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Research paper

Factors that contributed to burnout among intensive care nurses during the COVID-19 pandemic in Saudi Arabia: A constructivist grounded theory

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Background: Intensive care unit (ICU) nurses experience high levels of burnout during the COVID-19 pandemic due to multiple stressors. It has long been known that burnout is negatively associated with patient and staff outcomes. Understanding the triggers for intensive care nurses' burnout during the pandemic can help to develop appropriate mitigation measures.

Objective: The objective of this study was to examine intensive care nurses' experiences during the COVID-19 pandemic in Saudi Arabia to develop insights into the factors that influenced burnout.

Methods: The study was informed by a constructivist grounded theory design. The study was conducted in an adult ICU in a tertiary hospital in the Makkah province in the Kingdom of Saudi Arabia. All participants were registered nurses with at least 6 months' experience in intensive care and experienced caring for COVID-19 patients.

Findings: This paper reports on preliminary findings from interviews with 22 intensive care nurses. A core category 'pandemic pervasiveness' was identified from the interview data, which makes reference to the ever-present nature of the pandemic beyond the ICU context. Family, work, and the wider world context are the three groups of contextual factors that influenced nurses' experience and perception of burnout. **Conclusion:** Many issues identified from the findings in this study can be attributed to shortages in the intensive care nursing workforce. Thus, we join others in calling for healthcare organisations and policymakers to be creative in finding new ways to meet nurses' needs, motivate, and empower them to maintain and sustain the nursing workforce in highly demanding areas, such as ICUs. Nursing managers can play a crucial role in mitigating nurses' burnout by identifying and tackling sources of stress that exist among their staff, specifically team conflict, workplace harassment, and discrimination.

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1. Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), also called the coronavirus disease 2019 (COVID-19), is an infectious disease that was first identified in Wuhan, China, on 31 December 2019.¹ On 11 March 2020, the World Health Organization

(WHO) identified the disease as a pandemic due to its rapid global spread.² At the time of writing (9 May 2022), more than 505 million confirmed cases and 6.2 million deaths had been reported.³ In the Kingdom of Saudi Arabia (KSA), the first COVID-19 cases were reported on 2 March 2020.² Data on the number of COVID-19 infections and deaths are updated daily: as of May 2022, more than 764,789 diagnosed cases and over 9,000 deaths have been reported in the KSA,⁴ approximately 2,215 cases per 100,000 of the resident population. Estimates are that approximately 15% of patients with COVID-19 will develop severe health complications, and 5–10% will require intensive level care due to the severity of their symptoms and the risk of mortality.^{5,6}

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Intensive care units (ICUs) around the world are treating patients who are experiencing potentially life-threatening COVID-19 symptoms. In some of these areas, the pressure on staff is compounded by the limited availability of personal protective equipment (PPE) and shortages of staff, beds, and mechanical ventilators.⁷ This is in addition to the increasing numbers of COVID-19 patients, the increased workload, the new cases and death reports in the media that spread rapidly, and the fear of transferring the infection to family members, all of which can increase the mental health burden and psychological distress of nurses and healthcare workers in ICUs.⁸ Research conducted during previous disease outbreaks indicated that healthcare workers, including ICU nurses, may suffer from mental health problems as a result of the acute effects of an outbreak.^{9,10}

Burnout is a psychological syndrome that involves a prolonged response to stressors in the workplace.⁹ The three key dimensions (symptoms) of this response are emotional exhaustion, feelings of depersonalisation (detachment from the job), and the lack of a sense of personal accomplishment.^{11,12} The triggers to burnout among ICU nurses, not necessarily within a pandemic context, may relate to exposure to pain, trauma, open wounds, death and dying, and tragedy, as well as experiences with inappropriate care or treatment.¹³ However, no single specific cause of burnout has been identified. In fact, many factors can be associated with burnout as the circumstances that lead to burnout for any professional caregiver are multiple and different and usually very personal.¹⁴ Burnout and its symptoms are a particular issue for ICU nurses in a disaster context, such as a pandemic, because they are exposed to a range of stressors and are expected to manage and cope with the increased needs for care, which can exceed their capacity to provide that care, leading to emotional exhaustion.¹⁵

The COVID-19 outbreak affected multiple countries in a short period, but at different times. The outbreak emerged in the KSA later than in other countries, allowing the country the opportunity to make some preparations, but unforeseen risks also occur during pandemics. ICU nurses are exposed to a range of stressors because of these risks, and ICU nurses in the KSA may have already experienced or may in the future experience similar risks, problems, and concerns.¹⁶ The current research study sought to examine ICU nurses' experiences during the COVID-19 pandemic to develop insights into the factors that influenced their burnout, with a view of informing development of mitigation measures.

