The lived experiences of critical care nurses during the COVID-19 pandemic. A qualitative systematic review.

ROURKE, S., DIMECH, A., BACON, R. and PATERSON, C.

2023

TITLE PAGE

Title: The lived experiences of ICU nurses during the COVID-19 pandemic. A qualitative systematic review

Keywords: Intensive Care Units, COVID-19, Nurses, Lived experience, systematic review

ABSTRACT

Objectives: To critically synthesis the qualitative literature to understand the experiences of critical care nurses (CCNs) during the COVID-19 pandemic.

Research Methodology: A meta-aggregation systematic review was reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Relevant online databases were searched using a wide range of keywords and subject headings. All qualitative studies were included to understand the lived experiences of CCNs in the ICU during the COVID-19 pandemic. All studies were screened using a pre-eligibility screening criteria by three reviewers. The Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Qualitative Research was used to provide methodological appraisal. The JBI method of meta-aggregation was used to extract, synthesize, and categorise the data.

Findings*:* 17 publications met the inclusion criteria. 136 individual findings were extracted, which were synthesised into 18 categories and eight synthesised findings. The eight synthesised findings included,1) Working as a team to adapt to the challenges of the pandemic, 2) Striving to provide patient centred care, 3) Coping with frequent deaths in the ICU, 4) Challenges of supporting patients family from a distance, 5) The psychological impact of caring for critically unwell patients with COVID-19, 6) Working through the challenges of the ICU setting during the pandemic, 7) The challenges of wearing personal protective equipment while undertaking patient care, 8) The impact of working in the ICU during the pandemic on life at home..

Conclusion: This qualitative systematic review has given new insight into the lived experiences of CCNs. There were significant psychological and physical impacts on CCNs working during the COVID-19 pandemic. Therefore, improving psychological support, maintaining adequate staffing levels/skill mix to ensure basic nursing care can be completed, the attendance of

leadership/managements staff is essential to ensure the retention of CCNs and achieve optimal patient outcomes.

Implications for Clinical Practice: This review has highlighted implications for staff retention (counselling, skills development, contingency staffing), the need for improved management/leadership strategies and human resource policies to support CCNs when hospitals are in crisis. Additionally, the presence and needs of the family members of critically unwell patients' needs to be prioritised in the ICU.

INTRODUCTION

Critically unwell patients with COVID-19 require an admission to the ICU as a result of acute respiratory distress syndrome (ARDS) (Bergman et al., 2021) and multiorgan failure (Guttormson et al., 2022). Patients who are admitted to the ICU with COVID-19 often require complex critical care and mechanical ventilation (Guttormson et al., 2022). Additionally, patients with COVID-19 who require an ICU admission also have a high mortality rate (22%-62%) (Guttormson et al., 2022). Throughout the COVID-19 pandemic Critical Care Nurses (CCNs) in the ICU have been at the forefront of caring for these critically unwell patients (Moradi et al., 2021).

Intensive Care Units worldwide have been overwhelmed by the COVID-19 pandemic with an unprecedented number of admissions, which has resulted in a large increase in the regular workload of CCNs (Bruyneel et al., 2022; Fernández-Castillo et al., 2021). On top of the increased workload, CCNs have also experienced limited resources and a lack of personal protective equipment (PPE), rapidly ever changing hospital protocols, and the deployment of ward nurses to the ICU (Andersson et al., 2022). The restriction of family members in the ICU during the COVID-19 pandemic has also been seen worldwide (Romero-García et al., 2022). These challenges have resulted in increased levels of post-traumatic stress disorder (PTSD), depression, anxiety and burnout among CCNs caring for patients with COVID-19 in the ICU (Crowe et al., 2022).

CCNs working in the ICU continue to experience severe psychological burden as a result of working during the COVID-19 pandemic (Levi & Moss, 2022). Greenberg et al. (2021) survey exploring rates of mental health disorders among staff working in the ICU during the COVID-19 pandemic found that of the 709 participants, 40% met the threshold for PTSD and 13% expressed thoughts of wanting to die or hurt themselves in the past two weeks. Importantly,

mental health disorders were more prevalent among nursing staff than any other profession working in the ICU (Greenberg et al., 2021). Specifically, emotional exhaustion, increased workload and shortages of PPE were found to directly contribute to staff burnout in the ICU (Bruyneel et al., 2021)..

Furthermore, a recent national survey in the United States of America (USA) revealed CCNs experienced a shortage of ventilators (20.4%) and PPE (76.5%), while only 17.9% of participants felt supported during the COVID-19 pandemic by hospital management (Guttormson et al., 2022). Although, Guttormson et al. (2022) survey also included a number of open ended questions, the study was quantitative in design, and therefore, the lived experiences of CCNs during the COVID-19 pandemic is yet to be sufficiently understood. Importantly, there was also a potential for response bias and a high number of participants did not respond to the open-ended questions. Therefore, to fully understand the experiences of CCNs during the COVID-19 pandemic, a complex phenomenon, qualitative research is required to provide insight and voice to CCNs (Sinuff et al., 2007).

Qualitative research into the lived experiences of CCNs during the COVID-19 pandemic is an emerging evidence base. A recent qualitative meta-synthesis explored CCNs psychological experience after caring for patients with COVID-19 in the ICU (Han et al., 2022). The review revealed three main themes including, 1) physical reaction and psychological changes, 2) the need for support from multiple sources, and 3) increased adaption and resilience (Han et al., 2022). However, this review focused exclusively on the psychological experiences of CCNs, such as their mood, cognitive behaviour and feelings (Han et al., 2022) and excluded other potential experiences, such as the clinical and social environment, the nursing process, and the impact on family, significant others and holistic self. Furthermore, this systematic review (Han et al., 2022) explores studies published during the early stages of the pandemic, demonstrating

a requirement to explore the recently published literature to further understand the long-term experiences of CCNs as the COVID-19 pandemic progresses.

Due to the ongoing challenges faced in ICUs worldwide as a result of the COVID-19 pandemic the physical, sociopsychological and spiritual well-being of CCNs continue to be at risk (Moradi et al., 2021). High levels of moral distress, psychological symptoms and burnout have been linked to CCNs leaving the workforce (Bergman et al., 2021). Worldwide, the shortage of CCNs is increasing, presenting a major problem for critical care delivery (Bergman et al., 2021). Therefore, to fully understand the impact of the COVID-19 pandemic on the critical care nursing workforce and the potential implications this may have for the retention of staff, patient care, and future outbreak management (Nahidi et al., 2022), a qualitative synthesis is required.

Aim: The aim of this qualitative systematic review is to critically synthesise the qualitative literature to further understand the experiences of CCNs working in the ICU during the COVID-19 pandemic.

METHODS

Design**:** This is a meta-aggregation systematic review (Lockwood et al., 2015). This systematic review has been reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRIMSA) guidelines (Page et al., 2021). A meta-aggregation of qualitative studies was conducted to identify the experiences among CCNs during the COVID-19 pandemic. The Joanna Briggs Institute (JBI) method of meta-aggregation is one of the leading methodologies for healthcare professionals that focuses on analysing human experience, social and cultural phenomena (Aromataris et al., 2022). The theoretical framework is in keeping with the methods of the meta-aggregation designed by Lockwood et al. (2015). The first author of this review is an ICU nurse, with the remaining authors specialising in cancer

care research in both qualitative and quantitative research. This review was conducted according to a priori systematic review protocol available from (PROSPERO website: (CRD42022334668). See Table 1 for the inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
All qualitative studies irrespective of research design (For example, phenomenology, grounded theory, action research, ethnography, and feminist research).	All quantitative publications, case reports, conference abstracts, commentaries, editorials, or studies which do not provide data to address the research aim.
Mixed methods studies were included in the review if they used open-ended questions with themes and direct quotes from CCNs.	Studies that include either the paediatric ICU or neonatal ICU given the impact of COVID-19 admissions on each unit would vary and therefore, the experience of the CCNs.
English studies published in peer-reviewed journals.	Any other members of the ICU multidisciplinary team, student nurses, patients and relatives were excluded.
All qualified nurses working in the ICU clinical environment during the COVID-19 pandemic, irrespective of location.	Nurses working in a clinical setting outside of the ICU.
Outcomes related to the qualitative experiences among the ICU nursing workforce during the COVID-19 pandemic.	

Table 1: Inclusion and Exclusion criteria

Search strategy and sources

The CINAHL, MEDLINE, and EMBASE online databases were searched using keywords (see table 2) for all relevant publications with no limitation on date of publication. Database searches were limited to studies published in the English language. The reference lists of all included publications were also searched to increase the inclusiveness of the search. Keywords were identified based on the research question and previous research in the field, ensuring a range of subject headings were used to increase the sensitivity and inclusiveness of the searches. See Supplementary Table 1 for the full database search strategy.

Key words
Nurse or nursing or nurses or nursing care or nursing staff
ICU nurse or intensive care nurses or critical care nurse of critical care nursing
Covid-19 or coronavirus or 2019-ncov or sars-cov-2 or cov-19
Qualitative research or qualitative methods or interview or focus groups
Experiences of perceptions or attitudes or views or feelings or perspectives
ICU or intensive care unit or critical care

Table 2: Key Words

Study selection

Following the search, all identified citations were imported into Covidence systematic review software for de-duplication and screening according to the inclusion and exclusion criteria. Titles and abstracts were screened by two reviewers, with any conflicts resolved by discussion. The full texts of selected studies were retrieved and assessed in detail against the inclusion criteria by two reviewers. Full-text studies that did not meet the inclusion criteria were excluded with reasons. The study selection process is described using the PRISMA flow diagram (Page et al., 2021).

Assessment of methodological quality

All studies meeting the inclusion criteria (n=17) were assessed independently by three reviewers using the JBI Critical Appraisal Checklist for Qualitative Research (Pearson & Field, 2011) prior to inclusion in the review. This is a 10-item Critical Appraisal Checklist which assesses congruity between the philosophical/theoretical position adopted in the study, study methodology, study methods, the research question, the representation of the data, and the interpretation of the findings of each of the selected studies. The item ratings of each appraisal were consolidated and represented in a final quality appraisal table. The methodological appraisal tool was used to provide an overview of the current evidence base and therefore, no studies were excluded based on methodological quality. Importantly, all included studies represented the participants and their voice. See Table 3.

Data extraction

The data extracted included specific details about the population, context, geographical, study methods and the phenomena of interest relevant to the review research question. In this meta-aggregation, the units of extractions are specific findings highlighted by the authors which constitute textual conclusions, and these were presented as key themes/subthemes (Lockwood et al., 2015). The findings were extracted directly from the original studies by the reviewers, referring to specific quotations which justified the generation of each finding (Lockwood et al., 2015). The focus of extraction was therefore, to extract the findings generated by the researchers of each study, without interpreting the actual data from the individual studies (Lockwood et al., 2015). Findings (including both themes and specific quotations) were extracted directly from the original studies by the reviewers (Lockwood et al., 2015). This afforded an accurate and reliable presentation of results and eliminated the risk of re-interpreting the included studies (Lockwood et al., 2015).

Analytical approach

The JBI method of meta-aggregation was used to extract, synthesise, and categorise the data (Lockwood et al., 2015). Findings and supporting illustrations were assessed for congruence and were given a ConQual ranking of either 'unequivocal' (clear association between the finding and illustration), 'equivocal' (unclear association between the finding and illustration, leaving it open to challenge) or 'not supported' (findings not supported by data) (Lockwood et al., 2015). Unsupported findings were not included in the final synthesis. Findings (themes and direct quotations) were extracted into a table and given a label (e.g., F=Finding and a number). See supplementary table 2. The labels were used to represent the specific finding. Following careful and repeated assessment of the compiled data, two or more findings (themes and

direct quotes from the included studies) were grouped into categories based on similarity (Lockwood et al., 2015). Further synthesis of these categories produced a single comprehensive description to represent each synthesised finding (Lockwood et al., 2015).

FINDINGS

A total of 160 publications were screened for eligibility after the removal of duplicates (see Figure 1). A further three publications were identified from other sources, with a total of 25 publications reviewed in full. Eight publications were excluded with reasons, leaving 17 studies included in this qualitative review.

Description of studies

Table 4 outlines the characteristics of the included studies. The included publications were conducted in nine different countries namely: The United States of America (USA) (n=5), Iran (n=2), Turkey (n=3), France (n=2), Sweden (n=1), Spain (n=1), China (n=1), Singapore (n=1), and United Kingdom (UK) (n=1). A total of 529 nurse participants were represented and the participant samples sizes ranged from 11 to 282. Thirteen (76%) studies reported on gender, and unsurprisingly the sample biased in favour of females (n=66 males). The age of the participants ranged from 21-50 years old.

The majority (94%) of the studies conducted semi-structured interviews between March 2020 and December 2020 during the first two waves of the COVID-19 pandemic (Cadge et al., 2021; Chegini et al., 2021; Demir & Sahin, 2022; Fernández-Castillo et al., 2021; Hu et al., 2021; Kentish-Barnes et al., 2021; Levi & Moss, 2022; Lin et al., 2021; Montgomery et al., 2021; Sezgin et al., 2021; Unver et al., 2022). Eleven (64%) of the studies included nurses whose

regular workplace was in the ICU (Bethel et al., 2022; Brockopp et al., 2021; Chegini et al., 2021; Fernández-Castillo et al., 2021; Gordon et al., 2021; Hu et al., 2021; Levi & Moss, 2022; Lin et al., 2021; Moradi et al., 2021; Perraud et al., 2022; Sezgin et al., 2021). Three studies had a mix of both regular ICU staff and deployed nursing staff (Bergman et al., 2021; Cadge et al., 2021; Demir & Sahin, 2022). Three studies did not report whether their participants were deployed or were regular staff in the ICU (Kentish-Barnes et al., 2021; Montgomery et al., 2021; Unver et al., 2022).

Synthesised findings

A total of 136 individual findings were extracted (see Supplementary Table 2) and synthesised into 18 categories and eight synthesised findings (see Table 5). The eight synthesised findings revealed the lived experiences of CCNs in the ICU during the COVID-19 pandemic and related to: 1) Working as a team to adapt to the challenges of the pandemic ; 2) Striving to provide patient centred care; 3) Copying with frequent deaths in the ICU ; 4)Challenges of supporting patients family from a distance; 5) The psychological impact of caring for critically unwell patients with COVID-19; 6)Working through the challenges of the ICU setting during the pandemic; 7) The challenges of wearing personal protective equipment whilst undertaking patient care; and 8) The impact of working in the ICU during the pandemic on life at home. See Figure 2.

Working as a team to adapt to the challenges of the pandemic

The theme of working as a team to adapt to the challenges of the pandemic was identified in 53% of the studies included in this review (Bergman et al., 2021; Bethel et al., 2022; Brockopp et al., 2021; Cadge et al., 2021; Fernández-Castillo et al., 2021; Gordon et al., 2021; Kentish-Barnes et al., 2021; Levi & Moss, 2022; Montgomery et al., 2021). CCNs described how reduced

contact and increased isolation of patients with COVID-19 forced the team to come together and work under conditions that were described as “crazy” and a “warzone” during the beginning of the pandemic (Bergman et al., 2021; Gordon et al., 2021). In response to these new challenges CCNs described how well the healthcare team came together to work effectively to safeguard patient care and support each other.

“It was nice to see how the team came together and worked together and, you know, every member of the team, from domestics, to physios, to nurses, to ACCPs, to the junior doctors, to the consultants- I think everybody was there, and you felt that everybody was there, which was nice … ” (Montgomery et al., 2021)

“Your co-workers, they’re along with you during this crazy time … they are a huge support …” (Gordon et al., 2021)

Additionally, CCNs described how the changes implemented during the pandemic required them to adapt and create new routines, sometimes on wards the CCN was not familiar with. One CCN described the implementation of walkie talkies to improve communication between staff who were in PPE (actively caring for the patient with COVID-19) and those who were not.

