 13.7; 42.1% (n = 416) of participants had a severe level of distress, and only 36.4% (n = 360) reported no distress. More participants had severe stress levels before COVID-19 (59.5%, n = 386) compared with during COVID-19 (10.9%, n = 30).

Conclusions: Participants' K10 scores suggest that nurses experience significant distress, which may compromise their ability to care for their clients. This study emphasizes the importance of supporting nurses as a preliminary step to improving patient care. Despite the pressure of working during the COVID-19 pandemic, participants' general distress scores were lower during than before the pandemic. Organizational, governmental, and global support and appreciation may have contributed to relieving the distress nurses experienced. This may be a useful ongoing approach for enhancing healthcare systems.

KEYWORDS
healthcare professional, mental health, nurses, pediatric care, psychological distress, work environment

1 | INTRODUCTION AND BACKGROUND

Nurses make up the largest cohort in the health sector and are well-positioned to contribute to enhancing standards of care and improving health systems.[1–6] Previous studies and reports demonstrated the importance of a healthy and well-functioning nursing workforce for healthcare systems. For example, a 2017 global report noted that more emphasis should be placed on nurses' roles in health service planning and delivery because of the shifts in health service demand (i.e., aging populations) and the nature of the diseases and illnesses that are becoming globally prevalent.[2]

In 2016, the UK All-Party Parliamentary Group on Global Health published a report that called for the development of the nursing profession and workforce, noting that this will have a triple impact on improving gender equality, economies, and population health outcomes.[1] Other studies have unequivocally demonstrated that the quality of healthcare staff, specifically nurses, directly impacted patient outcomes, improved standards of healthcare and patient safety, and enhanced the overall quality and efficiency of healthcare services.[3–6] However, these reports also noted that poor quality practice environments for nursing staff may lower standards of care and affect patient safety.

The recent spread of the coronavirus disease 2019 (COVID-19) pandemic further demonstrated the importance of the healthcare professional workforce, especially nurses, in ensuring sustainable healthcare systems, fighting diseases, and protecting communities; however, it also highlighted the many challenges that face this workforce. These challenges threaten healthcare professionals' abilities to perform their roles and hinder healthcare service managers and planners in maintaining a healthy, adequate, and sustainable healthcare workforce.[7–12]

A recent systematic review explored the experiences of nurses working in acute hospital settings in the context of a pandemic.[8] The review included 13 qualitative studies from different countries that involved more than 348 nurses. The findings revealed the need for supportive, caring environments to provide quality care, and highlighted the physical and emotional pressures that affect nurses while performing their roles. The authors emphasized that healthcare service managers and policymakers should actively and urgently engage in supporting nurses, both during and following a pandemic/epidemic. Without this support, nurses may experience substantial psychological issues that can lead to burnout and increased staff turnover.[8]

The World Health Organization (WHO) noted that the COVID-19 pandemic underscores the urgent need to strengthen the global health workforce.[13] Specifically, the WHO identified gaps in the nursing workforce and the need for investment in nursing education, employment, and leadership to strengthen nursing worldwide and improve population health.[13] The COVID-19 pandemic also highlighted that governments rely heavily on the nursing and midwifery workforce to improve health systems, fight diseases, and provide general and specialized services to the full extent of their mandated scopes of practice.[14,15] As nurses are expected to perform these roles to protect population health and well-being, studies focused on nurses' well-being are becoming increasingly relevant, especially in developing countries. Unfortunately, nurses rarely have the opportunity to fully express their voice regarding the challenges they face, which may compromise their performance in their roles. The lack of knowledge is especially pronounced regarding nurses' mental health and well-being, and is particularly apparent in developing countries where healthcare systems are still growing and other areas of development may have been prioritized.

