# The Experiences of Intensive Care Nurses in Caring for COVID-19 Patients: A review of the literature

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## ABSTRACT

**Objective:** Intensive care nurses have a critical role in fighting COVID-19. They have been on the front lines to provide high-quality and safe patient care in these facilities. However, the covid-19 pandemic has made their work more challenging. As a result, healthcare workers' physical and mental well-being has affected their ability to offer quality care. Based on these arguments, there is a shortage of empirical research, especially in intensive care nurses' experiences caring for COVID-19 patients. However, further investigation is needed better to understand these concerns from the nurses' perspective.

**Objective:** To comprehensively review, describe, and explore the experiences and perceptions of nurses working in an ICU during the COVID-19 global pandemic and their assessments of how these experiences have impacted their personal and professional lives. Material and Methods: The following seven electronic databases were searched systematically to gain relevant studies:  CINAHL, EMBASE, PsycINFO, MEDLINE, PubMed, the Cochrane Library and Web of Science. The literature review was the methodology guide for this study. This review used the PICOS (population, intervention, outcomes, and study design) model to formulate research questions and a PRISMA flow diagram to screen and select relevant studies. Eligible studies are written in the English language and are peer-reviewed. The methodological quality was assessed using the Joanna Briggs Institute (JBI) critical appraisal checklist for qualitative studies, while the Mixed Methods Appraisal Tool (MMAT) was used to evaluate mixed methods designs. The narrative synthesis techniques were used to present the findings.

**Results:** A total of 693 records have been screened, and only eight studies were finally included: six studies used qualitative approaches while two used mixed methods design approach. The eight studies were undertaken in SEVEN different geographic areas (Hong Kong, Iraqi Kurdistan, Singapore, Qatar, Australia, USA, Sweden). The eight studies recruited 420 registered nurses, of whom 67% were male (281) and 33% were female (139) aged between 20 to 60 years, and the mean of their experience was eight years. The review had four different themes from the analysis. The finding of the eight included studies related to the RN's experiences, which include psychological distress (depression, anxiety, post-traumatic stress disorder); stressful work environment.; experiences with personal protective equipment (PPE); moral resilience, sense of pride, and commitment.

**Conclusion:** ICU nurses may be considered a particularly vulnerable group of people. They reported increasing workloads in stressful and precarious situations and a challenge in their ability to make decisions independently. There is a need to explore additional aspects of their encounters further when caring for patients during the pandemic by going deeper into areas of their lives relevant to their experiences to understand the aspects that may not be addressed through quantitative methods.

**Keywords:** ICU; Nursing; COVID-19; Literature Review.

## INTRODUCTION

The term "pandemic" refers to an outbreak of a disease that impacts a large number of people on a worldwide scale at the same time, resulting in many deaths and/or significant social and economic damage (1). Increased outbreaks of infectious diseases, such as SARS in 2003 (2), new influenza A/H1N1, and the Middle East Respiratory Syndrome of 2012, have indicated a possible worldwide pandemic (3).

This possibility was realised in December 2019 with the Corona Virus Disease 2019 (COVID-19) discovery in Wuhan, China (4). The seventh human coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was discovered in Wuhan, Hubei Province, China, following a recent pneumonia pandemic in January 2020. The virus spread throughout the world, infecting 4,806,299 people and killing 318,599 people as of May 20, 2020. SARS-CoV-2 and Middle East respiratory syndrome coronavirus (MERS-CoV) all induce severe pneumonia and have fatality rates of 2.9 %, 9.6 %, and 36%, respectively. OC43, NL63, HKU1, and 229E are the other four human coronaviruses that induce self-limited sickness with modest symptoms. COVID-19 has caused anxiety across many professions, across all disciplines, and throughout all international communities, independent of their economic or demographic characteristics (5).

COVID-19 represents a direct threat to the health and well-being of individuals in communities worldwide. These repercussions include job loss and its consequences for families, replacing in-person attendance to online and remote learning in the education sector, and numerous other changes in people's lives (6). Healthcare providers and the public are at higher risk of contracting the coronavirus disease-2019 (COVID-19) because it is highly contagious. Significant respiratory, cardiovascular, musculoskeletal, and psychological dysfunctions are of special concern (7). Additionally, pandemics have far-reaching consequences on healthcare systems, particularly the workforce (3). As the largest group of health professionals, nurses are at the front line of the healthcare system's response to pandemics. Nurses provide direct care to patients in proximity, and as a result, they are frequently exposed to these viruses that may make them sick (3). Four of the seventy people who died because of the SARS pandemic in Taiwan were nurses. Early studies on COVID-19 suggest that the virus's prevalence among healthcare workers may be significantly higher than previously thought (8).

