



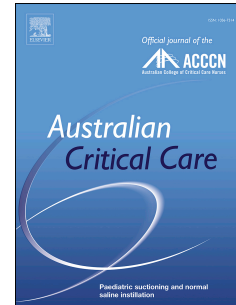
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Staff experiences, perceptions of care and communication in ICU during the COVID-19 pandemic in Australia

R. Digby, E. Manias, K.J. Haines, J. Orosz, J. Ihle, T.K. Bucknall



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CRedit author statement

Robin Digby: conceptualisation, methodology, conducted interviews, data analysis, writing original draft, leading manuscript revision

Elizabeth Manias: Conceptualisation, methodology, data analysis, manuscript editing.

Kimberley Haines: Conceptualisation, methodology, data analysis, manuscript editing.

Judit Orosz: Conceptualisation, methodology, data analysis, manuscript editing.

Joshua Ihle: Conceptualisation, methodology, data analysis, manuscript editing.

Tracey Bucknall: Conceptualisation, methodology, data analysis, manuscript editing, supervision.

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Digby, R ^{1,2}.

Email: r.digby@deakin.edu.au

<https://orcid.org/0000-0002-5951-9419>

Manias, E¹.

Email: emanias@deakin.edu.au

<https://orcid.org/0000-0002-3747-0087>

Haines, K. J.^{3,4}

³ Department of Physiotherapy, Western Health, Melbourne, Victoria

⁴ Department of Critical Care, School of Medicine, The University of Melbourne, Melbourne, Victoria

Orcid ID: 0000-0002-2882-1594

Orosz, J^{5,6}.

⁵ Department of Intensive Care, The Alfred Hospital, Melbourne, Australia

⁶ Department of Epidemiology and Preventative Medicine, Monash University, Melbourne, Australia

Email: j.orosz@alfred.org.au

Ihle, J.^{5,6}

⁵ Department of Intensive Care, The Alfred Hospital, Melbourne, Australia

⁶ Department of Epidemiology and Preventative Medicine, Monash University, Melbourne, Australia

Email: j.ihle@alfred.org.au

Bucknall, T.K.^{1,2}

¹ Deakin University, School of Nursing and Midwifery, Centre for Quality and Patient Safety, Research, Institute for Health Transformation, Faculty of Health, Geelong, VIC 3220 Australia ² Alfred Health, 55 Commercial Rd, Melbourne VIC 3004 Australia

Email: tracey.bucknall@deakin.edu.au

<https://orcid.org/0000-0001-9089-3583>

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CRediT author statement

Robin Digby: conceptualisation, methodology, conducted interviews, data analysis, writing original draft.

Elizabeth Manias: Conceptualisation, methodology, data analysis, manuscript editing.

Kimberley Haines: Conceptualisation, methodology, data analysis, manuscript editing.

Judit Orosz: Conceptualisation, methodology, data analysis, manuscript editing.

Joshua Ihle: Conceptualisation, methodology, data analysis, manuscript editing.

Tracey Bucknall: Conceptualisation, methodology, data analysis, manuscript editing, supervision.

Staff experiences, perceptions of care and communication in ICU during the COVID-19 pandemic in Australia

Abstract

Background

In 2020, during the first wave of the COVID-19 pandemic in Australia, hospital intensive care units (ICUs) revised patient care practices, curtailed visiting, and augmented the use of personal protective equipment (PPE) to protect patients, staff and the community from viral transmission.

Aim

The aim was to explore ICU staff experiences and perceptions of care and communication with patients during the COVID-19 pandemic, to understand how alternative ways of working have influenced work processes, relationships, and staff morale.

Methods

Qualitative exploratory design using audio-recorded and transcribed interviews with 20 ICU staff. Data were analysed using thematic analysis.

Findings

Four major themes were derived from the data: 1) Communication and connection 2) Psychological casualties, 3) Caring for our patients, and 4) Overcoming challenges. Patient care was affected by diminished numbers of critical care qualified staff, limited staff entry to isolation rooms and needing to use alternative techniques for some practices. The importance of effective

communication from the organisation, and between clinicians, families, staff was emphasised. PPE hindered communication between patients and staff, and inhibited non-verbal and verbal cues conveying empathy in therapeutic interactions. Communication with families by phone or videoconference was less satisfying than in-person encounters. Some staff suffered psychological distress, especially those working with COVID-19 patients requiring extracorporeal membrane oxygenation (ECMO). Moral injury occurred when staff were required to deny family access to patients. Workload intensified with increased patient admissions, additional infection control requirements and the need to communicate with families using alternative methods.

Conclusion

The results of this study reflect the difficulties in communication during the early stages of the COVID 19 pandemic. Communication between staff and families may be improved using a more structured approach. Staff reported experiencing psychological stress when separating families and patients or working in isolation rooms for prolonged periods. A flexible, compassionate response to family presence in ICU is essential to maintain patient- and family-centred care.

Keywords

(4-10)

Intensive care, COVID-19, staff perceptions, patient care, communication, psychological stress

Staff experiences and perceptions of care and communication in ICU during the COVID-19 pandemic in Australia

Introduction

In 2020, during the first wave of the COVID-19 pandemic in Australia, it was essential that hospital intensive care units (ICUs) adapted clinical practice to protect patients, staff, and the community from transmission of the virus(1). Major restrictions were implemented including curtailed visiting, limitations to staff movement within hospitals, and revised patient care practices, especially those related to airway management. The use of personal protective equipment (PPE) was augmented to increase protection for staff. Globally, hospitals limited access to non-essential persons (2), reduced or eliminated non-urgent surgery (3, 4) and reassigned staff from other areas to respond to the pandemic (5, 6), potentially exacerbating health inequalities (4, 7).

Moral injury and psychological stress were frequent in situations where care was rationed and ethical principles were challenged (8, 9). Healthcare professionals can experience extreme burden during the COVID 19 pandemic(10, 11), with many suffering significant stress(10, 12), anxiety (12) and burnout(13). Team relations were tested by the added pressures, with some connections strengthened and others damaged(9, 10). Some staff reported skin problems from constant use of PPE (14-16). Furthermore, PPE hindered communication between nurses, patients and between staff(17).

