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Midwives' experiences of utilising personal protective equipment during the COVID-19 pandemic: a qualitative descriptive study

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Abstract

***Background*:** Coronavirus has placed a lot of strain on the healthcare system. As a result, major changes have occurred in the way healthcare is delivered, including pregnancy care delivery. Within the Irish healthcare system, the response to the COVID-19 pandemic has demanded frequent and ongoing adjustments to midwifery practice and the provision of personal protective equipment (PPE) and its usage have come under serious scrutiny during the COVID-19 pandemic.
***Aim*:** To explore midwives experiences of utilising PPE during the COVID-19 pandemic.
***Methods*:** A qualitative descriptive study utilising a purposive sampling of 10 midwives who participated in in-depth semi-structured interviews, highlighting their experiences of utilising PPE during the COVID-19 pandemic. Data obtained was analysed using the Braun and Clarkes framework and reported in line with the consolidated criteria for qualitative research reporting (COREQ).
***Results*:** Analysed data resulted in five themes, eight subthemes and 18 codes. The themes identified represent the participants experiences and highlight the; importance of effective communication, fear and anxiety of contracting and spreading the virus, value of peer support as a coping strategy, impact of lack of resources in the midwifery practice, and education and training effectiveness.
***Conclusion*:** The introduced strict mandatory infection prevention and control measures, predominantly the wearing of PPE, took effect with concurrent increased stress and anxiety, while caring for pregnant women.

Keywords: *personal protective equipment; midwife; COVID-19; experience; Ireland*

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The World Health Organization (WHO) declared the COVID-19 pandemic on March 11th, 2020 (1). Midwifery care in hospitals and communities was among the healthcare areas in which mandatory restrictions were imposed immediately after the declaration of the pandemic. The primary aim of these mandatory measures was to decrease the viral transmission by reducing physical contact (2). COVID-19 infection is extremely contagious, posing a threat to healthcare personnel, patients, family members, and friends (3). Midwives, as primary care providers, play a significant role in pregnancy, labour and birth and during the postnatal period. While working as a midwife is recognised to be an emotionally demanding profession (4), studies also indicate, that midwives working in stressful environments, like a pandemic, can negatively affect not only themselves but also the women being cared for (5).

Experience from past epidemics/pandemics has outlined the necessity for personal protective equipment (PPE) use by frontline healthcare workers. Past experience indicated PPE as an effective measure in the disease spread mitigation and staff's health and wellbeing protection, as both contribute to the successful maintenance of adequate staffing numbers to contain the outbreak (6). While the optimum level of PPE for COVID-19 is still being researched (7), the literature highlighted that COVID-19 is transmitted by contact and airborne transmission (8). Therefore, mandatory use of medical masks, gowns, eye protection and gloves by midwives caring for patients was required (9). Healthcare workers feel more prepared and confident to deliver care when they have sufficient PPE, clear instructions and up-to-date training on its use (10). Therefore, an adequate supply of appropriate PPE and knowledge of its usage are vital for all midwives providing care during a pandemic to ensure safe, quality care for all women attending a maternity healthcare facility. Therefore, even though PPE has become a major issue of concern for frontline healthcare workers during the

COVID-19 pandemic, there are no studies on midwives' experiences with PPE (11). For this reason, the aim of this paper is to bridge this research gap by exploring the midwives' experiences of utilising PPE during the COVID-19 pandemic.

Methods

The research undertaken was of qualitative design, using a descriptive approach, as it was deemed the most appropriate approach. This study aims to find, comprehend, and characterize an experience while staying close to the narratives of participants (12, 13, 14). The COREQ consolidated criteria for qualitative research reporting were used to perform and report this study (15).

Consent and ethics

Ethical approval was obtained for this study in January 2022 from the HSE Mid-Western Area Research Ethics Committee (REC Ref: 131/2021). Participation in the study was entirely voluntary, and prior to the interviews, written informed consent was obtained. Participants' anonymity was safeguarded by using pseudonyms on interview scripts and quotations within the findings. The study's data was kept private and confidential and stored in accordance with the Irish data protection laws (https://www.dataprotection).

Study setting

This study was conducted in a large urban centre in the Republic of Ireland, in a stand-alone regional maternity hospital. This location provides obstetric and midwifery care to the surrounding area and caters for a population of approximately 360,000 people (Hospital statistics). During the study, Ireland was subjected to a third wave of level 5 COVID-19 restrictions as a result of increased infection rates.