The United Arab Emirates (UAE) is a Middle Eastern nation that is among the most wealthy, developed, and stable countries in the region; the country is currently focusing on developing all national systems, including the healthcare system.[16–18] The UAE government's strategic plans focus on delivering high-quality health services, with identified health system priorities including noncommunicable diseases, cancer, mental health, and respiratory problems. In addition, following the emergence of the COVID-19 pandemic, the UAE identified infectious disease treatment and prevention as an important area for development.[16–18] The UAE's response to COVID-19 highlighted the central role the nursing profession plays in the functionality of the healthcare system and in achieving the country's healthcare aspirations.[19] However, the UAE is facing major challenges in terms of securing the necessary human resources for health to meet these challenges and realize the aspirations for the healthcare system; this may affect the quality and stability of existing and future healthcare services in the UAE.[20,21] For example, most UAE nurses (around 96%) are recruited from other countries, such as the Philippines, India, Pakistan, Arab countries, the United States, and the British Commonwealth (e.g., the United Kingdom, Australia, Canada, and South Africa).[20,21] When these nurses come to the UAE, they live and work in a different cultural, linguistic, and clinical context that may create increased anxiety and pressure.[22,23] Many of these nurses also have to separate from their families and friends to work in the UAE. Some come from poor economic backgrounds and are striving to support families back home, others may come from war-torn countries, and many may live in challenging circumstances in the UAE because of their financial status. Recent research suggests that the UAE's predominantly expatriate nursing workforce may negatively affect the development of the nursing profession locally[20,21,24] and may also introduce incompatible or inappropriate health practices.[25,26]

Like other countries, the UAE is experiencing shortages of nurses and other healthcare personnel, and previously forecasted the need to recruit an additional 13,000 nurses by 2021; this objective was not achieved because of the COVID-19 pandemic. Shortages in the nursing workforce result in heavier workloads for practicing nurses who have to bear the brunt of caring for patients and populations, especially during a public health emergency. Therefore, exploring the current state of well-being in the UAE nursing workforce and working on improving nurses' well-being will facilitate the delivery of high-quality patient- and population-centered healthcare, and help to achieve the UAE's strategic and operational priorities for the healthcare system. To that end, this study explored the stress levels experienced by nurses working in the UAE as an indicator of their generalized well-being. The findings may enable the development of evidence-based policy and practice recommendations to support nurses' health and well-being.

2 | DESIGN AND METHODS

2.1 | Study design and participant recruitment

This study used a quantitative cross-sectional survey design. Participants were recruited from the total accessible population by convenience sampling.

2.2 | Data collection

This study initially collected data in the pre-COVID-19 period, but was put on hold because of the outbreak of COVID-19. Later in the pandemic, we conducted a second round of data collection using the same questionnaire to allow a comparison of nurses' distress levels before and during the crisis. In the second round of data collection (i.e., post-COVID), the timeframe for data collection was shorter, it yielded a smaller but also a relatively representative sample ($n = 275$).

We included all types of hospitals in the UAE, such as private and governmental hospitals managed by the Federal Ministry of Health and Prevention and hospitals managed by independent local nonfederal bodies (e.g., the Department of Health of Abu Dhabi and the Dubai Health Authority). In addition, data were collected from school nurses and nurses working in primary healthcare centers. The data collected in this study represented most Emirates in the UAE, including Sharjah, Dubai, Abu Dhabi, Ajman, Ras Al-Khaimah, and Umm Al-Quwain. Therefore, the final sample was reasonably representative of UAE nurses and allowed us to capture the perspectives of nurses working in various systems and institutions across the UAE.

All nurses who provided care in the clinical sites that agreed to cooperate with this study were invited to participate. For each site, a liaison person was assigned to disseminate and collect questionnaires, which were distributed online or as paper-based versions, depending on participants' preferences. Most participants preferred the online option. Because this process was centrally administered, the exact number of staff members who received a paper-based copy of the questionnaire or a link to the online version could not be ascertained. However, we estimated that the participating sites employed approximately 4000 nurses. In total, 988 healthcare professionals answered the survey, giving an approximate response rate of 24.7%.