“We even implemented those little walkie-talkies … You would just press the walkie talkie, “Hey, can somebody bring me that, “like to whoever is available outside and not in PPE …” (Bethel et al., 2022)

CCNs in the ICU also adapted with their colleagues by undertaking new roles, for example, doctors administering medications and nurses inserting central lines (Fernández-Castillo et al., 2021). However, adapting and working as a team was not always easy with CCNs describing it as initially “difficult” and like “having two cooks in the kitchen” (Cadge et al., 2021). However, overall, CCNs felt supported by their immediate colleagues, allowing them to adapt to new challenges.

Striving to provide patient centred care

The impact of COVID-19 on providing patient centred care was described by CCNs in the ICU in 47% of the studies included in this review (Bethel et al., 2022; Brockopp et al., 2021; Gordon et al., 2021; Kentish-Barnes et al., 2021; Levi & Moss, 2022; Lin et al., 2021; Montgomery et al., 2021; Sezgin et al., 2021). CCNs in the ICU described patients with COVID-19 as being the "sickest" they've ever seen with many patients requiring immediate intubation, administration of paralytic agents, and proning (Bethel et al., 2022). Feelings of fear and anxiety were described by CCNs when discussing how unwell the patients with COVID-19 were and how often they felt "hopeless" (Gordon et al., 2021). Additionally, many CCNs reported feeling that they felt "distant" and "non-caring," because they were unable to touch the patients without PPE on (Gordon et al., 2021) One CCNs discussed how their main priority was to prevent patients with COVID-19 from arresting, often resulting in missed nursing care.

"We prioritised their respiratory needs as it is our first goal at the moment. They also have hygiene needs but this is so far at the background; we cannot even think about it. Our only concern is to prevent them from having an arrest …" (Sezgin et al., 2021)

Missed nursing care was common, with CCNs reporting a lack of nursing care plans and guidance, reduced pressure area care, no oral care and often having to "ration" the "typical things they usually do" (Bethel et al., 2022; Sezgin et al., 2021). CCNs also expressed concerns around patient safety with PPE making it difficult to reach a patient fast enough in an emergency. Communication also became difficult with patients from non-English speaking backgrounds due to the restrictions of masks and equipment such as non-invasive ventilation.

"I couldn't (get in the room fast enough), and it cause my patient harm …" (Levi & Moss, 2022)

.

Copying with frequent deaths in the ICU

Critical care nurses described the death of patients with COVID-19 as “repetitive” and how despite treatment for several weeks that their patients would still eventually die (Levi & Moss, 2022). One CCN described death as a fish bowl (Bethel et al., 2022).

“And so one individual said that it was like a fish bowl at death, awful description, but it was pretty brutal. Yeah, because the whole thing, the whole place is clear and everyone dying …” (Bethel et al., 2022)

Critical care nurses were distressed with the knowledge of being the “last ones to see the body” (Kentish-Barnes et al., 2021). One CCN even described the death rate as so high, that after 20 years of ICU experience they were not sure if they could continue working in healthcare (Montgomery et al., 2021). Caring for critically unwell patients who were young and who were facing death took its toll. Death in the ICU during the COVID-19 pandemic was described as frequent and distressing for both the patients who were facing death and the CCNs caring for them.

“Especially young patients talk about their memories. One said that (he/she) just bought a house a did not want to die. ‘I see that some patients are helpless’… ‘One patient who could not speak our language grabbed my hand when I was giving care and started kissing my hands while crying. I started crying too ..." (Sezgin et al., 2021)

Challenges of supporting patients’ family from a distance

The experiences of CCNs with the family members of patients in the ICU during the COVID-19 pandemic was reported as an impactful experience in the lives of CCNs (Bergman et al., 2021;

Gordon et al., 2021; Levi & Moss, 2022). Critical care nurses described their experience with family members to be both stressful and difficult. Family members were only able to see the patients through a door or via video calls with the CCN being the only one able to physically touch the patient (Gordon et al., 2021). One CCN described the emotional experience of a patient's family having to say goodbye over the phone.

"I think, um, honestly … (sniffling, voice cracking) the worst experiences are the most stressful experiences with families. There was this one woman (and) her children on the telehealth, taking turns (talking), and she ended up passing that night, and (crying hard now) they said, "Mom, you've got to get better, (voice crackling), you can't leave us now." And that's just not the way to say goodbye to people …" (Levi & Moss, 2022)

With Family members being unable to visit the ICU, CCNs came up with creative and innovative ideas to help personalise and include the family of the patients they were caring for (Kentish-Barnes et al., 2021). CCNs commonly organised video calls and organised photos to be sent in from family members to try and individualise each patient (Kentish-Barnes et al., 2021).

"We set up an email for all the families to be able to … email in photographs or pictures for their family, and we could print them off, laminate them and hang them up by the patient. And that started to individualise the patients and bring their families together with them even though they couldn't be there in the flesh …" (Montgomery et al., 2021)

However, despite many difficult times, there were some good moments too. One CCN described a good experience with the patient being able to talk to a relative for the first time after surviving a long period of mechanical ventilation (Bergman et al., 2021). The CCN described this moment as "fantastic" and said it "gave them goose bumps and tears burned behind their eye" (Bergman et al., 2021).

The psychological impact of caring for critically unwell patients with COVID-19

The psychological impact of caring for critically unwell patients with COVID-19 on CCNs was explored in 76% of the studies included in this review (Bergman et al., 2021; Bethel et al., 2022; Brockopp et al., 2021; Chegini et al., 2021; Demir & Sahin, 2022; Fernández-Castillo et al., 2021; Gordon et al., 2021; Hu et al., 2021; Levi & Moss, 2022; Lin et al., 2021; Montgomery et al., 2021; Moradi et al., 2021; Perraud et al., 2022). Fear, exhaustion, and disturbed sleep routines were frequently reported among CCNs in relation to their workload, unable to forget the things they had seen. Many CCNs also expressed the realisation that they themselves could also die from COVID-19 due to frequent exposure to the virus in the ICU (Gordon et al., 2021; Hu et al., 2021; Montgomery et al., 2021). Critical care nurses frequently articulated the feeling of "insufficiency" and lack of knowledge about the virus when caring for critically unwell patients and this was reported as a major source of stress and fear.

"Each day when I come to work, I had to care for patients that I did not have the competence to care for. Each day, I saw patients just lying there, naked, and fighting for their lives, without any possibility to do something about it. Each day, I felt that I am insufficient and thus have developed stress that has affected my sleep, which made me extremely tired. I have no idea how this will affect me in the long-term and I am not even sure that I will have strength to continue working in healthcare after this …" (Gordon et al., 2021).

CCNs also recalled and described specific situations, including seeing other nurses who had been deployed to ICU struggling (Montgomery et al., 2021), seeing other CCNs critically unwell with COVID-19 (Moradi et al., 2021), and importantly, the increase in patient acuity and death in the ICU as psychologically distressing (Bergman et al., 2021; Demir & Sahin, 2022; Gordon et al., 2021; Lin et al., 2021).

"During the difficult time, my colleagues had crashed, including feeling depression. I felt that I was powerless and collapsed due to high-intensity work and patients kept passing away in front of me. Many people (nurses) burst into tears after getting off work and felt that they could not keep going …" (Hu et al., 2021)

"When I see the cases, that can be quiet emotionally straining. We had one patient who is pregnant, and we were hoping against all hope that she will get better. And when she got worse, we were just so upset … " (Lin et al., 2021)

There were common frustrations expressed in that CCNs felt that other healthcare workers often refused to enter the room of patients with COVID-19. This professional isolation in the multidisciplinary team (MDT) meant that CCNs felt alone, and they had to consequently discuss patient care over the phone. One CCN described the importance of this situation and how it was their duty to continue to advocate for their patient in the MDT (Brockopp et al., 2021).

"We have to beg them to see these (COVID-19) patients; they will not go in the room … " (Brockopp et al., 2021)

Importantly, CCNs described several strategies they used to cope with the distressing situations they had encountered whilst caring for patients with COVID-19. One CCN described how she had started eating healthy, reduced her work hours, and started seeing a therapist to cope with her personal struggles (Bethel et al., 2022). Other CCNs provided their own self-care by listening to music, working out and using prayer as helpful coping strategies (Gordon et al., 2021).

Despite the great psychological strain from caring for patients with COVID-19 in the ICU, CCNs still felt that they had a duty to continue to care and advocate for these patients. It is clear that a large proportion of CCNs were negatively impacted whilst caring for critically unwell patients

with COVID-19, with some reporting potentially long-term consequences that will last long after the pandemic is over.

Working through the challenges of the ICU setting during the pandemic

The CCNs in this review shared their experiences of working through the challenges of the ICU setting during the COVID-19 pandemic. Across several studies (Bethel et al., 2022; Cadge et al., 2021; Moradi et al., 2021) CCNs reported a lack of visible management and nursing leadership in the hospital during the COVID-19 pandemic (Bethel et al., 2022; Cadge et al., 2021; Levi & Moss, 2022; Moradi et al., 2021). This perceived lack of effective and present leadership resulted in a sense that senior management did not care about the problems CCNs were experiencing and this resulted in a reported sense of isolation from the rest of the hospital (Bethel et al., 2022; Cadge et al., 2021; Levi & Moss, 2022; Moradi et al., 2021). In two studies CCNs reported being strictly prohibited from accessing their personal leave with inadequate days off between shifts to recover (Sezgin et al., 2021).

"The shifts we work are really killing, not tiresome, but killing. We have not been given leave, and we been told that we must be in the hospital during this crisis. They don't give us proper off time, either …" (Moradi et al., 2021).

CCNs also reported having to use outdated ventilators with a shortage of tubing for the ventilators as well (Bethel et al., 2022). Another CCN described how the paediatric unit was temporality changed into an ICU, despite not being adequately equipped (Bethel et al., 2022). Staff deployed to the ICU, particularly those who had not worked in the ICU before struggled with a lack of introduction and orientation to the ward and little to no training in critical care (Perraud et al., 2022). Additionally, the experienced CCNs in the ICU were left feeling overwhelmed having to take on extra work and responsibilities due to the decrease in staff levels and/or increase in the number of inexperienced nurses (Montgomery et al., 2021).

"I pretty much fell apart on, on a regular basis and I remember having a panic attack in the middle of the unit, round there, because I had 4 haemofiltrations running and I was the only person in the entire place and we have 10 levels 3's, three of which were proned, four were haemofiltered and I was the only person filter trained …"(Montgomery et al., 2021).

The changing clinical environment during the COVID-19 pandemic in the ICU was an important finding in this review (Bethel et al., 2022; Cadge et al., 2021; Chegini et al., 2021; Fernández-Castillo et al., 2021; Gordon et al., 2021; Levi & Moss, 2022; Lin et al., 2021; Montgomery et al., 2021; Moradi et al., 2021; Perraud et al., 2022; Sezgin et al., 2021). CCNs reported experiences of being abandon by management, forced to work in areas they were unfamiliar with, decreased equipment, decreased staffing levels and skill mix, and no access to leave or adequate days off.

<u>The challenges of wearing personal protective equipment while undertaking patient care</u>

The impact of PPE on CCNs in the ICU was explored in 41% of studies included in this review (Gordon et al., 2021; Hu et al., 2021; Levi & Moss, 2022; Montgomery et al., 2021; Moradi et al., 2021; Sezgin et al., 2021; Unver et al., 2022). One study exclusively investigated the impact of PPE on CCNs during the COVID-19 pandemic (Unver et al., 2022). Critical care nurses described how they were often required to wear full PPE for the entirety of their shift, resulting in the inability to drink water or even go to the toilet (Moradi et al., 2021). The clinically significant physical consequences of the PPE experienced by CCNs included: pressure area sores on the face, sweating, difficulty breathing, rashes, headaches/migraines, pain, urinary tract infections, constipation, and overall exhaustion (Gordon et al., 2021; Moradi et al., 2021; Unver et al., 2022). Additionally, the impact of the PPE was reported as having a negative impact on patient care by CCNs (Unver et al., 2022). One CCNs stated:

"it (PPE) is hurting, you want to get rid of it as fast as possible, and of course it affects your performance, it affects the quality of the care you are giving the patient …" (Unver et al., 2022).

Additionally, CCNs articulated how undertaking certain nursing tasks, such as cardiopulmonary resuscitation (CPR) became more difficult with the donned PPE, which resulted in increased sweat and dehydration (Sezgin et al., 2021). Critical care nurses also reported feelings of fear around their hospital providing either a lack of PPE or PPE that would not adequately protect them from exposure to COVID-19. In response to the problems described by CCNs, many adapted by buying their own PPE for work at their own expense to ensure both comfort and protection (Unver et al., 2022).

"That in itself is just terrifying, the fact that I'm supposed to be working in an industry that gives, that has all the equipment that I need to do my job … its like saying to a firefighter now you go fight a fire but you gotta use a garden hose … We were too ill prepared as a country in general …" (Gordon et al., 2021).

Overall, CCNs described the negative physical impact wearing PPE had on themselves and how this impacted the care they were able to give to critically unwell patients in the ICU during the COVID-19 pandemic.

<u>The impact of working in the ICU during the pandemic on life at home</u>

In 47% of studies CCNs described the impact of working during COVID-19 in the ICU and the emotional toil it had on their lives at home. (Brockopp et al., 2021; Chegini et al., 2021; Demir & Sahin, 2022; Gordon et al., 2021; Levi & Moss, 2022; Moradi et al., 2021; Perraud et al., 2022; Sezgin et al., 2021). The emotional impact on CCNs working with patients with COVID-19 in the ICU during the pandemic carried on from work and into their home lives. The most common source of distress, as described by CCNs was the fear of contracting COVID-19 at work and the bringing it home to their loved ones (including their children) (Gordon et al., 2021; Levi

& Moss, 2022; Perraud et al., 2022; Sezgin et al., 2021). CCNs often worried more about potentially infecting their family and friends than the very real risk that they would contract COVID-19 themselves.

"*I wasn't afraid of getting COVID myself but I felt that I was a danger to those around me. I was a danger to my family, putting them at risk because I might bring the virus home from work …"(Perraud et al., 2022)*

The fear of inadvertently giving a loved one COVID-19 often resulted in CCNs isolating from family members further compounding feelings of loneliness, isolation, stress, and anxiety.

"*Our lives have gone off-track, and we have no peace. Before the current pandemic, when we got home after the shift, we could at least cuddle our children. My wife and I would at least talk together, but now! We cannot cuddle our children. Contacts are limited. We suspect and doubt anything and everything in our own home, which is the safest place in terms of Corona …" (Moradi et al., 2021)*

Commonly CCNs described how they felt when hearing false information about COVID-19 and the impact of seeing the general public not taking the virus seriously. One CCN described how they felt it was their duty as a nurse to correct the false information being advertised.

"Early in the onset of the disease, there were many rumours, and one of our most important tasks when serving was to counter these rumours and provide appropriate evidence for patients …" (Chegini et al., 2021)

Further issues which compounded the home life balance was the increase in work at home, due to school closures, home schooling, and having to deal with people after a stressful shift, which added significant levels of stress to the lives of CCNs (Gordon et al., 2021). However, although many CCNs distanced themselves from loved ones, CCNs also described the

importance of talking with family and friends as a coping mechanism when dealing with the effects of working during the pandemic (Chegini et al., 2021; Gordon et al., 2021).

