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ARTICLE

How the COVID-19 crisis affected the well-being of nurses working in paediatric critical care: A qualitative study

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Abstract

Objectives: Evidence shows paediatric critical care (PCC) nurses display high rates of burnout, moral distress, symptoms associated with post-traumatic stress disorder (PTSD) and poor well-being. The COVID-19 pandemic magnified these pressures producing extremely challenging working conditions. The objective was to understand PCC nurses' lived experience of working during COVID-19 to determine the impact it had on their well-being.

Design: A qualitative design was used with individual, semi-structured online interviews analysed using thematic analysis.

Results: Ten nurses from six PCC units in England participated. Five themes were generated: (i) *Challenges of working in Personal Protective Equipment (PPE)*, (ii) *Adapting to redeployment to adult intensive care*, (iii) *Changes to staff working relationships*, (iv) *Being unable to attain work-life balance* and (v) *Unprocessed traumatic experiences of working in COVID-19*. It was clear COVID-19 presented novel challenges to PCC nurses' well-being. With those came enforced changes in practice; some were temporary, for example use of PPE and redeployment, but others provided insight into the prerequisites for good staff well-being, for example strong professional relationships, work–life balance and managing one's psychological health.

Conclusions: Findings show authentic connections between peers, verbal and non-verbal communication and a sense of belonging were crucial to nurses' well-being. A dent in PCC nurses' perceived competence significantly affected their well-being. Finally, staff need a psychologically safe space to process distress and trauma experienced during

COVID-19. Future research needs to test evidence-based, theoretically-informed well-being interventions to improve and maintain PCC nurses' well-being.

KEYWORDS
burnout, professional, COVID-19, intensive care units, paediatric, occupational stress, paediatric nurse practitioners

Statement of Contribution

What is already known about this subject?

- Before the pandemic, PCC nurses were more likely to report states of poor well-being such as PTSD than other PCC staff.
- Due to the COVID-19 pandemic PCC services were reorganized or repurposed.
- Findings from a single unit study found that PCC nurses' well-being was affected by working during the pandemic.

What does this study add?

- PCC nurses identified several concerns pertaining to changes in job role and experience of well-being during the pandemic.
- Findings suggest nurses experienced issues with processing of trauma due to the pressures of the pandemic.
- There is need for evidence-based interventions which aim to improve well-being to be incorporated into PCC practice.

BACKGROUND

Paediatric critical care (PCC) is a challenging yet stimulating environment in which to work. Patient care needs can vary from acute critical care to longer-term high dependency care or palliative care. In addition to these demands, PCC staff are expected to provide support to the immediate family of the critical care patient, which requires a diverse staff skill set (Coats et al., 2018). However, exposure to these difficult situations can exact a psychological toll on PCC staff. Research has shown that PCC staff display high rates of burnout, moral distress, symptoms associated with post-traumatic stress disorder (PTSD) and poor well-being in general (Jones et al., 2020; Rodríguez-Rey et al., 2019). Additionally, evidence has indicated this psychological impact of working in PCC is more pronounced in certain demographics. PCC nurses have been found to be at higher risk of PTSD than other PCC staff, while junior nurses and women were associated with higher risk of moral distress (Jones et al., 2020). Similarly, nurses working in adult critical care are more likely to measure above the thresholds for PTSD, depression and anxiety than other staff working in intensive care (Greenberg et al., 2021).

The COVID-19 pandemic placed significant strains on healthcare sectors around the world as a result of large numbers of infected individuals requiring hospital treatment. This led to widespread disruption across services and redeployment of healthcare staff to mitigate the strain put on health services (World Health Organisation [WHO], 2020a). According to the 2021 UK National Health Service (NHS) Staff Survey (NHS Staff Surveys, 2021), healthcare professionals experienced the following changes: 34.2% reported working on a COVID-19 specific ward, 36.0% were asked to work from home, 18.5% were

redeployed outside of their usual role (e.g., to adult intensive care, as also happened in the US; Renke et al., 2020) and 10.4% were required to shield (limiting social contact with others due to vulnerability to COVID-19) as a direct result of the pandemic.

This change in working environment affected healthcare staff's well-being. A survey was conducted involving 1416 healthcare professionals across 75 countries to ascertain their anxiety levels during the first wave of COVID-19 infections (Cag et al., 2021). The survey found several factors were associated with increased anxiety: being female, being a nurse (especially those in close contact with COVID-19 patients), young age, insufficient knowledge around COVID-19 and insufficient access to personal protective equipment (PPE) and hand sanitizers. Additional concerns have been identified about working in critical care during the pandemic, which impacted staff well-being: strained relationships with colleagues, anxiety around scarcity of resources (e.g., PPE), stress associated with having their role within PCC altered, burnout from high workloads and stigma around seeking well-being support (Feeley et al., 2021). The authors note that while most of these concerns reported by critical care staff existed beforehand (Colville et al., 2019; Rodríguez-Rey et al., 2019), the pandemic has highlighted these issues, especially in demanding environments such as PCC (Balistreri et al., 2021).

