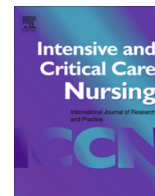




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Research Article

Healthcare professionals' experiences during the initial stage of the COVID-19 pandemic in the intensive care unit: A qualitative study

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ABSTRACT

Background: The COVID-19 pandemic called for rapidly considerable changes in the healthcare system. Healthcare professionals from different departments within the hospital settings were enrolled in the emergency preparedness. This study, therefore, aimed to explore the healthcare professionals' experiences attending the ICU-preparedness and caring for patients with COVID-19 during the initial stage of the pandemic.

Methods: A descriptive explorative qualitative study was conducted by interviewing healthcare professionals during spring 2020, exploring their experiences as part of the ICU-preparedness team and caring for patients with COVID-19 in the ICU. Healthcare professionals from different departments were recruited by purposive sampling. The interviews were transcribed verbatim and analysed using content analysis.

Findings: Sixteen nurses and four physicians from a university hospital in Denmark participated. The analysis revealed three main themes and eight sub-themes. The main themes were (1) Professionalism in work-life (adaption, the patient's welfare, insecurity, and security), (2) Community Spirit (responsibility and contribution), and (3) Institutional organisation (the role of management, loss of freedom, and information).

Interpretation: Despite work specialities and professions, the participants reported a uniformity of similar experiences of uncertainties, but also a sense of community arose during the first phase of COVID-19.

Recommendations: To ensure resilience and mental health, and well-being for the healthcare professionals, comprehensive support should be provided. Guidelines for interventions and training are necessary to promote preparedness and reduce psychological stress.

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Implications for clinical practice

- Healthcare professionals feel a professional obligation during a crisis like a pandemic. Still, the institutional organisation should focus on ensuring the mental health and resilience of frontline healthcare professionals working in the intensive care unit.
- Leaders (at all levels) should prioritise clear and consistent communication to avoid insecurity among healthcare professionals.
- Future work in the healthcare system should focus on training for worst-case scenarios such as a pandemic, clearly defining relevant tasks for all healthcare professionals to promote preparedness and thereby reduce psychological stress.

Introduction

When the World Health Organization declared a pandemic with coronavirus SARS-CoV-2 referred to as COVID-19 (WHO, 2020) in March 2020, the Danish government choose to "close" Denmark,

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meaning closing boards, all public institutions, including schools, recommending the public to stay home and keep a social distance. Emergency preparedness was activated, and all resources were considered trying to prevent the healthcare system from collapsing and triggering emergency preparedness meant to increase critical care surge capacity in intensive care units (ICU) by more than 150% within a short period. Healthcare professionals (HPs), mainly nurses and doctors from different work specialities, were quickly trained to support and work within the ICUs.

From earlier pandemics, HPs have reported a sense of professional obligation despite a high risk of being infected while caring for the patients and the risk of transmitting the infection to their close relatives. (Suwantararat and Apisarnthanarak, 2015; Tzeng and Yin, 2006). During the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003, HPs reported psychological problems such as stress, fear, anxiety, anger, and frustration (Maunder et al., 2003). We hypothesised that some of these experiences would be similar. To provide sufficient support for the HPs in the future, we found it relevant to explore the experiences of HPs when they attended as frontline personal caring for patients with COVID-19 in the ICU.

Aim

This study aims to explore healthcare professionals' experiences during the initial stage of the COVID-19 pandemic when caring for patients with COVID-19 in the ICU setting.

Methods

Design

This descriptive exploratory study had a qualitative design using a semi-structured interview guide and manifest content analysis. The manuscript was prepared with the Consolidated criteria for reporting qualitative research Checklist (COREQ) (Tong et al., 2007).

Settings

The study was conducted at two adult mixed medical-surgical ICUs at a University Hospital in Denmark (referred to as ICU 1 and 2). Typically, ICU 1 had 12 beds and ICU 2 had eight beds. During the initial stage of COVID-19, these units prepared for a 150–200% increase in patient intake.

Participants

Purposive sampling was used to select twenty participants who were recruited from either ICU 1 or 2 by one of the researchers (CBM, SC, JZ) (Moser and Korstjens, 2018). All participants were recruited because they participated in the ICU preparedness and based on the researchers' judgements who would be most informative and willing to articulate their experiences (Moser and Korstjens, 2018). The participants were nurses and physicians from different wards (including ICU). None of the participants had any previous experience working during a pandemic.