2. Methods

2.1. Study design

A constructivist grounded theory (GT) approach informed this qualitative enquiry.¹⁷ Constructivist GT strives to investigate human experiences within their social context.¹⁸ In contrast to objectivist GT, the constructivist GT approach refuses to see the world as an objective reality that can be discovered through research.^{17,19} Instead, it applies a social constructivist perspective where multiple perspectives of reality can coexist and be coconstructed between the researcher and participant. The reporting of this study was informed by Consolidated Criteria for Reporting Qualitative research (COREQ).²⁰

2.2. Study context

The study was conducted in an adult intensive care area in a tertiary hospital in the Makkah province in the KSA. The hospital had 500 beds and was staffed by 240 ICU nurses of different cultural backgrounds and nationalities. The hospital included four adult ICUs—medical, coronary, cardiac surgical, and neuro. All four units

offered advanced respiratory support and continuous renal replacement therapy and received COVID-19 patients. Nurses worked 12-h shifts with a nurse-to-patient ratio ranging from 1:1 to 1:3 dependent upon patient acuity and the number of nursing staff per shift.

2.3. Sample

Purposive and theoretical sampling approaches were used to recruit a maximally varied sample to provide richly textured information relevant to ICU nurses' experiences.²¹ Eligibility criteria for this study were registered nurses who worked in one of the four ICUs, had at least 6 months of ICU experience, and had experience working during the COVID-19 pandemic. The nursing administration was asked to disseminate information about the study to potential participants by sharing a printed information sheet developed for this study. In addition, posters detailing the project and the contact information of the researcher (NA) were disseminated across the four units. It was incumbent upon interested participants to contact the researcher.

The sample size was guided by information power.²² This study required a medium-sized sample for the following reasons: (a) it had a broad aim; (b) it had a specific and purposive sample; and (c) the planning and analysis processes were theoretically informed.²² The sample size was evaluated continuously during the research process to ensure that the sample provided the required information to achieve the aim of this study leading to data saturation. This approach allowed the researcher to evaluate the number of interviews based on the analytical level and datasets that were emerging from the interviews to achieve the research purpose.¹⁷

2.4. Ethical considerations

Ethical approval was obtained from King's College London (HR/DP-21/22-26322) and the relevant Institutional Review Board in the KSA. Printed information sheets were provided to potential participants who were given at least 24 h to consider whether to participate or not. Each participant signed a printed consent form prior to their interview. There was a risk that participants in this study might become emotionally distressed due to the sensitive nature of the topic. Therefore, an appropriate distress management protocol was developed. The protocol consisted of two parts: the first was developed to manage distress in participants during their interview, and the second was established to help the researcher manage the risk of distress to her while conducting data collection and analysis.

2.5. Data collection

An individual, face-to-face, semistructured interview was conducted with each nurse participant. A demographic information sheet was completed by each participant after the interview. All interviews ($n = 22$) were conducted in a confidential room within the ICU. There was no pre-established relationship between the researcher and the participants.

Interviews followed a topic guide, piloted with two ICU nurses who were asked to provide their feedback on the clarity and sequence of the interview questions. The guide was designed to elicit information on modifiable and nonmodifiable factors that influenced nurses' burnout, including questions informed by a review of the literature.²³ Each interviewee was first asked "Can you tell me how you felt working in the ICU during the COVID-19 pandemic?" Interviews lasted between 30 and 60 min and were audio recorded on a Chulovs digital voice recorder with participants' consent. Memos and field notes were taken

contemporaneously. Regular meetings with the research team took place throughout the period of data collection to reflect on data, debrief, and ensure a rigorous process of data collection and analysis. All interviews were conducted in English, transcribed verbatim, anonymised, and imported to NVivo 12 (QSR International Ltd) for analysis.

2.6. Data analysis

The constant comparative analysis approach was adopted with data collection and analysis occurring concurrently. Coding was completed after each interview; three levels of coding were used: (i) initial coding, which involved naming words, lines, or segments of the data so the researcher became familiar with the data and to reveal preliminary conceptual ideas; (ii) focused coding, which was employed to analyse larger amounts of data using code groups to look for explanation and meaning in a more systematic manner; and (iii) memo writing/elaborate categories, through which conceptual categories were identified.¹⁸ The primary researcher (NA) conducted the coding and analysis process and discussed in regular team meetings. All members of the research team (n = 3) reviewed and agreed upon the final codes and categories.

2.7. Role of researcher and reflexivity

The primary researcher was a female teaching assistant completing her doctorate in nursing research with previous experience of working as an ICU registered nurse in the KSA. Her interest in this field was established by her previous experience in critical care nursing. In addition, her experiences during the inevitable changes created by the COVID-19 pandemic that began while she had just commenced her PhD journey motivated her desire to further understand the challenges that ICU nurses encountered during the pandemic and to seek solutions for these challenges.

Consistent with grounded theory, the researcher reflected upon the potential impact of her prior experience on the research. These reflections were discussed with the coauthors to enhance reflexivity. In addition, the researcher took detailed field notes and maintained a reflective diary to make personal assumptions visible and transparent. This helped to enhance the credibility of the research and reduce the effect of researcher preconceptions.