In the United Kingdom during the early stages of the pandemic (World Health Organisation [WHO], 2020b), it became clear that children were less likely to present with severe illness due to COVID-19 compared to adults (Carroll et al., 2020). This allowed healthcare services to be reorganized in order to mitigate this change in demand. One way in which the rise in hospitalisations due to COVID-19 was tackled was through redeployment of PCC staff to adult intensive care units (ICU). In some instances, PCC units were even repurposed to accommodate adult COVID-19 patients (Sinha et al., 2021). In the United Kingdom, seven PCC units were repurposed to care for critically ill adults (Sinha et al., 2021); while other units maintained their paediatric service but offered staff support to local adult ICUs (Carroll et al., 2020). A study in one UK PCC unit with nurses who had been redeployed to adult ICU highlighted that nurses were motivated to help out in adult ICU, but only if they felt they had the right skill set and felt as if they were a part of the team (Burnett et al., 2020).

The literature presented above has described some of the changes made during COVID-19, but we know very little about the quality of nurses' experiences and the details of how their wellbeing was challenged. By exploring nurses' accounts in-depth we can learn from the enforced changes in PCC practice due to COVID-19 and prioritize interventions that will improve and maintain staff well-being.

METHODS

Research aims

The aims of the current study were twofold: (i) to qualitatively explore the lived experience of PCC nurses who worked in PCC during the first wave (March–June 2020) of the COVID-19 pandemic in the United Kingdom; and (ii) to examine the impact of the COVID-19 pandemic on the experience of well-being among PCC nurses based in the United Kingdom.

Participants

Purposive, opportunity and snowball sampling were adopted to gain as diverse a sample as possible. The inclusion criteria were: nurses working in PCC (including ICU, specialist centres, high dependency units and transport divisions) in the United Kingdom; qualified for more than 2 years; and worked clinically at least 50% of their contracted hours in PCC, during the first UK COVID-19 lockdown period (March–June 2020).[1]

Procedure

This study was supported by and advertised through the Paediatric Critical Care Society (PCCS) and shared on social media during April to June 2021. The PCCS is a charitable organization which represents the interests of all professionals involved in providing PCC in the United Kingdom.

Contacts within the well-being group of the PCCS were emailed with a copy of the study invitation to send on to well-being leads within PCC units across the United Kingdom. These well-being leads then forwarded the study invitation onto eligible staff within the units, those that were interested in participating in the study could then contact the researcher to complete the study consent form. Once volunteers had contacted the researcher, they were invited to take part in an audio-recorded semi-structured online interview. The interview centred around the participant's experience of working in PCC during the COVID-19 pandemic and what impact (if any) the pandemic had on their well-being and coping strategies. A topic guide was created based on existing literature and refined through discussion among the expert authorship group and in consultation with PCCS.

Self-report information on the following demographic variables were obtained: age, gender, ethnicity, number of years qualified as a nurse, years of experience as a nurse in PCC. Participants were also asked to complete measures of professional quality of life (ProQoL Version 5; Stamm, 2009) and well-being (using the Warwick-Edinburgh Mental Well-being Scale—WEMWBS (Tennant et al., 2007); and the World Health Organization Wellbeing Index—WHO-5; World Health Organization – WHO: Regional Office for Europe, 1998). Scores from these measures were used to provide an initial description of the state of well-being within the sample.

Interviews took place remotely via video call software. Audio-recordings of interviews were transcribed verbatim and participants given anonymous codes. All data were kept confidential and stored securely on a password server.

Data were analysed using inductive thematic analysis (Braun & Clarke, 2006). Themes were generated directly from participants' accounts, rather than from any predetermined theory. A six-step approach was used (see Figure 1). The authors JP and IC discussed data saturation with RS, an expert in qualitative methods, and after 10 participants' accounts had been analysed, it was agreed there were no novel themes generated from the data.[2]

RESULTS

There were four PCC nurses who dropped out of the study. Of these, two could not take part in the interview due to scheduling concerns around their shift patterns; contact was lost between the researcher and the remaining two nurses.