Visitor access to Australian hospitals was initially prohibited when the first cases of COVID-19 appeared in March 2020, with limited exceptions for patients at end-of-life. A duality of harm was caused to patients, families and staff by rigid visitation policies consistent with findings in other research (18-21). In the following months, as the number of cases in the community decreased,

restrictions were eased in line with World Health Organization recommendations (22). In April 2020, one person, from two nominated visitors per patient, was permitted to visit for one hour per day at a prearranged time(23).

Previous research on the staff perception of care and communication is limited. The aim of this research was to explore ICU staff experiences and perceptions of care and communication with patients during the COVID-19 pandemic. Further objectives include exploring how alternative ways of working have influenced relationships, staff morale and work processes.

Method

Design

This qualitative exploratory study used interviews conducted in May-December 2020 with staff working in ICU during visiting restrictions. This study is reported according to the Consolidated Criteria for Reporting Qualitative Research (COREQ)(24).

Setting

The study was conducted in a 56-bed ICU of a major metropolitan teaching hospital in Australia. Additional ICU beds were opened at the peak of the COVID-19 waves. A dedicated COVID area was allocated to patients with COVID-19, while the remaining areas continued maintaining state services and treating patients with non-COVID conditions. Nursing ratios were upheld according to Australian standards, with 1:1 or 1:2 depending on patient acuity.

Participants

All staff with patient and family contact working in ICU during this time were eligible to participate in the study.

Data collection

A purposive sampling method was used. Participants were voluntarily recruited following request via group email from managers and at staff meetings. Interviews were conducted by phone or videoconference by an experienced nurse researcher (XX) not previously known to participants. Recruitment ceased when data saturation was achieved, no new information was obtained and coding became repetitive (25)

A semi-structured aide-memoire (interview guide) was developed following input from clinical staff and with reference to the research question (Box 1). The questions were focused on exploring the staff experience of care and communication in ICU during the restrictions. Participants were encouraged to expand on issues that were important to them. Not every question was put to every participant, depending on the direction of the interview. Participants were reassured that they would not be required to discuss anything they would prefer not to, and that they were free to stop the interview at any time.

Box 1: Aide-memoire

Discussion with the research team during data collection ensured methodological coherence, adequate sampling, and responsiveness (26). Data were initially analysed and coded by XX, and preliminary codes shared and discussed with the research team. Consensus was reached on the themes and sub-themes to ensure dependability and verification. Interview transcripts were not returned to participants for review as the advantages of this technique are usually minimal(27).

Ethical considerations

The Human Research Ethics Committee of the health service granted ethics approval (AH/445/20). Participants received written information about the study and gave verbal audio-recorded consent before commencement.

Research rigour

Discussion with the research team during data collection ensured methodological coherence and responsiveness (26). The use of an interview guide and purposive sampling ensured credibility and trustworthiness (28). Reflexivity was established by continually engaging with and articulating the place of the research and the context of the research within the research team(29). Data were initially analysed and coded by XX, and preliminary codes shared and discussed with the research team. Consensus was reached on the themes and sub-themes to ensure dependability and verification. Interview transcripts were not returned to participants for review as the advantages of this technique are usually minimal(27).

Data analysis

The interviews were audio-recorded and transcribed verbatim. Transcriptions were checked for accuracy against the recordings. Data were managed using NVivo 11 software (30). We used Braun and Clarke's six-step method of thematic analysis (familiarisation with the data, generating initial codes, searching for themes, reviewing potential themes, defining and naming themes and producing the report) (31). Themes were derived inductively, with focus on addressing the research questions and goals of the research(32).

Findings

Twenty staff including five doctors, 13 nurses, one physiotherapist and one ward clerk were interviewed. Interviews were 35-70 minutes long. Five participants were male (three doctors and two nurses). Participant demographic data other than discipline and gender was not collected.

Analysis resulted in four major themes with several sub-themes: communication and connection, psychological casualties, caring for our patients and overcoming challenges (Table 1).

Table 1: Themes and sub-themes from qualitative analysis

The themes are discussed below and illustrating extracts from the interviews are provided in Table 2.

Theme 1: Communication and connection

The importance of effective communication was identified by the participants as a priority issue. Staff needed regular, clear information from the organisation and managers to keep abreast of the changing recommendations and to make appropriate decisions. Connection between staff, patients and families was challenged by the infection control restrictions which limited face-to-face contact.

Organisational communication

Effective organisational communication ensured that the ICU team was informed about the frequent policy and protocol changes and the ramifications for patient care. The regular recorded videoconference meetings organised by the ICU director and nurse manager could be accessed by all ICU staff and 'kept everyone in the loop'.

Updates from the hospital executive were conveyed via email and recorded electronic forums. The policies and procedures related to patient care, infection control and visitation changed quickly, often daily, and it was sometimes difficult for staff to stay abreast of the changes.

Keeping families informed

Communication between clinicians and families was adapted by including virtual modes of communication to compensate for the lack of incidental bedside discussions. Staff had mixed reports about the success of communication strategies. Staff reflected that phone calls from clinicians were reported by families to be appreciated but inconsistent in frequency and content, dependent on the staff member involved. Videoconferencing was introduced early in the pandemic with some success, but it was not for everyone with some describing it as 'appreciated' and 'excellent' and others feeling it was 'too tricky' and 'overwhelming' for the family.

She was a heart transplant patient ... She was potentially going on ECMO, and the family were really worried about her... She had a close family, and they were struggling to cope ...then having to set up the video calls for the family to see her. ...It felt a little bit unnatural in a way ...it's hard (P17, Nurse).

The devices and skills needed to participate via electronic devices were not available to all families. Some families were able to communicate with their sick relative through videoconferencing, but this was mostly with conscious patients who were able to respond; although there were some instances of connecting patients with altered consciousness with their families.