Participants' recruitment

After receiving ethical approval, this study's site access was obtained from the Director of Midwifery. An informative poster was distributed to clinical areas offering midwives an opportunity to contact the researcher to learn more about the study. Midwives who were interested in participating in the study were assessed for meeting the relevant inclusion criteria (Table 1) and then were given further information, including an introduction letter, an information leaflet and consent form. In keeping with qualitative research methodology, purposive sampling was used to recruit midwives with a broad range of knowledge who had experience utilising PPE during the COVID-19 pandemic (16).

Data collection

Data was collected by means of in-depth, semi-structured audio recorded interviews conducted between January and March 2022. The average duration of each interview was 30 min. The interview guide was developed by the researchers based on the evidence from the literature, clinical practice expertise and qualitative research expertise. A pilot interview was conducted with a midwife who met the inclusion criteria to test the interview guide and make any necessary adjustments. The pilot volunteer was aware that they were part of a pilot that was been used to develop an appropriate interview guide. For the study, interviews were conducted face-to-face (n = 10). Data saturation was achieved at 10 interviews as it was found that topics were repeated, and interviewees provided no further new information (17). Each interview was reviewed by the researcher on completion, when main concepts were summarised, and emerging codes were identified. Data retrieved was stored in accordance with the Irish General Data Protection Regulations (18).

Table 1. Inclusion/exclusion criteria

Inclusion criteria
1. Midwives who have utilised PPE during the COVID-19 pandemic.
2. Participants must be over 18 years old and be able to give consent.
3. Midwives must be currently registered with the Nursing and Midwifery Board of Ireland (NMBI).
Exclusion criteria
1. Midwives who have no experience utilizing PPE during the COVID-19 pandemic.
2. Midwives who have not given consent and are not on the live NMBI register.
3. Student midwives and agency staff working in the University Maternity Hospital.

Data analysis

Thematic data analysis may be defined as 'the process of classifying, analysing and categorizing themes within the data' (19); data analysis was guided by Braun and Clarkes' 2021 framework. One author transcribed all 10 audio-recorded interviews verbatim. Initial data analysis consisted of manual, line by line, inductive open coding of all manuscripts, using a descriptive code mechanism; new codes were added as the process continued (20). As data collection progressed, codes were modified and integrated iteratively, and themes were developed. Next, codes and themes were assessed and agreed between two of the authors for consistency (Table 2).

Findings

Analysis of the data resulted in five emerging themes, which described participants' experiences of utilising PPE during the COVID-19 pandemic. These include: 'Challenges of providing, clear, up to date accurate information.', 'Assessing the psychological impact of utilising PPE during a pandemic.', 'Coping strategies embraced

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Table 2. Thematic analysis

Codes	Subthemes	Themes
Information	Effective communication.	Challenges of providing, clear, up to date accurate information.
Meetings/Huddle	Impact of absence of clear guidance.	
Conflicting Information		
Guidelines		
Fear/Anxiety/Stress	Emotions/ feelings encountered.	Assessing the psychological impact of utilising PPE during a pandemic.
Increased risk of pregnancy loss	Cross-contamination	
Infect others		
Colleague support	Colleague support.	Coping strategies embraced when utilising PPE during the COVID-19 pandemic.
Hospital app	Resources available.	
Employee assistance		
Buddy system		
Increased awareness		
Reduced staff	Lack of resources	Importance of maintaining personal & professional integrity despite being faced with adversity.
Difficult working environment	Duty of care.	
Increased workload		
Lack of/inappropriate PPE		
Effect of education	Education	Impact of ongoing education and training on behaviours.
Up to date training	Training	

when utilising PPE during the COVID 19 pandemic.', 'Importance of maintaining personal & professional integrity despite being faced with adversity.' and 'Impact of ongoing education and training on behaviours.' Each theme is presented with pseudonymised quotes representing the data.

