Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Women and Birth 34 (2021) 465–472

Contents lists available at ScienceDirect

Women and Birth

journal homepage: www.elsevier.com/locate/wombi

Experiences and attitudes of midwives during the birth of a pregnant woman with COVID-19 infection: A qualitative study

Alba González-Timoneda[a,b], Verónica Hernández Hernández[c], Sonia Pardo Moya[a], Ruben Alfaro Blazquez[a,b,*]

[a] Midwife. Department of Obstetrics and Gynaecology, University and Polytechnic Hospital "La Fe", Valencia, Spain
[b] School of Nursing and Podiatry, University of Valencia, Spain
[c] Midwife. Department of Obstetrics and Gynaecology, Gregorio Marañón University Hospital, Madrid, Spain

ARTICLE INFO

Article history:
Received 24 August 2020
Received in revised form 26 November 2020
Accepted 1 December 2020

Keywords:
COVID-19
Attitude
Health workers
Midwifery
Pandemic
Qualitative

ABSTRACT

Background: The COVID-19 pandemic has become one of the most important threats to global health. Midwives are at the core of the response to the pandemic. Women still need midwifery support and care. The work of midwives is acknowledged as emotionally demanding, and their welfare may be compromised by a range of workplace and personal stress factors.
Aim: To investigate the experiences and attitudes of midwives who have provided pregnancy and childbirth care to women with a confirmed or suspected COVID-19 infection.
Methods: A qualitative phenomenological study was carried out in two Spanish tertiary hospitals. Fourteen midwives were recruited by purposive sampling technique. Data were collected through individual in-depth interviews and analysed using Giorgi's descriptive method.
Findings: Three themes emerged: "challenges and differences when working in a pandemic", "emotional and mental health and wellbeing" and "women's emotional impact perceived by midwives". Midwives pointed to several factors tied to a safe, supportive and empowering work place: support from staff and managers, access to adequate personal protective equipment, and reliable guidelines. They also dealt with professional and personal challenges during the pandemic, showing feelings of fear, anxiety, uncertainty, discomfort, lack of support, and knowledge. Finally, midwives expressed their concerns about the feelings of pregnant women with COVID-19, such as fear, anxiety, and loneliness.
Conclusion: The results of this study show some of the challenges for midwives during the course of the COVID-19 pandemic, emphasizing the value of a good communication, emotional support, and stress management, to provide woman-centred care.

Statement of significance

Problem
- The COVID-19 pandemic has become one of the most important threats to global health.
- The wellbeing of midwives may be compromised by a range of workplaces and personal stress factors, which could affect their performance and care quality.

What is already known
- Midwives, as the first and most effective providers of obstetric cares, play significant roles in the process of labour and childbirth and, as well as perinatal outcomes.
- Generally, the work of midwives is acknowledged as emotionally demanding.

What this paper adds
- This study reports the experiences and attitudes of midwives who have provided childbirth care to women with a confirmed or suspected COVID-19 infection.
- The findings show three main categories: "challenges and differences when working in a pandemic", "emotional and mental health and wellbeing" and "women's emotional impact perceived by midwives".
- Changes in the organization of care, increased workload, feelings of fear, anxiety, discomfort, lack of knowledge and support are some of the concerns shown by midwives.

* Corresponding author at: Jose Ponce, 32. CP 02006, Albacete, Spain.
E-mail address: ruben.ab87@hotmail.com (R. Alfaro Blazquez).

http://dx.doi.org/10.1016/j.wombi.2020.12.001
1871-5192/

Introduction

Coronavirus disease 2019 (COVID-19) is a new, rapidly emerging zoonotic infectious disease [1]. The novel coronavirus (COVID-19), caused by SARS-CoV-2 (severe acute respiratory syndrome coronavirus), was first isolated in December 2019 in Wuhan, China. On 30 January 2020 the World Health Organization (WHO) declared the outbreak a global health emergency, and on 11 March 2020, a global pandemic [2]. Cases have spread to almost every country, including 230,183 confirmed cases in Spain at the time of writing [3]. COVID-19 infection is highly transmissible and poses a risk to healthcare workers, their patients, and relatives and friends [1]. COVID-19 symptoms range from asymptomatic to severe pneumonia with acute respiratory distress syndrome [4].

At the present time, limited data are available on pregnant women with COVID-19. However, it is proven that emerging infections have an important impact on pregnant women and their fetus [5]. Recent examples have been the increased risk of complications in pregnant women with the 2009 pandemic H1N1 influenza virus and the severe fetal effects of Zika virus [5]. To date, there is no evidence of greater susceptibility to COVID-19 infection in pregnant women than in non-pregnant women. Moreover, COVID-19 appears to be more benign with pregnant women than with their fetus [6]. Compared with SARS (Severe Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome), COVID-19 appears less lethal, acknowledging the limited number of cases reported to date [7]. These data suggest that pregnant women could experience the disease mildly or asymptomatically, as it happens in around 80% of the population [8]. In this sense, new guidelines and workplace practices, based on a combination of available evidence, good practice and expert consensus opinion, have been developed worldwide to provide guidance to midwives and other healthcare professionals who care for pregnant women during the COVID-19 pandemic. However, due to the duration and rapidly evolving nature of the COVID-19 pandemic, there is a current lack of high-quality evidence to guide practice [8–10].