Phone calls and videoconferencing were not a satisfactory substitute for in-person contact because of the lack of physical contact and privacy. '*Some people [families] were never going to cope*'. Participants reported that some families were distressed when unable to be with their relative, and it was difficult for staff to witness. Family anxiety and the desire for additional contact with staff added to the workload and stress of clinicians who struggled to ensure that by the end of the day they had spoken to every family.

We have a list of bed numbers, and I would usually divide that up between myself and the senior registrar. And we would just make sure at the end of the day we'd spoken to all the families (P8, Doctor).

Family liaison nurses were introduced at the start of the pandemic to improve communication with families. These nurses contacted family on day 1 and day 3 of the ICU stay and focused on logistical and procedural issues such as visiting, parking, and accommodation rather than patient care. Families needed to speak to staff directly caring for their loved ones for clinical updates. *'What they wanted was clinician contact'*.

Staff to staff

Initially, communication with staff in the isolation rooms relied on speaker phone from the desk, meaning that the people speaking could not necessarily see each other. Additionally, it was difficult for those inside the room to hear through their PPE. One nurse described getting non-urgent help by holding a note up to the window of the isolation cubicle. For urgent matters, the call bell system was used.

Participants reported missing the casual chats which previously occurred in the tea-room. This incidental debriefing is a powerful tool when working in stressful circumstances but was disrupted by the need to minimise contact between staff. Only a limited number were permitted to use the tearoom at once, and mask-wearing and physical distancing were enforced. Most retreated to their phones for company when eating, all of which culminated in a potentially very isolating environment; one new staff member still felt like an outsider six months after commencing.

The way that these teams work efficiently is gathering together, establishing roles, looking out for each other's needs, understanding educational and other parts of people's lives... one of the great things people in ICU enjoy about the workplace is that team belonging...If you put in place rules of no gathering ... it takes away that natural human support that you give each other (P 5, Doctor).

Family supporters

Keeping patients and their families apart was traumatic for staff who had to enforce the separation. Communicating with patients was challenging through PPE, making it difficult for staff to demonstrate empathy and develop a connection with the patient. The masks and shields meant that

it was harder for patients to see that there was *'humanity behind all those things'*. Staff worked harder to communicate kindness and caring. *'A lot of the time it's not what you are saying to them that calms them, it's your tone and facial expression.'*

He said, "I just want to die because this illness is going to kill me eventually and I just want to go peacefully". You know, having someone say that to you when you're wearing a shield, goggles, mask... you can hardly hear them, they can't hear you, in a very quiet room with people watching in. It didn't feel sincere or what he deserved (P11, Nurse).

The absence of family impacted acutely on some patients. One recovered ICU patient told a participant that despite having excellent care and kindness from staff, she had found the absence of her family during a critical illness deeply upsetting. Attempting to offer some compensation for the lack of family presence was taxing. *'The secondary strain that imposed on staff was tangible.'* (P7, Doctor)

Theme 2: Psychological casualties

Participants reported feeling emotionally devastated from witnessing the trauma that patients and families experienced during the severe visitor restrictions. The stress being felt by the community in response to the pandemic was amplified in the ICU staff by the constantly changing requirements of the work and witnessing trauma in others.

Fear of COVID

In the initial stages of the pandemic, when vaccinations were unavailable, staff relied on infection control practices and PPE to protect themselves from infection. Some participants reported feeling fearful of contracting the virus and transmitting it to their families. Many felt safer at work than in the supermarket or other places in the community where crowds of people mingled. The strict protocols enforced at work were reassuring.

When the pandemic first came, I was terrified about going to work... once I settled myself and gone into work and seen the processes, I started to feel safer at work...In general the public

weren't social distancing ...people would be standing right behind me, and I'd come out in a sweat (P4, Ward Clerk).

Effect on homelife

Many participants reported that their homelife was negatively affected by the pandemic. Loss of social contact outside of work limited their ability to de-stress. The city was in almost complete lockdown precluding many of the usual stress-relieving activities such as socialising with friends, going to the gym, and eating out. Participants reported elevated stress levels both in relation to their work and in their lives outside of work. Parents were additionally coping with closed schools and supervising remote learning without the usual supports.

I came back from maternity leave early to help with the pandemic, and we lost our grandparents' help because I felt it wasn't safe...And we had to get a nanny and the kids had to drop out of childcare. It was quite challenging and busy. (P18, Doctor).

Threats to morale

The emotional distress that participants reported from being integrally involved with patients and families during extreme trauma, was intense. One nurse, who was isolated in a room with a dying patient, witnessed the heart-wrenching goodbyes from his six children delivered over speakerphone, and described the experience as 'phenomenally awful'. Afterwards, she felt that the support she needed from other staff was lacking. Acknowledgement and understanding from managers and colleagues for maintaining the extra requirements was necessary for staff to feel appreciated, but not always forthcoming.

Nurses working repeatedly in isolation rooms reported feeling extremely burdened and anxious. One experienced nurse admitted to crying from stress and exhaustion at the end of a 12-hour shift in an isolation room. Another reported feeling intense anxiety when wearing full PPE and confined to a small hot isolation room, abruptly leaving the room on one occasion.

Sometimes it was very hot and suffocating... I don't know if it was quite a panic attack, but it was definitely a feeling of anxiety. A closed space with a lot of layers, very hot. ...it's very dehydrating, sore throat, a few times I felt dizzy, and I've had to go out of the room (P10, Nurse).

Stress and burnout

The relentless stress of working in ICU during the pandemic led some staff across all participant groups to feel exhausted and burnt out. One participant admitted that she felt so disturbed by the work that she chose to reduce her hours in ICU and seek a job elsewhere. Others remained in the job but reported feeling increasingly burdened.

Support for staff

Support came from several areas including a 'Well-being Team', which was a group of ICU staff who organised group activities including a book group, on-line Bingo, and wellness advice. The doctor's group arranged special meals to be delivered for staff. Managers showed support by being available to staff and rostering extra nurses to assist those working in the isolation rooms. Group emails were not as well received as a personal response. Some participants reported a heightened level of camaraderie between staff working together towards a common goal. Others expressed their admiration for colleagues who worked tirelessly to deliver a high standard of patient care even when faced with significant obstacles.