Challenges of providing, clear, up-to-date accurate information

All the midwives interviewed referred to the challenges experienced by the lack of clear guidance and information during the COVID-19 pandemic. Even though they were aware that the COVID-19 pandemic was an evolving situation, the lack of adequate information, and/or conflicting guidance from multiple sources was extremely difficult to process:

> *'There were massive issues then with conflicting information. We were wearing surgical masks, then we weren't supposed to wear masks, then we were wearing FFP2 masks. Then we were wearing just gloves and aprons for every patient regardless of their COVID status'.* (Kate)

As the COVID-19 pandemic was progressing over time, participants spoke positively about their hospital's effective implementation and continuous updating of measures, as these were constantly evolving. Participants also commended positively and appeared receptive to the hospital's new processes in ensuring communication flow and real time updating of all multidisciplinary team:

> '*Daily updates on what was expected of us. The new guidelines, there was a new thing brought in, called the huddle. It was a hospital meeting that happens every day. It's still happening. So that everyone touches base and knows what the most up to date thing is, what's happening with COVID, what's expected?, what's changing?'.* (Jenny)

The midwifery profession demands acute and on the spot action. Therefore, the communication to midwives of all updated guidelines and measures needed to be specifically tailored to their needs and follow the high pace of their practice. In practice, midwives reported that this communication was not efficient, and it impacted significantly their provision of care during the pandemic:

> *'Due to the nature of our work, you may have to act very quickly, but it was very hard to know what was the right thing to do at that time because things were changing so fast, you could do something one way and then find out the recommendations had changed. This resulted in me being reluctant to go into a room to care for a covid positive patient'.* (Grace)

Assessing the psychological impact of utilising PPE during a pandemic

Participants also spoke about the psychological impact of COVID-19. Working under the stressful conditions of a pandemic and having to use PPE for everyday practice posed a toll on their focus and emotions. This stress,

especially among individuals with personal underlying medical conditions, led them to question their PPE training and the effectiveness of their protection.

'I have asthma, so if I contract the virus, thankfully I haven't, I haven't contacted it yet but it's a worry. Is that because I'm using the PPE correctly? Hopefully'. (Mary)

Also, the pandemic's stressful conditions led participants to express concerns for their families' safety. These concerns stemmed from their daily contact with COVID-19-positive patients and their fear that they could carry the virus and transmit it to their family members, especially the vulnerable ones.

'You know, it was certainly a worry, I would often go home and visit my parents who were in their 70s. And, you know, it's a worry in case you bring it home and they catch it'. (Anna)

At the same time, participants were concerned about their colleagues and other patients' safety. Strong emotions again were revealed of the fear they experienced that they could transmit the virus to their colleagues and other patients.

'Nobody wants to bring that to the next patient, nobody wants to give that to their colleagues'. (Lucy)

Coping strategies embraced when utilising PPE during the COVID-19 pandemic

Providing midwifery care was stressful and challenging during the pandemic. Midwives depended on each other and their colleagues at all levels for support. They all went through similar emotions during the pandemic, shared their experiences among themselves as colleagues, served as role models to each other and were readily available to provide support.

'My colleagues were my saving grace, only for them I would have been lost. I could relate to them, they were experiencing the exact same emotions as me, they were my coping mechanism, and they were like my other family'. (Helen)

Participants acknowledged the resources and strategies made available to them by management to assist them in providing care safely and efficiently.

'Definitely the buddy system helps. Having someone checking when you're going into the room because we've all been there, in the scenario of putting on our PPE and then nearly walk in the door and someone say, "Actually you forgot your goggles."' (Emma)

Additional resources that were made available to assist midwives with their coping mechanisms included: 'The Hospital App', 'The Employee Assistance Programme' and 'Mindfulness'. Participants commented on having relevant information available to them, especially the online ones that proved to be easily accessible, extremely helpful and reassuring 'the hospital app that was quite helpful as well' (Carol). Many of the midwives commented on feeling supported by the availability of the employee assistance programme even if they had not availed of it:

'I do know, there's an employee assistance available, if I needed to utilize that and we were all made aware of how to contact that'. (Kate)

During the pandemic, mindfulness workshops were held during working hours for employees. Many midwives took advantage of these sessions and found them to be quite beneficial to their personal self-care:

'Mindfulness sessions were introduced, and all staff were encouraged to avail of them. I found them great. Not only did you feel supported, but it gave you the opportunity to ground yourself again amongst all the chaos'. (Aisling)

Importance of maintaining personal and professional integrity despite being faced with adversity

Throughout this study, a common theme was identified by all 10 participants duty of care.