Midwives are one of the many core professionals responding to the pandemic. Women are still getting pregnant, still giving birth, and they and their families still need midwifery support and care [11]. Midwives, as the first and most effective providers of midwifery care, play significant roles across the pregnancy, labour and birth, and postnatal care. Midwives play an important role in enabling and empowering women, and so, the midwife's attitudes, knowledge and skills can improve outcomes, making mothers more self-efficient in childbirth, breastfeeding, self-care, and neonatal care [12,13]. Thus, midwives play a critical role in ensuring that the needs of women are met and that the care they receive is the individualized and woman-centred [14].

Generally, the work of midwives is acknowledged as emotionally demanding [15]. Caring for women and their families requires midwives to deal with anxiety, pain, fear and sometimes grief, as well as excitement and happiness [15]. Furthermore, the wellbeing of midwives may be compromised by a range of workplace and personal stress factors [16,17]. Ways of working which lead to increased job satisfaction have been shown to improve patient safety, reduce costs, and increase the quality of client experience [18–21]. Studies considering the views of midwives show that direct woman contact, continuity of care, positive support, teamwork, and the ability to work independently and autonomously lead to higher levels of satisfaction [20–22]. However, difficult and stressful situations like a pandemic, and the mental and physical exhaustion that often accompanies midwives in these workplace circumstances can contribute to a lack of motivation, indifference, frustration, and even illness, which negatively affects not only the midwife but also the woman in their care [23]. Because of the working conditions, the lack of knowledge about infection prevention, and the limited or inadequate information and organisational support, it may sometimes be difficult for midwives to adhere to guidelines and protocols, and to practice the best possible care [24,25]. As a result, all women may have a higher risk of inadequate maternal health care during childbirth.

Globally, a limited number of studies have focused on the viewpoint of midwives with respect to maternity care. The recent COVID-19 pandemic has prompted concern about midwives' working practices and behaviours [24]. By identifying barriers and facilitators to the care provision, we can more easily identify strategies that will support midwives to undertake the measures needed at such a critical time in health care internationally. To extend the knowledge of maternity care for women with infectious respiratory diseases, such as COVID-19, we carried out this qualitative study to investigate the experiences, attitudes, and perceptions of midwives who have provided childbirth care to women with a confirmed or suspected COVID-19 infection.

Methods

Design

A qualitative study design with a phenomenological approach was chosen. The method was informed by Husserlian philosophy which seeks to explore the same phenomenon through rich descriptions by individuals revealing commonalities of the experience [26]. The chosen methodology is not intended to provide generalized results, but to allow the experience of providing childbirth care to woman with a suspected or confirmed COVID-19 infection to be understood. In this way, a phenomenological approach, based on the understanding of lived experiences, is appropriate to achieve the proposed study objectives.

Participants and settings

The study was carried out in two Spanish hospitals: the University and Polytechnic Hospital "La Fe" of Valencia and the University Hospital "Gregorio Marañon" of Madrid. These tertiary public hospitals attend a population of 284,060 and 320,971 habitants respectively and have an average of 4632 and 5337 births per year, respectively [27,28].

A total of 14 midwives from both hospitals were included. A purposive sampling was carried out. This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest [29]. The inclusion criteria were having provided pregancy and childbirth care to women with a confirmed or suspected COVID-19 infection and accept to participate. Contact with participants was made via telephone and in person. All midwives approached accepted to participate. The size of the sample was determined progressively until we reached theoretical saturation of data.

Data collection

After obtaining the candidates' agreement to participate, we began the data collection process. In-depth individual open-ended interviews were carried out for data collection. All researchers were involved in conducting the interviews. There was no predetermined script, thus allowing the narrative to be steered by the participants. The opening question was: What has been your experience in providing childbirth care to a woman with a confirmed or suspected COVID-19 infection?

Narratives were collected mainly face-to-face but also via video call due to the confinement decreed in Spain during the pandemic.

Twelve of fourteen interviews were conducted face-to-face in the workplace. The other two were conducted by videoconference at the time agreed with participants. Narratives were recorded using the "Voice Memos" smartphone application, during May and June 2020. In addition, non-verbal gestures and researchers' observations were recorded in a field notebook.

Ethical considerations

All participants received verbal and written information on the study. The midwives were informed about guaranteed confidentiality, voluntary participation and the right to stop at any time without any adverse consequences. They signed a written informed consent prior to each interview.

The study received approval from the University and Polytechnic Hospital "La Fe" Biomedical Research Ethics Committee.

Data analysis

All interviews were transcribed verbatim and the midwives' identities were protected using code numbers. Interviews were transcribed by the authors. Data analysis was conducted by using Giorgi's four-step phenomenological approach and occurred simultaneously with data collection [30]. These steps were: (1) reading the entire disclosure of the phenomenon as described by the participant to obtain a sense of the whole; (2) reading the transcripts again, breaking down the whole through analysis into common elements, (3) transforming the language of the participants into a conceptual perspective of the experience, relative to the phenomenon of interest; and (4) combining and synthesizing these meaning units into a final general description that reflects the lived experience of the participants. Following this approach, the transcripts were read repeatedly to determine its wholeness followed by a sentence by sentence analysis where common elements were extracted and restated in more general terms. Meaning units were identified and these were then coded. Subsequently, code-groups or categories were formed along the way and adjusted as new codes emerged from data. The Atlas.ti v.8. qualitative data analysis software was used for data analysis [31].