We're very lucky we've had lots of support from management. They started team support nurse roles, so we always had that extra resource in the COVID area ...[manager] came on to the floor a couple of times to check in and see everyone was OK. She was there at 6.30 at night and she's been there from 6.30 in the morning... even though she could have gone home, she stayed till we were OK... (P11, Nurse).

Managing stress

Participants reported various strategies for de-stressing after work. Exercise, mainly walking or running, was used. Mindful activities such as baking, sewing, reading, and crocheting were popular. Some reported feeling despondent and lacking in motivation, resorting to drinking too

much alcohol or binge-watching television. Those with supportive families found it restorative to go home after the stress of the workplace.

My family, my wife and kids were all a part of my respite. I found coming home to a house where no one was going anywhere and doing anything was actually quite nice...They are always joyfully happy...I just found coming home to be a lovely space (P5, Doctor).

Theme 3: Caring for our patients

Delivering high quality patient care was a strong priority for staff in ICU, however there were significant challenges created by the infection control requirements which were the only defence protecting the staff and visitors against the virus.

Standard of care

Participants were divided on the standard of care with some believing that it remained high, and others fearing that there had been a decline due to changes in care practices. Aerosol-producing procedures were avoided to limit staff exposure. The number of staff entering patient rooms was severely curtailed.

An important influence on patient care was the reduced availability of senior clinicians for reassurance or advice on patient care. In pre-pandemic times, doctors and senior nurses were nearby and available to examine patients and give treatment advice quickly. For isolated patients and nurses, help was available but much slower because of the necessity to wear full PPE and limit the number of staff entering the rooms.

I think it does impact on care...The sort of casual interactions that were affected are those where a nurse might call you and say I'm really worried about XYZ and it would be a simple matter in non-pandemic times to go and stand at the bedside and do a cursory exam... In a closed room behind the barrier of needing to spend 6 or 7 minutes putting on PPE... I think that they did receive less care (P7, Doctor).

The standard of care was influenced by the variability of staff available, as some senior nurses were promoted to management and others relocated from other areas to fill the shortfall. The number of experienced critical care staff working clinically was reduced.

Working in COVID rooms

The COVID isolation rooms could be problematic principally because other staff not allocated to these rooms did not enter the rooms unless absolutely necessary to limit exposure to the virus. Some nurses worked 12-hour shifts in isolation rooms which was very taxing. Patients requiring extracorporeal membrane oxygenation (ECMO) were some of the sickest in the hospital and nurses were in the room unaided most of the time. One participant described feeling alone and very anxious in case something went wrong that she could not deal with herself. Expert help was available from other clinicians, but it was much delayed. In pre-COVID times, if a nurse was caring for a patient on ECMO, other nurses would assist with some tasks such as preparing infusions and medication to lighten the workload.

I found it the most challenging experience I've had as an ICU nurse... multiple devices and lots of different infusions running at the same time. ... I felt to get anyone to help me there was a barrier. If anything was to go wrong, it would take a few minutes for people get in...I felt very anxious for the whole shift (P4, Nurse).

The nurses caring for patients on ECMO had trouble taking their allotted breaks because they were too busy to leave the patient and other staff were too busy to relieve them. The number of nurses qualified to work with patients on ECMO was limited. Consequently, a small pool of nurses was rostered to work in these rooms frequently. Turning a patient on ECMO required a team of 5-8 staff every four hours. Physiotherapy staff, ward support and nurses all assisted. It could be an anxious time because of the instability of the patient and the amount of sensitive equipment.

Medical emergencies

If an emergency occurred in an isolation room most of the staff remained outside but assisted by giving advice and supplying equipment and drugs. Staff safety was a priority, and it was made clear that staff entering an isolation room must do so safely regardless of the emergency. Inevitably, there were times when the emergency response was slower than normal, and the nurse was alone with the patient before help could arrive. It was difficult for those outside to delay their response to put on PPE or give advice remotely when they were used to being immediately hands-on.

I had one moment where my patient lost their blood pressure... and it was quite a scary realization because in that first moment I pressed the red buzzer, and the doctors were there and I'm on my own for two minutes at least because by the time they get all their stuff on... it's just me... if I did need to start CPR it would just be me (P3, Nurse).

End-of-life Care

During the initial stages of the pandemic, families were not able to be physically present when their relative with COVID was dying, intensifying the relationship between staff and patient in compensation. Staff enforcing the separation found it distressing. Some families were desperate to be allowed in, but at that stage there were no exceptions despite heart-breaking personal situations.

It was probably the hardest thing I have ever dealt with... we didn't have telehealth so the challenges there were just horrific...we had a priest come in and he had to read the last rites through a phone into the room... I was in there holding the hand of the person because I was the only one that could be in there... that was phenomenally awful (P16, Nurse).

Theme 4: Overcoming challenges

Workload

More beds were made available to accommodate the surge of patients, and extra roles such as PPE monitors and team support nurses were introduced. The workload increased compared to pre-pandemic levels because of the additional infection control requirements. Practices such as

intubation which were formerly quick and straightforward became more complex and time-consuming because of the need to use alternative techniques to limit exposure to aerosols.

Procedures are endlessly slower, maybe 3 hours to do something that would normally take us half an hour ...They had to be planned even just going in to intubate someone who needed to be put on a ventilator...It was very frustrating and tiring from a workload point of view (P5, Doctor).

A shortage of available critical care nurses and an increase in the number of roles frequently led to unfilled shifts. Some nurses worked overtime, including double shifts, to fill the gap.

Staying safe

All staff working in ICU were required to wear PPE. Those in the COVID rooms wore shields and goggles, impervious gowns, hats, and double gloves. Working in these outfits for lengthy periods was hot, sweaty, and uncomfortable. PPE monitors were nurses responsible for supervising staff wearing PPE and evaluating for breaches in the isolation rooms. The role was generally appreciated although some staff disagreed with advice given by the PPE monitors or objected to having someone scrutinise their work.