3. Findings

This paper reports on preliminary findings from interviews with 22 ICU nurses with the experience of caring for COVID-19 patients. A summary of participant characteristics is presented in Table 1. They reported events from their critical care experiences that allowed for the extraction of rich insights into factors influencing burnout in the ICU. The findings pointed to various factors that led nurses to experience stress and burnout within their work in the ICU during the COVID-19 pandemic in Saudi Arabia.

3.1. Pandemic pervasiveness

The main category 'pandemic pervasiveness' was identified from the interview data. It is referring to the ever-present nature of the pandemic beyond the ICU, influencing contextual factors and extending to nurses' family, work, and their wider world. The data suggest the pandemic shaped nurses' perceptions and construction of their work, family, and social realities to a level not anticipated or documented in the burnout and disaster literature to date. It is this pervasiveness of the pandemic, across work, family, and wider contexts from which nurses could not escape that appears to have

had the most profound effect on their perceptions and feelings of burnout (Fig. 1).

ICU nurses function within family, work, and the wider world context; however, these contexts are not separate and distinct but may overlap with each other during everyday interactions. Each context presents different factors that may affect nurses' well-being and increase the level of burnout they experience. These factors are practical, emotional, or moral in nature. The key factors are presented alongside explanatory quotes; further illustrative quotes are included in Table 2.

3.1.1. Family context

The family context and its elements, including family members, family status, and family responsibilities, were perceived as having a major impact on the stress and well-being of the nurses in this study. For example, many nurses expressed their fears regarding the possibility of transferring the SARS-CoV-2 to their family members, which led them to feel more fearful and concerned.

Most of us have families, so we actually were afraid because after duty we will go home, so this was a concern for us. (RN03)

Nurses also had to suddenly change their family plans due to the unexpected onset of the COVID-19 pandemic. This issue was expressed most significantly by international nurses who did not bring their family members to the KSA because either (i) of the risk of transferring the infection from the ICU where they would be working to their family or (ii) they could not bring them due to the international travel ban. This created a particularly difficult situation for some participants.

I was about to bring my family here, so I postponed this plan also; all because of this situation, so it was a bit stressful situation for me, and at that time I was quite depressed. (RN04)

In addition, expatriate nurses who were away from their homes and families felt emotionally drained because they were missing their loved ones. They felt separated and isolated because they

Table 1
Participants' characteristics.

Characteristic	n (%)
Gender	
Male	10 (45.4)
Female	12 (54.5)
Age group (years)	
20–25	2 (9.0)
26–30	3 (13.6)
31–35	15 (68.1)
36–40	2 (9.0)
Nationality	
Saudi	4 (18.1)
Non-Saudi (expatriate)	18 (81.8)
Years of ICU experience	
0.5–5	5 (22.7)
6–10	11 (50.0)
>10	6 (27.2)
Educational level	
Diploma	2 (9.0)
Bachelor's degree	17 (77.2)
Master degree	3 (13.6)
Number of children	
0	9 (40.9)
1	5 (22.7)
2	5 (22.7)
3	3 (13.6)

ICU, intensive care unit.