DISCUSSION

This qualitative systematic review set out to critically synthesis evidence to understand the experiences of CCNs working in the ICU during the COVID-19 pandemic. This review has identified that this is an important and emerging focus within the existing literature and relevant to the contemporary challenges which continue to face the nursing profession in the transition and recovery to endemic phases. There are several significant findings identified in this review which include, the challenges of wearing personal protective equipment, the psychological impact of caring for critically unwell patient with COVID-19, striving to provide patient centred care, and the challenges of supporting patients family from a distance.

Similar to this review, Both Han et al. (2022) and Guttormson et al. (2022) reported on the physical consequences of wearing PPE during the COVID-19 pandemic. The consequences of wearing PPE for long hours, often without a break included physical symptoms such as, headaches, sleep disturbance, exhaustion, and damaged skin (Guttormson et al., 2022; Han et al., 2022). The reported consequences of wearing PPE during the COVID-19 pandemic was a key finding in this review. Personal protective equipment related changes such as pressure sores and skin changes can be managed with the regular application of a barrier cream, loosening the pressure on the skin every two hours, and not wearing a surgical mask on top of the N95 mask (Unver et al., 2022). Furthermore, regular breaks from PPE should be encouraged where possible to aide in the well-being of CCNs (Unver et al., 2022). In addition to the physical symptoms experienced by CCNs due to PPE, the psychological impact of caring for critically unwell patients with COVID-19 pandemic in the ICU has been described in several

studies (Ariapooran et al., 2022; Emami Zeydi et al., 2021; Guttormson et al., 2022; Hammond et al., 2021; Han et al., 2022; Troglio da Silva & Neto, 2021) and was consistently reported across the themes in this review.

Critical care nurses reported high levels of stress, anxiety, and depression throughout the COVID-19 pandemic (Guttormson et al., 2022; Hammond et al., 2021; Han et al., 2022). The reported psychological impact was commonly attributed to inadequate support from leadership, lack of equipment, staff shortages, and the fear of transmitting the virus to family and friends (Guttormson et al., 2022; Hammond et al., 2021; Han et al., 2022). Additionally, much like this review, CCNs dealing with an increase in patient acuity and death was found to be harmful to their psychological well-being (Emami Zeydi et al., 2021). Hammond et al. (2021) survey of 3039 Australian CCNs working in the ICU during the COVID-19 pandemic found that 67% of participants feared infecting family and friends, while 25% reported feelings of anxiety and depression. Hammond et al., 2021 recommends that healthcare managers and administrators reduce the deployment of nursing staff to other areas, and ensure responsibility is taken to ensure junior and inexperienced staff are trained and work within their scope of practice to help protect the psychological well-being of CCNs. Therefore, the psychological impact expressed by CCNs in the studies included in this review is supported in the emerging quantitative literature.

Several recommendations were made in the literature to aide CCNs to better manage the psychological consequences of working during the COVID-19 pandemic. This review revealed that CCNs expressed that they appreciated the availability of Employee Assistant Programs (EAP). However, a lot of the CCNs did not utilise these services and found discussions between colleagues who had also experienced working through the COVID-19 pandemic in the ICU of greater value. This finding was consistent with the results from Hammond et al. (2021), with

CCNs reporting that they found talking to colleagues more beneficial for their psychological wellbeing. However, Ariapooran et al. (2022) reported that both professional support and counselling would be beneficial to nurses working in COVID-19 areas, with CCNs scoring the highest secondary traumatic stress (STS) scores when compared to nurses in other clinical areas caring for patients with COVID-19. This finding highlights the need for hospitals to provide both peer-led counselling services in addition to EAP programs to meet the needs of CCNs. Other recommendations made in the literature for CCNs included exercising, reducing daily working hours (organisational), drawing, talking and breathing deeply (Troglio da Silva & Neto, 2021). Further research is required to determine how to prevent and treat the high level of psychological distress reported by CCNs during the pandemic.

Additionally, striving to provide patient centred care during the COVID-19 pandemic was also an important finding of this review. Missed nursing care was frequently reported by CCNs when discussing patient centred care (Bethel et al., 2022; Sezgin et al., 2022). Falk et al. (2022) survey found that CCNs reported both Pressure area care (PAC) and mobilisation as the most frequently missed nursing cares in the ICU. This finding is consistent with this review, with CCNs reporting being unable to attended to patients' basic needs due to the increased acuity, decreased staffing levels and/or skill mix during the pandemic (Bethel et al., 2022; Sezgin et al., 2021) . This is an important finding with PAC and mobilisation required to prevent muscle deterioration, improve functional capacity, decrease length of time on mechanical ventilation and aid in health-related quality of life (Falk et al., 2022). Falk et al., 2022 recommends nursing managers regularly measure and use concerning missed nursing care as a quality indicator when planning for workforce needs. Additionally, the competencies and experiences of the CCNs need should be considered to continue to support future workforce planning (Falk et al., 2022). Ensuring CCNs have adequate time to attended to patients' basic needs in addition to

their medical requirements is essential to ensure adequate and holistic patient health outcomes (Falk et al., 2022).

CCNs reported on the challenges of supporting patients' family from a distance. CCNs described their experience of visitor restrictions, with many relatives being unable to be with their loved ones during their critical illness and death. In the ICU patients are often unable to communicate, resulting in healthcare professionals being reliant on family members to make medical decisions (Fernandez-Martinez et al., 2022). Involving families in patient care is a part of the holistic nursing care model and being unable to have relatives at the bedside was difficult not only for CCNs but for the family members, often causing them stress and anxiety (Digby et al., 2022; Fernandez-Martinez et al., 2022). The use of telecommunications was reported as commonly used in the literature (Digby et al., 2022), however, the CCNs in this review also utilised photos/objects to personalise patient rooms and encouraged family attendance where possible (e.g. through glass doors) (Gordon et al., 2021). Further research is required to determine if the needs of the family were achieved during the pandemic and what telecommunications worked best to facilitate communication between healthcare workers and relatives to be able to better facilitate family/patient interaction and communication.

Additionally, working as a team to adapt to the challenges of the pandemic was an important theme in this review. The context of the pandemic strengthened the support of the team and challenged routines encouraging flexibility in role delineation and innovative practices. Within the broader MDT there were challenges including, CNNs having to be the primary providers of face-to-face care. A recent review supported these findings, with CCNs reporting feelings of inadequate support from other healthcare workers with shortages in staff members and an increase in nursing tasks such as proning, ventilation and extracorporeal membrane oxygenation (ECMO) in the ICU (Emami Zeydi et al., 2021). Nursing staff were often left with

additional tasks and time in PPE due to other healthcare workers not entering the patients' room (Brockopp et al., 2021).

This paper is one of the first reviews to critically synthesis all relevant qualitative studies to collectively give voice and provide insight into the lived experiences of CCNs caring for patients during the COVID-19 pandemic worldwide. The reported experiences of CCNs in this review is consistent with the current literature, with discussions of inadequate clinical expertise across the team, high mortality rates, caring for critically unwell patients without the presence of family at the end of life, and within the context of the CCNs own increased home pressures (risk of spreading COVID to their loved ones and government policies such as home schooling). Furthermore, the literature has highlighted the requirement to improve the psychological support available to CCNs (Hammond et al., 2021), increase the presence of management/leadership within in the ICU (Gordon et al., 2021), and the need to develop strategies to help improve staff retention and well-being (Bergman et al., 2021). The voices and experiences of CCNs during the COVID-19 pandemic are therefore crucial to better prepare institutions/healthcare settings for future crisis management and retain the CCN workforce worldwide (Emami Zeydi et al., 2021).

LIMITATIONS

The meta-aggregation methodology used in this review is pragmatic and it is argued (Lockwood 2019) transcends interpretation, and hence the complex diversity of philosophical perspectives used in qualitative research (E.g., qualitative descriptive, phenomenology, grounded theory, action research, ethnography, and feminist research). According to Bergdahl (2019) there is a risk that this approach may dilute the 'richness and nuance' of qualitative knowledge where content specific knowledge can be necessary for the 'wisdom of clinical

knowledge'. Taking Lookwoods (2015) perspective, the transferability of the findings from this paper may be limited by the size and diversity of studies included in the review (n=17; 9 countries) however it remains the most comprehensive review to date. Additionally, studies not published in English were omitted from this review. Additionally, paediatric ICUs and the neonatal unit were excluded from this study due to the differences in COVID-19 admissions when compared to adult ICUs. Therefore, the findings from this review may not be transferable to the experiences of nurses working in the paediatric ICU or neonatal unit.

IMPLICATIONS FOR THE NURSING PROFESSION

There are clear implications from this review for improved workforce planning that address staff retention, contingency planning, and the training of future healthcare professionals. This review highlights the need for recognition of CCNs critical role in the COVID-19 pandemic response, more appropriate renumerations and, the provision of counselling and mental health service for CCNs. Future healthcare professionals will need to develop capabilities that enable innovation, flexibility, adaptability, self-care, and preventative mental health strategies.

This review also highlighted the need for improved management/leadership, communication strategies, and human resource policies to supports CCNs when globally hospitals are in crisis. Additionally, CCNs highlighted the ongoing for further research to ensure the needs of family members of critically unwell patients are met and that communication is adequate when they cannot be present at the bedside.

CONCLUSION

This review has given new insight into the lived experiences of CCNs in the ICU during the COVID-19 pandemic. The experiences of CCNs are invaluable to the future planning of ICU hospital systems as we go into the epidemic stage of this pandemic. Therefore, improving the psychological support for CCNs and maintaining adequate staffing levels/skill mix in the ICU is crucial to ensure basic nursing care can be completed. In addition, the attendance of family members at the bedside and increased presence of leadership/management staff is essential to ensure this highly skilled workforce remains intact to ultimately provide good, holistic care to critically unwell patients in the future.

REFERENCES

Andersson, M., Nordin, A., & Engström, Å. (2022). Critical care nurses' experiences of working during the first phase of the COVID-19 pandemic–Applying the Person-centred Practice Framework. *Intensive and Critical Care Nursing*, *69*, 103179.

Ariapooran, S., Ahadi, B., & Khezeli, M. (2022). Depression, anxiety, and suicidal ideation in nurses with and without symptoms of secondary traumatic stress during the COVID-19 outbreak. *Archives of Psychiatric Nursing*, *37*, 76-81. https://doi.org/https://doi.org/10.1016/j.apnu.2021.05.005

Aromataris, E., Stern, C., Lockwood, C., Barker, T. H., Klugar, M., Jadotte, Y., Evans, C., Ross-White, A., Lizarondo, L., Stephenson, M., McArthur, A., Jordan, Z., & Munn, Z. (2022). JBI series paper 2: tailored evidence synthesis approaches are required to answer diverse questions: a pragmatic evidence synthesis toolkit from JBI. *Journal of Clinical Epidemiology*, *150*, 196-202. https://doi.org/https://doi.org/10.1016/j.jclinepi.2022.04.006

Bergdahl, E. (2019). Is meta-synthesis turning rich descriptions into thin reductions? A criticism of meta-aggregation as a form of qualitative synthesis. *Nursing inquiry*, *26*(1), e12273. https://doi.org/https://doi.org/10.1111/nin.12273

Bergman, L., Falk, A.-C., Wolf, A., & Larsson, I.-M. (2021). Registered nurses' experiences of working in the intensive care unit during the COVID-19 pandemic. *Nursing in Critical Care*, *26*(6), 467-475. https://doi.org/https://doi.org/10.1111/nicc.12649

Bethel, C., Rainbow, J. G., & Johnson, K. (2022). A qualitative descriptive study of the COVID-19 pandemic: Impacts on nursing care delivery in the critical care work system. *Applied Ergonomics*, *102 (no pagination)*, Article 103712. https://acthealthlibrary.idm.oclc.org/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emexb&AN=2017179698

Brockopp, D., Monroe, M., Davies, C. C., Cawood, M., & Cantrell, D. (2021). COVID-19: The Lived Experience of Critical Care Nurses. *The Journal of nursing administration*, *51*(7-8), 374-378. https://doi.org/10.1016/j.ijnurstu.2020.103637.

Bruyneel, A., Lucchini, A., & Hoogendoorn, M. (2022). Impact of COVID-19 on nursing workload as measured with the Nursing Activities Score in intensive care. *Intensive & Critical Care Nursing*, *69*, 103170.

Bruyneel, A., Smith, P., Tack, J., & Pirson, M. (2021). Prevalence of burnout risk and factors associated with burnout risk among ICU nurses during the COVID-19 outbreak in French speaking Belgium. *Intensive and Critical Care Nursing*, *65*, 103059. https://doi.org/https://doi.org/10.1016/j.iccn.2021.103059

Cadge, W., Lewis, M., Bandini, J., Shostak, S., Donahue, V., Trachtenberg, S., Grone, K., Kacmarek, R., Lux, L., & Matthews, C. (2021). Intensive care unit nurses living through COVID-19: A qualitative study. *Journal of Nursing Management*, *29*(7), 1965-1973. https://doi.org/https://doi.org/10.1111/jonm.13353

Chegini, Z., Arab-Zozani, M., Rajabi, M. R., & Kakemam, E. (2021). Experiences of critical care nurses fighting against COVID-19: A qualitative phenomenological study. *Nursing Forum*, *56*(3), 571-578. https://doi.org/10.1111/nuf.12583

Crowe, S., Howard, A. F., & Vanderspank, B. (2022). The mental health impact of the COVID-19 pandemic on Canadian critical care nurses. *Intensive and Critical Care Nursing*, 103241. https://doi.org/https://doi.org/10.1016/j.iccn.2022.103241

Demir, G., & Sahin, S. (2022). Experiences of nurses providing care to patients with COVID-19 in intensive care units: A qualitative study. *Nursing forum.*, *28*.

https://acthealthlibrary.idm.oclc.org/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emexb&AN=637396974

Digby, R., Manias, E., Haines, K., Orosz, J., Ihle, J., & Bucknall, T. (2022). Family experiences and perceptions of intensive care unit care and communication during the COVID-19 pandemic. *Australian Critical Care*.