Unfortunately, in this study, the random sampling technique could not be used due to the lack of a unified body that can provide information about or access to all the study population in UAE. In the country, there are multiple licensing bodies for nurses, which operate almost separate from each other (i.e., Ministry of Health and Prevention, Dubai Health Authority, Department of Health-Abu Dhabi, Dubai Healthcare City). It is difficult to communicate with these bodies to get the nurses' details or access them. Also, there are multiple governing authorities for the healthcare institutions and each one operates its facilities almost separately from each other (Ministry of Health and Prevention, Dubai Health Authority, Department of Health-Abu Dhabi, Presidential Affairs Facilities, etc.). So, a random selection of institutions might be also difficult, due to the lack of one complete and accurate set of information about the health institutions that can be obtained from these authorities.

2.3 | Measures

The Kessler Psychological Distress Scale (K10) was used to assess nonspecific psychological distress among participants.[27–30] The K10 is a self-report questionnaire that is used to assess psychological distress in connection to symptoms of anxiety and depression. The K10 has excellent psychometric qualities, and the internal consistency has been documented (Cronbach's α values of 0.86 for Arabic-speaking groups).[30] In this study, Cronbach's α was 0.95. Total K10 scores range from 10 to 50, with higher scores indicating higher distress. To classify the level of psychological distress reported by participants, this study used established cut-off points: low to mild (scores 10–21), moderate (scores 22–29), and severe (scores > 30).

As per the ethics approval, no personal identifiers were collected from study participants. Unfortunately, it was not possible to provide follow-up or support to participants with K10 scores indicating psychological distress; however, information about available psychological support services was provided in the questionnaire for those who may be suffering psychological distress.

2.4 | Statistical analyses

Descriptive statistics were used to describe participants' characteristics, other study variables, and psychological distress levels before and during the COVID-19 pandemic. In addition, inferential statistics were used to compare distress levels among subgroups of participants (e.g., gender, area of work, and time in the UAE). Each participant's K10 score was calculated by summing the scores for all

items and categorized as "no distress" (well), "mild distress," "moderate distress," or "severe distress" based on cut-off points established by the K10 authors. After assessing the types of variables (categorical, continuous), an appropriate statistical test was used to test the normality of the data (if continuous). The tests performed in this study included the χ^2 test, parametric tests (*t*-tests, analysis of variance), nonparametric tests (Mann–Whitney *U*-tests, Kruskal–Wallis tests), and correlation testing (Pearson's, Spearman's). All statistical analyses were performed using SPSS V23 software.

2.5 | Ethics approval and consent to participate

The University of Sharjah Research Ethics Committee (ref# REC-23-11-15-46) and the research ethics committees of the health services from which participants were recruited approved this study (DHA-ref# DSREC-12/2015-13; MOH-ref# R04). The return of a completed questionnaire was considered a confirmation of participants' consent to participate in this study.

3 | RESULTS

3.1 | Participants' demographics

Data were collected from 988 participants. Table 1 presents the participants' demographics. The majority of participants were female (*n* = 873, 88.4%) and resident in UAE for <9 years (*n* = 201, 20.3%). For many participants (*n* = 428, 43.3%), the primary language was neither Arabic nor English, which are the formal languages used in the UAE and the healthcare system. Most of participants had a bachelor's degree (*n* = 367, 37.1%) or a diploma (312, 31.6%) and were working as registered nurses (*n* = 693, 97.2%). Almost two-thirds of participants (*n* = 629, 63.7%) were employed in hospitals, and the remainder worked in primary healthcare settings (i.e., schools or primary healthcare centers (*n* = 359, 36.3%). Participants' mean age was 36 years (standard deviation [SD] = 8 years), and they had an average of 12 years of professional experience (SD = 8.15 years).