...and the sweat. Those gowns were just awful...I got into the habit of putting Duoderm over my nose and chin... It was over my ears where I really felt the pain... and on my face I get really itchy. Like I would want to rip my skin off (P15, Nurse).

Changing roles, changing rules

To cover the new positions some nurses took up more senior roles and junior staff were then required to care for sicker patients than previously expected. Staff from other areas in the hospital were redeployed to ICU after completing a short course, but most did not have a comparable level of skill. Existing critical care nurses were grateful for their efforts, but it was clear that extra skilled staff were required. Physiotherapists from subacute care were also redeployed to ICU with limited success. Medical staff reduced their non-clinical work and spent more time managing patients on the unit. Tasks considered non-urgent such as research and teaching were reduced or postponed. The situation was constantly changing, and staff had to continually adapt.

Critical care and general physiotherapists were engaged in turning patients on ECMO, bringing expertise in patient movement and extra hands to a task which required at least five staff every four hours. Proning patients on ECMO twice per day was a practice which required up to 10 staff including doctors, nurses, ward assistants and physiotherapists.

You needed to have a consultant holding their airway, a second doctor in the room who is helping with the lines at the head of the patient, someone controlling the ECMO and someone holding the circuit. Then there was 2 or 3 people either side of the patient to do the turn and then there was a leader, and a PPE spotter (P9, Physio).

Before the pandemic, ward rounds led by an ICU consultant occurred morning and afternoon with the whole team in attendance. To limit potential staff exposure to the virus, the team was split, and the consultant and some team members saw half the patients, while the senior medical officer and the remaining team saw the other half, necessitating a debrief afterwards to ensure that care was coordinated.

Satisfaction with work

Two main sources of satisfaction with work were reported. The first was the reward of seeing the positive difference their work was making to individual patients and families. Secondly, there was satisfaction and collegiality derived from a dedicated and committed team working hard towards a shared goal. Some participants reported feeling proud to be frontline workers during the pandemic.

I've never had so much respect for the people that I work for... my eyes were opened to even higher amount of selflessness that is in the people that we work we with... the ferocious way that we approached change was quite a thing to be a part of...the way that people looked after each other...Those were all powerful things to experience. And so uplifting (P5, Doctor).

Discussion

The rapidly changing situation which unfolded at the beginning of the COVID-19 pandemic brought enormous challenges to maintain and adapt communication channels within the organisation and between patients, families and staff. Significant stress was reported by staff who were fearful of contracting the virus, stressed by the increased workload and wearied by constant change. Patient care was adjusted to comply with the new requirements and standards.

Nurses caring for COVID patients on ECMO reported feeling extreme fatigue and stress due to the long (12-hour) shifts in isolation, lack of relief from the uncomfortable, sweaty PPE, and the intensity of working with some of the sickest ICU patients, mostly unassisted. Previous research identified that these specialist nurses could be in danger of burnout and must be appropriately recognised, supported and rewarded(33, 34). Various models of care which increase the nursing workforce to 2 nurses :1 patient or 3 nurses :2 patients, using general ICU nurses to assist specialist ECMO nurses (35) or using perfusionists and nurses (36) have been employed with success elsewhere.

The Person-centred Nursing Framework is widely used to guide the complex contextual and moral facets of caring practices in which the person (or patient), their values, beliefs and relationships are central(37). However early in the pandemic when care practices had to be limited or reinvented to protect lives, person-centredness could be compromised (38). The standard of patient care in ICUs has been previously reported to have been compromised during the pandemic due to an increase in workload(39, 40), and the difficulty of sourcing appropriately trained staff (40, 41). Clinicians, mostly without critical care training, were redeployed from other areas of the hospital to boost the ICU workforce during surge demand, but many lacked the necessary critical care skills. The quality of the nursing workforce is the biggest influence on patient outcomes(6, 42). A diminished nursing skill mix as a result of staffing pressures during the pandemic has been implicated in adverse events such as medication incidents, pressure injuries and nosocomial infections, also contributing to poor staff morale(43, 44).

Face-to-face communication was hindered by the masks, shields and goggles required to protect staff. Patients and clinicians struggled to hear each other, and a level of connection could be lost. Previous research has identified that mask-wearing can inhibit communication between clinicians and patients(45, 46) affect emotion recognition and inhibit impressions of trustworthiness(47, 48), and cause moral distress to staff(49). In this study, participants reported difficulty demonstrating empathy to patients when PPE concealed their facial expressions and non-verbal cues, at a time when compassion and responsiveness were most needed. Expressing empathy and understanding to families either on the phone or by videoconference lacked the immediacy of in-person encounters where humanity is more easily communicated. In recent research, families reported often feeling that there was a lack of authentic engagement with staff and could be confused by remote discussions with different staff members (50, 51). Staff members could appear depersonalised and distant(52), although this was less likely if there was continuity with whom they

spoke and more structure to the communication (53). Structured communication tools have been used elsewhere and been shown to improve satisfaction with communication (6, 54, 55).

Keeping staff members physically distant from each other in meeting places such as the tearoom, decreased opportunities for informal debriefing. Working in a stressful environment heightens the need for peer support(56, 57). Despite many experiencing increased solidarity with workmates, others reported having limited opportunity for casual debriefing and non-work-related chats, both gratifying pre-pandemic occurrences in this unit. Recent recruits including relocated staff did not have the opportunity to get to know other staff members, potentially hindering the individuals' confidence in team capability(56) and provision of additional support to the rest of the team (58).

One of the most difficult aspects of working in ICU during this time was preventing family from visiting their critically unwell relatives leading to staff experiencing moral distress due to cognitive dissonance. Moral distress has been identified in other research as occurring when individuals feel complicit in the wrongdoing required by the situation(58, 59) and is particularly evident in pandemics where healthcare workers must make or enforce unpalatable decisions (56). It has been reported previously (60, 61) that witnessing a death without the usual rituals and the attendance of family can be traumatic and cause secondary stress to staff members who may feel that they must compensate for the absence of family (56, 61, 62). A duality of damage was caused to clinicians and families through rigid infection control policies which severely restricted ICU visitation.