Emami Zeydi, A., Ghazanfari, M. J., Sanandaj, F. S., Panahi, R., Mortazavi, H., Karimifar, K., Karkhah, S., & Osuji, J. (2021). Coronavirus Disease 2019 (COVID-19): A Literature Review from a Nursing Perspective. *Biomedicine (Taipei)*, *11*(3), 5-14. https://doi.org/10.37796/2211-8039.1154

Falk, A.-C., Nymark, C., Göransson, K. E., & von Vogelsang, A.-C. (2022). Missed nursing care in the critical care unit, before and during the COVID-19 pandemic: A comparative cross-sectional study. *Intensive and Critical Care Nursing*, *72*, 103276. https://doi.org/https://doi.org/10.1016/j.iccn.2022.103276

Fernández-Castillo, R.-J., González-Caro, M.-D., Fernández-García, E., Porcel-Gálvez, A.-M., & Garnacho-Montero, J. (2021). Intensive care nurses' experiences during the COVID-19 pandemic: A qualitative study. *Nursing in Critical Care*, *26*(5), 397-406. https://doi.org/10.1111/nicc.12589

Fernandez-Martinez, E., Mapango, E. A., Martinez-Fernandez, M. C., & Valle-Barrio, V. (2022). Family-centred care of patients admitted to the intensive care unit in times of COVID-19: A systematic review [Review]. *Intensive & Critical Care Nursing*, *70*, 103223. https://doi.org/https://doi.org/10.1016/j.iccn.2022.103223

Gordon, J. M., Magbee, T., & Yoder, L. H. (2021). The experiences of critical care nurses caring for patients with COVID-19 during the 2020 pandemic: A qualitative study. *Applied nursing research : ANR*, *59*, 151418. https://doi.org/10.1016/j.apnr.2021.151418

Greenberg, N., Weston, D., Hall, C., Caulfield, T., Williamson, V., & Fong, K. (2021). Mental health of staff working in intensive care during Covid-19. *Occupational Medicine*, *71*(2), 62-67. https://doi.org/10.1093/occmed/kqaa220

Guttormson, J. L., Calkins, K., McAndrew, N., Fitzgerald, J., Losurdo, H., & Loonsfoot, D. (2022). Critical Care Nurses' Experiences During the COVID-19 Pandemic: A US National Survey. *American Journal of Critical Care*, *31*(2), 96-103. https://doi.org/10.4037/ajcc2022312

Hammond, N. E., Crowe, L., Abbenbroek, B., Elliott, R., Tian, D. H., Donaldson, L. H., Fitzgerald, E., Flower, O., Grattan, S., Harris, R., Sayers, L., & Delaney, A. (2021). Impact of the coronavirus disease 2019 pandemic on critical care healthcare workers' depression, anxiety, and stress levels. *Australian Critical Care*, *34*(2), 146-154. https://doi.org/https://doi.org/10.1016/j.aucc.2020.12.004

Han, P., Duan, X., Zhao, S., Zhu, X., & Jiang, J. (2022). Nurse's Psychological Experiences of Caring for Severe COVID-19 Patients in Intensive Care Units: A Qualitative Meta-Synthesis [Systematic Review]. *Frontiers in public health*, *10*. https://doi.org/10.3389/fpubh.2022.841770

Hu, F., Ma, J., Ding, X. B., Li, J., Zeng, J., Xu, D., Pei, J., Luo, D., Yang, B. X., Zhang, H. Y., Zhu, X. P., & Chen, J. (2021). Nurses' experiences of providing care to patients with COVID-19 in the ICU in Wuhan: A descriptive phenomenological research. *BMJ Open*, *11(9) (no pagination)*, Article e045454. https://acthealthlibrary.idm.oclc.org/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emexa&AN=635940045

Kentish-Barnes, N., Morin, L., Cohen-Solal, Z., Cariou, A., Demoule, A., & Azoulay, E. (2021). The Lived Experience of ICU Clinicians during the Coronavirus Disease 2019 Outbreak: A Qualitative Study. *Critical Care Medicine*, E585-E597.

https://acthealthlibrary.idm.oclc.org/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emed22&AN=635138834

Levi, P., & Moss, J. (2022). Intensive Care Unit Nurses' Lived Experiences of Psychological Stress and Trauma Caring for COVID-19 Patients. *Workplace health & safety*, 21650799211064262. https://acthealthlibrary.idm.oclc.org/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emexb&AN=637165665

Lin, Y. P., Tang, C. J., Tamin, V. A., Tan, L. Y. C., & Chan, E. Y. (2021). The hand-brain-heart connection: ICU nurses' experience of managing patient safety during COVID-19. *Nursing in critical care.*, *02*. https://acthealthlibrary.idm.oclc.org/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emexa&AN=636042160

Lockwood, C., Munn, Z., & Porritt, K. (2015). Qualitative research synthesis: methodological guidance for systematic reviewers utilizing meta-aggregation. *JBI Evidence Implementation*, *13*(3), 179-187.

Montgomery, C. M., Humphreys, S., McCulloch, C., Docherty, A. B., Sturdy, S., & Pattison, N. (2021). Critical care work during COVID-19: A qualitative study of staff experiences in the UK. *BMJ Open*, *11(5) (no pagination)*, Article e048124. https://acthealthlibrary.idm.oclc.org/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emexa&AN=635050161

Moradi, Y., Baghaei, R., Hosseingholipour, K., & Mollazadeh, F. (2021). Challenges experienced by ICU nurses throughout the provision of care for COVID-19 patients: A qualitative study. *Journal of Nursing Management*, *29*(5), 1159-1168. https://doi.org/https://doi.org/10.1111/jonm.13254

Nahidi, S., Sotomayor-Castillo, C., Li, C., Currey, J., Elliott, R., & Shaban, R. Z. (2022). Australian critical care nurses' knowledge, preparedness, and experiences of managing SARS-COV-2 and COVID-19 pandemic. *Australian Critical Care*, *35*(1), 22-27.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., & Brennan, S. E. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *International Journal Of Surgery*, *88*, 105906.

Pearson, A., & Field, J. (2011). JBI critical appraisal checklist for qualitative research. *Adelaide, Australia: Joanna Briggs Institute*.

Perraud, F., Ecarnot, F., Loiseau, M., Laurent, A., Fournier, A., Lheureux, F., Binquet, C., Rigaud, J.-P., Meunier-Beillard, N., & Quenot, J.-P. (2022). A qualitative study of reinforcement workers' perceptions and experiences of working in intensive care during the COVID-19 pandemic: A PsyCOVID-ICU substudy. *PloS one*, *17*(3), e0264287. https://doi.org/10.1371/journal.pone.0264287

Romero-García, M., Delgado-Hito, P., Gálvez-Herrer, M., Ángel-Sesmero, J. A., Velasco-Sanz, T. R., Benito-Aracil, L., & Heras-La Calle, G. (2022). Moral distress, emotional impact and coping in intensive care unit staff during the outbreak of COVID-19. *Intensive and Critical Care Nursing*, *70*, 103206.

Sezgin, D., Dost, A., & Esin, M. N. (2021). Experiences and perceptions of Turkish intensive care nurses providing care to Covid-19 patients: A qualitative study. *International nursing review.*, *28*. https://doi.org/https://doi.org/10.1111/inr.12740

Sezgin, D., Dost, A., & Esin, M. N. (2022). Experiences and perceptions of Turkish intensive care nurses providing care to Covid-19 patients: A qualitative study. *International Nursing Review*, *69*(3), 305-317.

Sinuff, T., Cook, D. J., & Giacomini, M. (2007). How qualitative research can contribute to research in the intensive care unit. *Journal of Critical Care*, *22*(2), 104-111.

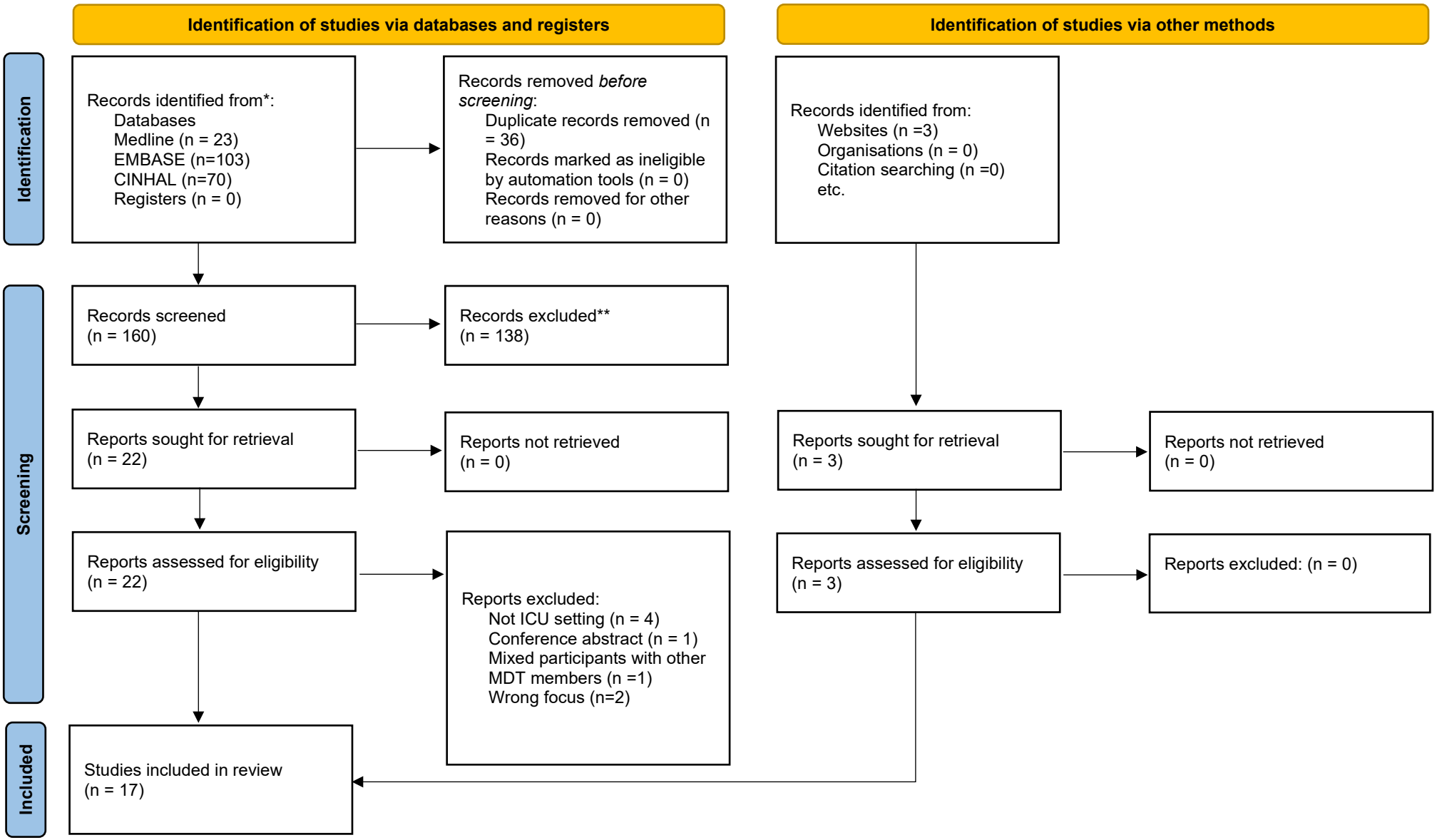
Troglio da Silva, F. C., & Neto, M. L. R. (2021). Psychiatric disorders in health professionals during the COVID-19 pandemic: A systematic review with meta-analysis. *Journal of Psychiatric Research*, *140*, 474-487. https://doi.org/https://doi.org/10.1016/j.jpsychires.2021.03.044

Unver, S., Yildirim, M., & Cansu Yenigun, S. (2022). Personal protective equipment related skin changes among nurses working in pandemic intensive care unit: A qualitative study [Conference Paper]. *Journal of Tissue Viability.* https://acthealthlibrary.idm.oclc.org/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emexb&AN=2016664678

Shalyn Rourke [a, b] Andrew Dimech [c] RachelBacon [d] CatherinePaterson [a,d,e,f]

a Caring Futures Institute, Flinders University, Adelaide
b Canberra Health Services & ACT Health, SYNERGY Nursing & Midwifery Research Centre, Canberra Hospital, Australia
c Peter MacCallum Cancer Centre, Melbourne, Victoria, Australia
d Faculty of Health, University of Canberra, Canberra
e Central Adelaide Local Health Network, Adelaide
f Robert Gordon University, Aberdeen, Scotland, UK

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers and other sources



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).
**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/


Critical Care Nurse
The challenges fo wearing personal protective equipment whilst undertaking patient care
Working as a team to adapt to the challenges of the pandemic
Striving to provide patient centred care
The impact of working in the ICU during the pandemic on life at home
Copying with frequent deaths in the ICU
Challenges of supporting patients family from a distance
The psychological impact of caring for critically unwell patients with COVID-19
Woorking through the challenges of the ICU setting during the pandemic

Table 3. Results of Quality Assessment

Study	1	2	3	4	5	6	7	8	9	10
Bergman et al., 2021	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Bethel et al., 2022	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Brockopp et al., 2021	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Cadge et al., 2021	Y	Y	Y	Y	Y	U	N	Y	Y	Y
Chegini et al., 2021	Y	Y	Y	Y	Y	U	N	Y	Y	Y
Demir & Sahin 2022	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Fernandez-Castillo et al., 2020	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Gordon et al., 2021	U	Y	Y	Y	Y	U	N	Y	Y	Y
Hu et al., 2021	Y	Y	Y	Y	Y	U	Y	Y	U	Y
Kentish-Barnes et al., 2021	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Levi et al., 2021	Y	Y	Y	Y	Y	U	Y	Y	Y	Y
Lin et al., 2021	Y	Y	Y	Y	Y	U	U	Y	Y	Y
Montgomery et al., 2021	Y	Y	Y	Y	Y	N	N	Y	U	Y
Moradi et al., 2021	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Perraud et al., 2022	U	Y	Y	Y	Y	N	N	Y	Y	Y
Sezgin et al., 2021	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Unver et al., 2022	Y	Y	Y	Y	Y	Y	U	Y	Y	Y

Item number check list key*: 1 Is there congruity between the stated philosophical perspective and the research methodology?; **2** Is there congruity between the research methodology and the research question or objectives?; **3** Is there congruity between the research methodology and the methods used to collect data?; **4** Is there congruity between the research methodology and the representation and analysis of data?; **5** Is there congruity between the research methodology and the interpretation of results?; **6** Is there a statement locating the researcher culturally or theoretically?; **7** Is the influence of the researcher on the research, and vice-versa, addressed?; **8** Are participants, and their voices, adequately represented?; **9** Is the research ethical according to current criteria for recent studies, and is there evidence of ethical approval by an appropriate body?; **10** Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

Quality assessment Key	
1	Yes
2	No
3	Unclear

Table 4: Characteristics of the Included Studies

Study and country	Methodology, Methods for data collection and analysis	Theoretical model / framework	Phenomena of interest	Setting /context / culture	Nurse Characteristics	Description of main results
Bergman et al., 2021 Sweden	**Methodology:** Mixed methods **Data collection:** Open-ended questionnaire questions **Data analysis:** manifest content analysis, with an inductive approach	Not reported	To identify the experiences of nurses working in ICU during the pandemic.	**Setting:** Qualitative data via open-ended questionnaire. **Context:** During the 10th to 17th May 2020	**Participants:** N = 20 nurses working in ICU **Gender:** Female n = 15 Male n= 5 **Age:** 27 – 50 years (mean not reported) **Race:** Not reported **Educational Level:** BSC prepared n= 13 (65%) **Years of Experience:** 9.6 (5-26) years **ICU regular workplace:** 5.5 (1-15) years	Three themes: tumbling into chaos, diminished nursing care, and transition to pandemic ICU care.
Bethel et al., 2021 USA	**Methodology:** Qualitative description **Data collection:** Semi-structured interviews **Data analysis:** deductive content analysis	Not reported	Describe nurses' perceptions of the critical care work system during the COVID-19 pandemic.	**Setting:** Telephone semi-structured interviews **Context:** April 2021	**Participants:** N =282 nurses working in ICU **Gender:** Not reported. **Age:** Not reported. **Race:** Not reported **Educational Level:** Not reported **Years of Experience:** <1 year n = 23 2-5 years n = 86 6-10 years n = 53 >10 years n = 119 Missing n = 1 **ICU regular workplace:** Designated ICU n = 144, partly n = 24, no n = 24	Concepts include the critical care work system structures, nursing care processes, outcomes, and adaptations during the pandemic.
Brockopp et al., 2021 USA	**Methodology:** Phenomenology **Data collection:** Semi-structed Interview	Heidegger's approach to phenomenology	The goal of the interviews was to access a deep layer of understanding regarding participants' lived experience.	**Setting:** in-depth semi-structured interviews **Context:** Dates not reported.	**Participants:** N = 10 nurses working in ICU **Gender:** Female n = 7	Themes of role frustration, emotional and physical exhaustion, and the importance of presence were revealed.