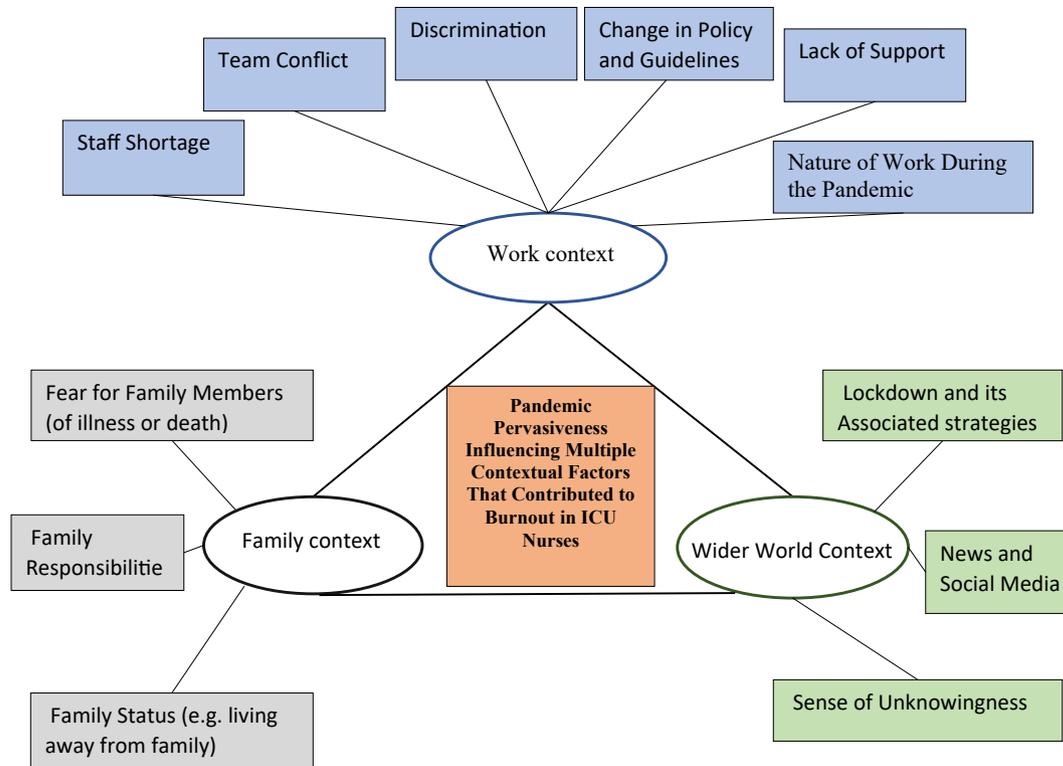


Fig. 1. Factors influencing ICU nurses' burnout during the COVID-19 pandemic in Saudi Arabia. COVID-19, coronavirus disease 2019; ICU, intensive care unit.

were living alone, especially during the lockdown when all social events were prohibited. Nurses also expressed a sense of fear because they were away from home and had no one to take care of them if they were to contract COVID-19.

We are far too far [away] from our family; we feel separated.' (RN10)

I'm alone; my family [is] staying in India. So I'm afraid for my family and my kids, and if something happened to me also, who will take care of me? (RN08)

The inability to be with family during the pandemic was quite stressful for most of the expatriate nurses, especially those who experienced the sickness or loss of one or more family members while they were unable to travel to see them. The following example was shared by a nurse who became tearful when describing the time his father was sick and he was unable to visit him.

That was the hardest for me, actually, not just in the pandemic but in my whole life. It was the hardest because ... my dad got hospitalized with pneumonia, COVID pneumonia; he stayed there for two weeks. At that time, I was very, very afraid, afraid something will happen to him, [when] I am very, very far. (RN01)

Furthermore, the fact that many staff members lost one or more family members to COVID-19 created an extra layer of fear and concern for other staff members, prompting them to worry about their families more. This placed additional stress on the ICU nurses who were caring for COVID-19 patients and, thus, fear of transferring the infection to a family member.

Family responsibilities and the inability to balance the demands of work and family due to long working hours and overtime were identified by nurses as major stressors. Moreover, nurses with children became responsible for a greater amount of their children's schooling, including overseeing engagement with online classes and ensuring that they adjusted to their new study environment. Falling short in performing family responsibilities led nurses to feel guilty which, in turn, caused them to experience more stress and develop negative feelings towards their work. Some of the nurses reported their intention to leave their jobs because they could not balance their family responsibilities and work demands.

The main problem nowadays is that online classes [are] ongoing. Our children are not fit for that, they like to go to school and study. I have two boys, one of them refuses to attend the online classes alone. So, this [is] also one of the problems. (RN09)

I cannot take care of my kids, my home, even my son who is in the first year of the school, so I decided not to renew my contract here. (RN19)

3.1.2. Work context

Nurses identified multiple factors within the workplace that led them to experience more stress and feel burnt out, including staff shortages, team conflict, lack of support, the nature of the work during the pandemic, changing policy and guidelines, and discrimination. Each of these six factors has its own elements that were perceived by ICU nurses as stressors during the COVID-19 pandemic and are discussed next.

3.1.2.1. Staff shortage. All nurses in this study perceived staff shortages in the ICU to be a major problem that created many

Table 2
The three contexts with supporting quotations.