Together two authors (AGT, RAB) analysed the narratives and interviews both as a whole and for meaning according to a phenomenological lifeworld approach [30]. Initial findings were conferred in a research team meeting and discussed until consensus was reached around categories and sub-categories which added rigour to the data analysis. All the researchers agreed on the final thematic structure.

In order to assess the rigour of research process we have based ourselves on the general criteria described by Guba and Lincoln: credibility, transferability, dependability and confirmability [32]. Specific strategies to attain trustworthiness such as researchers and methodological (within method) triangulation, reflexivity, member checks, as well as a thick description of the context, phenomenon, participants, data collection tools, analysis strategy and findings were used as recommended by Guba and Lincoln [32].

Data were triangulated by two researchers who examined evidence from the sources and used it to build a coherent justification for themes. We used the member checking strategy in order to determine the accuracy of the qualitative findings through taking the final report or specific descriptions or themes back to the participants and determining whether those participants felt that they were accurate. Self-reflection was also done by researchers. The authors identified and explored their own views and opinions as possible influences on the decisions taken. This was done because of the subjective nature of qualitative research to protect the methodological rigour of the study [31]. Finally, detailed information about researcher's role, informant's position and the context from which data was gathered has been offered to readers.

In addition, COREQ (Consolidated Criteria for Reporting Qualitative Research) criteria were applied to enhance the quality and transparency of reporting the study [33].

Findings

The purpose of this research study was to explore midwives' lived experience of caring during childbirth of women with suspected or confirmed COVID-19 infection. The mean age of the participants was 37.4 years old. All but one were women, and they had an average experience of eight years working as a midwife. The details of the sociodemographic characteristics of the study participants are shown in Table 1.

Three main categories were identified: "challenges and differences when working in a pandemic", "emotional and mental health and wellbeing", and "women's emotional impact perceived by midwives". From these categories, several subcategories emerged (see Table 2). Representative quotations from the participants are used in order to verify and validate the findings.

Challenges and differences when working in a pandemic

From this category, five subcategories emerged: "changes in the organization of care", "misinformation and lack of coordination

Table 1
Sociodemographic characteristics of participants. I: interviewee, GM: Gregorio Marañon Hospital of Madrid.

Participants	Hospital	Gender	Age	Nationality	Midwifery work experience (years)	Nursing work experience (years)	Date of last birth assisting a COVID-19 positive woman
I1	GM	Woman	35	Spanish	6	10	End of April
I2	LaFe	Man	53	Spanish	14	17	Early April
I3	GM	Woman	29	Spanish	2	6 months	Mid-March
I4	GM	Woman	32	Spanish/Colombian	5	0	End of March
I5	GM	Woman	41	Spanish	12	4	Early April
I6	GM	Woman	28	Spanish	5	2 months	23rd of March
I7	GM	Woman	39	Spanish	15	2	End of March
I8	LaFe	Woman	36	Spanish	9	6	Early April
I9	LaFe	Woman	50	Spanish	18	10	31st of March
I10	GM	Woman	28	Spanish	4	0	14th of April
I11	GM	Woman	30	Spanish	5	0	Early March
I12	LaFe	Woman	24	Spanish	1	2	28th of March
I13	LaFe	Woman	58	Spanish	14	16	End of March
I14	LaFe	Woman	40	Spanish	7	13	End of March

and management", "adapting the role of the midwife" "increased workload" and "the use of personal protective equipment".

Changes in the organization of care

The working environment plays an essential part in ensuring the quality of care rendered by midwives as well as job satisfaction and the enhancement of the professional development of the midwives. Midwives are responding to increased demands on their services, and they have had to change how they work overnight. The environment in which midwives had to provide this care progressively changed to help prevent the spread of the virus.

We have found clear differences between months in relation to the organisation of the maternity workplace. Most midwives stated that at the beginning of the pandemic the organisation was a chaos:

> "As it was at the beginning of the pandemic, everything was very chaotic, nobody knew how to act, and in the end you neglected the woman, in her emotional sphere of accompaniment, because you are more concerned with how I dress, how I undress, what I do with the baby, where . . . this I can do it, this I can't do it!! . . . . well, it was a chaos". (I4)
> "I experienced it as an absolutely uncontrolled situation (. . .) no one was clear about what we had to do . . . waste management . . . the order how to remove the PPE . . . ". (I10)

The midwives reflected how over the following weeks and months the organization improved. Specific birth rooms were set up to care for COVID-positive women, the organisation of the maternity hospital was restructured, access to both companions and personnel involved in care was restricted, and more personal protective equipment (PPE) was provided. A midwife reported:

> "The birth I attended was at the end of April, which is different from the experience that my colleagues had at the beginning of March (. . .) In April everything was more organized, we had an exclusive birth room for women tested positive for COVID-19, the material was prepared outside, we already had full protective equipment, which was not like at the beginning that we didn't have any, and we also started doing PCR on all the pregnant women who came in active phase of labour". (I1)

Misinformation and lack of coordination and management

Although many midwives expressed how they were struggling with the lack PPE, others reinforce the fact that the main problem facing the challenges of the COVID-19 pandemic were misinformation, and lack of coordination and management. An experienced midwife said: *"I think that we have never lacked protective material, what has failed has been the lack of knowledge and many contradictory orders" (I13).*