Governments have made steps to decrease the number of people with COVID-19. Efforts to mitigate COVID-19's impacts have been insufficient. The countries affected by COVID-19 pleaded for help because of the massive damage the virus has caused to their healthcare systems and hospitals. Increased infections in some countries, such as Italy, indicated the need for immediate critical care. The number of patients remained steady or fluctuated in various countries, but there were significant impacts (6).

Medical institutions focus on treating infected or symptomatic patients in critical conditions. The capacity of a hospital to quickly recover from severe disturbances due to pandemics is referred to as resilience (6). Hospital resilience in the face of pandemics is influenced by the level of preparedness of the institutions. Resilience differs because hospitals are equipped differently. Better equipped healthcare facilities are likely to become resilient faster than poorly equipped ones. A lack of resilience affects the long-term viability of the healthcare system, which has implications for physicians, nurses, and other healthcare personnel (9). Effective pandemic management is contingent upon the preparedness of healthcare practitioners, particularly nurses. This means that, if anticipating a catastrophe or disaster is

impossible, the responsible procedure should be implemented to carry out everything necessary to save lives after they occur.

During the initial wave of the coronavirus pandemic, the International Council of Nurses stressed the importance for healthcare systems worldwide to focus on increasing the capacity of intensive care units (ICUs). The ICUs needed to be prepared to cater to the growing number of coronavirus patients in need of critical healthcare services. Consequently, the ICU departments in hospitals worldwide have experienced increased pressure due to the growing demand for intensive care services, which has negatively impacted the lives of ICU nurses throughout the process of providing healthcare services for COVID-19 patients in critical health conditions (10).

The proposed literature review aims to fill a gap in knowledge about the professional life experiences and challenges of ICU nurses caring for COVID-19 patients during the pandemic. The initial studies on COVID-19 were mainly quantitative, reporting on a spate of surveys and focused on the degree of distress experienced by certain groups. Despite its significance, this research did not show ICU nurses' experiences on the front lines or their views of the kind of support that would be most useful at various stages of their careers. As countries worldwide continue to battle COVID-19 outbreaks, it is more critical to understand the views and needs of intensive care unit (ICU) nurses. This will become more critical in the future because of the likelihood of inevitable healthcare problems. The lack of information regarding the influence of the coronavirus pandemic and the challenges faced by ICU nurses globally has been a major gap worth studying. It is also a concern as the quality of healthcare in the identified location may be at risk of deterioration. Given the scarcity of information available on the challenges experienced by ICU nurses when providing care for COVID-19 patients, it is essential to undertake research with the aim of better understanding the current issues based on the nurses' lived experiences worldwide. Understanding nurses' experiences can allow vital action to be taken to reduce both the length of hospital stay for critically ill patients and the mortality rate caused by COVID-19. The main aim of the article was comprehensively review, summarise, and appraise the methodological quality of primary studies to describe and understand the experiences and perceptions of nurses working in ICU during the COVID-19 global pandemic.

## MATERIAL and METHODS

### Research design

A literature review conducted through a systematic review was utilised to explore evidence of nurses' experiences and perceptions of nurses working in an ICU during the COVID-19 pandemic and to provide a foundation of knowledge on the topic. Their recommendations for future intervention and strategies to improve this process that incorporated ICU nurses' experiences and allowed them to avoid obstacles throughout the COVID-19 pandemic and evaluation were also included in the review.

**Searching Strategy Technique**

To obtain the relevant studies, this study will conduct a comprehensive search using six databases, including web of science. Cumulative Index for Nursing and Allied Health Literature (CINAHL), EMBASE, PsycINFO, MEDLINE, PubMed, the Cochrane Library and Web of Science. Keywords elicited from the research questions were nurse OR Registered Nurse OR EN, Coronavirus disease OR COVID-19 OR SARS-CoV-2, and ICU OR High dependency unit OR critical care words, by using the PICOS Model to Conduct an Extensive Review. In addition to, there are numerous types of critical appraisal checklists, including the Critical Audit Skills Program (CASP), the Joanna Briggs Institute (JBI), and the Center for Evidence-based Medicine, which are deemed to be capable of offering critical assessment instruments (CEBM).