Some staff in this study experienced increased job satisfaction and collegiality which resulted from collaborating with team members towards a common goal. Despite much of the previous research focusing on the negative aspects of working in ICU during the pandemic, Matusov,

Matthews (63) reported that the pandemic brought a sense of cohesiveness and purpose to the ICU team. The resilience, personal values and professional skills of ICU staff can be protective (64, 65).

Implications for research and practice

There are several implications for research and practice. A compassionate and flexible response to family involvement is essential to maintain person- and family-centred care and limit moral injury to staff. The pandemic has challenged the traditional workforce models and channels of communication and further work must be undertaken to develop interprofessional practice and collaboration, to support the critical care workforce during healthcare crises.

Strengths and limitations

A strength of the study was the recruitment of participants from non-clinical and a variety of clinical disciplines during the COVID-19 pandemic. However, the study was conducted at a single ICU in the first year of the pandemic, so the results may not be transferable. A larger sample of non-clinical staff and other clinical disciplines from more ICUs may have produced data with additional depth. Transcripts and interpretations were not returned to the participants for checking.

Conclusions

The results of this study reflect the difficulties in communication and the burden it created for staff during the early stages of the COVID 19 pandemic. Substantial psychological stress was suffered by nurses working in the isolation rooms with ECMO patients, mostly related to the additional care requirements and lack of readily available assistance. The trauma of separating families and patients caused some staff to experience moral or psychological injury. Others reported an increase in camaraderie and job satisfaction.

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Table 1: Themes and sub-themes

Overarching theme	Subthemes
Staying connected	Organisational communication Keeping families informed Staff to staff Family supporters
Psychological casualties	Fear of COVID Effect on homelife Threats to morale Stress and burnout Support for staff Managing stress
Caring for our patients	Standard of care Working in COVID rooms Medical emergencies End-of-life care
Overcoming challenges	Workload Staying safe Changing roles, changing rules Satisfaction with work

Table 2: Participant quotes

<p>Theme 1 Communication and connection</p> <p><i>Organisational communication</i></p> <p><i>The medical director, and our clinical nurse manager give us an update on what's going on in the unit in terms of patient numbers, COVID patients... you can ask questions about anything. You just type it in, and they answer that for you... the forum's a really good place to get the right knowledge at the right time from the right people. (P11, Nurse).</i></p> <p><i>The communication was there...but you had to look for it. And it was tiring because you knew it was going to change by the time you read it the next day. But I think it was the nature of COVID, it just added another level of something going on around us (P12 Nurse).</i></p>
<p><i>Keeping families informed</i></p> <p><i>We did try and do daily calls to family and teleconferences with them... but unfortunately some nurses found it difficult to make the time to do it. So sometimes I would call patients' families and they would say 'we haven't had a conference call for more than a week' (P10, Nurse).</i></p> <p><i>I guess for older family members it was tricky because technology isn't accessible to everyone but it's also not user-friendly (P11, Nurse)</i></p> <p><i>I had one guy that was still intubated but he was tolerating the tube. He was on ECMO ... he was able to thumbs up his family which was quite nice, and I would encourage them to just talk ... in one instance I lightened the sedation just for the communication (P15, Nurse).</i></p> <p><i>Telehealth has been the saving grace of it. They are able to see their family member regardless... it can go for as long as they want. Some people just want to sit there and talk to their family member even if they are sedated...and I'll go about the nursing care (P2, Nurse).</i></p> <p><i>The natural way that families cope when someone's critically unwell includes contact with nursing staff and doctors fairly regularly...And without that visiting time... they get more stressed, and they get more demanding... Two to three hours of my time every day was taken up in phone calls to family members... Sometimes that meant being in hospital until 7:30-8:00 at night when normally I would finish at 6. (P5, Doctor).</i></p> <p><i>If they rang up and were upset about it, as a clerk I would try and calm them, diffuse it and say, "One moment, I'll get the ICU liaison nurse to have a chat to you" and the nurse would have a chat to them, and they would work something out (P4, Ward clerk).</i></p>
<p><i>Staff to staff</i></p> <p><i>If there was an intercom into the room rather than trying to use the desk phones to call in.... I think the communication would be easier if we just had better versions of the technology... (P8 Doctor).</i></p> <p><i>To access things, I can't just walk in and out the room like I normally would. We've had a set up where we've had a PPE monitor and other staff. We just write a little note on our window and then they'd go and grab all the things for us (P3, Nurse).</i></p> <p><i>We can't sit with each other in the tea-room, you have to yell across the room to talk to someone, so then you can't really talk about anything serious or how you're feeling because</i></p>

there's no privacy anymore...the TV's always on...a lot of people turned to scrolling on their phones... informal debriefing with peers was missed a lot (P11, Nurse).

At work you cannot get to know your colleagues. And because I was new, it was harder because of all these restrictions. The tearoom was changed, and socially distancing... (P13, Nurse).

Family supporters

It means so much to a patient. It just really lifts their spirits, and I believe that it would have a lot of benefits in their care...I've had an older person say, well, I'm gonna die soon so why you doing this to me and why can't I see my family? That was really challenging (P3, Nurse).

Wearing masks, made it harder for families and patients to see you and understand that there was humanity behind all those things... to see you smile... (P12, Nurse).

She recovered down the track and said that it was really hard because as lovely as the nurses and doctors were, she just didn't have her family. She just felt she was sticking it out on her own...that physical contact really meant something to her (P17, Nurse).

It's hard enough to look after patients who don't have family or friends visiting in normal times, if they're socially isolated...the strain on families and the secondary strain imposed on staff was tangible (P7, Doctor).