Midwives also expressed their disappointment with the constant change of protocols and policies. One participant stated: *"A lot of mess with the protocols, everyday a different story (. . .) we didn't know if a woman tested positive for covid-19 which birth room we should have used or which health care circuit was in force . . . " (I1).* Particularly, they advocated for the right of the woman to be accompanied during birth: *"From that moment on, the husbands were forbidden from accessing the labour ward (. . .). That instruction continued nearly a week, until the midwives' collective demanded a review of the protocols to adapt them to the available evidence" (I14).*

Adapting the role of the midwife

While few midwives referred their role was similar to what they have when attending a birth of a non-COVID infected or suspected woman, *"The only difference from an ordinary birth is that you keep social distance, (. . .) and that you have to carry your personal protections but nothing else" (I2);* many mentioned that for them there were clear differences between both situations: *"Yes, we acted completely different, even in an urgent caesarean section" (I4).*

Due to access restrictions during birth and hospital stay for companions, the worry of giving birth alone is one that midwives took very seriously. They felt that their role was to provide emotional support for pregnant women, at a time when they were being asked to keep physical contact to a minimum.

> "We had strict orders to spend just the time that was necessary in the room and I think that was excessive (. . .), I think that using masks, and keeping social distancing it would have been the same". (I9)

Midwives referred in some cases to the dehumanization of childbirth, or how the lack of closeness or face contact handicapped the provision of emotional support:

> "It was a bit dehumanised, it seemed to me much colder than an ordinary caesarean section". (I6)
> "As your face is covered, you have to rely a lot more on the expressiveness of your eyes, and your voice. There is no more hugging, no more touching". (I11)

Increased workload

All participants agreed that due to the pandemic the volume of work had increased. For example, one participant stated: *"We have increased the birth rate because two nearby labour wards have closed. We have expanded two birth rooms for the pandemic". (I1)*

The use of personal protective equipment

PPE, including surgical mask, eye protection, gloves, gown, and hand hygiene, is likely effective in protecting health care providers from COVID-19. However, not always adequate PPE was available, causing consequently in many midwives a feeling of lack of environmental protection and safety measures.

> "We didn't have full PPE, the neck area was quite uncovered . . . and what I do remember is that we, both the neonatologist and I, had to put on a soaked pad tied around the neck which was really uncomfortable". (I3)
> "As it was very early in the period of the epidemic, the tests took 4–6 hours to come out, therefore most births were attended

Table 2
Identified categories and subcategories.

Categories	Subcategories
Challenges and differences when working in a pandemic	Changes in the organization of care
	Misinformation and lack of coordination and management
	Adapting the role of the midwife
	Increased workload
	The use of personal protective equipment
Emotional and mental health and wellbeing	Fear, anxiety and uncertainty
	Discomfort
	Dissatisfaction vs. satisfaction
	Lack of knowledge
	Lack of support
Women's emotional impact perceived by midwives	Surprise and frustration
	Fear and anxiety
	Loneliness

using a normal surgical mask, gloves and a green paper but not-insulating gown which made me feel very unprotected". (I14)

There are also accounts of midwives having to work without PPE, or being forced to use poor substitutes, as regular PPE was diverted to other healthcare workers:

"We all had protective material, but I consider that not all were protected in the same way. The anaesthetist, for example, would not administer an epidural without a full PPE, but we did not have the choice and the time to choose in many occasions". (I10)

Emotional and mental health and wellbeing

Under this main category, the subcategories "fear, anxiety and uncertainty", "discomfort", "satisfaction vs. dissatisfaction", "lack of knowledge" and "lack of support" were derived.

Fear, anxiety, and uncertainty

Almost all participants did not fear the contagion of themselves, but they were preoccupied with the health of their families as well as their colleagues and clients, as expressed by some midwives:

"I was not afraid for me . . . (. . .) but then you go home and you have to take care of yours . . . your mother, your daughter, and that is the true fear" (I10)

"It was no longer fear only for me but for my family because I could infect people, the rest of the women with whom I was working" (I14)

Nonetheless, some midwives also stated that they were afraid and anxious to face the new challenges brought by the coronavirus crisis, mainly at the beginning of the pandemic. Due to human resources restrictions, sometimes, the midwife had to cope alone with urgent situations, that in other situations had been managed in a team, as said by one participant:

"I was the one who entered into theatre for caesarean section (. . .) two neonatologists stayed outside, who would enter if necessary (. . .) But facing alone a resuscitation of a 28 weeks new-born while they get prepared outside scared me, but thank God the child was born well . . . and immediately had to be transferred without resuscitation . . . If it had been necessary to give him more resuscitation at the beginning, until the outsiders had dressed, I should have helped him" (I7).

Clear components of nerves could also be observed in the verbatim quotes of some participants:

"Well, as it is a special operating room, it was the first time that I went to that operating room, first I did not know that there was no telephone inside . . . (nervous laugh)" (I5).

Despite the extraordinary stress and uncertainty, midwives continued to provide an invaluable service to the expecting women. One midwife expressed:

"At no time was I afraid to say I don't want to attend to her or anything, on the contrary, it seemed to me that she needed much more attention than any other pregnant woman at another time because the woman was scared and the truth is that the information had been scarce". (I9)

Discomfort

Another of the relevant aspects recognised by the participants was the discomfort found when working using individual protection suits. The exhaustion they produced even generated a feeling of dizziness and feelings of weakness in some midwives.