**Inclusion Criteria**

- The studies that addressed registered nurses (RNs) who cared for patients with COVID-19 in ICUs

- Studies that highlighted nurses' experience and perceptions when caring for patients with COVID-19,

- Primary research, e.g., qualitative, quantitative, or mixed-method design

- The studies selected must be published between 2020-2021

- Studies published in peer-reviewed journals

- The studies published in the English language

- Fully accessible studies

**Exclusion Criteria**

- Studies that addressed other healthcare professionals, even student nurses and in different healthcare settings rather than ICUs

- Studies that address other healthcare workers

- Any Secondary research, e.g. government reports, narrative reviews, scoping reviews, systematic reviews

- Studies that were published before the year 2010

- To be excluded from this list are meeting abstracts, proceedings (except those published in Procedia since it is peer-reviewed), master's or doctoral dissertations, other technical reports, and similar documents

- Studies published in other languages

- Non-accessible studies

# RESULTS

A total of 693 studies were found after a thorough search of the databases. The studies were identified through the following databases: PubMed (n =141); CINAHL (n = 0); PsycINFO (n = 4); Cochrane Library (n = 139); Web of Science (n = 372); MEDLINE (via OVID) (n = 12); and Embase (via OVID) (n = 15); and an exhaustive manual search of the reference lists in studies (n = 10). The inclusion and exclusion criteria were applied to the 693 selected studies to identify the sub-sample to be used for the literature review. Duplicate studies were eliminated to ensure that only one of each study could be included in the systematic review (n = 386). Further studies were removed after the screening of the titles and abstracts (n = 197). Further studies were eliminated after the full-text screening to determine their relevance to the proposed topic of the systematic review (n = 43).

Further 46 studies were eliminated due to wrong study design (n = 9), wrong intervention (n = 8), wrong outcomes (n = 4), unclear outcome measures (n = 2), too small a sample size (n = 11), and studies that were ongoing at the time of the database search (n = 12). After the application of the eligibility and exclusion criteria, eight studies met the objectives of the systematic review and the pre-established criteria. The criteria of the 21 studies that remained in the evaluation process were selected. Figure 1 shows a research PRISMA flowchart for this search.

This literature review employed the Joanna Briggs Institute Critical Appraisal tools (JBI) critical appraisal tool to appraise each study for methodological quality by the researcher. It was verified by a second reviewer (the supervisor). With regards to mixed-method designs, the most recommended feasible tool is the Mixed Methods Appraisal Tool (MMAT), which can offer methodological quality criteria for a wide range of study designs but the researcher used it as a critical evaluation tool for mixed-method studies reviews (Hong et al., 2019). Each criterion was assigned a score (Yes = 2, Unclear = 1, No = 0), which in turn gives an aggregated score of 20 for each study employed qualitative research design, a score of 17 for each study employed cross-sectional studies. After calculating the overall score for each included study, the score was converted into a %age. As a result, all study's scores ranged from 80 % to 100%. Hence, none of the studies was excluded based on methodological quality (see **Table 1** and **2**).

**Participants and sample size**

The outcomes showed the number of nurses recruited from the eight studies totalling 420 participants; the gender 67% are male (281), and 33% are female (139), and the years of experience ranged from 4-12 years and the mean of NRs' years of experience was eight years (**Table 3**).
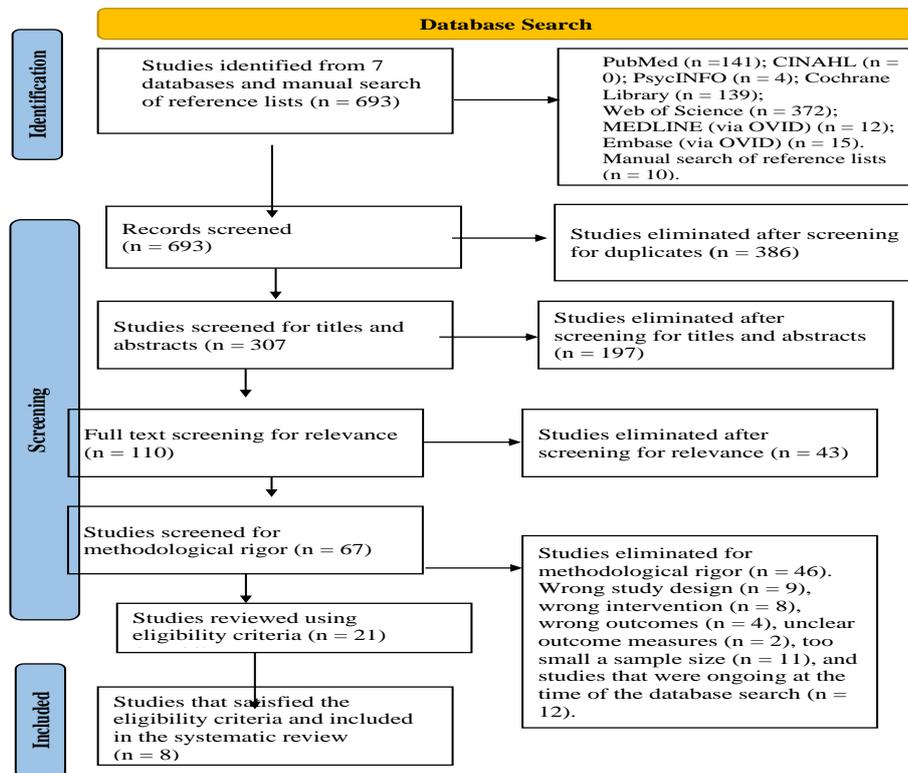
**Figure 1:** PRISMA flow diagram