1. Data were transcribed verbatim by JP and IB .
2. The transcripts were read and re-read by members of the research team to enable familiarisation with the data (JP, IB).
3. Line-by-line coding was conducted to identify common key themes across the interviews (JP, IB).
4. The themes were discussed to identify common themes across the dataset enabling a thematic map to be created (JP, IB, RS).
5. Themes in the map were further refined and finalised (all authors).
6. Final themes were checked with all members of the research team (all authors).

FIGURE 1 Six stages of inductive thematic analysis.

Ten nurses participated, based across six PCC units in England, two of whom were male, eight female. Length of time working in PCC ranged from 18 months to 21 years, with representation from Band 5 and Band 6 nurses and advanced nurse practitioners.

Measures were collected to help further describe the sample in relation to their work-related quality of life and well-being (see Table 1). The ProQOL has three subscales pertaining to compassion satisfaction (satisfaction resulting from being able to support others), burnout (exhaustion related to work) and secondary traumatic stress (negative impacts of working with those who experience trauma first-hand, also known as compassion fatigue). Mean sample scores suggest participants experience moderate levels of compassion satisfaction, burnout and secondary traumatic stress. Mean overall scores from the WEMWBS suggest a low state of mental well-being in the sample. However, participant scores show variation, for example, Participant 1002 scored 32 which displays low mental well-being, whereas Participant 1003 scored 57, which suggests they experience high levels of mental well-being. Mean scores from the WHO-5 indicate that participants display an average sense of well-being, with scores ranging from 8 to 20 (32%–80%). Given that these scales provide contrasting snapshots of participants' well-being, this places greater emphasis on obtaining a deeper level understanding of participants' experiences of well-being by examining first-hand accounts, using qualitative analysis.

Interviews lasted between 30 and 75 min. Inductive thematic analysis generated five themes (see Figure 2).

Theme 1: Challenges of working in PPE

PCC nurses had to endure many changes to their working environment and procedures during the COVID-19 pandemic; one of these is working in PPE for extended periods which had procedural, physical and psychological ramifications. First, wearing PPE had an adverse effect on participants' ability to be able to communicate clearly between colleagues, patients and families. Second, the use of PPE for extended periods of time resulted in states of discomfort, fatigue and dehydration for participants.

TABLE 1 Participant professional quality of life and well-being scores.

Participant number[a]	ProQOL CSS	ProQOL BS	ProQOL STSS	WEMWBS	WHO-5	Time since qualified (years/months)	Time worked in PICU (years/months)
1001	41	21	18	51	16	14 yrs, 6 mths	9 yrs, 1 mth
1002	32	27	30	32	8	8 yrs	8 yrs
1003	37	22	21	57	20	3 yrs, 9 mths	3 yrs, 7 mths
1004	32	28	28	34	8	4 yrs, 6 mths	4 yrs, 6 mths
1005	40	26	26	40	14	17 yrs	16 yrs
1006	44	20	27	49	16	31 yrs	21 yrs
1007	35	25	21	56	17	16 yrs	10 yrs, 6 mths
1008	35	28	29	42	7	2 yrs, 9 mths	1 yr, 6 mths
1009	47	26	19	57	20	5 yrs, 8 mths	1 yr, 8 mths
M (*SD*)	38.11 (5.25)	24.78 (3.03)	24.33 (4.58)	46.44 (9.78)	14.00 (5.12)		

Note: Scoring systems and cut offs: ProQOL CSS: 22 or less = low, between 23 and 41 = moderate, 42 or more = high; ProQOL BS: 22 or less = low, between 23 and 41 = moderate, 42 or more = high; ProQOL STSS: 22 or less = low, between 23 and 41 = moderate, 42 or more = high; WEMWBS: Minimum score is 14, maximum score is 70, higher scores are indicative of higher mental well-being. WHO-5: Raw scores range between 0 and 25, where 0 represents worst possible quality of life and 25 indicates best possible quality of life. Multiply raw scores by four for standardized percentage well-being score.

Abbreviations: BS, Burnout Scale; CSS, Compassion Satisfaction Scale; *M*, mean; mths, months; PICU, Paediatric Intensive Care Unit; ProQOL, Professional Quality of Life scale; *SD*, standard deviation; STSS, Secondary Traumatic Stress Scale; WEMWBS, Warwick-Edinburgh Well-being Scale; WHO-5, World Health Organization- five Well-being Index; yrs, years.

[a]One participant did not complete the questionnaires.