"After 10 minutes of wearing the PPE I realised how exhausting it is, I was short of breath, I sweated a lot . . . (. . .) We decided to change the strategy and finally instead of being all the induction of labour inside the room I spent most of the time outside". (I8)

"I had a very bad feeling and experience taking care of that woman . . . I thought I was going to faint right there". (I11)

Satisfaction vs. Dissatisfaction

We observed contradictory reports regarding the personal satisfaction of midwives in the care of these high-risk women. In general, the midwives interviewed had positive feelings in and for their work and aimed to create a positive atmosphere so that the parents could feel safe and not frightened of going through the process of giving birth. They explained how they did what they could to try to ensure that the woman received quality care and had the most satisfactory experience possible. However, many midwives described how midwife felt that the overall birth experience was not what they would have liked to offer.

"I would have liked to offer a closer relationship (. . .) the truth is that the woman was in the centre isolated". (I6)

Lack of knowledge

The midwives explained that they found it difficult to provide the best quality of care as they lacked knowledge. A midwife explained how she was doing her best to make good decisions with the information she had, in that rapidly evolving and challenging circumstances:

"As there was a lot of ignorance around how to manage a covid-19 pregnant women during birth at the end you do what you can, you try to be there for the woman, you try to explain the situation a little, but . . . you don't know if you are doing well or wrong" (I4).

Midwives also reported training for staff provided to front line care was inadequate or non-existent: *"We have not received specific training. They have directed us to an online platform with explanatory videos (. . .) in my opinion we learnt by doing" (I1).*

Lack of support

The participants felt that they needed support from other team members to ensure optimal care for these women. However, most midwives felt lonely and referred to not receiving much support from others.

"I was inside all the time alone, I rang the bell a couple of times so that a colleague would give me some material that I needed (. . .) I did not feel very supported . . . it was the feeling that no one wanted to enter into the birth room at all (. . .). It was my duty, and I was the one who had to take care of that woman during an entire shift . . . " (I3)

"There were many people looking out the small window . . . but they weren't very cooperative when needed". (I10)

Women's emotional impact perceived by midwives

Pregnancy is a special time full of excitement and anticipation. But for expectant mothers facing the outbreak of the coronavirus disease, fear, anxiety, and uncertainty are clouding this otherwise happy time. From this category, "surprise and frustration", "fear and anxiety" and "loneliness" emerged.

Surprise and frustration

Many women were about to give birth when they learned they had COVID-19 infection. They did not expect testing positive for coronavirus, as they were mainly asymptomatic. This situation generated great surprise in them as well as frustration. During interviews, midwives reported:

> "She was also disoriented as she did not understand how she could have been infected if she had been confined at home all the time. She was very surprised and shocked, she started to cry . . . " (I9)
> "Well, as the result was not expected, the woman was so extremely scared that she started behaving as if she did not control the situation . . . for her it was a surprise". (I13)

Fear and anxiety

Pregnancy can be an anxious time for many women, and the pandemic has magnified that. Midwives reported how stressful birth was for some expecting women:

> "The woman experienced her birth as a horror film because suddenly all her plans were dismantled (. . .). Someone from outside enters the birth room and says 'Covid positive' and consequently everyone stares and disappears. I was the only one that stayed by her side (. . .). In the postnatal ward she was alone too, so I think she did not have a good memory of her birth, not because of the birth itself, but because of everything that surrounded it". (I13)
> "It was a stressful for the woman. There was a general chaos around a caesarean section of COVID-19 positive woman. Moreover, she was in active phase of labour and baby's presentation was breech. She ended up being intubated" (I10)

Loneliness

The restricted visiting rules within maternity implemented to further reduce the spread of COVID-19 and to protect women, babies, family and staff have been very upsetting for the expecting woman attending hospitals for birth. Although midwives showed them that they did not intend to leave them, sometimes participants stated that women felt that loneliness:

> "She said that the only one who did not leave her alone was the midwife" (I13)
> "She thought she had to go through the birth alone" (I1)

Discussion

In the present study, the experiences of midwives who have provided childbirth care for women with suspected or confirmed COVID-19 infection were investigated via qualitative analysis and assigned to three main categories. The first identified main category "challenges and differences when working in a pandemic" emphasises the importance of the workplace conditions and a good organizational culture for adequate childbirth care. The second main category "emotional and mental health and wellbeing" summarizes the feelings that midwives experienced in their daily work during the pandemic. The last identified main category "women's emotional impact perceived by midwives" includes feelings showed by pregnant women during the COVID-19 childbirth.

In our study, midwives expressed the increase of work demands and the lack of adequate supplies of protective equipment as concerns. For midwives and other healthcare providers, the pressure of work is cited as one of the main contributing factors leading to reduced motivation, increased levels of sickness, and ultimately, to leaving the profession [34]. An excess of duties and demanding requirements at work also exert negative influences on job satisfaction [35]. Moreover, there is a close relationship between workforce safety and patient safety. Optimal performance is achieved when there is a well-equipped and safe working environment that supports ethical practice and treats workers fairly [36].

The findings are in agreement with those of previous studies where healthcare workers point to several factors that influence their ability to follow Infection Prevention and Control (IPC) guidelines when managing respiratory infectious diseases [37,38]. These include factors tied to the guideline itself and how it is communicated, workplace culture, training, physical space, access to and trust in PPE, and a desire to deliver good client care. In this sense, health professionals felt unsure as to how to adhere to local guidelines when they were long and ambiguous or did not reflect national or international guidelines [38].These guidelines need to be of sufficient quality and up-to-date; otherwise health professionals could feel overwhelmed when guidelines are constantly changing. Healthcare workers also described how their responses to IPC guidelines were influenced by the level of support they felt that they received from their management team [38]. In this respect, factor-statements relating to workplace protocols and guidelines have been a significant predictor for job satisfaction for midwives [34].