**Table 1:** JBI critical appraisal checklist for eight qualitative research

| Checklist for Qualitative Research Congruity | Abdulah, et al. (2021) | Lam and Hung (2013) | Wong et al. (2012) | Koh et al. (2012) | Villar et al., 2019 | Corley et al. (2010) |
|---|---|---|---|---|---|---|
| Is there congruity between the stated philosophical perspective and the research methodology? | Y | Y | Y | Y | Y | Y |
| Is there congruity between the research methodology and the research question or objectives? | Y | Y | Y | Y | Y | Y |
| Is there congruity between the research methodology and the methods used to collect data? | Y | Y | Y | Y | Y | Y |
| Is there congruity between the research methodology and the representation and analysis of data? | Y | Y | Y | Y | Y | Y |
| Is there congruity between the research methodology and the interpretation of results? | Y | Y | Y | Y | Y | Y |
| Is there a statement locating the researcher culturally or theoretically? | Y | N | N | N | N | N |
| Is the influence of the researcher on the research, and vice-versa, addressed? | N | N | N | N | N | N |
| Are participants, and their voices, adequately represented? | Y | Y | Y | Y | U | U |
| Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body? | Y | Y | Y | Y | Y | Y |
| Do the conclusions drawn in the research report flow from the analysis or interpretation of the data? | Y | Y | Y | Y | Y | Y |
| Results (%) | 18/20 (90%) | 16/20 (80%) | 16/20 (80%) | 16/20 (80%) | 15/20 (75%) | 15/20 (75%) |
| The final decision was taken by the researcher | Included | Included | Included | Included | Included | Included |

**Table 2:** Mixed Methods Appraisal Tool (MMAT), version 2018 for two Mixed Methods designs

| Category of study designs | Methodological quality criteria | LoGiudice et al. (2021) | Bergman et al. (2021) |
|---|---|---|---|
| **Screening questions** | **Are there clear research questions?** | Y | Y |
| | **Do the collected data allow to address the research questions?** | Y | Y |
| **Qualitative** | Is the qualitative approach appropriate to answer the research question? | Y | Y |
| | Are the qualitative data collection methods adequate to address the research question? | Y | Y |
| | Are the findings adequately derived from the data? | Y | Y |
| | Is the interpretation of results sufficiently substantiated by data? | N | N |
| | Is there coherence between qualitative data sources, collection, analysis and interpretation? | N | N |
| **Quantitative descriptive** | Is the sampling strategy relevant to address the research question? | Y | Y |
| | Is the sample representative of the target population? | Y | Y |
| | Are the measurements appropriate? | Y | Y |
| | Is the risk of nonresponse bias low? | U | U |
| | Is the statistical analysis appropriate to answer the research question? | Y | Y |
| **Mixed methods** | Is there an adequate rationale for using a mixed method design to address the research question? | **Y** | **Y** |
| | Are the different components of the study effectively integrated to answer the research question? | **Y** | **Y** |
| | Are the outputs of the integration of qualitative and quantitative components adequately interpreted? | **Y** | **Y** |
| | Are divergences and inconsistencies between quantitative and qualitative results adequately addressed? | **Y** | **Y** |
| | Do the different components of the study adhere to the quality criteria of each tradition of the methods involved? | **U** | **U** |
| | **Results (%)** | **14/17 (82%)** | **15/17 (88%)** |
| | **The final decision was taken by the researcher** | **Inducted** | **Inducted** |