Study and country	Methodology, Methods for data collection and analysis	Theoretical model / framework	Phenomena of interest	Setting /context / culture	Nurse Characteristics	Description of main results
	Data analysis: Moustakas 5 stages: immersion, incubation, illumination, explication, and creative synthesis.				Male n = 3 **Age:** 21-30 years n= 1 31-40 years n = 5 41-50 years n = 4 **Race:** Not reported **Educational Level:** Not reported **Years of Experience:** Not reported. **ICU regular workplace:** All participants were employees of the unit prior to and during the pandemic	
Cadge et al., 2021 USA	**Methodology:** Qualitative exploratory study **Data Collection:** Semi-structured in-depth interviews. Each interview followed by an interview guide that included questions about the nurses' experiences of working under unfamiliar practice conditions, caring for patients with a novel infectious disease, assessing risks to self and family, and ideas about what kinds of additional support would be helpful to them. **Data Analysis:** Thematic coded content analysis using ATLAS. ti software	Not reported	To understand how nurses experience providing care for patients hospitalised with COVID-19 in intensive care units.	**Setting:** Zoom or telephone interviews by four members of the research team **Context:** First COVID-19 pandemic surge. Interviews held between June and August 2020. Two ICU's one home ICU and one surge ICU.	**Participants:** 16 - NB 2 participants did not provide information **Gender:** Female n=14 **Age:** Mean (SD) 34.3 **Race:** White n=13 Black n=1 **Educational level:** BSN n=12 MSN n=2 **Years of experience:** Mean (SD) no. years as a nurse 10.9 **ICU regular workplace:** ICU nurses n=8 (n=4 practiced on home unit & n=4 deployed to work on interim surge ICU General care nurses n=8	Four themes identified and included: challenges of working with new co-workers and teams; challenges of maintaining existing working relationships; role of nursing leadership in providing information and maintaining morale; the importance of institutional-level acknowledgement of their work.
Chegini et al., 2021 Iran	**Methodology:** Qualitative descriptive design	Phenomenology	To explore and describe the experiences nurses caring for patients infected by COVID-19 in	**Setting**: Face to face in isolated quiet room (n=7) or telephone interviews (n=8)	**Participants:** 15 **Gender:** Male n=9 Female n=6	Four main themes were identified and included: psychological challenges; organisational challenges; social challenges; professional challenges.

Study and country	Methodology, Methods for data collection and analysis	Theoretical model / framework	Phenomena of interest	Setting /context / culture	Nurse Characteristics	Description of main results
	Data collection: Semi-structured interview **Data analysis:** Colaizzi's seven step analysis. Audio recordings transcribed in Persian then translated into English.		critical care units of Iranian public hospitals	**Context**: Interviews conducted between May to June 2020	**Age:** Average age 39.53; 28-50 years **Race:** Not reported **Educational level:** Not reported **Years of experience:** Average 17.69 Range 2-35 years **ICU regular workplace:** In ICU n=10 In CCU n=5	
Demir & Sahin 2022 Turkey	**Methodology:** Qualitative descriptive design **Data collection:** Semi-structured interview **Data analysis:** Colaizzi's seven step analysis	Phenomenology	To evaluate the experiences of nurses providing care to intensive care unit patients diagnosed with coronavirus (COVID-19) in Turkey.	**Setting**: Face to face via internet (platform not reported) **Context**: Interviews conducted between 25 May to 28 May 2020	**Participants:** 12 **Gender:** Male n=5 Female n=7 **Age:** Mean age 26 Range 21-35 **Race:** Not reported **Educational level:** Not reported **Years of experience:** Range 0-17 years nursing experience. Four nurses had no nursing or ICU experience. **ICU regular workplace:** General ICU n=1 Children's ICU n=1 Operating room n=4 Internal medicine service n=3 Surgical n=1 Anaesthesia n=1 Neurology n=1	Three main themes identified and include: fear and anxiety compromise care; difficulties in caring for COVID-19 patients in intensive care; coping with the difficulties in caring for COVID-19 patients in intensive care;

Study and country	Methodology, Methods for data collection and analysis	Theoretical model / framework	Phenomena of interest	Setting /context / culture	Nurse Characteristics	Description of main results
Fernandez-Castillo et al., 2020 Spain	**Methodology:** Qualitative descriptive design **Data collection:** Semi-structured interview **Data analysis:** Thematic (template) analysis	No reported	To explore and describe the experiences and perceptions of nurses working in an ICU during the COVID-19 global pandemic.	**Setting**: Interviews occurred online video call **Context**: Interviews conducted between 12 April to 30 April 2020	**Participants:** 17 **Gender:** Female n=11 Male n=6 **Age:** Range 31-54 **Race:** Not reported **Educational level:** Not reported **Years of experience:** Range 2-25 years ICU experience **ICU regular work place:** Not reported	Four main themes identified and included: providing nursing care; resources management and safety; psychosocial aspects and emotional lability; professional relationships and fellowship.
Gordon et al., 2021 USA	**Methodology:** Qualitative descriptive design **Data collection:** Semi-structured interview **Data analysis:** Content analysis	Not used	To explore the experiences of critical care nurses during the pandemic in central Texas.	**Setting**: Face to face interviews and using the encrypted Zoom platform. **Context:** COVID-19 pandemic. Dates not reported.	**Participants:** 11 ICU nurses **Gender:** Female n=7 Male n=4 **Age:** Median 33.6 **Race:** White n=8 Asian n=2 Hispanic n=1 **Educational level:** BSN n=7 MSN n=1 AD n=3 **Years of experience:** In practice: mean=7.9 In ICU: mean=7.2 In current unit: mean=3.6 **ICU regular work place:** Not reported.	Five themes were identified and included: emotions experienced, physical symptoms, care environment challenges, social effects, and short term coping strategies.
Hu et al., 2021 China	**Methodology:** Descriptive phenomenological	Phenomenology	Describe the lived experiences of ICU nurses who care for patients with COVID-19.	**Setting:** Interviews occurred online via the 'WeChat' application.	**Participants:** 13 ICU nurses **Gender:** Not reported.	Four stages of feelings about the phenomenon were identified: Initial response, Adaption, Desperation and Holding on and surviving.

Study and country	Methodology, Methods for data collection and analysis	Theoretical model / framework	Phenomena of interest	Setting /context / culture	Nurse Characteristics	Description of main results
	Data collection: Semi-structed Interview **Data analysis:** Colaizzi's seven-step framework			**Context:** Interviews conducted from March to April 2020.	**Age:** 21-38 with a mean age of 28.3 **Race:** Not reported. **Educational level:** Not reported. **Years of experience:** 1-13 years **ICU regular workplace:** Unclear, at least some of the participants were not regular ICU staff.	
Kentish-Barnes et al., 2021 France	**Methodology:** Qualitative description **Data collection:** Semi-structed Interview **Data analysis:** Thematic analysis	Not reported	To understand how ICU care was affected by the first surge of the epidemic—including work organization, professional relationships and patient and family-centred care.	**Setting:** Interviews occurred via audiotaped telephone calls **Context:** Interviews conducted from April to May 2020.	**Participants:** ICU physicians n = 12 Nursing supervisors n = 4 Nurses n = 7 Nursing assistants n = 4 **Gender:** Female n = 17 Male n = 10 **Age:** Mean age 34 years (26-52 years) **Race:** Not reported **Educational Level:** Not reported **Years of Experience:** Not reported. **ICU regular workplace:** All worked in ICUs during the first peak of the COVID-19 pandemic. No other data reported.	Six themes emerged: coping with initial disorganization and creating new routines, the intensification of professional relationships and the development of unexpected collaborations, losing one's reference points and recreating meaningful interactions with patients, working under new constraints, and developing novel interactions with family members, compensating for the absence of family members and rituals at the end of life, and the full engagement of ICU clinicians during the coronavirus disease 2019 crisis
Levi et al., 2020 USA	**Methodology:** Phenomenological **Data collection:** Semi-structured Interviews **Data analysis**: Colaizzi's (1978) seven-step method of qualitative data analysis	Phenomenology	To understand the lived experiences of nurses caring for COVID-19 patients in ICU and what this means for their personal and professional lives.	**Setting:** Interviews occurred via audiotaped telephone calls **Context:** The COVID-19 Pandemic. Dates not reported.	**Participants:** 10 ICU nurses **Gender:** Female n=9 Male n=1 **Age:** Mean age of 26.6 years **Race:** Caucasian **Educational level:**	Six themes identified: Change in practice, Emotion, Patient's family, Isolation, Job satisfaction and Public reaction.

Study and country	Methodology, Methods for data collection and analysis	Theoretical model / framework	Phenomena of interest	Setting /context / culture	Nurse Characteristics	Description of main results
					Associate degree n=3 Bachelor's degree n=6 Master's degree n=1 **Years of experience:** Mean years at job n=1.95 **ICU regular work place:** At least 6 months experience in ICU	
Lin et al., 2021 Singapore	**Methodology**: Narrative inquiry design **Data collection:** Demographic questionnaire and semi-structed interviews **Data analysis:** Narratively analysed	Not reported	To explore the narratives of ICU nurses' management of COVID-19 patient safety during the pandemic.	**Setting:** Interviews were conducted face to face in a private room away from the clinical setting. **Context:** Interviews undertaken between June to August 2020. Nurses work in an outbreak ICU.	**Participants:** 18 nurses **Gender:** Female n=13 Male n=5 **Age**: 25-39 years **Race: Not reported** **Educational level:** Not reported **Years of experience:** 2 to 10 years of nursing experience **ICU regular workplace:** Combination of both ICU nurses and nurses deployed from other wards.	The narrative of patient safety was described by three main storylines: The hands of clinical practice, The brain of psychosocial wellness and The heart of nursing.
Montgomery et al., 2021 UK	**Methodology:** Qualitative study with rapid analysis **Data collection:** semi-structured interviews **Data analysis:** Baehr's sociological lens of 'communities of fate'	Sociology concept 'community of fate'	The experiences of staff on the frontline during the first wave of the COVID-19 pandemic.	**Setting:** Telephone interviews **Context:** First wave of the COVID-19 pandemic. Interviews conducted from August to October 2020	**Participants:** Advanced critical care practitioner n=1 Dietitian n=1 Doctor n=9 Nurse n=21 Operating department practitioner n=3 Ward clerk n=2 TOTAL n=40 **Gender:** Female n=31 Male n=9 **Age:** Not reported **Race:** Not reported **Educational level:** Not reported **Years of experience:** Not reported	Seven features of a community fate identified: Danger recognition: fear and dread of COVID-19, Moral density: purpose and duty, Trial: ordeals in critical care, Closure: Isolation and the 'COVID-19 bubble', Material and organisational resources: learning and creativity, Axis of convergence: teamwork and Social rituals: donning and doffing.

Study and country	Methodology, Methods for data collection and analysis	Theoretical model / framework	Phenomena of interest	Setting /context / culture	Nurse Characteristics	Description of main results
					ICU Regular work place: 23 HCWs redeployed	
Moradi et al., 2021 Iran	**Methodology:** Qualitative descriptive approach **Data collection:** Semi-structured interviews **Data analysis:** Content analysis based on Granheim & Lundman method.	Not reported	Challenges experienced by ICU nurses caring for COVID-19 patients.	**Setting**: Face to face interviews **Context:** COVID-19 pandemic. Dates not reported.	**Participants:** 17 ICU nurses **Gender:** Female n=12 Male n=5 **Age:** 27-43 **Race:** Not reported **Educational level:** Bachelor's degree n=14 Master's degree n=3 **Years of experience:** 2-17 years **ICU regular workplace:** Nurses with at least one year of critical care experience	Four themes were identified: 'Organisation's inefficiency in supporting', 'Physical exhaustion', 'Living with uncertainty' and 'Psychological burden of the disease'.
Perraud et al., 2021 France	**Methodology:** Qualitative interview study **Data collection:** Interview guide with three questions. Participants had previously participated in a survey, not reported in this publication. **Data analysis:** Thematic analysis	Not reported.	Experiences and perceptions of different COVID-19 waves on ICU support staffs personal and professional lives.	**Setting:** Interviews were conducted via the telephone. **Context:** Two COVID-19 waves. The first wave (March to May 2020) and second wave (September to November 2020).	**Participants:** 30 Interviews with HCWs who worked in ICU. Nurses n=22, Anaesthesiology nurses n=2 Nurses' aides=6 **Gender:** Not reported **Age:** Average age 36.8+9.5years **Race:** Not reported **Educational level:** Not reported **Years of experience:** Not reported however, 23 of the participants had some form of critical care experience. **ICU regular workplace:** Unclear, However, some participants were reported as having either some ICU experience of none.	Four themes were identified: (1) Difficulties with integration; (2) Lack of ICU training; (3) Difficulties with the management team (insufficient communication); (4) Mental distress related to the unusual work and fear of giving COIVD-19 to other people.
Sezgin et al., 2021	**Methodology:** Descriptive qualitative methods	Not reported.	The experiences and perceptions of ICU nurses	**Setting:** Interviews conducted and recorded over the online platform ZOOM	**Participants:** 10 ICU nurses **Gender:** Not reported	Five major themes were identified: (1) Death and fear of death; (2) Impact on family and social lives; (3) Nursing care of Covid-19 patients; (4) Changing

Study and country	Methodology, Methods for data collection and analysis	Theoretical model / framework	Phenomena of interest	Setting /context / culture	Nurse Characteristics	Description of main results
Istanbul	**Data collection:** Semi-structured Interviews **Data analysis:** Thematic analysis		caring for COVID-19 patients.	**Context:** Between November and December 2020	**Age:** Mean age of 25 **Race:** Not reported **Educational level:** Bachelor's degree n=7 Master's degree n=3 **Years of experience**: Mean years of experience was 4 years. **ICU regular workplace:** Yes, all nurses had at least one years' experience in ICU.	perceptions of their own profession: Empowerment and dissatisfaction; (5) Experiences and perceptions of PPE and other control measures
Unver et al., 2022 Turkey	**Methodology:** Descriptive phenomenological **Data collection:** Demographic questionnaire and semi-structured interviews **Data analysis:** Colaizzi's phenomenological data analysis method	Phenomenology perspective	Skin changes related to PPE as experienced by ICU nurses during the COVID-19 pandemic.	**Setting:** Online through video conferencing **Context:** Interviews conducted between November 1st and December 25th 2020	**Participants:** 14 ICU nurses **Gender:** Female n=10 Male n=4 **Age:** Not reported **Race:** Not reported **Educational level:** Not reported **Years of experience:** Not reported **ICU regular workplace:** Not reported.	Six main themes identified: (1) Main causes of PPE-related skin changes; (2) The location of the skin changes caused by PPE; (3) Secondary adverse effects of PPE-related discomfort; (4) Symptomatology of PPE-related skin changes; (5) prevention of PPE-related skin changes; (6) Therapeutic interventions for curing for PPE-related skin changes.

Abbreviations: Intensive Care Unit (ICU), United States of America (USA), United Kingdom (UK), Coronavirus (COVID-19), Health-care workers (HCWs), Personal Protective Equipment (PPE), Associate Degree (AD), Bachelor of Science in Nursing (BSN), Master of Science Degree in Nursing (MSN).