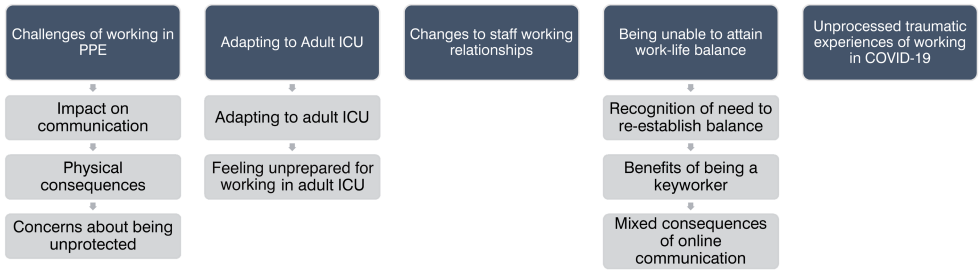

FIGURE 2 Themes and sub-themes of PCC nurses' lived experience of working during COVID-19.

Finally, short supplies of PPE resulted in participants experiencing anxiety due to the prospect of not being fully protected from contracting COVID-19.

Sub-theme 1: Impact on communication

Wearing of PPE for prolonged periods had procedural implications. It affected nurses' communication between patients, families and colleagues. Participants reflected on how families of patients often rely on staff portraying a state of calm and the use of positive facial expressions, which were largely obscured by PPE.

> You rely a lot on.. well I feel… families rely a lot on your facial expression…If they can see that you're not panicked.. then it helps them calm down, but they can't see that when you've got a mask and visor on…Trying to talk to them and.. get them to understand that it's okay, that these machines are beeping, I'm calm, so you can be calm.. but they can't see that, so that's a big issue with the communication.
>
> (Participant 1001)

PPE also impacted on PCC nurses' ability to communicate effectively between themselves on the unit. The PPE meant they were unable to use previously established non-verbal cues, quiet talk, facial expressions and so on, and instead found themselves shouting at each other.

> PPE almost completely changes the dynamics.. you can't hear what people are saying! Therefore, you have to shout. Yeah.. so, you end up around the bed space doing something to a patient, all shouting at each other.. and all you can hear is your own voice getting louder, it's a very odd situation. Normally we try and remain calm and professional.. but bellowing at people is not my usual style. You end up feeling angry as a result [laughs] just because you're shouting!
>
> (Participant 1006)

Sub-theme 2: Physical consequences

For PCC nurses working in PPE, there were physical health consequences. Participants reflected on the challenging scenario of treating a ventilated patient on their own in a cubicle for 7 h, and not being permitted to remove PPE to take on fluids or leave the side room for a comfort break.

> It's [PPE] awful to work in. It's really hot… You couldn't take… you can't take any of that off… people didn't want to come in and cover you for breaks, so… you would do… seven hours in.. full PPE and you can't drink or wee or do anything in that time. So, it was horrific! It was awful.
>
> (Participant 1008)

When asked about the impact of working in PPE on the PCC unit, participant 1002 reported experiences of headaches, tiredness and dehydration, all of which negatively impact on physical well-being.

> So yeah, lots of headaches, lots of just feeling.. just generally a bit rubbish after your long day. Especially if you were run- on… a run of nights… so myself I do… four nights in a row, so at the end of them, you just feel kind of run down and exhausted because you've not.. had that fluid… Then part of you because you know you're not going to get frequent breaks, on your break, you don't want to drink loads, because then.. you think 'I can't go off the unit to go to the toilet!'
>
> (Participant 1002)

Sub-theme 3: Concerns about being unprotected

For PCC nurses wearing PPE there were also psychological challenges. During the pandemic PCC nurses had to be fit tested for PPE, particularly masks, in order to ensure maximum protection from COVID-19 infection. Yet, there were times where supply issues with specific types of PPE meant that some mask sizes were unavailable, some stocks of PPE were even beyond their expiry date, which invoked feelings of anxiety and fear around the prospect of contracting COVID-19 while working with patients.

> Then the PPE arrived… the face masks.. and they all had these expired dates on with stickers and so we'd peel back the sticker with the expiry date and there'd be another sticker underneath and something like eight years out of date… So, yeah.. with all that, we just felt.. kind of… not protected at all… while we were looking after these super sick adults.. who are on… ventilators and on ECMO[3] support.
>
> (Participant 1005)

Working in PPE posed multiple challenges to nurses. Not only did it prevent them from drinking fluids and going to the toilet, but also it affected their ability to communicate with their colleagues and prevent them from providing sensitive care to patients and their families. Alongside this was a recurrent anxiety that supplies of PPE were running low and remaining stocks fitted poorly, which left them vulnerable to the virus.

Theme 2: Adapting to redeployment to adult ICU

During the COVID-19 pandemic, PCC units experienced a sudden decline in turnover of child patients, whereas adult ICUs experienced extreme admission surges due to rising numbers of COVID-19 patients requiring critical care. To help mitigate this, some PCC nurses were either redeployed to adult ICU or received adult admissions within their paediatric unit. This theme centres around PCC nurses' experience of caring for adults during the pandemic.