The participants were categorised into three different levels of competencies depending on former and present work field and experience. Level 1 was a certified nurse with no previous work experience from an ICU/or a nurse student currently working in the ICU. Level 2 was a former ICU nurse/nurse training to become a certified ICU nurse or a physician. Level 3 was certified critical care nurses. See Table 1 for demographic characteristics.

Table 1
Demographic table.

	n = 20
Sex, male/female (n)	2/18
Age, mean (SD)	44 (10.7)
Profession: Physicians/Nurse/nurse student/(n)	4/15/1
Level of competence, (1–3) (n)	
• 1	7
• 2	8
• 3	5
Workplace, ICU 1/2	11/9
Area of employment	
• Department of Orthopaedics	3
• Department of Anaesthesiology	5
• Department of post-anaesthesia care unit	1
• Intensive care unit	8
• Department of Breast surgery	1
• Department of Ear, nose, throat	1
• Department of Neurology	1
• Medical out- off clinic	1

Participants at levels 1 & 2 received a training program for ICU preparedness, one day with lectures focusing on the care for patients in the ICU, ventilator therapy, and a short introduction to COVID-19 and a one-day bedside training in the ICU.

Ethical approval

The study was conducted according to the principles of the Declaration of Helsinki (World Medical Association, 2013). Approval was provided by the Danish Data Protection Agency (REG-025-2020). Approval for conducting a qualitative study from the Danish National Committee on Health Research Ethics is not required and therefore not obtained.

Approval was obtained from the management at each unit. The participants were informed about the study verbally, and the voluntary nature of the study. Written informed consent was obtained from each participant. To protect the anonymity of the participants, they are referred to as N1 to N20.

Data generation

The research team consisted of 4 nurses; two with an academic degree and experience in qualitative research (CBM & AG), and two were working as research nurses (JZ & SFC). All four nurses worked at ICU 1 during the initial stage of the pandemic.

Individual interviews were performed from 14 April to 30 April 2020 using a semi-structured interview guide (Brinkmann and Kvale, 2018). The interview guide was constructed for the study based on our own experiences in this unique situation. The main question was: "What are your thoughts and considerations working with COVID-19 patients in the ICU?" After the main question was asked, the participants were asked to reflect on additional themes like; family, risk of being exposed to COVID-19, work situation, and personal protective equipment (referred to as PPE).

The interviews were conducted by either CBM, JZ or SFC, and took place at one of the two hospitals in a quiet office during break time. The interviews were digitally recorded and lasted from 4 to 16 min and were transcribed verbatim. Information became redundant during the last three interviews (Malterud, 2001). Because of a malfunctioned recorder, one interview was excluded.

Data analysis

For analysis and interpreting the meaning of the data, manifest content analysis was chosen (Elo and Kyngäs, 2008; Graneheim and Lundman, 2004). In manifest content analysis, the researchers

try to describe what the informants say, “staying close to the text” (Kleinheksel et al., 2020, page 128) and represent visible components of the text (Bengtsson, 2016; Graneheim and Lundman, 2004; Kleinheksel et al., 2020).

During the analysis, the researchers worked with an inductive approach, looking for similarities and differences in the data, moving from the concrete and specific text to a more abstract and general level (Graneheim et al., 2017). Each investigator read the transcribed interviews several times to become familiar with the data during the preparation phase. Next, each investigator searched for meaning units in the text (Elo and Kyngäs, 2008; Graneheim and Lundman, 2004). A unit of meaning is words or sentences related to the same central meaning or content (Graneheim and Lundman, 2004). In the organising phase, the meaning units were condensed to codes and then merged into categories (Graneheim and Lundman, 2004). Finally, the research team triangulated their perspectives by discussing the best interpretation of the categories and creating the final themes. The analysis process is illustrated in Table 2.

All authors analysed data. All quotes were translated from Danish to English by the authors. First separately done by each author, then through discussion to ensure the accuracy of each quote.

Trustworthiness is an overarching concept encompassing several methods (e.g. credibility, dependability, transferability) for describing aspects of trustworthiness in qualitative studies (Graneheim et al., 2017). Credibility was provided by reporting the participants' experiences of being part of ICU preparedness supported by quotations. Furthermore, credibility and confirmability was enhanced by investigator triangulation, with all four researchers participating during every step of the research process. Dependability was achieved by transparent reporting through detailed descriptions of the research process. Transferability was sought by providing sufficient information about the study and selecting the participants who all were affected by changes of the restructuring in their work field and place (Graneheim et al., 2017; Shenton, 2004).