Second- and third-order categories		Supporting quotations	
Family context	Fear/and concern of transferring the virus to their family	'When I was posted in the ICU the main concern for me was family.' (RN04) 'We have family and we are working here and then we are going there. So from inside we are doing all precautionary measures even though we are scared about our family for transmitting the infection to them.' (RN05)	
	Family status	'I took visa for my mother and my father, [but] then the travel ban [was] announced, so they couldn't come.' (RN13)	
	Family responsibility	'My mother is sick she is really near to be bedridden I hope not but she really needs care. Me and my little sister and my four brothers are all in the medical field and I feel like we have to stay with her rather than going [on] duty here I have to arrange my off days with my sister so we can take care of her. Each time I am doing duty I know my mother is sick and she needs me.' (RN06)	
Work context	Staff shortage	'We are doing 12-h shifts, and most of the time we are handling two patients, since the manpower was not there once we shifted a patient, we will get a new admission, so these are the most stressful things.' (RN03) 'I am working here since 2014 but when I go to another department, I feel like I am a new staff. Floating is so difficult for nurses.' (RN03) 'We were having long continuous duties, normally we will have 3-day duties and then 2 days off, but during the peak of covid-19 we used to work for 14–15 days continuous and that was very stressing.' (RN13)	
		Team conflict	'Physician is acting as everything like he's ruling out nurses, this is not right. And he should listen well to the nurse care plan, because the nurse is the primary care giver for the patient.' (RN12) 'Onetime I had one patient and there were two consultants so one doctor asked for one order, and I did that order, but the other consultant came and say why you are doing this, so this create a clash Then you have to explain for them oh god, the clash will happen.' (RN03)
			Lack of support
	Blaming the staff for being infected with COVID-19	'It's torture, that you are always exposing yourself to the virus, and you might get infected anytime. And you didn't know how your body responds. And yeah, some of our staff here died.' (RN01) 'We didn't have many supplies like face masks and PPE. The hospital provided its maximum but sometimes we didn't have these supplies like masks, and it was difficult for bedside staff.' (RN03) 'We have to always wear the PPE, not just wear, but the proper wearing of PPE and you know it's suffocating.' (RN01) 'We saw patients, very young patients, who deteriorated within one day and expired. So, that was very stressful.' (RN08)	
		Lack of financial support	'At the beginning the guidelines were changing rapidly, they told (infection control department) no need to wear facemask and if you wear facial mask infection control will come and will catch [you], then after one week they told "you have to wear complete PPE and N95 face mask".' (RN03) 'After I come back to work, they (colleagues) will be afraid that maybe I still have the symptom[s] and maybe I [am] still a carrier.' (RN21)
			The nature of the work during the pandemic
	Fear of infection	'When they closed all the social facilities and things, I felt like this is a dangerous thing. So, this also put us under stress.' (RN20) 'There was the lockdown, and we could not go outside. We were going to work, and we were going to home, and we didn't have anything to refresh ourselves, we were really stressed and because of stress we could not concentrate on working properly.' (RN08)	
			Lack of PPE
	Prolonged use of the PPE	'When [we] listen to the news and [hear] that cases are increasing like this, we get afraid.' (RN07) 'It was spreading very fast and what we're seeing, videos in the TV and the new channels, it makes us more afraid, the media is making us more afraid, people are getting panicked with this.' (RN08)	
			Witnessing patient' death and suffering
Changing Policy and guidelines			
Discrimination against As result of infected with covid-19 or handling COVID-19 patient (from colleagues)	And racial discrimination (from patient or Colleagues)		
Wider world context	Lockdown		
	social gathering bans and social distancing		
	Unknowingness		
	News and social media platforms		
	Prolonged pandemic situation/patient resurgences		

COVID-19, coronavirus disease 2019; ICU, intensive care unit; PPE, personal protective equipment.

stressors for them such as increased patient-to-nurse ratios, work overload, being assigned extra duties, working 12-h shifts, and the inability to take vacations or time off. For example, ICU nurses reported working for 14 days straight without a day off due to staff shortages, which they described as exhausting and overwhelming. Also because of the shortage in staff, many nurses were assigned to different departments without proper training in those areas, which created a sense of unfamiliarity and stress.

The staff shortage problem is the main, biggest problem; it's the main cause for stress, and burnout. (RN02)

3.1.2.2. Team conflict. Conflict among members of the ICU team, which included conflict between nurses and their managers and between nurses and doctors, was described as stressful. Nurses reported feeling a sense of stress due to constant conflicts with head nurses or charge nurses based on patient assignments. They reported feeling that they were treated unfairly because they were given two critically ill patients, or as they called it, a 'bad assignment' on every shift. Nurses with underlying medical conditions, such as immunosuppression diseases, experienced more conflict with ICU managers because managers failed to recognise their vulnerability and greater risk if they caught COVID-19. Conflict with doctors was also reported by some nurses as a source of stress. This often centred on doctors not involving the nurses in development of care plans, as well as doctors' disrespectful behaviours such as shouting and exhibiting a 'bossy' attitude.

The charge nurse [has] conflicts with the staff, especially over assignment because some staff will refuse to take care of COVID-19 patients. "Why will I take this patient? He is infected [and] I am immunocompromised [and] taking steroids" they will say. (RN15)

3.1.2.3. Lack of support. Nurses reflected on the stressors they faced from the start of the pandemic and recalled feeling frustrated with the administration and members of the infection control team who blamed nurses for becoming infected with COVID-19 rather than supporting them. Nurses who were infected with COVID-19 felt stressed when they were accused of negligence and of not taking the proper precautions to avoid contracting the disease by members of the infection control team.

It's not about how we get infected because obviously no one wants to get COVID. It happens, and they shouldn't, like, [be] blaming [us]; they should [be] supporting [us]. They shouldn't blame. (RN13)

In addition, nurses described receiving inadequate financial support from the organisation, specifically because they had not been financially compensated for overtime duties since the onset of the COVID-19 pandemic. They also reported a loss of interest in their work because their pay was not commensurate with the amount of work they performed. They pointed out the unfairness of receiving the same salary as non-ICU nurses who had less responsibility and dealt with noncritically ill patients.