"You could have a collapsed baby, and you had to, your natural born instinct as a midwife is to run and assist."' (Jenny)

Providing care while wearing PPE was inconvenient; the process of taking on and off PPE slowed the delivery of care. However, participants' narratives show how midwives attempted to keep COVID-19 at bay while providing women-centred care within the confines of the environment. '*We were suctioning babies; we'd have general anaesthetics and ongoing theatre cases. We did have to adapt our practice to a lot of it*' (Mary). Adjusting practices during the pandemic was not an easy task; reduced staffing levels and increased workload offered additional strain to the organisation.

'We were running out of midwives, we were running out of care assistants, we were running out of doctors, but

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we just had to do it, babies were still being born, women needed assistance…… it's our job, it's what we do'. (Anna)

Participants also described how the lack of appropriate PPE in the workplace was extremely challenging. However, this did not prevent women and their babies from receiving quality care:

'Some of the PPE was a very poor standard. Sleeves were varying length. I'm five foot two, and it would hardly come to my knee on occasions when you had to fully cover yourself and you couldn't cover around your neck adequately. Masks, some of the masks were very poor quality and it was difficult to source FFP3 masks, but we improvised…'. (Carol)

Impact of ongoing education and training on behaviours

Education and training on the appropriate use of PPE cannot be underestimated and emerged as an important finding of the study. All 10 interviewees reported receiving adequate training on PPE. Within this theme, it became evident that repeated education and training sessions resulted in midwives feeling more reassured and confident when utilising PPE during the pandemic.

'Definitely trainin…., training within the hospital, from the IP&C team, the multidisciplinary team, there were even videos playing on the televisions in the canteen about correct usage of PPE. This constant repetition of PPE made me feel safer going into the rooms, I felt I could cope in this nightmare'. (Lucy)

Management played a key role in supporting and providing opportunities to staff to practice and excel in their PPE techniques. Staff were frequently required to actually use PPE even before the COVID-19 pandemic, when PPE was not yet mandatory.

'Here in the hospital, we had PPE champions, even before we had a confirmed COVID case, one of the clinical skills facilitators in turn, were doing drills on PPE'. (Helen)

Discussion

This qualitative study highlighted midwives' experiences of providing care to women while utilising PPE during the COVID-19 pandemic. 'Challenges of providing, clear, up-to-date accurate information' was a common theme found by all participants, resulting in increased levels of fear and anxiety. In the literature, one of the emerged items was the dissatisfaction of healthcare workers towards their managers due to inefficient communication and constantly changing protocols regarding PPE usage. This dissatisfaction has been reported as a leading factor for healthcare workers' augmented stress and low performance levels (21, 22). On the other hand, managers' experiences were different with their main concern being towards the health of their subordinates during the COVID-19 pandemic (23, 24).

The importance of clear guidance pertaining to the use of PPE for all members of the multidisciplinary team cannot be underestimated. The participants in this study did identify the structures that were created by management for the dissemination of critical information. In particular, they referred positively towards the practice of daily staff meetings in their healthcare setting. This measure was initiated by the hospital's management at the start of the COVID-19 pandemic. These meetings gave management the opportunity to communicate recommendations on PPE usage and updates on infection and prevention policies to all staff. The participants of this study highlighted the positive impact of the meetings and specifically referred to the future of this organisational activity. They reported in their interviews that affiliated staff have requested for these meetings to continue after the COVID-19 pandemic. This finding appears to support existing research that effective leadership enables the efficient and safe operation of busy clinical wards in the healthcare setting (25). This theme also supported a study by Houghton et al. (10) on the necessity of efficient communication in the application of infection prevention and control procedures by healthcare staff.

The second category 'Assessing the psychological impact of utilising PPE during a pandemic' summarizes the emotions experienced by midwives while utilising PPE during the pandemic. In the literature, midwives appear to have reported increased levels of fear and anxiety, not only of contracting the virus themselves, but fear of spreading it among their colleagues and to other patients in their care. This also extended to fear of infecting their families and loved ones (26). This suggests that midwives' wellbeing may be under threat by a wide range of both personal and work-related stress issues (27, 28). Participants of this study reported frequent changes to workplace practices, together with changes in their working environment (to accommodate patients needing isolation). These events led to increased levels of anxiety and stress. Also, job satisfaction is another trait that has been associated with patient safety improvement, healthcare cost mitigation, and patient satisfaction (29, 30, 31).