Noted: the goal of scoring system Yes = 2 marks, Unclear = 1 mark, No = 0 marks

**Table 3:** Participants and sample size,

| Authors | Male N (%) | Female N (%) | Total N | Age (range) years | Years' experience |
|---|---|---|---|---|---|
| **1. Abdulah et al. (2021)** | 8 (67) | 4 (33) | 12 | 22-50 | 8 |
| **2. Lam and Hung (2013)** | 0 (0) | 10 (100) | 10 | 20-40 | 4 |
| **3. Wong et al. (2012)** | 1 (33) | 2 (67) | 3 | 31-37 | 4 |
| **4.Koh et al. (2012)** | 5 (50) | 5 (50) | 10 | 20-40 | 4 |
| **5. Villar et al., 2021** | 26 (87) | 4 (13) | 30 | 30-50 | 8 |
| **6. Corley et al. (2010)** | 10 (33) | 20 (67) | 30 | 40-60 | 12 |
| **7. LoGiudice et al. (2021)** | 20 (47) | 23 (53) | 43 | 40-60 | 12 |
| **8. Bergman et al. (2021)** | 100 (35) | 182 (65) | 282 | 35-60 | 10 |
| **Total** | **170 (40)** | **250 (60)** | **420** | **-** | **8** |

# DISCUSSION

They were used to accomplish the aim of conducting a comprehensive review and evaluating the methodological quality of primary studies to describe and comprehend the experiences and perceptions of nurses working in an ICU during the COVID-19 global pandemic.

The aim of the study by Abdulah et al. (2021) (11) was to explore the experiences of nurses involved in caring for patients diagnosed with COVID-19 in Iraqi Kurdistan. The data were analysed through thematic analysis. The researchers found that nurses had varied experiences, the first of which was ignorance about the virus that stemmed from the fact that many people doubted the existence of the coronavirus. Consequently, nurses were met with aggression from patients and their family members when they attempted to impart knowledge. The researchers also reported that the nurses experienced anxiety, fear, stress, and isolation during the period when they were caring for patients diagnosed with COVID-19.

These challenges were partly because of fear by family members and close friends that the nurses caring for patients diagnosed with COVID-19 would bring the virus home.

The study by Wong et al. (2012) (12) focused on the healthcare workers' concerns when caring for patients diagnosed with the H1N1 virus. The researchers used a qualitative study methodology which data was collected through one-to-one interviews. The researchers found nurses shared concerns ranging from the poor layout of the facilities, frequent changes of policies, the efficacy of their interventions, and an appreciation for the risky but necessary work they were doing. The researchers also reported that the nurses were concerned about the efficacy of the vaccines given as well as their side effects, the stress associated with duty roles, and lack of clarity about criteria for case management.

The study by Lam and Hung (2013) (13) focused on Hong Kong emergency nurses to understand their perceptions about their duties in caring for patients diagnosed with human swine influenza during its pandemic outbreak. The researchers used an exploratory qualitative methodology based semi-structured interviews to collect data. The analysis of the interview transcripts was performed using the qualitative content analysis method. The findings identified three themes, namely, concerns from the emergency nurses about health, attitudes about professionalism, and administration.

The study by Koh et al. (2012) (14) focused on Chinese Singaporean nurses to understand their perceptions regarding the risks associated with exposure to virulent respiratory infections diseases. The researchers also sought to understand the underlying factors for their risk perceptions. They performed a qualitative study in which they used face-to-face interviews for data collection. The thematic analysis was used and identified three themes, namely, acceptance of risk, the experience of the Severe Acute Respiratory Syndrome, and living with risk.

The study by Villar et al. (2021) (15) focused on frontline nurses to understand their lived experiences in caring for patients diagnosed with COVID-19 in Qatar. The researchers used the phenomenological research design of the qualitative methodology. The researchers collected data using face-to-face interviews and semi-structured interview schedules. After transcription of the interviews, the researchers used Colaizzi's phenomenological method for data analysis. The researchers identified three themes, including challenges associated with working in a facility designated for the treatment of patients diagnosed with COVID-19, surviving COVID-19 and the moral resilience of nurses.