The hospital didn't give us COVID-19 money. For 2 years we didn't receive the money. (RN10)

3.1.2.4. The nature of the work during the pandemic. The nature of nurses' work was compromised during the COVID-19 pandemic. Working with COVID-19 patients was a source of stress because of the risk of exposure to the virus. This was especially due to a

shortage in PPE, resulting in feelings of being inadequately protected. Nurses had to disinfect and reuse their PPE, which increased the risk of catching the virus. On the other hand, wearing the PPE for a prolonged time and while performing difficult tasks, such as cardiopulmonary resuscitation, was described by nurses as suffocating and exhausting.

Moreover, the nurses explained that delivering care for COVID-19 patients who were critically ill was traumatic. They described feeling sadness and grief when they witnessed patients suffering or when a patient suddenly deteriorated or died. These were overwhelming and emotionally exhausting incidents, especially for nurses new to the ICU environment who may not yet have developed the coping tools to manage patients' suffering and death on such a regular basis. The following comment was made by a new staff member with only 6 months' experience in the ICU.

My patient passed away, then I received another patient from the ward. But when I shifted him to the bed he crashed. We started CPR for him. It was stressful for me. This was my first mortality and my second mortality and it's in the same day! This impacted me for a very long time. (RN02)

3.1.2.5. Changes in policy and guidelines. This category encompasses hospital policy and guidelines related to COVID-19. Nurses described the rapid changes made in Saudi Arabia's infection control guidelines, including the use of PPE, during the early stages of the pandemic as inconsistent and a source of stress. The inconsistent guidance led to confusion, distrust, and a lack of confidence. Nurses indicated that other policies, such as the 2-m social distance guideline and the limited contact with patient policy (less than 15 min inside patients' room, even with PPE) were challenging to follow. They described the relationship between these guidelines and the nature of their work inside the ICU as incompatible. They felt under constant pressure from the anticipation of receiving a notification from infection control when they had to stay inside a patient's room longer than 15 min to deliver care or when they did not stay 2 m away while handing over a patient to their colleagues.

There is also social distance protocol, so infection control will catch you if you don't follow that protocolbut if I am away from my colleagues like two meters, how I will endorse the case to her? She will not hear me, I need to show her the computer, the lab and medications. (RN07)

3.1.2.6. Discrimination. Some nurses reported experiencing unfair or prejudicial treatment at work from patients and even from their colleagues. Discriminatory acts exhibited by patients were perceived to be influenced by nurses' nationalities and was described especially by non-Saudi nurses who experienced harassment, verbal abuse, 'spitting', and 'shouting' from patients. Other patients refused to be cared for by non-Saudi nurses, which was frustrating and upsetting for nurses.

We are doing everything, and [they are] still behaving as we are servants; really, they treat us like we are servants, no respect, so that [is] the time when we get stressed. We are very polite when treating them, handling them, caring [for] them, but still they will say "get out" [and] they spit. (RN13)

Discrimination from colleagues was also perceived to be influenced by nationality. Nurses reported feeling discriminated against by other nurses because most nurses tend to form groups with other nurses of the same nationality, which may cause the minority

ethnic group to feel neglected and become extremely stressed, especially those newly appointed.

The context of COVID-19 created a new form of discrimination based on being infected with COVID-19 or managing COVID-19 patients. Nurses described feeling isolated after being infected with COVID-19. They noticed that their colleagues were avoiding them for fear of becoming infected, even after they had completed the required isolation period. Others spoke about receiving less cooperation from their colleagues when they delivered care to a COVID-19 patient compared to when they cared for a non-COVID patient.

If I received a COVID patient and they received a 'normal' patient they will be afraid, they will not come with me they will not eat with me at lunch. (RN18)

3.1.3. The wider world

This category captures the wider pandemic context and associated strategies to reduce the spread of COVID-19, such as lockdowns, bans on social gathering, and social distancing. Nurses described being afraid and anxious because they were dealing with the unknown: 'unknown disease', 'unknown preventive strategies', and 'unknown treatment'. Not knowing when the pandemic would end, subsequent pandemic waves, and patient resurgences exacerbated the sense of fear of 'what may come next'. The inclusion of daily COVID-19 death reports, false information, and rumours on news and social media platforms acted as triggers for severe stress among nurses. Lockdowns and related restrictions, such as the closing of shops, restaurants, supermarkets, and sport facilities, added extra stress and difficulties. The inability to gather with friends and family or attend social events outside work was discussed alongside feelings of loneliness and social isolation.

4. Discussion

The findings in this study highlighted multiple and overlapping stressors that may increase the risk of burnout among ICU nurses during the COVID-19 pandemic. This research delved into first-hand experiences with burnout from the perspective of ICU nurses and in doing so contributes to the ongoing research on burnout and job-related stress among healthcare professionals in the context of the COVID-19 pandemic.