3.2 | Reliability of the study tool

To validate the use of the K10 with the study sample and population, we first examined the reliability and validity (including Cronbach's *α*), inter-item correlations, item-total correlation, and Cronbach's *α* if an item was deleted. The Cronbach's *α* for the overall scale was 0.96, which is considered excellent. All scale items were strongly positively correlated with each other (0.4–0.7). All items were strongly positively correlated with the total scale score, as expected (0.6–0.9). Finally, if an item was deleted, Cronbach's *α* did not differ significantly from that for the total scale, indicating that none of the items in the scale compromised its validity.

TABLE 1 Participants' demographics (*N* = 988)

		n (%)
Gender	Male	96 (9.7)
	Female	873 (88.4)
	Missing	19 (1.9)
Area of current work	Primary healthcare setting (school/ primary health center)	359 (36.3)
	Hospital	629 (63.7)
Qualification (Nursing)	Diploma	312 (31.6)
	Bachelor's degree	367 (37.1)
	Master's degree	44 (4.5)
	Doctorate	3 (0.3)
	Other degrees/ certificates (nonnursing)	73 (7.4)
	Missing	189 (19.1)
Length of residency in the UAE, years	<9	201 (20.3)
	10–19	109 (11.0)
	20–29	49 (4.9)
	30–39	29 (2.9)
	>40	9 (0.9)
	All my life	47 (4.7)
	Missing	544 (55.1)
Primary language	Arabic	344 (34.8)
	English	146 (14.8)
	Neither	428 (43.3)
	Missing	70 (7.1)
Age, years (mean ± SD)		36 ± 8
Years of professional experience (mean ± SD)		12.33 ± 8.15

Abbreviation: SD, standard deviation.

3.3 | Nurses' psychological distress levels

The mean distress level for all participants as measured by the K10 was 27.1 (SD = 13.7). The K10 guidelines indicate that scores above 30 suggest a severe level of distress. When scores were categorized according to the K10 guidelines, 42.1% (*n* = 416) of participants were classified as having severe psychological distress, 6.1% (*n* = 60) as having moderate distress, 8.9% (*n* = 88) as mild distress, and 36.4% (*n* = 360) were classified as having no distress. Table 2 illustrates the distribution of study participants by psychological distress category.

Table 3 shows a comparison of distress levels among participants before and during COVID-19. This comparison showed that more participants had severe distress levels before COVID-19 (59.5%, *n* = 386/649) than during COVID-19 (10.9%, *n* = 30/275). In addition,

TABLE 2 Distribution of study participants by psychological distress category

	n	%
Distress level		
Well	360	36.4
Mild distress	88	8.9
Moderate distress	60	6.1
Severe distress	416	42.1
Missing	64	6.5

TABLE 3 Comparison of distress levels before and during COVID-19

	COVID-19			
	Before (*N* = 649)		During (*N* = 275)	
	n	%	*n*	%
Distress level				
Well	175	27.0	185	67.3
Mild distress	52	8.0	36	13.1
Moderate distress	36	5.5	24	8.7
Severe distress	386	59.5	30	10.9

Abbreviation: COVID-19, coronavirus disease 2019.

more participants reported moderate or low distress levels during COVID-19 (21.8%; $n = 60/275$) compared with pre-COVID-19 (13.5%, $n = 88/649$), and more participants felt no distress during COVID-19 (67.35%, $n = 185/275$) compared with before COVID-19 (27.0%, $n = 175/649$). These differences between before and during the pandemic were significant (*t*-test of mean scores: $p < .001$, equal variance not assumed; χ^2 test of proportions of participants in each distress category: $p < .001$).

A comparison of the distress level between hospital- and community-based nurses showed that more hospital nurses had severe distress levels ($n = 319$, 53.4% vs. $n = 97$, 29.7%). We found that more community nurses ($n = 204$, 62.3%) had no or mild distress compared with hospital nurses (40.9%, $n = 244$). This difference between the two settings was significant (χ^2 test: $p < .001$).