Healthcare facilities should learn from and implement successful interventions that deal with healthcare staff's satisfaction and stress. Schwartz Centre Rounds were founded in 1995 in the United States to provide regular, protected time and a secure environment for healthcare

workers (both clinical and non-clinical) to openly discuss the emotional, psychological, and social issues they face (32, 33). The Rounds do not focus on aspects of care being provided. Alternatively, the Rounds enable colleagues to talk about and reflect on specific incidents and how it affected them (34). The psychological well-being of round participants was found to be higher than that of non-attendees in a UK study of the Schwartz Rounds (35). Schwartz Rounds were not part of the mandatory recommendations during COVID-19 in Ireland and were not practiced in this study's site.

The third category 'Coping strategies embraced when utilising PPE during the COVID-19 pandemic'. Participants in this study used a variety of coping mechanisms. The most commonly used tactics were mindfulness sessions and peer support. Mindfulness sessions were provided by management and were also found to be beneficial as they enabled midwives to de-stress and continue to provide the vital care needed to their patients.

In regard to peer support, all participants claimed that while they were aware of the employee assistance programme, the majority of midwives did not need to use the official psychological support that was available to them. Instead, they chose the support of their co-workers during the pandemic as *'they knew exactly how I was feeling, because they felt the same……I found it easier to talk to my colleagues than a stranger, it was not structured, it was informal and occurred at the time I needed it most*'. This discovery is consistent with prior research in the field (36, 37, 38). Peer support appeared to be vital in providing emotional support to midwives. Laing et al. highlights a high level of collegiality was discovered among midwives in New Zealand to maintain workplace safety during the COVID-19 pandemic (38). However, reference was also made to the valuable support provided by subject matter experts (clinical supervision provided by the infection prevention and control team and hospital PPE champions).

The fourth category 'Importance of maintaining personal and professional integrity despite being faced with adversity'. During the interviews, it was acknowledged that midwives worked in a very stressful environment during the COVID-19 pandemic. This stress environment was mainly due to lack of resources, which included reduced staff after midwives contracting the virus, resulting in increased workload for remaining staff, coupled with lack of appropriate PPE. Despite this, midwives maintained personal and professional integrity by, working overtime to cover deficits, some returned home from abroad and others postponed or returned to work following retirement to ensure a safe healthcare service was available to vulnerable people. All these concur with a study by the Nursing and Midwifery Board of Australia: '*The essential principle of providing woman-centred midwifery care in collaboration with women is for midwives to be "with woman." It is ingrained in midwifery philosophy*' (40).

The final category 'Impact of ongoing education and training on behaviours'. This study emphasised the positive effects of education during a world crisis. These results are in agreement with past research findings; a study conducted by Mitchell et al. (41) following the 2009 A/H1N1 pandemic and Fisher et al. (42) following the 2013 Ebola pandemic, suggested that high levels of knowledge about PPE use, both tested and self-perceived, were linked to improved confidence in PPE among healthcare workers. This confidence had as a result on staff's increased capability to successfully deal with the pandemic. While midwives in this study acknowledged the positive effects of education during this pandemic, they also stressed the importance of consequent refresher training. Midwives felt more confident and safer when they had been re-educated on the utilisation of PPE. These findings are consistent with past research, in which efficient communication on infection prevention and control principles, education and training on infectious diseases, and enforcement on infection control procedures have contributed to improved outcomes (10, 43).

Conclusion

The COVID-19 pandemic is one of the most serious crises affecting global health in recent history. This study confirms that midwives encountered a variety of challenges while providing care when utilising PPE during the COVID-19 pandemic. The most important finding in this study is that the midwives experienced high level of stress during the pandemic. This stress originated from the constant need to keep up with the pandemic's evolution, when the research community was constantly communicating new information on an unknown and deadly virus. Especially at the beginning of the pandemic and at each mutation of the virus, mandatory infection prevention and control regulations implemented were found to be confusing, conflicting and difficult to follow. This stress led midwives to even question their skills on the correct use of PPE, skills in which they have been trained and tested on. The use of peer support and other formal support measures that were implemented by management were among the actions that helped midwives during these challenging times. Also, PPE-focused training and education is another measure that is considered positive by the healthcare community.

Authors' contributions

Angela O'Farrell and Owen Doody contributed to the conception and design of this manuscript. Angela O'Farrell and Owen Doody assisted with data collection, processing, and interpretation. All authors contributed to the creation or revision of the manuscript's intellectual substance, as

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well as the final version to be published. All authors agreed to be accountable for all parts of the work, including guaranteeing that any questions about the work's integrity or accuracy are meticulously examined and resolved.

Conflict of interest and funding

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