The core category 'pandemic pervasiveness' that emerged influences all contextual elements with which ICU nurses may interact and that may cause them to experience burnout in their workplace. Three subcategories for this core category were identified: (i) the family context, where nurses are influenced by their family status, fear/concern for family members, and family responsibilities; (ii) the work context, where nurses interact with and are impacted by several elements from the professional sociocultural environment; and (iii) the wider world context, where individuals are affected by living through a pandemic and its related consequences, such as unknowingness, the prolonged pandemic situation, and the national and international pandemic response.

Fear of being infected by a potentially fatal disease is an expected but understandable source of stress. Evidence from studies in the United States and China has shown that fear of exposure to the highly infectious virus is associated with the presence of burnout, anxiety, and distress among nurses, especially those who work on the front line and are in continuous contact with infected or potentially infected patients.^{24,25} This fear was also linked to the fear of loss and the fear of the death of a loved one due to the coronavirus. As a result of this fear, some nurses chose to be isolated/separated from their families or changed their residence

because they were afraid to pass the illness on to a family member.²⁶ Others were forced to live away from their families or friends due to the restrictions imposed by the pandemic, a situation that caused additional stressor for those nurses.

These findings lend weight to those uncovered by an Australian study that indicated social distancing due to lockdowns added an extra stressor to work-related challenges during the COVID-19 pandemic, impeding nurses' ability to access much-needed support from family and other loved ones.²⁷ This in particular may have affected expatriate nurses, who form more than 60% of the nursing workforce in the KSA²⁸ and were more likely to suffer from stress-related disorders than Saudis, even before the COVID-19 pandemic.²⁹ Nearly a quarter of the responses in this study related to feeling stressed because of family responsibilities. This stressor was noted especially by female nurses, who traditionally assume more of the caregiver role in the family. Another study conducted in China confirmed a significant link between family burdens, such as being responsible for the care of children or older relatives, and the prevalence of burnout, stress, and anxiety during COVID-19 among healthcare practitioners, especially among females.³⁰

The work context subcategory included six risk factors for nurses' burnout that accounted for nearly 100% of the response codes. This aligns with the Maslach multidimensional theory of burnout.³¹ Neither views occupational burnout as solely an individual-related problem, and both consider that multiple associated factors within the workplace can contribute to burnout.³¹ The present study additionally provides in-depth interpretation of the nature and the sources of work-related factors that can lead ICU nurses to experience burnout. Yet, a major difference between Maslach's burnout theory and our theory of "pervasiveness" is that Maslach conceptualised burnout as a response to excessive stress at work, while our findings suggest that burnout occurs when individuals are exposed to prolonged emotionally demanding circumstances both in work and in life settings. In this regard, the pandemic's pervasiveness and its three elements fit well with the socio-ecological model that was developed to further the understanding of the dynamic interrelations among multiple personal and environmental factors.³² In this model, individuals are perceived to influence and be influenced by people and organisations with whom they interact, resources, institutions, and social rules.³² Such a multilevel framework can be useful to mitigate burnout, especially when addressing burnout within a pandemic context where individuals are influenced by various stressors, inside and outside the work setting.

Nurses in this study described staff shortages as a major source of stress and reported several negative consequences of these staffing issues, such as being unable to take leave time, taking responsibility for extra duties, being redeployed to different critical care areas without proper training or orientation, and handling an increased patient-to-nurse ratio. A comparable study from Brazil reported a positive association between burnout and the shortage of ICU nurses in relation to two points in time (first vs. second surge of COVID-19 patients), with the second surge witnessing a greater shortage of ICU nurses (53% vs. 36%) and a significantly higher level of burnout (60% vs. 71%; $p < .001$).³³ On the other hand, evidence highlighted that burnout can contribute to increased turnover among nurses, leading to even more staff shortages in the nursing workforce.³⁴

Nurses in the KSA also described conflict with team members as a stressor and a source of their burnout. This conflict was illustrated in two contexts: (i) conflict with managers, and (ii) conflict with doctors over patient care or because of the doctors' disrespectful behaviour towards nurses. Indeed, a theoretical review of 91 studies on nurses' burnout and the associated factors highlighted

that a negative relationship between nurses and physicians was associated with all dimensions of burnout among nurses, while having a positive relationship with leaders may help to protect against burnout.³⁵ Even amid crises such as a global pandemic, the core aspects of the workplace (e.g. effective communication, respect between team members, and leadership style) appear to remain relevant. Organisations and teams that maintain these aspects can mitigate essential stressors and, thus, decrease nurses' risk of experiencing burnout.

Another related but distinct factor that nurses mentioned as a cause of burnout pertained to the lack of workplace support. Several comments classified under this category referred to nurses being blamed for contracting the infection. Being blamed by the organisation for becoming infected with COVID-19, rather than being provided with emotional support, was a surprising finding hitherto missing from the nursing literature.