Our findings suggest the childbirth care provided to a woman with suspected or confirmed COVID-19 infection was different from a "normal" birth. As a pandemic evolves, healthcare professionals can find themselves unable to realistically provide the standard and level of care that they are otherwise used to providing [39]. Moreover, certain behaviours that would ordinarily be regarded as unethical may be seen as justified in the crisis situation. Research also suggests that when people are faced with danger situations, they will abandon "the illusion that certain values are infinitely important" and make moral compromises [37]. Being ethical in adverse situations can be particularly challenging because it may not be clear what the "right thing to do" is and contradict "any of the values we hold dearest", such as providing each patient with the best available care [37,39].

As a group with a high probability of infection, midwives are faced with a certain degree of psychological challenges in the process of facing the epidemic [40]. According to the literature, a considerable proportion of health care workers reported experiencing symptoms of depression, anxiety, insomnia, and distress, especially women, nurses, providing nursing care to people with suspected or confirmed COVID-19. Studies have showed that those health care workers feared contagion and infection of their family, friends, and colleagues, felt uncertainty and stigmatization, reported reluctance to work or contemplating resignation, and reported experiencing high levels of stress, anxiety, and depression symptoms, which could have long-term psychological implications. Hospital workers felt significantly more anxiety about infection, pressure, exhaustion and workload on the pandemic [41,42].

With regards to discomfort, midwives' experiences are in agreement with similar studies where some healthcare workers found it difficult to use masks and other equipment when it made patients feel isolated, frightened or stigmatised. Healthcare workers found masks and other equipment uncomfortable to use. They also described how IPC strategies led to increased workloads and fatigue, for instance because they had to use PPE and take on additional cleaning [38]. These environmental

stressors in the work environment and emotional exhaustion are strongly related to job dissatisfaction [43].

In this study, midwives highlighted the lack of knowledge as a weakness. Practical and organisational support from workmates and employer was also mentioned by them as fundamental. These results are in accordance with present studies about infectious respiratory diseases where the most consistent findings were the need for clear communication about IPC guidelines, providing training and education around infectious diseases, and the enforcement of infection control procedures [38,44]. Inadequate staffing, poor team-work and unsupportive management are reasons for midwives to leave their profession and could be the reason for midwives experiencing high levels of stress [18,45]. The presence of fear, insecurity, and lack of knowledge on the part of health professionals, and the possibility of embarrassment on their part if they make a mistake or need to ask for help, seem to be related to the fear of not knowing information [46].

Regarding the women's feelings perceived by midwives, most negative perceptions expressed by women, such as fear and surprise, might be related to a problematic pregnancy course because of the COVID-19 mother infection, an unexpected process of labour and birth and uncertainty about the infants' medical condition. It seems the birth experience of a pregnant woman with COVID-19 infection could be a stressful and traumatic time for parents, as happens in other adverse events that compromise the health of mother or infant [47]. Some pregnant women felt lonely during childbirth because of the absence of their partner due to the hospital's policy. Other reason could be the lack of support and companionship of the midwife who was looking after them. Furthermore, women and babies were sometimes separated at birth as the baby was taken to the neonatal unit for assessment which could negatively affect the childbirth experience [48].

Limitations

Certain limitations of this study need to be acknowledged. Firstly, qualitative researchers should critically examine the personal bias inherent to the design of the study. Qualitative researchers closely engage with the research process and participants and are therefore unable to completely avoid personal bias. For this reason, investigator triangulation of data was performed in order to ensure trustworthiness.

Secondly, the participant bias has been considered. Therefore, in order to avoid the acquiescence bias or the social desirability bias, open-ended questions to prevent the participant from simply agreeing or disagreeing were used, which guided them to provide a truthful and honest answer. Moreover, the questions were phrased in a manner that allowed the participant to feel accepted no matter what the answer was.

Thirdly, the sample size was drawn from two tertiary Hospitals. These midwives may generally be different from general workforce and thus may be more likely to be burnt-out, particularly due to the intense demands. Although the results cannot be generalised to the general population, the depth of our research discoveries from the experiences of these midwives, in conjunction with the rich description of the study context, should enable readers to appraise the transferability of findings to varied maternity settings.

Finally, memory bias might have influenced the results because of the retrospective design used to collect the data.

Implications for practice

Paying attention to midwives' work is important in order to maintain a healthy, motivated midwifery workforce that will continue providing childbirth care during and after the COVID-19 pandemic. Listening carefully to midwives' concerns and responding in a way that validates their thoughts, feelings, and expectations will provide a platform for sensitive discussions in order to improve the organisation of care, models of care, and support systems. Future research has the opportunity to explore solutions to support midwives in these adverse circumstances.

Conclusion

The COVID-19 pandemic has become one of the most important threats to global health the modern world has ever seen. As countries work to prevent or delay the further spread of COVID-19, the health and wellbeing of healthcare workers must always be given high priority. Midwives are an essential component of the workforce and the contact they have with women and their babies is vital to the continuity of care and the building of a life course approach to health.