Sub-theme 1: Adapting to adult ICU

For PCC nurses who were redeployed to adult ICU, adjusting to this new environment was challenging both procedurally and psychologically. The participants experienced adult ICU as hostile and stress-inducing, which resulted in feelings of apprehension and unease.

> Horrible because you don't know.. same as it is at the moment, you don't know when you're gonna go… You were just moved.. and you don't.. I'm not familiar with where any of the

> adult wards are because I'm not an adult nurse… I was so out of my comfort zone and so out of my depth.
>
> (Participant 1008)

In the first wave, there was widespread eagerness within PCC nurses to support their adult ICU colleagues. During the second wave, participants who had previously been redeployed found their memories of challenging experiences resulted in feelings of anxiety at the very prospect of being redeployed for a second time.

> I think morale in the first wave was much higher because it was sort of a new thing, we didn't know what to expect, everyone just wanted to help. So I think everyone.. had a very much, they all want to do the adults, they all want to support them. So, I think that helped a lot. Whereas in the second wave because quite a lot of people had negative experiences in the first wave, morale was definitely not high [laughs]. Loads of people were just… 'I don't want to go to adults, I just don't want to do it'. And it affected people's mental health a lot more the second time round.
>
> (Participant 1002)

Sub-theme 2: Feeling unprepared for working in adult ICU

PCC nurses redeployed to adult ICU were working in unfamiliar surroundings with unfamiliar equipment, procedures and drugs. This made PPC nurses feel they lacked the requisite skills to care for adult patients in ICU, which led to feelings of anxiety and frustration.

> So, you can give them lots of different kinds of medication and stuff.. and so in what I do, we don't have much exposure to putting these lines[4] in… and we were hoping that.. adults having these lines being changed quite frequently.. we would be able to do more of this, build up our skills with them… and sort of consultants were… really against it… which was really quite frustrating.
>
> (Participant 1005)

Furthermore, this led to self-doubt about their clinical competence for adult ICU work.

> I don't wanna mess anything up, but I'm not trained for that.. and we were not trained, we were just sent [to the adult Unit] and the expectation was that we would know what we were doing. […] So… everything was different, the pumps are different, the syringe drivers are different, the drugs themselves are different. The way they use them are different, the way they make them are different. Nothing is the same… and you just feel so useless.
>
> (Participant 1008)

This theme described the fundamental challenges to nurses' self-efficacy and its subsequent impact on their well-being caused by the unfamiliarity of adult ICU. Redeployment of nurses into these unfamiliar settings left them feeling inadequate and unable to cope with such demanding scenarios. Nevertheless, despite their reservations, PCC nurses retained their inherent desire to help others.

Theme 3: Changes to staff working relationships

This theme describes the impact the pandemic had on staff relationships. Team morale induced a sense of cohesion on the unit, with senior staff being ever-present and on hand to offer support. However,

there were frustrations around working to mandates filtering down from management, which were often perceived as unnecessary or impractical.

> What I most felt I think was the resentment from non-management if you like about- I don't wish to make a division between the two because very often the managers are also the clinicians-.. 'why are we being made to do this?', 'Why have I got to be so uncomfortable during my work?', 'Why aren't we going to allow grieving parents in?'… A lot of resistance and… sometimes just the incredulity about the.. you know, these blanket statements that would be enforced upon you.
>
> (Participant 1006)

Conversely participants were able to reflect on the support that colleagues provided to them during this period. The positive team morale induced a sense of cohesion within the unit. This also extended to well-being support from senior nurses which alleviated feelings of anxiety within the less experienced nurses at the time.

> I know that the band 6s at the time and the band 7s they try to be as supportive as they could to everyone, make sure everyone's okay and manage anxiety and things. They were yeah, I think I remember being quite.. quite visible and trying to help.
>
> (Participant 1003)

This theme has highlighted the significance of good quality working relationships between peers on the unit, but also between PCC and the hospital management. A sense of openness in communication and team identity were important to maintaining well-being in the pressured times of COVID-19.

Theme 4: Being unable to attain work-life balance

This theme centres around how the pandemic affected PCC nurses' ability to maintain balance between their employment in PCC and home lives and the implications this had for their sense of well-being.

Sub-theme 1: Recognition of need to re-establish balance

Participant experiences during the COVID-19 pandemic led to an acknowledgement of the need to partition the 'work and home' aspects of their lives. A lack of balance between work and home life is perceived by participants as detrimental to well-being, this leads to an awareness of the need to take time away from work-related activities in order to improve their well-being.