Findings

The findings consisted of three main themes and eight sub-themes: (1) “Professionalism in work-life” (adaption, the patient's welfare, insecurity and security), (2) “Sense of community” (responsibility and contribution) and (3) “Institutional organisation” (the role of management, loss of freedom, and information).

1. Professionalism in work-life

The participants experienced adaption to the situation, responsibility, and professional pride. Some expressed a sense of preparedness and felt an obligation and willingness to contribute to a higher purpose. In contrast, others experienced insecurity due to the unknown virus and the undefined work task. Especially HPs in level 1 or 2 experienced insufficiency due to lack of own experiences and competencies when attending the ICU. Furthermore, all levels of HPs experienced their professionalism was challenged by the restrictions given by the Danish Health Authority.

1.1 Adaption

All competencies were taken into consideration during the initial stage. All levels of HPs experienced and expressed adaption to the situation. They attended the ICU with respect and did not question the choices made for them. An HP (level 2) with former experience from working in the ICU (25 years ago) and now working with elective surgery was asked to participate and found it natural to participate. “We were two nurses who had certification as critical

Table 2
An example of the analysis process going from units of meaning to theme.

Units of meaning	Codes	Category	Theme
“I think the management in the ICU welcomed us. We have not been treated as someone who was just there to help. We have been treated as some of their own..” (N6)	Experience of being welcomed by the management	The role of the management	Institutional organisation
“There have been missing leadership, lack of structure from day one, where things just wouldn't fit together. ... Maybe more openness from the leaders showing which way we were going could have helped us?” (N16)	Experience of lack of leadership		
“But, I think that I did not choose this (working in ICU voluntarily.. I had no choice..(crying)” (N5)	Dramatic changes in participants work life	Loss of freedom	
“We received good information before we started, e.g., what PPE to use of patient situation” (N4)	Sufficient information	Information	
“More information about where we are and where we are going, and something they might not know, but then say what they do know.” (N1)	Insufficient information		

care nurses, and of course we accepted to be a part of the ICU-preparedness” (N17, level 2). Even though working in the ICU was overwhelming for some participants, one nurse expressed a learning perspective. “During the first hours, I was terrified. Then I realised what a great opportunity it was to learn something new” (N8, level 1).

1.2 The patients' welfare

Several restrictions were given to avoid the spread of the COVID-19 virus inside the hospital, including no relatives allowed to visit the hospital. “It must be hard for the patients being in isolation without no visits from close relatives. And when we (HPs) enter the room, we have PPE on, so they can only see our eyes and nothing else” (N20, level 1).

To minimise exposure of COVID-19 and hereby protect the health of the HPs, they were told to stay as little as possible in patient isolation rooms, despite this leaving patients with severe illness unattended for periods of time. “As little as possible in isolation. We were told to get in and do our job and then get out. I even got the change of shift report (a report of the patient's current medical status) out in the hallway, not being able to see the patient. It was something I needed to accept- but after a while, it was okay” (N3, level 3).

1.3 Insecurity and security

Insecurity was experienced in several different settings. Several HPs (all levels) declared insecurities due to the unknown situation, not knowing when “normality” would return. “. . . This insecurity, we cannot tell how long time the ward has to function like this” (N11, level 3). Furthermore, social media had a significant impact on insecurity. Social media (Danish and international news) reported an ongoing lack of PPE. This manifested in a belief that there was a lack of PPE. “There is a lot about isolation and lack of PPE in the media

and how to wear the PPE properly" (N7, level 3). Another participant expressed that the situation seen in other countries could be the same in a Danish context. "So many horror scenarios from other countries were presented in the television showing that they do not have enough PPE equipment" (N1, level 2).

Healthcare professionals (mainly level 1) experienced a lack of time to put on the PPE before entering the isolation room and to follow the guidelines correctly (wear them properly). "...many worries about, myself included, if there will be a lack of PPE and if there will be sufficient time to get dressed in the PPE?" (N10, level 1).

Ward managers who acknowledged the situation provided certainty of the chosen decisions to ensure HPs' safety. "The leaders prioritised our security first, then the patients. That resulted in a feeling of safeness" (N7, level 3). Some stated that they were not anxious about being exposed to COVID-19 if they followed the guidelines. "...if you remember to keep a distance, wash hands and follow the guidelines, then it will be okay" (N18, level 2). However, five HPs were anxious about being infected by COVID-19 not only regarding themselves but more if they would pass the virus on to others. "I'm afraid - I'm afraid that I might get infected and then pass it on to my family" (N2, level 2).