Table 5. Overview of synthesised findings

Total	Label	Category	Synthesised Finding
Papers: 9 *Findings:* 12 *Categories: 3*	F18, F31, F67, F77, F102, F28	Improved teamwork and support	**Working as a team to adapt to the challenges of the pandemic:** CCNs described how they supported each other through what was described as a "warzone" by one of the participants. Increased team support was seen through intensified discussions between colleagues after work, communication from nursing leaders in the organisation and an overall feeling of the 'team' working and communicating more effectively in the workplace. CCNs perceived the support from colleagues as an important coping strategy. CCNs also described how the COVID-19 pandemic resulted in a new work environment with the requirement to care for multiple critically unwell patients, changes in professional responsibilities and working on different wards with different team members. However, CCNs described how they adapted to these challenges and used their critical thinking skills to ensure patient safety.
	F19, F76	Adaption	
	F1, F13, F29, F43, F82	New Routine	
Papers: 8 *Findings:* 17 *Categories: 3*	F4, F26, F46, F78	Increased patient acuity	**Striving to provide patient centred care:** CCNs reported an increase in the acuity of patients, with many patients being proned and paralyzed and described them as the "sickest patients they've ever seen". CCNs also described the impact COVID-19 had on nursing care. CCNs felt that the PPE made it hard to form a 'personal connection' with patients, hindered communication and prevented CCNs from entering the patients' room in a timely manner during an emergency. Personal hygiene and PAC were also impacted due to the workload experienced by CCNs during the pandemic. As a result of the increased acuity and diminished nursing care, CCNs experienced a range of emotions including 'helplessness', 'distance', 'anxious' and 'scared'.
	F14, F22, F55, F59, F61, F84, F120, F121	Impacted nursing care	
	F26, F48, F46, F93, F78	CCNs Emotions	
Papers: 6 *Findings:* 6 *Categories: 2*	F15, F56	Death-patient outcome	**Coping with frequent deaths in the ICU:** CCNs describe the impact COVID-19 had on the amount of death seen in ICU and the despair this created amongst staff and patients. Death in the ICU was described as "repetitive" and CCNs felt that "everyone was dying", despite the care they were giving patients. CCNs also described how they felt being "the last one to see the body" and how young patients were helpless and talking about how "they didn't want to die." The impact of the high number of deaths in the ICU on the CCNs resulted in many of them feeling like they could no longer continue to work in healthcare.
	F80, F85, F99, F118	Despair	
Papers: 4 *Findings:* 5 *Categories: 1*	F54, F87, F3, F79, F101	Patients' family members	**Challenges of supporting patients' family from a distance:** CCNs described the interactions they had with the family members of patients' during the pandemic. Experiences of patients dying after talking on the phone to distressed family members and family members only being able to see their family through a glass window were both described as "stressful" with the CCNs crying while describing these experiences. However, one nurse described the emotional experience of a patient talking to a relative for the first-time post extubation and how "fantastic" this was. Additionally, due to the restrictions placed on visitors during the pandemic, CCNs were required to create new ways to communicate and involve family members, including video calls and emails, where they printed off pictures to personalise patient rooms.

Total	Label	Category	Synthesised Finding
Papers: 13 *Findings:* 31 *Categories:* 5	F16, F23, F37, F41, F45, F52, F58, F74, F86, F92, F96, F111, F113, F17, F75, F5	Emotions-personal	**The psychological impact of caring for critically unwell patients with COVID-19:** Nurses expressed emotions related to a feeling of "insufficiency" to be able to adequately care for patients with COVID-19 and the resultant stress and anxiety this caused them. The amount of death and the amount of critically unwell patients caused feelings of "hopelessness" and fear. Nurses described feelings of depression and "bursting into tears after getting off work". Nurses also described a great fear from seeing previously healthy, often young individuals become critically unwell, as well as fear around knowing of other nurses contracting COVID-19 and dying. Some nurses even expressed a desire to change careers as they felt they could no longer continue to work in healthcare after the pandemic. However, one nurse described a feeling of "hope" when patients slowly started to get better." CCNs described their frustration with other healthcare workers refusing to enter a COVID-19 patients' room, often resulting in them being the only one "in the box" and required to undertake duties that were not within their scope of practice. Physical challenges arose with nurses stating they were often sweating when undertaking patient care, feelings of exhaustion from the increased workload, headaches, feeling generally uncomfortable, and unable to sleep after work. Despite the immense personal challenges faced by nursing staff in the critical care unit, many felt they had a moral duty to look after critically unwell patients with COVID-19. Throughout the course of the pandemic nurses described ways of coping such as; exercise, prayer, seeing s therapist and music.
	F2, F6, F21, F25**,** F72	Work challenges	
	F49, F50, F51, F27	Physical challenges	
	F36, F95	Moral duty	
	F20, F69, F70, F71	Ways of coping	
Papers: 12 *Findings:* 23 *Categories:* 4	F60, F91, F114, F115, F12, F34, F7, F9	Changing protocols/environment	**Working through the challenges of the ICU setting during the pandemic:** Nurses described moving to different clinical areas, many they were unfamiliar with and some that were not designed for critically ill patients. Nurses reported their concerns around the constantly changing environment and the potential effect on patient care this had. One nurse reported a lack of ventilators, while another nurse described a distressing situation where she was unable to reach her patient during an emergency in a timely manner due to the change in the "work processes". New nurses to the ICU also discussed the lack of training and introduction to the unit they had, some reporting none. CCNs described the shortage of skilled ICU nursing staff, resulting in an inability for senior staff to go on tea breaks and the stress of having to care for multiple unwell patients without other trained staff around to assist. An ongoing theme of CCNs feeling like management was not present or supportive during the pandemic. CCNs felt that management was "not present", "they were alone" and "the system is not much concerned about personnel". Additionally, one nurse reported having received a pay cut at the beginning of the pandemic. Many of the nurses in this study felt that if management had visited them during the pandemic that their "moral" and "motivation" would have been improved and their presence would have "gone a long way". Importantly, many CCNs reported that they were unable to access their personal leave because their hospital or organisation would not allow them too.
	F40, F42, F97, F98, F124	Shortage of ICU nursing skills	
	F8, F30, F32, F90, F100, F104, F116	Management/Organisation	
	F105, F122, F125	Access to personal leave	

Total	Label	Category	Synthesised Finding
Papers: 7 *Findings:* 21 *Categories:* 4	F53, F107, F108, F123, F126, F127, F128, F129, F132, F133, F103	Physical consequences of PPE	**The challenges of wearing personal protective equipment whilst undertaking patient care:** The PPE worn by CCNs when caring for COVID-19 resulted in dehydration, skin irritation, excess sweat, rashes on the face, pain, headaches, acne, constipation, UTIs, and facial injuries. The resultant discomfort and amount of PPE required made CCNs feel like patient care was impacted. Increased time to don PPE and the increased difficulty of undertaking certain tasks, such a CPR were also described by CCNs. CCNs also described their fear associated with the lack of adequate PPE provided to them by their hospital. Many CCNs had to purchase their own PPE to ensure adequate protection. CCNs adapted to the required PPE by using moisturising creams and researching and purchasing equipment to increase their comfort during shifts.
	F83, F130, F131, F73	PPE and patient care	
	F57, F94, F106	Reduced PPE	
	F134, F135, F136	Adaption	
Papers: 9 *Findings:* 21 *Categories:* 4	F33, F44, F47, F62, F88, F109, F110, F117, F81	Fear of infection	**The impact of working in the ICU during the pandemic on life at home:** CCNs were more concerned about infecting family and friends with COVID-19 more than their personal well-being. CCNs also described their fear and stress due to repeat exposure to a disease that was relatively unknown. CCNs often avoided family and friends, often resulting in feelings of "loneliness." The added stress of additional responsibilities such as child care at home after work was also discussed. CCNs also described the effect of COVID-19 in the media and the many rumours and false information that was presented and how this impacted themselves and the patients they cared for. One CCNs explained how providing appropriate evidence for their patients was seen as "one of the most important tasks". Importantly, CCNs described how emotionally they leant on their family and friends for support during this time period.
	F10, F63, F89, F35	Media/False information	
	F39, F68	Support	
	F64, F65, F66, F112, F119, F24	Changes at home	

Abbreviations: Critical Care Nurses (CCNs), Personal Protective Equipment (PPE), Finding (F)

Supplementary Table 1: Database search

Database: OVID MEDLINE 1946 to March 08/03/2022		
Symbols used in this document:		
MH = Main Heading or "MeSH Heading"		
+ = Explodes the "MeSH Heading"		
" " finds a phrase		
Asterisk (*) = truncates stem of a word		
n5 = finds words within 5 words of each other		
? = wildcard that finds alternate spellings of a word		
Search #	**Search Terms/Strategy**	**# of Results**
1	(nurse or nursing or nurses or nursing care or nursing staff).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	724006
2	(icu nurse or intensive care nurses or critical care nurse or critical care nursing).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	4728
3	(covid-19 or coronavirus or 2019-ncov or sars-cov-2 or cov-19).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	179157
4	(qualitative research or qualitative methods or interview).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	237248
5	(experiences of perceptions or attitudes or views or feelings or perspective).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	506264
6	(ICU or intensive care unit or critical care).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]	181798
7	1 or 2	724006
8	4 or 5	701647
9	3 and 6 and 7 and 8	74

Supplementary Table 1: Database search

10	limit 9 to english language	73
11	limit 10 to "all adult (19 plus years)"	23

Database: CINHAL		
Symbols used in this document:		
MH = Main Heading or "MeSH Heading"		
+ = Explodes the "MeSH Heading"		
" " finds a phrase		
Asterisk (*) = truncates stem of a word		
n5 = finds words within 5 words of each other		
? = wildcard that finds alternate spellings of a word		
Search #	**Search Terms/Strategy**	**# of Results**
1	nurse or nursing or nurses or nursing care or nursing staff **Expanders-** apply related words; Apply equivalent subjects **Search modes**-Boolean/Phrase	(2,446,041)
2	icu nurse or intensive care nurses or critical care nurse or critical care nursing **Expanders-** apply related words; Apply equivalent subjects **Search modes**-Boolean/Phrase	(57,111)
3	covid-19 or coronavirus or 2019-ncov or sars-cov-2 or cov-19 **Expanders-** apply related words; Apply equivalent subjects **Search modes**-Boolean/Phrase	(556,304)
4	qualitative research or qualitative methods or interview **Expanders-** apply related words; Apply equivalent subjects **Search modes**-Boolean/Phrase	(1,102,163)
5	experiences of perceptions or attitudes or views or feelings or perspective **Expanders-** apply related words; Apply equivalent subjects **Search modes**-Boolean/Phrase	(2,894,918)
6	ICU or intensive care unit or critical care **Expanders-** apply related words; Apply equivalent subjects **Search modes**-Boolean/Phrase	(615,919)
7	S1 OR S2 **Expanders-** apply related words; Apply equivalent subjects **Search modes**-Boolean/Phrase	(2,446,041)
8	S4 OR S5 **Expanders-** apply related words; Apply equivalent subjects **Search modes**-Boolean/Phrase	(3,655,547)
9	S3 AND S6 AND S7 AND S8 **Expanders-** apply related words; Apply equivalent subjects **Search modes**-Boolean/Phrase	(565)
10	S3 AND S6 AND S7 AND S8 **Expanders-** apply related words; Apply equivalent subjects **Narrow by Language**:-English **Search modes**-Boolean/Phrase	(546)
11	S3 AND S6 AND S7 AND S8 **Expanders**- apply related words; Apply equivalent subjects **Narrow by SubjectAge**:- all adult 19+ years	(70)

Supplementary Table 1: Database search

	Narrow by Language:-English **Search modes**-Boolean/Phrase	

Database: EMBASE 1980 to 2022		
Symbols used in this document:		
MH = Main Heading or "CINAHL Heading"		
+ = Explodes the "CINAHL Heading"		
" " finds a phrase		
Asterisk (*) = truncates stem of a word		
n5 = finds words within 5 words of each other		
? = wildcard that finds alternate spellings of a word		
Search #	**Search Terms/Strategy**	**# of Results**
1	(nurse or nursing or nurses or nursing care or nursing staff).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]	784031
2	(icu nurse or intensive care nurses or critical care nurse or critical care nursing).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]	3450
3	(covid-19 or coronavirus or 2019-ncov or sars-cov2 or cov-19).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]	293974
4	(qualitative research or qualitative methods or interview).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]	464290
5	(experiences of perceptions or attitudes or views or feelings or perspective).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]	601772
6	(ICU or intensive care unit or critical care).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]	372851
7	1 or 2	784031
8	4 or 5	999699
9	3 and 6	25516
10	7 and 8 and 9	176
11	limit 10 to english language	171
12	limit 11 to adult <18 to 64 years>	103

Supplementary Table 2. Study findings and illustrations

Study		Evidence			Label
		Unequivocal	Credible	Not supported	
Study	**Bergman et al., 2021**				
Finding	**Tumbling into chaos**				
Illustration	In the beginning, you were overwhelmed when you came to work. […]. I will always remember those first weeks. It felt like it was a warzone, and I just have to make sure that my patients survive during my shift. This is for real and it is bad. (Participant 137)	X			F1
Finding	**Diminished nursing care**				
Illustration	Each day when I came to work, I had to care for patients that I did not have the competence to care for. Each day, I saw patients just lying there, naked, and fighting for their lives, without any possibility to do something about it. Each day, I felt that I am insufficient and thus have developed stress that has affected my sleep, which made me extremely tired. I have no idea how this will affect me in the long-term and I am not even sure that I will have the strength to continue working in healthcare after this. (Participant 174)	X			F2
Finding	**Transition to pandemic ICU care**				
Illustration	The moment when you hold the phone and the patient speaks to a relative for the first time in weeks, after the patient has survived mechanical ventilation and been extubated, was fantastic. It gave me goose bumps and tears burned in my eyes. (Participant 82)	X			F3
Study	**Bethel et al., 2022**				
Finding	**Patients**				
Illustration	"Very sick, they made it tough to the ICU. I've been in this unit for about a year and a half, two years … I don't really recall paralyzing and proning patients nearly at the volume that we were for, for these COVID patients. So they were very, very sick." – participant #4.	X			F4