> …I need to be better at it! [laughs] I need.. I need to try and.. take more time to switch off. Try not to take work stuff home with me..
>
> (Participant 1005)

This is supported by Participant 1007's comments concerning burnout during the early stages of the pandemic, which resulted in an appreciation of the need to allocate time away from work to safeguard their well-being.

> I had burnout […] and that came from a mixture of work-related things and personal things that were going on in my life […] But I think that made me think- that point in time made me very aware of… demarcating… time off work.
>
> (Participant 1007)

Sub-theme 2: Positive impact of being a keyworker[5]

The UK government guidance during COVID-19 lockdown periods included the country's workforce remaining at home, except for those in essential jobs, such as healthcare staff. PCC nurses were categorized as 'keyworkers' and so were able to go out to work. There was a sense of gratitude to possess keyworker status because of the semblance of 'normal life' it offered compared to the majority who were unable to socialize outside of their household for work or leisure.[6]

> I think I would have really struggled having to work from home and I felt really lucky.. being able to go to work each day… I just felt like I'd really struggle if.. I didn't.. the amount of faces I still see day-to-day even though we were in restrictions, they keep me sane.. so I'm very grateful that I'm a nurse.
>
> (Participant 1001)

This sense of gratitude was related in part to the continued face-to-face contact, a rare occurrence during the pandemic, which benefitted nurses' well-being. Indeed, PCC nurses found themselves compromising their well-being by overworking just to experience those face-to-face interactions.

> I found myself in the odd situation of.. where the only time I could get any socialising in was when I went into work. And I was quite grateful for that… I'd rather be out socialising with people. So, I found myself going into work more often and overworking… just to get some human contact, yeah.
>
> (Participant 1006)

Sub-theme 3: Mixed consequences of online communication

Technology provided the means for people to maintain social contact remotely. This not only offered opportunities to maintain familial and social relationships, but also imposed challenges for nurses, some of whom described the disturbance it can cause to work-life balance.

> So, they [the management] did actually up their communication game. They joined *Workplace*, which is like a work version of *Facebook*… I found myself checking it constantly [laughs] and I was like, 'this is getting ridiculous… stop looking at it… delete it!.'… when you're off work, you just need to delete it and leave it alone kind of thing.
>
> (Participant 1007)

Although online communication was perceived as disruptive to work-life balance, it was also construed as a learning experience because it made PCC nurses more aware of the need to separate work from home.

> We started using *[Microsoft] Teams*© during the first wave. And there would be constant meetings coming flashing up… It was really quite difficult to.. even when you weren't at work, to kind of get away from it… and I'm trying to make a more conscious effort not to check work emails on my days off and things like that.
>
> (Participant 1005)

Although there was gratitude that the normal patterns of their life—going out to work—had not been affected in the same way as for the majority of the population, the blurring of boundaries which came with remote online meetings did pose challenges to their well-being. The continuous notifications of online meetings made PCC nurses feel unable to escape from work.

Theme 5: Inability to process experiences of working in COVID-19

This theme explores participants' inability to process challenging and sometimes traumatic events they experienced during the pandemic. The intense demands created by the pandemic meant there were no opportunities to process the trauma experienced. This is one indication of how effective performance in the short term was prioritized over nurses' well-being in the long term. The pressures of work during COVID-19 meant there was little time to pause and think about how working in the pandemic was affecting their sense of wellbeing.

> There seems to be this feeling at the moment that it's finished.. and it's not!… I don't think it is finished.. and… We haven't dealt with the beginning of it [the pandemic] yet.. and we've had two more waves since then. We're probably going to have another one and this feels like we're just hiding.. I do feel like there's just a huge pile of traumas that I've not even.. started looking at.. because it's like 'Just hold that for a bit, because there's the next bit now'.
>
> (Participant 1008)

The demands of working in PCC during the pandemic left limited opportunities to reflect on their previous experiences. It was only at a later stage that they were able to acknowledge the impact that earlier stages of the pandemic had on their well-being.

> I'd kind of kept my cool during the.. during the first [wave of the] pandemic and it was later on that I'd realised that, I was probably struggling a bit more than what I was making out.. earlier on in the year. […] Yeah… because it was just you were literally like a robot… home, work, home, work and it was just like… that's how I explain it to people. The pandemic was just it kind of suffocated me a little bit in so many ways.
>
> (Participant 1004)

This theme demonstrates the impact of relentless work without respite on one's well-being. The lack of space for reflection, for taking time out, and for debriefing after traumatic events created a psychologically unsafe workplace, which significantly challenged nurses' well-being both in the short and longer term.