Also impacting nurses' burnout were factors related to pay and financial compensation. Pay and financial benefits are important factors that can contribute to increasing nurses' work motivation and are negatively associated with occupational burnout.³⁶ However, more than half of the participants in the current study reported experiencing a sense of unfairness, stress, and intention to leave due to the lack of adequate payment and financial compensation.

Stress due to lack of PPE, due to physical discomfort from prolonged wearing of PPE, and due to dealing with patients' suffering and dying has been mentioned to some degree in nursing journals across countries (e.g. ^{37,38}). Studies undertaken in Europe,³⁹ Canada,⁴⁰ and the United States⁴¹ highlighted an association between lack of PPE during the pandemic and the increased prevalence of mental disorders in nurses such as burnout. A cross-sectional study from China reported a positive association between skin lesions caused by prolonged wear of the PPE and the presence of mental health issues among nurses, such as burnout, anxiety, and depression.⁵ Furthermore, witnessing patients' suffering and deaths due to COVID-19 has been identified as a source of mental exhaustion, post-traumatic distress syndrome (PTSD), and anxiety among frontline healthcare workers during the coronavirus pandemic.³⁸

The ICU nurses in this study perceived rapid changes in the PPE guidelines and other infection control measures as a source of stress, which is in line with the results of a qualitative study from the UK.⁴² Nurses felt overwhelmed by the increased amount of guidance received from multiple sources and stated they had difficulty complying with all the guidelines.⁴² The availability of PPE, frequently changing guidelines, perceived difficulty, and effectiveness of using the PPE and the inconvenience and discomfort associated with wearing the PPE were previously found to be barriers for nurses' compliance with the infection control measures.⁴³ In a reflection on previous pandemic experience,⁴⁴ confusion about infection control guidelines, in addition to several issues in the healthcare context about the pandemic response, was discussed with recommendations for improvement. However, the issues the healthcare system encountered during the COVID-19 pandemic indicates gaps in learning lessons from past experiences.

The ICU nurses working during the COVID-19 pandemic have endured not only the virus and related work challenges but also an unprecedented level of discrimination, including verbal abuse and harassment from patients, as a result of being diagnosed with COVID-19 or caring for COVID-19 patients. A study from the KSA conducted before the pandemic showed that nurses who were exposed to at least one type of violence at their workplace associated with bullying, racial harassment, or physical abuse reported higher levels of stress and burnout than those who did not.⁴⁵ The

literature addresses the general population's discrimination against nurses related to COVID-19;⁴⁶ however, in the current study, nurses were also discriminated against by their own colleagues. The finding that other nurses avoided their infected colleagues, even after those colleagues had completed their isolation period, was in some way surprising and unexpected. A possible explanation for this finding is the state of unknowingness regarding the nature of transmission and treatment, which has been experienced, at some point, by every population group, not only healthcare personnel.

5. Limitations

To the best of our knowledge, this study constitutes the first qualitative investigation into the factors that contributed to ICU nurses' burnout during the COVID-19 pandemic in the KSA. However, this study was conducted in one healthcare facility located in Makkah province in the KSA. Thus, the results may not be readily transferable to all ICU nurses in other regions or countries. However, many of the factors identified here were also highlighted in other studies, though not specifically related to ICU nurses, from China,³⁰ the United States,⁴¹ and the United Kingdom,⁴² suggesting that nurses were exposed to universal stressors during the pandemic which can increase their risk of burnout.

6. Conclusion

Many of the issues identified from our findings can be attributed specifically to shortages in the ICU nursing workforce. Thus, healthcare organisations and policymakers should be creative in finding new ways to meet nurses' needs, motivate them, and empower them to maintain and sustain the nursing workforce in highly demanding areas, such as ICUs. Moreover, a reward system could be established within the Saudi healthcare scheme to ensure all nurses are rewarded and paid sufficiently. Understanding the factors that could lead to nurses' burnout increases stakeholders' awareness about interventions intended to address those factors that may support nurses during this pandemic and any similar crises in the future. Nursing managers can play a crucial role in mitigating nurses' burnout by identifying and tackling sources of stress that exist among their staff, such as team conflict, workplace harassment, and discrimination. Future research should investigate ICU nurses' needs and potential mitigation measures, with consideration of the pandemic context, in order to reduce risk of burnout.

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CRediT authorship contribution statement

Nawal Alzailai: Conceptualisation, Methodology, Formal analysis, Investigation, Writing- Original draft, Review & Editing, Visualisation, Project Administration. **K Louise Barriball:** Methodology, Writing-Review & Editing, Supervision. **Awad Alkhatib:** Investigation. **Andreas Xyrichis:** Conceptualisation, Methodology, Writing-Review & Editing, Supervision.

Conflict of interest

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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