Theme 2 Psychological casualties

Fear of COVID

We have a daughter at home who is doing home schooling... Early on when we didn't know what to expect. There was fear that you could get infected... and infect our daughter... (P9, Nurse).

I feel very safe. I know I've been in those rooms for months and I haven't got it nor have any of my colleagues... I honestly feel more at risk going to the supermarket than being in my job because I know all the steps to take in the precautions (P3, Nurse).

Effect on homelife

Kids home schooling and my husband at home trying to run a business. I'd come home to them all quite stressed and they've all got their own concerns ...it was hard to debrief because everyone was having a hard time during that period (P14, Nurse).

(There were) conspiracy theories and it was hard to ignore that. I took that very personally and would get very upset...insinuating that it was all a big hoax, negative talk about vaccines ... it was really upsetting when we could see the suffering of people we were looking after (P14, Nurse).

We would go for our walks just get out of the house... That was probably one of the most frustrating parts. We went from isolation to lock down. There was no reprieve from it. You come home and weren't allowed to leave the house (P15, Nurse).

Threats to morale

It was emotional impact ... dealing out sympathy and compassion minute by minute throughout the whole day to multiple family members that's a natural process. But having

someone intensely on the phone for an hour who's distressed...their loved one being critically unwell, that's a rapid drain of emotions It was unrelenting. (P5, Doctor).

This guy had six kids and they had the phone on speaker so that they could say goodbye before we turned the machines off... [the nurse] had an hour and half of family messages over the speaker from six adult kids saying goodbye to their dad...I think that the next day they went a bit easier on her with patient allocation. As far as I know that's it (P2, Nurse).

People were just burnt out or feeling really tired and a bit over it ... I felt it wasn't acknowledged as well as it could have been. There were certain staff that had done a lot of heavy lifting... the unit as a whole was acknowledged for their hard work, but it did feel as though a lot of the staff took most of it... and didn't feel as though they were appreciated... (P14, Nurse).

I was hating going in and seeing very strong senior colleagues who I didn't think I'd ever see anything phase them, talk about being absolutely shattered... Just watching them break down at work was really scary, 'cause it was like if they're not coping then how the hell is anyone else gonna be coping? (P20, Nurse).

No one had helped and I'd been in the room all alone pretty much all shift because you're senior and you don't need help. I am very competent, and people see me as very confident, but then it pushes you over the edge where you just cry (P12, Nurse).

The riot shields, they are different to the face shields. They gave me a killer migraine it is so much pressure on your head... I was literally crying as I was doing things because my head hurt so much but no one was able to come in and relieve me so I could get a drink... I know I'm being dramatic, but its soul destroying... it's torture (P2, Nurse).

Stress and burnout

All my family's in regional Victoria. Same with my partner. So, it was just him and me for the whole of last year, which took its toll on both of us. I realised how burnt out I was at the start of this year (when) I took some annual leave. (P19, Nurse).

People were talking about burnout a lot. A lot of people talked openly about dropping their hours and not wanting to be there.... I dropped my hours...I felt after last year, very exhausted and burnt out ...(P20, Nurse).

Support for staff

We've always had a well-being team but during COVID they're definitely more active. They've had a book club started on WhatsApp and there's also a Facebook page... And they have food delivered to the unit. (P10, Nurse).

If you need a confidential Telehealth chat (with manager), that was always very, very available (P16, Nurse).

I tried to solve it by calling people, by sending text separately, by contacting people before and after work to see how they were going... (P5, Doctor).

... you get the big group email but it's so generic, you go "whatever" (P15, Nurse)

Managing stress

I'm a big walker and exercise nut ...I do 'step' in the garage instead of at the gym. And then walking...I think, as a busy mum you just sort of get on with it. (P12, Nurse).

Usually I would run, but I had a foot injury ... I thought it was just very bad timing that I couldn't do that exercise by myself ... I find that very helpful to clear my head... I wasn't getting that break away from my family which was difficult.... three kids and home schooling (P14, Nurse).

I can still do yoga, which is nice. I can still go for walks with my dog... not being able to go out for a dance that's been definitely missed (P3, Nurse).

I bought a sewing machine, did baking, that sort of thing just to keep my mind occupied so I didn't think about really anything else. (P19, Nurse)

I do a lot of crocheting which is kind of my mindfulness activity. So, I did a lot more of that during lockdown. (P8, Doctor).

Yeah, no motivation. It was depressing. I just stay at home and watch movies and Netflix (P13, Nurse)

Eat too much, read books and watch movies. (P6, Doctor)

I'd come home and he would have dinner waiting for me... I'd strip my clothes at the door and walk straight to the shower, put my clothes into the washing machine and... he would have dinner ready for me... and too much alcohol (P15, Nurse)

Caring for our patients

Being in the isolated COVID rooms is a little bit of a barrier to doctors or senior nursing staff to come in and have a look and assess them... .. I think there has to be an element of patient care that was affected (P11, Nurse).

You need to have a fair level of experience to be able to look after these patients...we experienced a strain on our workforce to a point where we probably expedited individuals being exposed to these sorts of critical patients earlier than they otherwise would have (P1, Nurse).

I think the standard of care dropped considerably. Staff feel stretched out... the ratio between senior staff and junior and redeployed staff... It felt like they were a lot of near misses that had happened that could have been avoided. (P17, Nurse).

Working in COVID rooms

If I had a patient who wasn't in COVID precautions, I could call the (doctor) and say, "I want you to come in and view this patient" and they'd come in... they'd look at the patient and they might have a listen to their chest, feel their pulses ...Whereas in COVID they'd come outside the room and look through the glass... They assessed by what I was saying, the vital signs and the data that's in the notes (P20, Nurse).

...essentially, we were discouraged from doing anything aerosol generating, mouth care, we couldn't listen to their chest, you couldn't use a stethoscope (P15, Nurse).

Sometimes in those cubicles if I go out, I am just going to be behind and I am just going to be stressed ...So I just crack on and do it ...But you know we can get to a point where we can go through a 12-hour shift without weeing (P15, Nurse).