Data analysis examined the associations between distress categories and participants' demographic variables (i.e., gender, length of residence in the UAE, primary language). In addition to the workplace (i.e., hospital- or community-based), participants' qualifications were significantly ($p = .021$) associated with their level of distress ($p < .001$); the lower the qualification, the more distress that participant experienced. Nurses who had been resident in the UAE for longer and those with more years of experience also reported more distress than nurses with a shorter time in the UAE and less experience ($p = .05$ and $p = .021$, respectively). Gender and primary language were not associated with distress levels ($p = .501$ and 0.352, respectively).

4 | DISCUSSION

Because of the UAE's distinctive workforce characteristics and cultural diversity, healthcare service managers and planners need to be cognizant of the possible influence of workers' personal and cultural contexts on their mental health and the quality of care they provide to their clients. Expatriates make up a sizable component of the nursing workforce in the UAE; many have been separated from their families because of employment or economic circumstances, have families in unstable regions, or have been displaced from their homelands for sociopolitical reasons. These considerations contributed to our interest in determining participants' psychological distress levels as evaluated by their K10 scores. Our findings showed that many participants experienced moderate to severe psychological distress. Recent studies in the UAE argued that elevated levels of psychological distress impacted healthcare professionals' capacity to detect signs and symptoms of mental health problems in children, adolescents, and families with clients with whom they interact.[25,26] These studies reported that K10 scores (i.e., distress levels) affected the quality of care healthcare professionals' offered and their ability to identify appropriate interventions for their clients.[25,26]

An important result of this study was the difference in nurses' distress levels before and during the COVID-19 pandemic. It was anticipated before data analysis that distress levels would be higher among nurses still working under the additional restrictions and workload of the COVID-19 pandemic. In contrast, fewer nurses reported severe distress during the pandemic, which could be interpreted as improved resilience among these healthcare professionals. It may also reflect the positive effects of the recognition and support they received for their frontline service on their psychological status and performance. For example, during the COVID-19 pandemic, many UAE governmental organizations in cooperation with the Community Development Authority in Abu Dhabi launched a mental health well-being campaign with a hotline in multiple languages to provide employees access to professional support around the clock.

The COVID-19 pandemic also highlighted the need for a stable, resilient workforce, especially the health services workforce. To that end, the UAE government established the "Frontline Heroes" Office.[19] Frontline heroes include those working in healthcare facilities and in prevention and protection, such as security and emergency services and humanitarian entities. In addition, the Office was established to "recognize and support the UAE's frontline workers on the long run by looking after their needs and addressing their priorities through initiatives such as the Higher Education Scholarship Programme."[19]

While unexpected at first, this finding was also reported in other studies. For example, in a systematic review[31] that explored 46 qualitative studies focused on healthcare workers' experiences and views of working during the pandemic, many healthcare workers described aspects of the work as rewarding, and appeared to derive job satisfaction from work that they felt was important and

meaningful and the gratitude of others (e.g., patients and families, healthcare service leaders, governments, and wider society). It was clear that a positive experience can emerge if recognition is perceived, even in some of the most challenging moments, and when healthcare workers find meaning in their work.[31] Other studies also reported improved resilience among nurses[32] as a result of the positive recognition of nurses for working the frontline during COVID-19. This improved their job satisfaction,[33] retention, and possibly the effectiveness and efficiency of healthcare services.[32] In addition, positive social and professional recognition and support for nurses have been reported to improve their quality of life at work.[34]

Finally, various factors that either protect against or increase distress were also identified in this study, including the type of workplace (i.e., hospital- or community-based), qualification, length of professional experience, and length of residence in the UAE. Work environment and qualification appeared to be protective factors as they were associated with lower perceived distress. Conversely, length of stay in the UAE away from native social and professional networks and years of experience were associated with higher levels of distress. Therefore, healthcare managers and policymakers could focus on these factors to mitigate their effect on the nurses' mental health and thereby protect them and ultimately their patients from the adverse outcomes of distress.