DISCUSSION

The first aim of this qualitative study was to examine the lived experience of PCC nurses' job role during the COVID-19 pandemic. It is evident that nurses' jobs were impacted substantially by the pandemic. Wearing PPE threatened their ability to function physiologically (in terms of not being able to take on fluids), psychologically (fears of being vulnerable to the virus due to poorly fitting PPE) and relationally (with quality communication being threatened by face coverings). Being thrown into adult ICU environments exposed feelings of inadequacy leading to increased anxiety. Finally, relationships between nurses and their senior colleagues were improved due to their increased availability on the unit, while relations between nurses and management were strained by seemingly impractical, urgent and frequent changes to protocols.

The second aim of this study was to explore the impact of the pandemic on PCC nurses' experience of well-being. The pandemic brought the classification of nurses as key workers, which meant they were able to maintain face-to-face interactions with others. Some admitted working overtime simply to experience more of those face-to-face social interactions, despite knowing this would be detrimental to their well-being in the longer term.

Incessant pressures at work during the pandemic also meant traumatic experiences were left unprocessed, leaving nurses psychologically vulnerable. This sacrifice of their longer-term mental health was made for the benefit of the common good; nurses needed to step up to meet demand created by the

pandemic. Helping others intrinsically motivates nurses enabling them to go beyond expectations in order to provide care for patients. However, this often requires self-sacrifice, and certainly did during the pandemic. This can induce feelings of moral distress; the feeling that they are unable to do what they know is ethically right because of restrictions (Nolan et al., 2020), in this case caused by the pandemic. This is worsened for participants' experiences because they also know they should take breaks, in order to ensure the best quality care, but demands caused by the pandemic and the care required make it impossible for those breaks to be taken.

In summary, this study has highlighted significant changes in PCC practice enforced by the pandemic, some of which were specific to COVID-19, such as the need for PPE, and redeployment to adult ICU. Others have indicated priority areas which need to be targeted in order that PCC nurses might recover from COVID-19, build-up their well-being, and maintain psychological health in the future. These relate to the need for: verbal and non-verbal communication, illustrated when this became impossible due to invasive PPE; strong professional relationships between staff and hospital management, enabling open communication to foster a sense of being heard and understood; and psychological safe spaces in which staff can share and process the challenges, stresses and traumas of working in PCC, during COVID-19 and beyond.

These findings support our previous research which gathered PCC staff's lived experience descriptions of well-being (Butcher et al., 2022; Donnelly et al., 2020), as well as a recent report by the UK General Medical Council (West & Coia, 2019). The results also assimilate with the theory of self-determination (Deci & Ryan, 2000), which identify three core concepts which are essential for well-being: *autonomy*—to feel in control, to be heard; *belonging*—to feel nurtured within a strong team identity; and *competence*—to feel that tasks are realistic and achievable and within one's skillset (Van den Broeck et al., 2016). When PCC nurses felt these three needs were not adequately satisfied during COVID-19, it led to experiences of apprehension, anxiety and frustration which were of detriment to ideal well-being.

Recommendations for clinical practice

There are some immediate recommendations that can be made, which might prove quite complex to implement. It is clear that regular breaks are required and resources need to be adequate to accommodate breaks for all staff. Clear communication between PCC staff and hospital management is required in appropriate formats. It is important that changes made during COVID-19 only remain in place if they are beneficial and do not disrupt nurses' work-life balance. While remote online meetings are convenient, they must not become invasive, so that staff feel they can take time out on days off without pressure to attend. It is worth planning for future scenarios which might require redeployment by learning from experiences in COVID-19 and taking forward that knowledge in future crisis management.

Our work also showed that PCC staff need space to process the traumatic experiences they had during COVID-19. Even outside of a pandemic, the nature of PCC work means that similar challenging or traumatic experiences are likely to happen. Thus, it is essential that staff are provided with psychological support to enable them to process these experiences, learn from them, and grow into better prepared, expert practitioners (Benner, 2001). Developing this practical wisdom will benefit their own future practice but also that of others they may mentor in the future (Kinsella & Pitman, 2012). One way in which this could be facilitated is through the implementation of trauma-informed care within PCC practice. Trauma-informed care (or practice) aims to reduce the adverse impacts of trauma on the well-being of healthcare service users and staff (UK Government, 2022). Previous research has suggested employing principles of trauma-informed care in nursing settings could improve well-being, job satisfaction and overall functioning of individuals with a nursing background (Amateau et al., 2022; Anderson et al., 2022). A similar initiative which has been adopted in some PCC settings is the creation of Psychologically Informed Environments, defined as an environment which prioritizes the psychological make-up of a team, its thinking, emotions, personality and past experience (Atkins & Syed-Sabir, 2022;

Keats et al., 2012). This is one way in which the well-being of staff can be integrated into the everyday functioning of PCC.