2. Community spirit

Community spirit was a new term that appeared during the initial stage of the COVID-19. It was usually addressed in the media by the health government and expressed by several participants who stated that they felt a responsibility to step up and solve the tasks they were given. They wanted to contribute for a higher purpose even though they lacked experience with intensive care nursing. They felt a professional obligation.

2.1 Responsibility

Especially HPs (level 1 & 2) who willingly chose to be a part of the ICU-preparedness during COVID 19 experienced and defined the theme "responsibility". One of the participants who worked in an outpatient clinic on daily basis verbalised the theme "responsibility" as; "I signed up for the ICU team, for me, it was a natural thing to do" (N 14, level 1). A physician (also a former soldier) stated that it was natural; "If I can do a job which releases a critical care nurse, whom I consider more competent in saving the lives of ICU COVID-19 patients, then I'll be happy to volunteer" (N2, level 2).

2.2 Contribution

Healthcare professionals (level 3) stated that being a part of the ICU team was interesting and despite all the extreme changes that happened, it was perceived as a natural thing to do. Even though COVID-19 was a new and not well-known virus, it did not seem to bother the participants from the ICU. "It's going to be exciting being a part of the ICU team. . . it is great" (N4, level 3). Several ICU HPs stated that it was professionally challenging because of the severity of the coronavirus and a young physician who was in training in anesthesiology, expressed, "It is extremely interesting professionally and I feel like "bring it on" (N18, level 2).

Working with critically ill patients are a normal part of the workload in the ICU; however, suddenly, everything changed due to the unknown nature of the COVID-19 and restrictions given by the Danish authorities (no visitor allowed in the hospital) which meant that patients were left to die alone. "The patients are very ill -it's professionally a challenge for me, that is why I work at the ICU. Nevertheless, I find it is devastating no next of kin can enter the ICU ward because the patients are left to die alone. I have noticed that it also challenges my colleagues" (N13, level 3).

3. Institutional organisation

During the initial stage of the COVID-19 pandemic, several changes were made for the participants (especially HPs at level 1

& 2). For some, it meant working in another hospital, in another department, with different work shifts, but also having another leader than usual and finally other tasks.

3.1 The role of the management

How managers filled out their "new" roles was experienced in different ways. Some HPs (level 1 & 2) experienced a positive welcome and a clear and visible leader. "I think the leaders at the ICU welcomed us as their staff. We have not been treated as someone who just came to assisted..." (N6, level 2).

Healthcare professionals (mainly level 3) reported a lack of leadership and organisation. "There has been a lack of leadership and structure from day one. . . Maybe more transparency from the leaders could have helped us and shown the direction?" (N16, level 3). Furthermore, HPs (level 3) experienced an enormous workload because they had to take care of more severely ill patients than usual besides working with unknown HPs. How to use external HPs' competencies were not clearly stated, and there was an absence of clearly defined worksheets. HPs (all levels) expressed a need for clear information regarding the expectations of the individual employee.

3.2 Loss of freedom

Many HPs experience a loss of freedom, professionally and personally. One HP (level 2) with former ICU said, "I didn't choose this voluntarily (working at the ICU), I had no choice. . . (crying)" (N5, level 2).

Every HP experienced a change in their work schedules. Vacations were cancelled, and suddenly some HPs had to work night-shift, weekends, or during holidays and did not experience any influence on how their work schedule was organised during the initial stage. "What affects me most is working in this place with no influence on my work schedule, working every second weekend and nightshifts and just doing what they tell you to do" (N20, level 1).

3.3 Information

Information about COVID-19 came from different institutions, not only the Danish Healthcare government and the hospital's management. There were no clear communication channels within the hospital to pass on relevant information. Specially HPs at level 3 expressed the subtheme information. "We had received excellent information before we started at the ICU, e.g., which kind of mask for which kind of patient situation" (N4, level 3). Another participant reported an absence of information. "More information is needed about which direction we are going but also information when there is nothing to tell or having uncertainty about the situation" (N1, level 3). They experienced a lack of information, or it came too late, which frustrated HPs. "Why should it take three weeks before we get the same information as the other HPs?" (N17, level 3).

Discussion

In our findings, three themes emerged. Being a part of the ICU preparedness affected HPs' view regarding professionalism in work life and community spirit. Furthermore, the HPs required a solid visible institutional organisation.