Midwives point to several factors that influence their ability to perform a safe and respectful care when managing respiratory infectious diseases, such as COVID-19 pandemic. These include factors tied to a safe, supportive and empowering work place: support from staff and managers, access to adequate PPE and reliable guidelines. Midwives also deal with professional and personal challenges during the pandemic, showing feelings of fear, anxiety, uncertainty, discomfort, lack of support and knowledge. Finally, midwives express their concerns about the feelings of pregnant women with COVID-19, such as fear, anxiety, and loneliness, emphasising the value of a good communication, emotional support, and stress management.

Midwives can and do make a huge difference to the lives of women and families. Although 2020 is not the year of celebration originally planned, midwives everywhere should be proud of the potentially lifesaving and life-affirming roles they are playing in these adverse circumstances.

Author contributions

AGT & RAB conceived and designed the research. All authors participated in the recruitment of participants, data collection, data analysis and interpretation of the results. AGT & RAB wrote the manuscript. All authors read and approved the final manuscript.

Ethical statement

Ethical approval was obtained from the Biomedical Research Ethics Committee of the hospital. All of the participants received verbal and written information on the study, including the fact that participation was voluntary and that they could stop participating at any time without any adverse consequences. All interviews were conducted after obtaining written informed consent and each interview was coded to guarantee the confidentiality and anonymity of the participants.

Details of ethical approval

The study received approval from the University and Polytechnic Hospital "La Fe" Biomedical Research Ethics Committee. Data of approval: 25 May 2020.

Conflict of interest

None declared.

Funding sources

Not applicable.

Clinical trial registry

Not applicable.

Acknowledgements

The authors would like to thank midwives for sharing their time and experiences with the research team.