When I was in the COVID rooms, I actually spent more time in PPE because I only got one break. I didn't have time to step out and have a drink at all...I'm sitting in the room sweating but also unable to have a drink so it's a special kind of torture (P2, Nurse).

It's been stressful because a lot of our patients were on ECMO which limits the number of nurses that can look after those patients. I was in there for weeks. It was very much the same people over and over again because of the skill mix. (P2, Nurse)

...I knew what it was like to be on the inside with not a lot of extra help. I didn't let that stop me going in ... There was a patient that was on 2 ECMO circuits and just doing your obs takes a full hour... they are on a gazillion drugs and infusions...sometimes you just need an extra pair of hands to help you get in front (P15, Nurse).

You have to have the PPE monitors, extra nursing staff as well as physios and (ward support)... and we were looking after the technical stuff, the tubing... also keeping an eye that the patient was hemodynamically stable enough and having to either give sedation boluses or manage their blood pressure...Making sure all the connections on the ventilator were safe so you didn't inadvertently break the connection and put everyone at risk (P16, Nurse).

Staying safe

...and the sweat. Those gowns were just awful...I got into the habit of putting Duoderm over my nose and chin... It was over my ears where I really felt the pain... and on my face I get really itchy. Like I would want to rip my skin off (P15, Nurse).

The PPE monitors did a great job, and they were really good at highlighting and picking up on little things that you could improve on ... (P8, Doctor).

There were moments of frustration... "seriously, do I have to come out and doff and re-don just for that? It wasn't really a breach!" (P15, Nurse).

I think a lot of people were intimidated by having a PPE monitor watch them...I had a few people say to me 'don't judge what I'm doing' (P11, Nurse).

Medical emergencies

One of the consultants would usually go in very quickly and you would have another senior doctor on the outside ...And you would have a bunch of nurses outside chucking things into the airlock... getting you whatever you need. Making up infusions and throwing them in... (P15, Nurse).

I think there was just a level of acceptance that you can only do what you can do, and we are not going to risk you or anyone else to be in there faster. You are not going in there without your full PPE on and whilst you're in there, you can only do what you can do to help that patient until somebody else can come in... (P15, Nurse).

I couldn't watch people try and resuscitate someone from outside and tell them what I needed them to do. I had to be in the room to be able to do that (P5, Doctor).

End-of-life care

In a few instances people died without ever having family visit in person ...the greater suffering for them was the relative's death but it was compounded by the lack of contact (P7, Doctor).

It was just "no you can't come in"...it felt really wrong...I don't think there's a single family member that wouldn't have said "I will wear every single piece of PPE you give to me and I will isolate for 14 days afterwards to spend that time with my love" and we said "Nah. Sorry, it too risky". And I just find that bullshit to be perfectly honest (P15, Nurse).

*Overcoming challenges**Workload*

The late-night doubles where you're working 18 hours in a row overnight... There was a stage where that was regular. So, you're working from 1:00 PM through till 7:30 the next morning. (P20, Nurse).

Changing roles, changing rules

A lot of our senior staff ended up taking on different roles, so we were short of senior staff...that was a big hit for the unit (P17, Nurse).

We're still having a massive skill mix issue.... There are so many staff that aren't critical care registered nurses, almost 100% of the time you get sick, sick patients... I worked in ICU for six months before I took care of a ventilated patient, and these guys were having ventilated patients in their first week (P20, Nurse).

Having re-deployed staff comes with challenges...it was a lot of hard work to introduce them to the unit...it's such a different environment...we need more ICU experienced staff (P17, Nurse).

We started getting people from Caulfield...Suddenly I had 5 people following me around who'd never worked in ICU who had no skills or training in that area... then they took them back out again and we never saw them again... (P9, Physio).

The team support nurses were allocated in each pod and their role was support, help cover breaks...help with turns and education... I think that was a huge help...Every pod was getting smashed (P16, Nurse).

People who had previously been on call were getting called in for mundane everyday things and people who would normally be at home were in later at night. People who are expected to do research and education were at the bedside (P5, Doctor).

We split into a couple of teams so the nurses and ward support would do half and we would do half...They often have really large cannulas in their groins and neck...it's very important that they are not kinked or dislodged... A lot of these patients were morbidly obese and so they were a lot more difficult to reposition (P9, Physio).

Normally I would have a registrar, a senior registrar, plus or minus a pharmacist...we had to split it... it was quite difficult because they would have to debrief later in the day to try and find out who was doing what and how they were doing it (P6, Doctor).

Satisfaction with work

We thought he was going to die every day for weeks but last week we got a thank you video. He is at home and doing well. That was worth the migraine! (Participant 2, Nurse)

I think the biggest thing for me was how much we banded together as a unit...the really tight-knit friendships and bonds that have come from that ... there was that level of trust like you've never probably had in someone else... (P19, Nurse)

Journal Pre-proof

Box 1: Aide-memoire

Aide-memoire

In relation to the changed working environment in ICU due to the pandemic:

- Has your day-to-day work changed?
- If so, what aspects of it are different?
- Has your job satisfaction been affected?
- How do you feel at the end of a shift/ week? Why? Is this different from previously?
- Please describe any changes to team relationships.
- Have the changes affected you? If so, how?
- What has been the effect on staff morale?
- When communicating with family members of your patients, how have the minimised visiting hours impacted on your relationship with them?
- Are the alternate communication modes (telehealth, phone, iPads) an adequate substitute?
- Have the new visiting hours had an effect on staff/ patients/ families? If so, what has been the effect?
- How do you feel about caring for a patient with COVID-19?
- Do you feel adequately supported by team members/ management/ your family and friends?
- Has working in this environment had any effect on your home life? If so, what effect?
- Has working in this environment had any effect on your mental health? If so, what effect?
- What specific aspects of your work at the moment do you find particularly challenging? Or particularly satisfying?
- What could be done to improve the situation for staff working with patients who have COVID-19? (Better support? Education? Better communication?)
- Can you tell me anything else about your experience working during the COVID-19 pandemic?