Professionalism in work-life

Expanding critical care surge capacity demanded massive changes. Naturally, it brought uncertainty and frustrations, but all HPs described and experienced an adaption to the situation and the circumstances given, not questioning the choices and changes made on their behalf.

Several dilemmas arose (e.g., no visitor policy, ill patients alone in isolation, HP's exposure to COVID-19 or the fear of transmitting COVID-19 to family members). Mainly HPs (level 1 & 2) reported a fear of being infected by COVID-19. Similar studies have reported the risk and fear of contagion during epidemics/ pandemics and the risk of passing on the infection to family members (Abolfotouh et al., 2017; Blanco-Donoso et al., 2021). Providing training courses, sufficient PPE, and psychological support may help to reduce the anxiety and the fear of being infected with COVID-19 (Adams and Walls, 2020; Goh et al., 2020; Wurmb et al., 2020). To accommodate the challenges the HPs experience and ensure their mental health, supporting HPs in work-life and their mental health is essential (Akgün et al., 2020; Magner et al., 2021). Therefore managers should pay attention to the negative emotions and target interventions (e.g. interventions for debriefing or stress handling) to protect the mental health of the HPs (Akgün et al., 2020; Magner et al., 2021; Pollock et al., 2020).

Community spirit

Despite the pressure to engage in the ICU preparedness, all HPs experienced a sense of community spirit, an obligation to contribute and as one HP (level 2) stated, "it's my duty". From earlier pandemics, studies have shown HPs' willingness to provide care and accept critical assigned jobs because of a professional obligation regardless of the nature of the disease and, despite the potential exposure risk to their health (Tzeng and Yin, 2006; Wu et al., 2012).

Healthcare professionals have a professional responsibility to provide care for patients even if it is at risk, and HPs (level 3, especially) in our study expressed a willingness to contribute. To provide notice of what will be expected, policies defining HP's obligations are needed (Bakewell et al., 2020).

Institutional organisation

During other outbreaks of infectious diseases (e.g. SARS), HPs played a considerable role as frontline personals containing many uncertainties and heavy workloads (Chung et al., 2005; Du and Hu, 2021). In ICU 1 & 2 modified staffing models were created, especially HPs level 3 reported a heavy workload because of the change in ICU nurse-patient ratio from 1:1 to 1:4–5 patients. Furthermore, HPs level 3 reported a heavy workload when working together with level 1 & 2 HPs who neither were familiar with the setting, critically ill patients, nor the surroundings at the ICU. They (HP level 3) felt obligated to their (HP level 1 & 2) well-being. Despite the effort to provide sufficient training to increase level 1 & 2 HPs' knowledge and skills, there is a need for clear guidelines and ongoing training to assure adequate assistance during a pandemic (Greenberg et al., 2021; Li et al., 2020).

Some HPs (level 1 & 2) experienced that being part of ICU- preparedness was stressful. The HPs in our study did not report symptoms of burnouts (e.g., insomnia, distress). However, it has been reported elsewhere to be stressful working in the frontline during a pandemic (Giusti et al., 2020; Lai et al., 2020). Therefore, navigating through a crisis requires effective leadership to ensure that the staff feels supported and accommodate their experiences (e.g. loss of freedom due to changes within work schedules) (Dirani et al., 2020).

The novelty of the COVID-19 virus led to frequently updated guidelines released by the Danish Health Authority. Furthermore, several changes were made in the hospital settings, such as new established *ad hoc* ICUs and modified staffing models. The HPs experienced that the frequency and level of information were not coordinated. Effective leadership is vital for the staff during a crisis, including effective communication and coordination (Hølge-

Hazelton et al., 2021). Clear guidelines and information channels are essential during a pandemic (Greenberg et al., 2021). Therefore, visible and apparent contact and communication from the leaders is beneficial, preventing misinformation and providing insight into areas that might require attention (Adams and Walls, 2020; Hølge-Hazelton et al., 2021; Kain and Fowler, 2019).

Limitations

The study has limitations such, as some interviewers knew some of the participants. To minimise our influence, we (the research team) discussed how to approach the participants and emphasise the voluntariness in the participation.

Conclusion

Being part of an ICU preparedness during the early stage of the COVID 19 pandemic led to a degree of adaption despite the uncertainties experienced by the HPs. The HPs reported undefined work tasks, lack of information, and a need for visible institutional leadership. Still, considering the extreme situation, the HPs reported an obligation to contribute and a sense of community spirit. However, to ensure frontline healthcare professionals' mental health and resilience in the future, research focusing on how to prepare and work during a pandemic are required.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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