5 | CONCLUSIONS

The findings of this study offer opportunity for healthcare managers and policymakers to learn about the current status of nurses' general psychological distress levels and the factors that increase or mitigate this distress. Policies and interventions should be designed to address this issue and mitigate the effect of distress on nurses and patients. If these lessons are not taken seriously, we risk compromising patient safety and the quality of care. Without making major changes, we are likely to experience the same difficulties that emerged as problems during the COVID-19 pandemic (e.g., staff shortages and burnout) should a similar crisis happen.

6 | LIMITATIONS

This study used a cross-sectional survey design; the data obtained may therefore lack depth. A further qualitative study may be helpful to understand factors that contributed to the high levels of distress before the pandemic as well as factors that influenced the lower levels of distress reported during the pandemic.

Another design limitation is the use of the convenience sampling technique, which has inherent flaws that may have weakened the study results. This sampling technique may have caused under-representation of some subgroups, especially the nurses who were feeling more distressed. However, it is hoped that the large sample size may have compensated that effect a little bit.

In addition, data for psychological distress levels during COVID-19 were collected during the downtime of the pandemic. A follow-up study that measures nurses' distress levels again after an interval may be useful to clarify how the situation unfolds later in the pandemic. Finally, this study did not track distress levels in the same participants before and during the pandemic, as those that completed the questionnaire prepandemic may differ from those who completed the questionnaire during the pandemic; this might have affected the results. Also, to allow comparison of the generalized stress levels before and during the pandemic the same tool (i.e., K10) was used. However, a COVID-19-related instrument to assess psychological impacts such as the fear of COVID-19 scale,[35–41] which is a widely used and well-recognized instrument could have yielded better results.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ORCID

Nabeel Al-Yateem http://orcid.org/0000-0001-5355-8639
Jacqueline Maria Dias http://orcid.org/0000-0001-8873-505X
Muhamad Arsyad Subu http://orcid.org/0000-0001-5196-238X
Heba Hijazi https://orcid.org/0000-0002-5117-0152

REFERENCES

1. ALL-Party Parliamentary Group on Global Health—UK. *Triple Impact How Developing Nursing Will Improve Health, Promote Gender Equality and Support Economic Growth*. 2016. http://www.appg-globalhealth.org.uk/download/i/mark_dl/u/4009611296/4630127784/DIGITAL%20APPG%20Triple%20Impact.pdf
2. Deloitte. *2017 Global Health Care Outlook. Making Progress Against Persistent Challenges*. 2017. https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Life-Sciences-Health-Care/gx-lshc-2017-health-care-outlook.pdf
3. Aiken LH, Sermeus W, den Van Heede K, et al. Patient safety, satisfaction, and quality of hospital care: cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. *BMJ*. 2012;344:e1717.
4. Aiken LH, Sloane DM, Bruyneel L, et al. Nurse staffing and education and hospital mortality in nine European countries: A retrospective observational study. *The Lancet*. 2014;383(9931):1824-1830. doi:10.1016/S0140-6736(13)62631-8
5. Willis Commission. *Quality with Compassion: The Future of Nursing Education*. 2012.
6. Francis R. *Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry: Executive Summary*. Vol 947. The Stationery Office; 2013.
7. Al Thobaity A, Alshammari F. Nurses on the frontline against the COVID-19 pandemic: an integrative review. *Dubai Med J*. 2020;3(3):87-92. doi:10.1159/000509361
8. Fernandez R, Lord H, Halcomb E, et al. Implications for COVID-19: a systematic review of nurses' experiences of working in acute care hospital settings during a respiratory pandemic. *Int J Nurs Stud*. 2020;111:103637. doi:10.1016/j.ijnurstu.2020.103637
9. Alimoradi Z, Ohayon MM, Griffiths MD, Lin CY, Pakpour AH. Fear of COVID-19 and its association with mental health-related factors: systematic review and meta-analysis. *BJPsych Open*. 2022;8(2):e73. doi:10.1192/bjo.2022.26
10. Chung GK, Strong C, Chan YH, et al. Psychological distress and protective behaviors during the COVID-19 pandemic among different populations: Hong Kong general population, Taiwan