Finding	**Critical care nurses**				
Illustration	"I've been on my unit for 15 years, um, and I'm, I'm one of the night charges … The breed of people who like ICU nursing are a very specific subset type of people, generally very 'type a', detail oriented."	X			F5
Finding	**Nursing tasks for the patient**				
Illustration	"The RT would phone in to me and tell me, like, I would talk over the breath sounds, what was going on with the vent. And they would tell me where to put the vent settings, you know? Um, but I would do, like, I would be the only one in the room there also early on, because we didn't know a lot about this."– participant #13.	X			F6
Finding	**Tools & technology**				
Illustration	"So the ventilators, we were using pretty much the full capacity, they were very old and were getting ready to retire. And then at some point, we were short on those tubes that go from the tube to the ventilator, those extensions, I remember, were really short." –participant #8.	X			F7
Finding	**Organization**				
Illustration	"Upper management was nowhere to be seen during the pandemic. I mean, they did what they called leadership rounds, but nobody, by that time you've been ripped to pieces. No one has any time for you right now. You know, if you're not bringing help, then we don't need to see you right now." – participant #5.	X			F8
Finding	**Internal environment**				
Illustration	"We turned [the paediatric unit] into the COVID ICU for adults. It wasn't really equipped for ICU patients so there were a lot of things that had to be changed. We had to switch out the monitors to ICU monitors. They weren't in negative pressure rooms, actually. What they had to do was turn the entire floor into a negative pressure floor so that we didn't constantly have COVID going around the whole unit all the time and being aerosolized." –participant #2.	X			F9
Finding	**External Environment**				
Illustration	"You know, you're safe inside your house and you're safe within your four walls, but it wasn't like that for us. We would, I would, watch it all day or all week on TV and you know, you absorb all those negative 'COVID isn't real' comments. Those types of things got really bad in the political climate and it was all tied into what, for some reason it was all tied into what we were doing. And so as a healthcare worker, you go and you see these things firsthand and you see people dying and begging for their life." – participant# 5.	X			F10
Finding	**Physical Work Processes**				
Illustration	"It was the hardest thing I have ever done in my nursing career, both emotionally and physically … we had probably ten codes minimum a day by noon and probably lost two to three patients a day." - participant #15.	X			F11
Finding	**Cognitive Work Processes**				
Illustration	"We had a lot going on in regards to trying to organize communication with the families because the families were wanting to come in and they weren't allowing visitors at that point. So it just was a kind of, like I said, it was just every day something new and then like next day something would change and it got fairly	X			F12

	overwhelming pretty quick." – participant #19.				
Finding	**Social/behavioral Work Processes**				
Illustration	" I mean, it's one of the things where we're working in new areas, not with the same teammates, the same coworkers we've had before, and we're not too sure exactly what these other nurses' strengths and weaknesses are. So it kind of made it really challenging to know who I can lean on to compensate for my weaknesses, while I'm building up their weaknesses at he same time." – participant #10.	X			F13
Finding	**Patient outcomes – Missed Care**				
Illustration	"We didn't have time for certain like nursing interventions, like turning patients or giving them mouth care or doing some typical things that we would do on a very consistent basis and suddenly became like 'only when you had time' basis. So we definitely had to ration the care that we gave to our patients and our other staff members would always be helped too. So yeah, it definitely impacted the care that we gave patients." – participant #16.	X			F14
Finding	**Patient Outcomes – Death**				
Illustration	"And so one individual said that it was like a fish bowl at death, awful description, but it was pretty brutal. Yeah, because the whole thing, the whole place is clear and everyone dying." – participant # 9.	X			F15
Finding	**Nurse outcomes – negative**				
Illustration	"It was pretty bad. Um, literally having had so much anxiety before going to work each day. I knew that there was a chance that I would be put in a situation where, you know, I would try my best and it's like, it would still be very bad. Anxiety that I would miss something. I had trouble sleeping … it will impact me forever. " - participant # 18.	X			F16
Finding	**Nurse outcomes – positive**				
Illustration	"It was kind of like a savior for me because everything was shut down. There was nothing to do. Other than, if you weren't at work, you were at home doing nothing because everything was shut down. So I saw it as a safe place for me to go, and I felt like I was needed there." – participant #12.	X			F17
Finding	**Organizational outcomes**				
Illustration	"I think we learned a lot about like this virus and what works and what doesn't work. We're still learning a lot, but we also learned that we can, you know, work together and figure it out, you know, like use those critical thinking skills and just work together and be there for each other." – participant #20	X			F18
Finding	**Patient Care Adaptations**				
Illustration	**"**We even implemented those little walkie-talkies … You would just press the walkie talkie, "Hey, can somebody bring me that," like to whoever is available outside and not in PPE." – participant # 8.	X			F19
Finding	**Coping Adaptations**				
Illustration	"I'm seeing a therapist, starting to eat healthy again, because I'm not working four to six to seven shifts a week. It's a lot about going back to taking care of myself because I for sure have not done that in the last year plus, talking to people, it can be helpful, but a lot of it's personal and it's very hard to explain to somebody that didn't go through it." – participant 15.	X			F20

Study	**Brockopp et al., 2021**				
Finding	**Expendable Dirty Heroes**				
Illustration	"We have to beg them to see these (COVID-19) patients; they will not go in the room."		X		F21
Finding	**Weird Changes**				
Illustration	"Because of PPE requirements, they could not touch patients in any meaningful way and as a result felt distant and noncaring"	X			F22
Finding	**Emotional**				
Illustration	"This little virus causes so much destruction and chaos."	X			F23
Finding	**Sadness**				
Illustration	"I do not know how I do not cry at work. I cry at home."	X			F24
Finding	**Anger**				
Illustration	"You come in and you have to advocate, advocate, advocate—why do I have to spend so many minutes or hours of my day convincing a person who works here as I do. 'I' have to go in there. That's the part that's kind of exhausting."	X			F25
Finding	**Anxiety**				
Illustration	They are so sick (COVID-19 patients), the sickest I've ever seen. It's scary, you know."	X			F26
Finding	**Physical**				
Illustration	"You worked your butt off. You were tired; youwere freak ingtired at the end of the day."	X			F27
Finding	**The Importance of Presence**				
Illustration	"She fought for us, our being scared, our being worried, our PPE, she just, she was there; I do not know when she slept."	X			F28
Study:	**Cadge et al., 2021**				
Finding	**Challenges of working with new co-workers**				
Illustration	"I think communication was definitely a challenge at first, being able to have two cooks in the kitchen and understanding what role each of them played in the patient care I think was difficult"	X			F29
Finding	**Challenges of maintaining existing working relationships**				
Illustration	"I think that there should have been more check ins with the nursing staff that got floated, for sure, because you took them from their comfort home, you took them from doctors they know, you took them from a layout of a floor that they know and you dumped them in a unit that you had no clue about"	X			F30
Finding	**Role of nursing leadership in providing information and maintaining morale**				
Illustration	"I felt so protected and supported from [the CNS] and she would send us emails almost every night to give updates and it was clear communication that was delivered so efficiently and so frequently… I think the changing nature of it… is what made it so scary, and being unsure if we were doing [the right thing] … It just gave us a clear direction and that's why I also feel very lucky to have been on my unit [and] to have had that authority"	X			F31
Finding	**Importance of institutional level acknowledgement of their work**				
Illustration	"…it would have been nice if [higher administration] came and just saw what we were doing in person and like said thank you in person. I know that's like very anti-COVID, but it, it would have gone so far"	X			F32
Study	**Chegini et al., 2021**				

Finding	**Psychological challenges**				
Illustration	"At the time of the outbreak and while caring for our patients, our greatest concern was the stress of getting infected by the virus"	X			F33
Finding	**Organisational challenges**				
Illustration	"In the early days, we tackled the shortage of manpower in many wards of hospitals providing services to COVID-19 patients. Some employees were scared, and they disappeared. Staff shifts were longer than before, and the workload was very high"	X			F34
Finding	**Social challenges**				
Illustration	"Early in the onset of the disease, there were many rumours, and one of our most important tasks when serving was to counter these rumours and provide appropriate evidence for patients"	X			F35
Finding	**Professional challenges**				
Illustrations	"I never thought about taking a leave of absence from work"		X		F36
Study	**Demir & Sahin 2021**				
Finding	**Fear and anxiety compromise care**				
Illustration	"I am very anxious and hopeless because the patients we care for are suffering from a disease that is widespread worldwide and still has no vaccine or clear treatment"	X			F37
Finding	**Difficulties in caring for COVID-19 patients in intensive care**				
Illustration	"The boots and galoshes we wear on our feet; the box apron we wear; and three layers of gloves, cap, surgical mask, protective overalls, N95 masks, goggles, and the visor—we have had to work like astronauts"	X			F38
Finding	**Coping with the difficulties in caring for COVID-19 patients in intensive care**				
Illustration	"When I got the chance, I talked to my family, and when I had a hard time, I called my close friends"	X			F39
Study	**Fernandez-Castillo et al., 2020**				
Finding	**Providing nursing care**				
Illustration	"There have been times when the need for a critical care specialty has become apparent […] I have worked with inexperienced people and I thought: I either do their job and that person does nothing or I send them to war without weapons. You find benefit in all ways with specialization"		X		F40
Finding	**Psychosocial aspects and emotional lability**				
Illustration	"First it was a bit of uncertainty and fear of the unknown. The first time I took care of a patient with COVID-19 I couldn't stop sweating … you forget that you are taking care of a person and you think that it is the COVID-19 itself which is in bed looking at you to see if you make any mistake. When you enter to the box more times you realize that you have given it too much importance and you have been very afraid of it"	X			F41
Finding	**Resources management and safety**				
Illustration	"[…] Supervision has managed to decrease the ratio. Yes, it is true that we have experienced everything in personnel … very prepared people, but then new nurses vomiting in the boxes, with fainting fits, telling you that they are going to reject the contract so as not to come any more … you cannot bring in someone who has never worked in an ICU to deal with COVID- 19"	X			F42
Finding	**Professional relationships and fellowship**				

Illustration	"[…] With this minimization of contact and isolation, we are doing tasks that do not correspond to us by professional category, such as doctors changing the medication if they are already inside (the box) or setting the thermometer […] we modify parameters in the IMV. If you are inserting a central venous line, it is the doctor who helps you by giving you material… etc."	X			F43
Study	**Gordon et al., 2021**				
Finding	**Anxiety/stress**				
Illustration	"But with these patients, because of the risk to myself (crying) and the risk of bringing home something to my family, it is very high stress."	X			F44
Finding	**Fear**				
Illustration	"I'm terrified. You know seeing a person that's really healthy gasping for air on 100% FiO_2 on bipap and realizing that could be me because I'm being more exposed to this situation than the majority of the population at this moment."	X			F45
Finding	**Helplessness**				
Illustration	"In some ways it's a feeling of helplessness with these patients because you kind of sit there and watch them suffer and there's not a whole lot you can do about it."	X			F46
Finding	**Worry**				
Illustration	"I'm worried that I'm going to take it home to the people that I care about... I'm just worried that they'll be exposed elsewhere and being that I have seen how it can go, I worry about that...I just worry about my family..."	X			F47
Finding	**Empathy**				
Illustration	"I learned to empathize with my patient, being in their shoes...That's what happened here, knowing his situation, knowing that he has kids that love him, care for him, the same level that I would love my parents."	X			F48
Finding	**Sleep disturbances**				
Illustration	"Yeah, sleeping wasn't a thing. I didn't really sleep."	X			F49
Finding	**Headaches**				
Illustration	"I will have a headache every single day. I mean without a doubt."	X			F50
Finding	**Discomfort**				
Illustration	"I mean it's uncomfortable and you feel uncomfortable in your skin the whole time you're there."	X			F51
Finding	**Exhaustion**				
Illustration	"You're just exhausted."	X			F52
Finding	**Breathlessness**				
Illustration	"Wearing that mask for so long I don't wanna say you couldn't breathe but you just feel like you're breathing heavier and harder… you just feel like you're kind of lightheaded after a while because you have to breathe differently."	X			F53
Finding	**Nurse as surrogate**				
Illustration	"The family sits outside the room and we've kind of pushed the bed as close as we could to the door so they could be as close as they could be. I think three of us were	X			F54

	in there...[we] just held their hand and it's just very different. Usually that would be the family there and we would be outside the room giving them their time and talking a little bit more to the family...it's a very weird experience. At least we're there for them... I know a lot of us care a lot for them (crying)."				
Finding	**Inability to provide human comforting connection**				
Illustration	"It just feels more distant because you're gowned up you feel like you're in a suit all the time. You can't really make that personal connection, they can't see you, you're in a mask and glasses…"	X			F55
Finding	**Patients dying**				
Illustration	"it's like you know maybe we eventually will be able to flip them back over and then they're on their back for weeks but then in the end they end up dying anyways. So, yea that's our outcomes are typically people are dying…"	X			F56
Finding	**PPE**				
Illustration	"That in itself is just terrifying, the fact that I'm supposed to be working in an industry that gives, that has all the equipment that I need to do my job… It's like saying to a firefighter now you go to fight a fire but you gotta use a garden hose… We were too ill prepared as a country in general."	X			F57
Finding	**Isolation**				
Illustration	"The sheer isolation of it all I think has been the most difficult"	X			F58
Finding	**Care delay**				
Illustration	"I feel like I can't get to them fast enough then I feel in my mind that I am part of the problem in the number of COVID patients dying."	X			F59
Finding	**Changing practice guidelines**				
Illustration	"I feel like there's new interventions every week."	X			F60
Finding	**Language barrier**				
Illustration	"Language line is hard to use…through a plastic bag with somebody that has bipap making all this noise, it's hard to hear for them to hear me through the translator and for the translator to hear them…its almost impossible."	X			F61
Finding	**Stigma**				
Illustration	"You almost feel like the bubonic plague just walking around… that if someone touches you that they're gonna die instantly."	X			F62
Finding	**Healthcare hero perception**				
Illustration	"Everybody calling us heroes all the time; I don't like it because I don't think any of us feel like a hero right now."	X			F63
Finding	**Additional responsibilities**				
Illustration	"So not only was I a nurse…but I was also a teacher…there's no day off…so it's just something you have to power through"	X			F64
Finding	**Strained interactions with others**				
Illustration	"My attitude towards that dish that was left in the sink or…really stupid stuff…I'd ask my wife, 'why am I the only person that's sees this?'"	X			F65
Finding	**Isolation/loneliness**				
Illustration	"Just being isolated, I can't go do things, I can't go see anybody, the only place I can really go is work. It was just very isolating."	X			F66
Finding	**Co-worker support**				

Illustration	"Your co-workers, they're along with you during this same crazy time…they are a huge support."	X			F67
Finding	**Social support**				
Illustration	"My family helps me get through stuff too."	X			F68
Finding	**Distraction**				
Illustration	"Music helps me a lot. Uplifting music."	X			F69
Finding	**Mind/body wellness**				
Illustration	"I work out a lot that is also a good stress reliever for me that kind of helps stress get off my brain so that's always nice."	X			F70
Finding	**Spirituality/faith**				
Illustration	"Prayer. A lot of prayer (crying)."	X			F71
Study:	**Hu et al., 2021**				
Finding	**Stage 1: initial response**				
Illustration	'I was suddenly told that I was going to work in the ICU, and my head was buzzing. I am especially worried that I might not be able to do this (take care of patients with COVID-19 in ICUs). I was thinking, if you let me go, I would not do anything. It's such an anxious state. I am afraid that I will not take care of others (K)'.	X			F72
Finding	**Stage 2: adaption**				
Illustration	'We wear three layers of gloves, isolation gowns, and one layer of gloves, protective clothing and another layer of gloves, and another layer of gloves and three layers of gloves when doing operations (M).'		X		F73
Finding	**Stage 3: desperation**				
Illustration	'During the difficult time, my colleagues had crashed, including feeling depression. I felt that I was powerless and collapsed due to high-intensity work and patients kept passing away in front of me. Many people (nurses) burst into tears after getting off work and felt that they could not keep going (L)'.	X			F74
Finding	**Stage 4: holding on and surviving**				
Illustration	'Until later, the patient slowly got better and went out, and slowly there was hope (B).'		X		F75
Study	**Kentish-Barnes et al., 2021**				
Finding	**Coping with initial disorganization and creating new routines**				
Illustration	"After a few days, we got used to the situation, we knew what to do, we had adapted our practices" (01N02).	X			F76
Finding	**The intensification of professional relationships and the development of unexpected collaborations**				
Illustration	"In the evening, we wait for each other and we talk about how we feel. We try to support each other. There's always one of us who's feeling a little bit better than the others, so it's pretty much okay. (...) We're there for each other and yes I think that it's stronger than usual" (02N01).	X			F77
Finding	**Discovering the unique features of COVID-19 patients: from losing one's reference points to recreating meaningful interactions.**				
Illustration	"When patients arrive awake and we have to intubate them immediately, we try to create a quick relationship, because they are alone, without their family and we are maybe the last ones who will see them conscious. So, we have to make sure we're	X			F78

	reassuring, as we don't want the patient to feel anxious, we're responsible of what might be the last image he will see" (01N02).				
Finding	**Family members: working under new constraints and developing novel interactions.**				
Illustration	"For some patients we organize video calls, even if the patient is intubated. But at least the family can see the room and see what's going on, because just explaining with words (…) is very difficult" (02NA04).	X			F79
Finding	**End-of-life care: compensating for the absence of family members and rituals.**				
Illustration	"The body is wrapped in a body bag, and we're the last ones to see the body. (...) It's been very difficult for me (…) to realize that it's over; it's me and the patient, and then it's over. I know that once the zip is closed, once we get him to the morgue, no one will ever see him again, his family won't see him. (…) It's the only thing that really deeply touched me" (03N02).	X			F80
Finding	**The ICU clinician: full engagement in the face of the coronavirus disease crisis.**				
Illustration	"What scares me the most is not necessarily being infected by the coronavirus, but it's the risk of passing it on to someone else, someone close to me. (...) I'm not scared for myself; I'm scared for my family and friends" (03NA03).	X			F81
Study	**Levi et al., 2020**				
Finding	**Overburden**				
Illustration	"I had two patients by myself and both just crashed at the same time . . . it just became a very stressful situation to get the help that I needed."	X			F82
Finding	**Knowledge**				
Illustration	We didn't know if PPE was going to be effective. We thought it's really going to affect only those who are older or are immunocompromised, and very quickly our patient population was not representing that. With all of the obstacles, like PPE and not understanding the disease, (it) made taking care of these patients so much scarier.	X			F83
Finding	**Quality of care**				
Illustration	"I couldn't (get in the room fast enough), and it caused my patient harm."	X			F84
Finding	**Futility**				
Illustration	"Every day you come in and you see the same type of patients over and over again. You see people die over and over again. It's just like repetitive."	X			F85
Finding	**Emotion**				
Illustration	"I definitely have felt like angry, like angry at my co-workers, angry at doctors, like just angry at people. I find myself just snapping at people and like, honestly, yelling sometimes, which is not like me."	X			F86
Finding	**Patients' family**				
Illustration	I think, um, honestly . . . (sniffling, voice cracking) the worst experiences are the most stressful experiences with families. There was this one woman (and) her children on the telehealth, taking turns (talking), and she ended up passing that night, and (crying hard now) they said, "Mom, you've got to get better, (voice cracking), you just can't leave us now." And that's just not the way to say goodbye to people.	X			F87
Finding	**Isolation**				