Recommendations for future research

Future research urgently needs to target the concepts and practices identified: autonomy, belonging and competence. Interventions designed to improve well-being need to be based on theoretical and empirical evidence and aim to be embedded within PCC practice. To ensure sustainability of improved well-being, interventions need to be rigorously evaluated to demonstrate their impact on staff well-being, staff psychological measures of burnout, anxiety and depression, and post-traumatic stress, together with associated outcomes such as staff retention, sickness, patient and family satisfaction, and possibly even patient outcomes. Robust well-being intervention design using the behaviour change wheel (Michie et al., 2011) has been implemented in healthcare settings during COVID-19 (Gibson Smith et al., 2022). Thus such frameworks could be adapted to target PCC nurses' well-being in future research.

This study focused on PCC nursing in the United Kingdom. While research around the world has reported the impact of the COVID-19 pandemic on rates of burnout and post-traumatic stress among healthcare professionals (García et al., 2020; Raudenská et al., 2020), more in-depth research examining how this might be avoided is required. Furthermore, we need to understand the nature of challenges to well-being in order to improve it. For example, it would be great to explore how learnings from the pandemic have informed practices designed to boost well-being and build resilience in everyday nursing practice.

CONCLUSIONS

To conclude, this work has provided unique insight into the lived experience of well-being among PCC nurses during COVID-19. There are concrete lessons we can learn from the changes made to PCC practice during COVID-19. It is essential that this learning is recognized and used. It is clear PCC nurses experienced poor states of well-being both before and during the pandemic; it is paramount that nurses' well-being be prioritized in future.

AUTHOR CONTRIBUTIONS

Jackson Pountney: Conceptualization; formal analysis; investigation; methodology; project administration; writing – original draft; writing – review and editing. **Isabelle Butcher:** Data curation; methodology; project administration; writing – original draft; writing – review and editing. **Peter Donnelly:** Conceptualization; resources; writing – original draft; writing – review and editing. **Rachael Morrison:** Conceptualization; methodology; writing – original draft; writing – review and editing. **Rachel Louise Shaw:** Conceptualization; data curation; investigation; methodology; supervision; writing – original draft; writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

There are no financial or non-financial competing interests.

DATA AVAILABILITY STATEMENT

The data included in the manuscript are the only data available for this piece of work. We did not seek consent for data (audio-recordings, anonymized transcripts, or anything else) to be shared beyond the research team.

ETHICAL APPROVAL

Ethics approval was granted by Aston University Research Ethics Committee. Informed consent was provided by participants for their contributions to be used in publications. Consent was not obtained for data to be available open access because it is very difficult to assure confidentiality when working with healthcare professionals from such a small pool of participants (there are only 23 units in the United Kingdom).

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ENDNOTES

[1] Between March and June 2020 in the United Kingdom, a national lockdown was introduced during which people were only permitted to leave their household for very limited purposes:

- Shopping for basic necessities, for example food and medicine, which must be as infrequent as possible
- One form of exercise a day, for example a run, walk or cycle—alone or with members of your household
- Any medical need, including to donate blood, avoid injury or illness, escape risk of harm, or to provide care or to help a vulnerable person
- Travelling for work purposes, but only where you cannot work from home

UK government guidance during lockdown is available here: https://www.gov.uk/government/publications/full-guidance-on-staying-at-home-and-away-from-others/full-guidance-on-staying-at-home-and-away-from-others#stopping-public-gatherings.

[2] Clinical members of the team (PD and RM) did not have access to the full transcripts to protect participants' anonymity (both PD and RM have national oversight of UK PCC units through their work with PCCS).

[3] Extracorporeal membrane oxygenation (ECMO) is a life support machine for people with severe and life-threatening conditions that stop their heart or lungs from working properly on their own.

[4] Inserting tubes to give drugs intravenously.

[5] Definitions of keyworkers defined by the UK government are available here: https://www.gov.uk/guidance/essential-workers-prioritised-for-covid-19-testing.

[6] As part of the national lockdown in the UK between March and June 2020, social distancing measures were introduced. This meant staying more than two metres apart from others to reduce the spread of COVID-19. In addition, public gatherings of more than two people were prohibited by law. UK government guidance during lockdown is available here: https://www.gov.uk/government/publications/full-guidance-on-staying-at-home-and-away-from-others/full-guidance-on-staying-at-home-and-away-from-others#stopping-public-gatherings.

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