healthcare workers, and Taiwan outpatients. *Front Med*. 2022; 9:800962. doi:10.3389/fmed.2022.800962
11. Khan HR, Ashraf F, Ullah I, et al. Cross-cultural prevalence of sleep quality and psychological distress in healthcare workers during COVID-19 pandemic. *Brain Behav*. 2021;11(11):e2383. doi:10.1002/brb3.2383
12. Lu MY, Ahorsu DK, Kukreti S, et al. The prevalence of post-traumatic stress disorder symptoms, sleep problems, and psychological distress among COVID-19 frontline healthcare workers in Taiwan. *Front Psychiatry*. 2021;12:705657. doi:10.3389/fpsyt.2021.705657
13. World Health Organization. *WHO and partners call for urgent investment in nurses*. 2021. https://www.who.int/news/item/07-04-2020-who-and-partners-call-for-urgent-investment-in-nurses
14. Henshall C. Why nurses should undertake more research. *The Conversation*. 2016. Published online November 18, 2016. Accessed October 3, 2022. https://theconversation.com/why-nurses-should-undertake-more-research-67105
15. Brownie S, Hills AP, Rossiter R. Public health service options for affordable and accessible noncommunicable disease and related chronic disease prevention and management. *J Multidiscip Healthc*. 2014;7:543-549.
16. Government of the UAE. *Vision 2021 and Health—The Official Portal of the UAE Government*. 2018.
17. Government of the UAE. *World-Class Healthcare*. 2021. https://www.vision2021.ae/en/national-agenda-2021/list/world-class-circle
18. Government of the UAE. *Health and Fitness*. 2021. https://u.ae/en/information-and-services/health-and-fitness
19. Government of the UAE. *Frontline Heroes*. 2022. https://u.ae/en/information-and-services/justice-safety-and-the-law/handling-the-covid-19-outbreak/frontline-heroes
20. Al-Yateem N, Al-Marzouqi A, Dias J, Saifan A, Timmins F. Leadership for professional advancement and evidence-based practice in UAE: now more than ever. *J Nurs Manag*. 2021;29(5):865-868. doi:10.1111/jonm.13075
21. Al-Yateem N, Almarzouqi A, Dias J, Saifan A, Timmins F. Nursing in the United Arab Emirates: current challenges and opportunities. *J Nurs Manag*. 2020;29:109-112. doi:10.1111/jonm.12984
22. Doki S, Sasahara S, Matsuzaki I. Stress of working abroad: a systematic review. *Int Arch Occup Environ Health*. 2018;91(7): 767-784. doi:10.1007/s00420-018-1333-4
23. Roth C, Berger S, Krug K, Mahler C, Wensing M. Internationally trained nurses and host nurses' perceptions of safety culture, work–life balance, burnout, and job demand during workplace integration: a cross-sectional study. *BMC Nurs*. 2021;20(1):77. doi:10.1186/s12912-021-00581-8
24. Al-yateem N, Griffiths J, McCreaddie M, et al. A national scoping study on barriers to conducting and using research among nurses in the United Arab Emirates. *Policy Polit Nurs Pract*. 2019;20(4):1-12. doi:10.1177/1527154419876264
25. Al-Yateem N, Rossiter R, Robb W, et al. Mental health literacy among pediatric hospital staff in the United Arab Emirates. *BMC Psychiatry*. 2017;17(1):390. doi:10.1186/s12888-017-1556-z
26. Al-Yateem N, Rossiter RC, Robb WF, Slewa-Younan S. Mental health literacy of school nurses in the United Arab Emirates. *Int J Ment Health Syst*. 2018;12(1):6. doi:10.1186/s13033-018-0184-4
27. Kessler RC, Andrews G, Colpe LJ, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med*. 2002;32(06):959-976.