The study by Bergman et al. (2021) (16) focused on registered nurses working in ICUs in Sweden to understand their experiences in caring for patients diagnosed with COVID-19. The researchers used a mixed-method survey design. Findings from the qualitative data showed three themes, namely, tumbling into chaos, diminished nursing care, and transition into pandemic ICU care. The themes highlighted the low priority rank of nursing care during the COVID-19 pandemic. The nurses experienced ethical stress because of the low-quality nursing care they provided. The themes also highlighted the effects of the worsening work environment and increased workload on the health and well-being of the nurses.

The study by LoGiudice and Bartos (2021) (17) explored the lived experiences of nurses to characterise their experiences while caring for patients diagnosed with COVID-19 and the reason for their underlying resiliency. The researchers employed a convergent mixed methods research design. The researchers used Colaizzi's phenomenological method to perform the qualitative component of the study. The themes emerging from the qualitative analysis included broken family ties, the sanitising cycle, restorative self-care, and pride in the nursing profession.

The study conducted by Corley et al. (2010) (18) explored the lived experiences of the medical and nursing staff assigned to care for patients diagnosed with H1N1 influenza in ICUs. The researchers used a phenomenological research design with focus group discussions and open-ended questionnaires. The

researchers used Colaizzi's framework to analyse the qualitative data. The themes included the use of personal protective equipment (PPE), the adequacy of staffing levels in ICUs, fear of getting infected with and transmitting the viral disease, procedures for infection control, staff morale, new roles for the medical and nursing staff, challenges related to patient care, and education on the oxygenation of the extracorporeal membrane

The researcher used a narrative synthesis of the results in the form of four different themes, including psychological distress, stressful work environment; experiences with personal protective equipment (PPE); moral resilience, sense of pride and commitment, as the following:

### Psychological distress

Fear, stress, anxiety, and isolation describes part of the experiences of nurses when caring for COVID-19 patients in ICUs. Nurses were given new roles, some for which they had not been trained. Consequently, many nurses experienced stress and anxiety related to their duty roles (8). Stress and anxiety also emerged from the fear of getting infected with COVID-19 during routine care practices (11, 15, 18). The fear of inevitably transmitting the virus to family members also leads to isolation (11, 18). Nurses also experienced ethical stress stemming from the provision of low-quality patient care (16).

### Stressful work environment

The experiences of nurses are also related to the stressful work environment. COVID-19 brought about several changes in the work processes and environment for healthcare workers. Some of the experiences identified in the literature include frequent changes in policies (12). There were also concerns about a stressful work environment (17), with the influencing factors including inadequate staff in ICUs (18, 13), lack of clarity about criteria for case management (12), and the high risk that the nursing profession predisposes nurses (14). They also included the new roles that the nursing staff had to assume, leading nurses to work in new contexts and a high workload (15, 16, 18).

### Experiences with personal protective equipment (PPE)

With the viral respiratory infections being very infectious, experiences with personal PPE were a recurrent theme in the experiences of nurses caring for COVID-19 patients. The literature highlighted the use of personal protective equipment (PPE), sanitisation, and restorative self-care as part of the experiences for nurses when caring for patients diagnosed with COVID-19 (13, 15, 17, 18). However, this was not a positive experience for all despite offering protective benefits. Some nurses highlighted the discomfort of having to wear PPE during patient care processes (15).

### Moral resilience, sense of pride and commitment.

The COVID-19 pandemic brought insurmountable challenges for workers in many professions. Corley et al. (2010) (18) highlighted issues of staff morale during outbreaks and pandemics. The challenges during patient care (12, 18) and the stress, anxiety, and fear the nurses, among other healthcare workers, felt (11, 15, 16, 18) were enough to affect their commitment to their profession. However, the literature shows that the nurses took pride in their profession despite all

the challenges and concerns (17). The literature also showed that the nurses were committed to their work (13). They developed resilience (17) and some felt that they had a true calling for their profession because it gave them a sense of purpose (15). They drew support from other colleagues during times of mental and physical hardship (15).

# CONCLUSION

ICU nurses may be considered a particularly vulnerable group of people. They reported increasing workloads in stressful and precarious situations and a challenge in their ability to make decisions independently. There is a need to explore additional aspects of their encounters further when caring for patients during the pandemic by going deeper into areas of their lives relevant to their experiences to understand aspects that may not be addressed through quantitative methods.

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