Illustration	When we first started, I wouldn't go around my parents . . . or grandparents for the fear that I was going to be the cause to get them sick. It was really hard . . . I went, like, two months without seeing them.	X			F88
Finding	**Public reaction**				
Illustration	"I think the hardest part, is for me, seeing how the rest of the world, especially in the beginning, didn't take it seriously, and didn't social distance, and still don't now."	X			F89
Finding	**Job satisfaction**				
Illustration	You know, toward the beginning . . . (they) cut our pay. We just felt like that was such a big slap in the face, and that definitely contributed, I think, to a lot of our stress. Now we're getting COVID pay. We just talk about all the time how we wish administration and higher ups would come down to the unit for a day and see what we deal with.	X			F90
Study	**Lin et al., 2021**				
Finding	**The hands of clinical practice**				
Illustration	'It will take more time to enter the patient's room; there was once when my patient was on dialysis and the heart rate crashed to 30 (beats per minute). But I cannot run in; I needed to wear my personal protective equipment and all'. Janice further elaborated that 'work processes are different... how we send off specimens, communicate with colleagues, and plan care activities are different. It makes work more inconvenient'.	X			F91
Finding	**The brain of psychosocial wellness**				
Illustrations	When I see the cases, that can be quite emotionally straining. We had one patient who is pregnant, and we were hoping against all hope that she will get better. And when she got worse, we were just so upset'	X			F92
Finding	**The heart of nursing**				
Illustration	'as a nurse, one of the biggest roles is to be the patient's advocate; and COVID-19 really call upon us to be the patient's advocate'.	X			F93
Study	**Montgomery et al., 2021**				
Finding	**Danger recognition: fear and dread of COVID-19**				
Illustration	"There probably was an existential angst in the background because you always thought, 'oh god, are they going to run out [of PPE]? Are we going to have to make one set last all day? …I had a couple of sleepless nights thinking, 'oh, what's it going to be like tomorrow?" (Redeployed nurse)	X			F94
Finding	**Moral density: purpose and duty**				
Illustration	"I just felt I had to do it…a lot of the people who were there who were going back in, lots of the staff were, I think, there was lots of talk of them all having written their wills … you know, you're aware of the health workers in critical care who had died and had become ill and died in China and in Spain and also in London." (Redeployed nurse)	X			F95
Finding	**Dislocation**				
Illustration	"The theatre nurses were really very anxious and very upset, and there was a lot of time spent on their emotional wellbeing. So, sometimes they would leave the ward in tears, because they felt they couldn't cope, you know? It was very traumatic for everybody." (Critical Care Nurse)	X			F96
Finding	**Responsibility**				

Illustration	"It wasn't safe to go to the toilet sometimes because junior staff that were on, you couldn't leave. Hence why sometimes I didn't get lunch of breakfast for six, seven hours." (Critical Care Nurse)	X			F97
Finding	**Caring for patients**				
Illustration	"I pretty much fell apart on, on a regular basis and I remember having a panic attack in in the middle of the unit, round there, because I had 4 haemofiltrations running and I was the only person in the entire place and we had 10 levels 3's, three of which were proned, four were haemofiltered and I was the only person filter trained." (Critical Care Nurse)	X			F98
Finding	**End of life**				
Illustration	"I've dealt with death a lot over the years, but there was one day that I just… I thought, I can't… If I have to do that again, look after somebody dying, I don't know if I could do it, and I've never had that experience before, with 20 odd years of ITU… I've never thought, 'I just don't know if I can do that'. And that was a COVID specific thing, just because it had been so… challenging to be able to do it all remotely… to not be able to support the relatives… and just not have them there, it just didn't seem right at all." (Redeployed Nurse)	X			F99
Finding	**Interaction with families**				
Illustration	No nursing quotes provided			X	
Finding	**Closure: Isolation and the 'COVID-19 bubble'**				
Illustration	"I felt more isolated from the rest of the hospital because it felt like people were afraid to come to ITU, so the staff were afraid to come to us. So, because of only doing night shifts, I didn't really see anybody on a higher level than me, I didn't see infections control come to see us, I didn't see head of nursing come to see us, from other units or from other areas. So, it felt like we were very on our own, as a unit". (Critical Care Nurse).	X			F100
Finding	**Material and organisational resources: learning and creativity**				
Illustration	"We set up an email for all the families to be able to …email in photographs or pictures for their family, and we could print them off, laminate them and hang them up by the patient. And that started to individualise the patients and bring their families together with them even though they couldn't be there in the flesh." (Redeployed Nurse)	X			F101
Finding	**Axis of convergence: teamwork**				
Illustration	"it was nice to see how the team came together and worked together and, you know, every member of the team, from domestics, to physios, to nurses, to ACCPs, to the junior doctors, to the consultants- I think everybody was there, and you felt that everybody was there, which was nice." (Critical Care Nurse)	X			F102
Finding	**Social rituals: donning and doffing**				
Illustration	"If you come home and tell family that you had to wear PPE, you know, until they've actually donned the stuff, I think, and doffed it, for that matter, they don't really get it." (Redeployed Nurse)	X			F103
Study	**Moradi et al., 2021**				
Finding	**Poor organisational support**				
Illustration	We expect officials to come and visit us, motivate us, and boost our morale. Since the outbreak of Coronavirus, no university deputies or hospital managers have come	X			F104

	to ask “What are you doing here? What kinds of problems are you facing?” This shows that the system is not much concerned about personnel.				
Finding	**Excessive workload**				
Illustration	The shifts we work are really killing, not tiresome, but killing. We have not been given leave, and we been told that we must be in the hospital during this crisis. They don’t give us proper off time, either.	X			F105
Finding	**Shortage of personal protective gear**				
Illustration	They don’t easily provide the [protective] gear for us.	X			F106
Finding	**Exhausting protective covers**				
Illustration	The clothes we wear make us very tired during the shift. Besides, with these on, we cannot eat or use the bathroom, especially during night shifts. Pardon me, many women have UTI, and some suffer from constipation because they have sluggish bowel.	X			F107
Finding	**Physical complications**				
Illustration	We are truly tired. In this ward, all female nurses are covered in spots because of stress, and some have hormonal disorders. Our skin is badly damaged under the mask and medical caps.	X			F108
Finding	**Unclear nature of the disease**				
Illustration	The biggest concern is the lack of knowledge about this disease, since there is no treatment for it and you don't know the prognosis. You know what is going to happen with many diseases. For instance, with the flu, you get well in 10 days, but you don't really know what happens with this disease. You don't know its clinical picture either. Are fever, cough, and shortness of breath the actual signs or not? You don't really know. We have had many of such patients with none of these signs. One patient said that he only had diarrhea. It's been four days that I've had diarrhea myself.	X			F109
Finding	**Fearing oneself and family being infected**				
Illustration	We fear that the more we are faced with Corona patients, the more likely it is to contract the disease. We are at high risk in the ICU. I'm sitting in the station and my patient is coughing right in front of me, and this is very risky for me.	X			F110
Finding	**Desire to quit the job**				
Illustration	It is not clear how long this situation could last and what is going to happen. We were all unhappy about being a nurse, and wish we had another job that would take us away from this setting.	X			F111
Finding	**Domestic distress**				
Illustration	Our lives have gone off-track, and we have no peace. Before the current pandemic, when we got home after the shift, we could at least cuddle our children. My wife and I would at least talk together, but not now! We cannot cuddle our children. Contacts are limited. We suspect and doubt anything and every- thing in our own home, which is the safest place in terms of Corona.	X			F112
Finding	**Psychological turmoil**				
Illustration	Our colleague has been infected and hospitalized. I know him, he had no immune system disorder. Now that he gets sick in bed, I see that someone with a good	X			F113

	immune system has been infected and hospitalized, and this stresses me.				
Study	**Perraud et al., 2022**				
Finding	**Difficulties with integration, especially for those who had no experience of ICU care**				
Illustration	"We arrived in the ICU, and no-one in the regular ICU team was expecting us. Nothing had been planned for how we would be assigned, or who'd be in charge of us. So I just hooked up with an ICU nurse and followed her around" (Registered Nurse (RN), 45 years old).	X			F114
Finding	**Training in intensive care**				
Illustration	"I would've liked to have a visit of the unit at the start, and for someone to show me where things were stocked, and the logistics. One day of immersion isn't enough, you'd need at least a week" (RN, 45 years old)	X			F115
Finding	**Difficulties with the management team, notably a feeling of insufficient communication**				
Illustration	"I only got my time schedule at the last minute. I felt like I was a pawn being pushed around, and nobody was worried about what I wanted, on the pretext that I was there to help out" (RN, 32 years old)		X		F116
Finding	**Mental distress related to the unusual work and fear of contaminating entourage**				
Illustration	"I wasn't afraid of getting COVID myself but I felt that I was a danger to those around me. I was a danger to my family, putting them at risk because I might bring the virus home from work" (RN, 36 years old)	X			F117
Study	**Sezgin et al., 2021**				
Finding	**Death and fear of death**				
Illustration	'Especially young patients talk about their memories. One said that (he/she) just bought a house and did not want to die'... 'I see that some patients are helpless' ... 'One patient who could not speak our language grabbed my hand when I was giving care and started kissing my hands while crying. I started crying too'	X			F118
Finding	**Impact on family and social lives**				
Illustration	I don't think there is a nurse who is not affected. We could not see our family, our children. We avoided other people and they avoided us'.	X			F119
Finding	**Differences and similarities compared to other patients**				
Illustration	'We prioritise their respiratory needs as it is our first goal at the moment. They also have hygiene needs but this is so far at the background; we can- not even think about it. Our only concern is to pre- vent them from having an arrest'	X			F120
Finding	**Concerns due to lack of nursing care standards for Covid-19**				
Illustration	'We don't have a care plan. They have their treatment plan, medication orders are there but no nursing care plans or guidance packs for us'	X			F121
Finding	**Changing perceptions of their own profession: Empowerment and dissatisfaction**				
Illustration	'We are not allowed to take leave, resign or retire. If we were rewarded financially in return, maybe people (nurses) would feel satisfied. What is the benefit of people clapping for me at their windows?'	X			F122
Finding	**The use and supply of PPE**				

Illustration	'You do not have the option of taking off your N□□or your bodysuit. While carrying all of that (PPE), you keep going. Sometimes you have to per- form CPR on a patient for minutes. You sweat and become dehydrated in that (bodysuit) ... This is not easy to describe in words, really difficult'.	X			F123
Finding	**Staff training**				
Illustration	We did not get training; we got patients (laughed)'.	X			F124
Finding	**Other control measures**				
Illustration	'In some hospitals, nurses do fewer shifts or take more days off in between the shifts to reduce the viral risk. We do not have capacity to do that.'	X			F125
Study	**Unver et al., 2022**				
Finding	**Working with PPE for hours**				
Illustration	"Using the same equipment for hours, not being able to change it ... Also, your skin is not breathing, and sweating ... and there is a continuous pressure ... all causes skin changes."	X			F126
Finding	**Wide variety of PPE (type and quality)**				
Illustration	"I think it is also related to [PPE] its level of functionality, I don't think they are very ergonomic. In many of them [masks] the positioning wires are going off, even sometimes they are as hard as paper and irritates a lot."	X			F127
Finding	**Being dehydrated while working**				
Illustration	"It is a consequence of the pandemic ... It is unavoidable that you become dehydrated [while working with PPE] ... Absolutely your risk of developing pressure ulcer is increasing."	X			F128
Finding	**The locations of the skin changes caused by PPE**				
Illustration	"It [skin changes] was especially happening when using face shield and those masks that the rubber stripes go behind your ear. [We have] rashes over the forehead because of the face shield, and over the nose and around the jaw because of the FFP2 mask."	X			F129
Finding	**Secondary effects of PPE-related discomfort**				
Illustration	"It [PPE] is hurting, you want to get rid of it as fast as possible, and of course it affects your performance, it affects the quality of the care you are giving to the patient."	X			F130
Finding	**Decreased comfort while working**				
Illustration	"It [PPE use] is affecting my working routine, because I am uncomfortable, and it is possible that I did everything in a rush when I was caring for them [the patients]."	X			F131
Finding	**Headache**				
Illustration	"When I use the face shield for a long time, I suffer from a headache as unsupportable as a migraine, and it doesn't go when I take off the face shield. At night I usually end up taking a painkiller."	X			F132
Finding	**Symptomology of PPE-related skin changes**				
Illustration	"I remember that I had a severe pain behind my ears ... that one day that the strip of the mask has twisted my ear. Also, normally there are rashes that last half an hour or so to be relieved ... And normally it takes time for the marks to disappear, for example, when I coincide with an acquaintance after leaving my shift, I am being told ironically like *« Are you coming out of a pandemic o what?»*"	X			F133

Finding	**Prevention of PPE-related skin changes**				
Illustration	"I bought myself a better face shield, because the ones I was using in the hospital were standard in size, it is impossible not to cause headache. Additionally, it was causing rashes and I don't think it was very useful either. The one [face shield] I bought is adjustable in size and it is very practical."	X			F134
Finding	**Source of information for selecting the preventive method**				
Illustration	"We [some ICU nurses] saw in social media that people are using mask extenders, so we decided to buy one as well.	X			F135
Finding	**Therapeutic interventions for curing for PPE-related skin changes**				
Illustration	"I used moisturizing cream that facilitates the epithelialization and I tried to those [damaged skin] zones to have contact with the air as much as possible. I think it was the best way to heal these injuries."	X			F136

Evidence is allocated to a category based on quality level of finding:

Unequivocal (findings accompanied by an illustration that is beyond reasonable doubt and; therefore not open to challenge), **credible** (findings accompanied by an illustration lacking clear association with it and therefore open to challenge) and n**ot supported** (findings are not supported by the data), **F** (finding).