28. Andrews G, Slade T. Interpreting scores on the Kessler Psychological Distress Scale (K10). *Aust N Z J Public Health*. 2001;25(6):494-497.
29. Drug and Alcohol Clinical Advisory Service. *The Kessler 10—Information for Health Professionals*. 2001:2-4.
30. Easton SD, Safadi NS, Wang Y, Hasson RG, 3rd. The Kessler psychological distress scale: translation and validation of an Arabic version. *Health Qual Life Outcomes*. 2017;15(1):215. doi:10.1186/s12955-017-0783-9
31. Billings J, Ching BCF, Gkofa V, Greene T, Bloomfield M. Experiences of frontline healthcare workers and their views about support during COVID-19 and previous pandemics: a systematic review and qualitative meta-synthesis. *BMC Health Serv Res*. 2021;21(1):923. doi:10.1186/s12913-021-06917-z
32. Alameddine M, Bou-Karroum K, Ghalayini W, Abiad F. Resilience of nurses at the epicenter of the COVID-19 pandemic in Lebanon. *Int J Nurs Sci*. 2021;8(4):432-438. doi:10.1016/j.ijnss.2021.08.002
33. Yu X, Zhao Y, Li Y, et al. Factors associated with job satisfaction of frontline medical staff fighting against COVID-19: a cross-sectional study in China. *Front Public Health*. 2020;8:426. doi:10.3389/fpubh.2020.00426
34. Duracinsky M, Marcellin F, Cousin L, et al. Social and professional recognition are key determinants of quality of life at work among night-shift healthcare workers in Paris public hospitals (AP-HP ALADDIN COVID-19 survey. *PLoS One*. 2022;17(4):e0265724. doi:10.1371/journal.pone.0265724
35. Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The fear of COVID-19 scale: development and initial validation. *Int J Ment Health Addict*. 2022;20(3):1537-1545. doi:10.1007/s11469-020-00270-8
36. Alimoradi Z, Lin CY, Ullah I, Griffiths MD, Pakpour AH. Item response theory analysis of the fear of COVID-19 scale (FCV-19S): a systematic review. *Psychol Res Behav Manag*. 2022;15:581-596. doi:10.2147/prbm.S350660
37. Chang KC, Hou WL, Pakpour AH, Lin CY, Griffiths MD. Psychometric testing of three COVID-19-related scales among people with mental illness. *Int J Ment Health Addict*. 2022;20(1):324-336. doi:10.1007/s11469-020-00361-6
38. Chen IH, Chen CY, Zhao KY, et al. Psychometric evaluation of fear of COVID-19 scale (FCV-19S) among Chinese primary and middle schoolteachers, and their students. *Curr Psychol*. 2022. doi:10.1007/s12144-021-02471-3
39. Lecuona O, Lin CY, Rozgonjuk D, et al. A network analysis of the fear of COVID-19 scale (FCV-19S): a large-scale cross-cultural study in Iran, Bangladesh, and Norway. *Int J Environ Res Public Health*. 2022;19(11):6824. doi:10.3390/ijerph19116824
40. Lin CY, Hou WL, Mamun MA, et al. Fear of COVID-19 scale (FCV-19S) across countries: measurement invariance issues. *Nurs Open*. 2021;8(4):1892-1908. doi:10.1002/nop2.855
41. Ullah I, Tahir MJ, Ali S, et al. COVID-19 fear among Pakistanis: psychometric evaluation of the fear of COVID-19 scale using item response theory and confirmatory factor analysis. *Int J Ment Health Addict*. 2021. doi:10.1007/s11469-021-00656-2

How to cite this article: Al-Yateem N, Ahmed FR, Alameddine M, et al. Psychological distress among the nursing workforce in the United Arab Emirates: Comparing levels before and during the COVID-19 pandemic. *Nurs Forum*. 2022;57: 1314-1320. doi:10.1111/nuf.12808