References

[1] World Health Organization (WHO), Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19) [cited 5 March 2020]. Available from:, World Health Organization, Geneve, 2020. https://www.who.int/publications-detail/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-(covid-19).
[2] World Health Organization (WHO), Rolling Updates on Coronavirus Diseases (COVID-19) [cited 16 May 2020]. Available from:, World Health Organization, Geneve, 2020. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen.
[3] World Health Organization (WHO), Coronavirus Disease (COVID-19) Situation Report-117. Data As Received by WHO From National Authorities by 10:00 CEST, 16 May 2020 [cited 17 May 2020]. Available from:, World Health Organization, Geneve, 2020. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200516-covid-19-sitrep-117.pdf?sfvrsn=8f562cc_2.
[4] European Centre for Disease Prevention and Control (ECDC), Infection Prevention and Control for COVID-19 in Healthcare Settings – Third Update. 13 May 2020 [cited 16 May 2020]. Available from:, ECDC, Stockholm, 2020. https://www.ecdc.europa.eu/sites/default/files/documents/Infection-prevention-control-for-the-care-of-patients-with-2019-nCoV-healthcare-settings_-third-update.pdf.
[5] S.A. Rasmussen, J.C. Smulian, J.A. Lednicky, T.S. Wen, D.J. Jamieson, Coronavirus Disease 2019 (COVID-19) and pregnancy: what obstetricians need to know, Am. J. Obstet. Gynecol. 222 (2020) 415–426.
[6] R.A. Caparros-Gonzalez, Maternal and neonatal consequences of coronavirus COVID-19 infection during pregnancy: a scoping review, Span. J. Public Health 94 (2020) 1–9.
[7] E. Mullins, D. Evans, R.M. Viner, P. O'Brien, E. Morris, Coronavirus in pregnancy and delivery: rapid review, Ultrasound Obstet. Gynecol. 55 (2020) 586–592.
[8] Ministerio de Sanidad, Manejo de la mujer embarazada y el recién nacido con COVID-19 [cited 15 May 2020]. Available from:, Ministerio de Sanidad, Madrid, 2020. https://www.mscbs.gob.es/profesionales/saludPublica/ccayes/alertasActual/nCov-China/documentos/Documento_manejo_embarazo_recien_nacido.pdf.
[9] Royal College of Obstetricians and Gynaecologists, Royal College of Midwives, Royal College of Paediatrics and Child Health, Public Health England and Public Health Scotland, Coronavirus (COVID-19) Infection and Pregnancy, Version 11: Updated 24 July 2020 [cited 20 September 2020]. Available from:, Royal College of Obstetricians and Gynaecologists, London, 2020. https://www.rcog.org.uk/globalassets/documents/guidelines/2020-07-24-coronavirus-covid-19-infection-in-pregnancy.pdf.
[10] American College of Obstetricians and Gynecologists, General Information Regarding Pregnant Individuals and COVID-19 [cited 20 September 2020]. Available from:, American College of Obstetricians and Gynecologists, Washington, 2020. https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2020/03/novel-coronavirus-2019.
[11] D. Bick, COVID-19: 2020 is the international year of the midwife, Midwifery (2020) 85.
[12] D.J. Sauls, Nurses' attitudes toward provision of care and related health outcomes, Nurs. Res. 56 (2007) 117–123.
[13] M.S. Levine, N.K. Lowe, Measuring nurse attitudes about childbirth: revision and pilot testing of the nurse attitudes and beliefs questionnaire, J. Nurs. Meas. 23 (2015) 287–301.
[14] D. Lawler, Women with disabilities. The midwife's role and responsibilities, Pract. Midwife J. 13 (2010) 20–33.
[15] B. Hunter, L. Warren, Midwives experiences of workplace resilience, Midwifery 30 (2014) 926–934.
[16] L. Mollart, V.M. Skinner, C. Newing, M. Foureur, Factors that may influence midwives work-related stress and burnout, Women Birth 26 (2013) 26–32.
[17] J. Fenwick, J. Toohil, D.K. Creedy, J. Smith, J. Gamble, Sources, responses, and moderators of childbirth fear in Australian women: a qualitative investigation, Midwifery 31 (2015) 239–246.
[18] D.K. Creedy, M. Sidebotham, J. Gamble, J. Pallant, J. Fenwick, Prevalence of burnout, depression, anxiety and stress in Australian midwives: a cross-sectional survey, BMC Pregnancy Childbirth 17 (2017) 13–21.
[19] E. Trifiletti, M. Pedrazza, S. Berlanda, T. Pyszczynski, Burnout disrupts anxiety buffer functioning among nurses: a three-way interaction model, Front. Psychol. 8 (2017) 1–10.
[20] M.A. Nemcek, G.D. James, Relationships among the nurse work environment, self-nurturance, and life satisfaction, J. Adv. Nurs. 59 (2007) 240–247.
[21] Y. Yoshida, J. Sandall, Occupational burnout and work factors in community and hospital midwives: a survey analysis, Midwifery 29 (2013) 921–926.
[22] E. Kędra, M. Nowocień, Stressors and the risk of professional burnout in the nurses' work, Pol. Nurs. 3 (2015) 293–306.
[23] M. Jaracz, I. Rosiak, A. Bertrand-Bucińska, M. Jaskulski, J. Nieżurawska, A. Borkowska, Affective temperament, job stress and professional burnout in nurses and civil servants, PLoS One 12 (2017) 1–11.
[24] Lh Hall, J. Johnson, I. Watt, A. Tsipa, D.B. O'Connor, Healthcare staff wellbeing, burnout, and patient safety: a systematic review, PLoS One 11 (2016) 1–12.
[25] J.A. Rozo, D.M. Olson, H.S. Thu, S.E. Stutzman, Situational factors associated with burnout among emergency department nurses, Workplace Health Saf. 65 (2017) 262–265.
[26] E. Husserl, Ideas: General Introduction to Pure Phenomenology, Translated by Boyce Gibson W.R., Collier, Macmillan, London, New York, 1962.
[27] Comunidad de Madrid, Hospital General Universitario Gregorio Marañon, Obstetricia Y Ginecología [cited 20 July 2020]. Available from:, Salud Madrid, Madrid, 2020. https://www.comunidad.madrid/hospital/gregoriomaranon/profesionales/relacion-especialidades/obstetricia-ginecologia.
[28] Generalitat Valenciana, Departamento De Salud La Fe [cited 15 July 2020]. Available from:, Consejería de Sanidad, Valencia, 2020. http://www.lafe.san.gva.es/home.
[29] J.W. Cresswell, V.L. Plano Clark, Designing and Conducting Mixed Method Research, 2nd Sage, Thousand Oaks: CA, 2011.
[30] A. Giorgi, The Descriptive Phenomenological Method in Psychology. A Modified Husserlian Approach, Duquesne University Press, Pittsburg, PA, 2009.
[31] T. Muhr, ATLAS.ti Qualitative Data Analysis. Windows Version 8 [software]. Scientific Software Development GmbH [cited 2020 Aug 10]. Available from:, (2016) . https://atlasti.com/.
[32] Y.S. Lincoln, E.G. Guba, Naturalistic Inquiry, Sage Publications, Newbury Park, CA, 1985.
[33] A. Tong, P. Sainsbury, J. Craig, Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups, Int. J. Qual. Health Care 19 (6) (2007) 349–357, doi:http://dx.doi.org/10.1093/intqhc/mzm042.
[34] D. Cronie, H. Perdok, C. Verhoeven, S. Jans, M. Hermus, R. de Vries, et al., Are midwives in the Netherlands satisfied with their jobs? A systematic examination of satisfaction levels among hospital and primary-care midwives in the Netherlands, BMC Health Serv. Res. 19 (2019) 832–842.
[35] I. Uchmanowicz, S. Manulik, K. Lomper, A. Rozensztrauch, A. Zborowska, J. Kolasińska, et al., Life satisfaction, job satisfaction, life orientation and occupational burnout among nurses and midwives in medical institutions in Poland: a crosssectional study, BMJ Open 9 (2019) 1–9.
[36] P.F. Cipriano, 100 years on: the Spanish Flu, pandemics and keeping nurses safe, Int. Council Nurs. 65 (2018) 305–306.
[37] M.J. Johnstone, S. Turale, Nurses' experiences of ethical preparedness for public health emergencies and healthcare disasters: a systematic review of qualitative evidence, Nurs. Health Sci. 16 (2014) 67–77.
[38] C. Houghton, P. Meskell, H. Delaney, M. Smalle, C. Glenton, A. Booth, et al., Barriers and facilitators to healthcare workers' adherence with infection prevention and control (IPC) guidelines for respiratory infectious diseases: a rapid qualitative evidence synthesis, Cochrane Database Syst. Rev. (2020) Issue 4. Art. No.: CD013582.
[39] J. Ives, S. Greenfield, J.M. Parry, M. Draper, C. Gratus, J.I. Petts, et al., Healthcare workers' attitudes to working during pandemic influenza: a qualitative study, BMC Public Health 9 (2009) 1–13.
[40] D. Sun, D. Yang, Y. Li, J. Zhou, W. Wang, Q. Wang, et al., Psychological impact of 2019 novel coronavirus (2019-nCoV) outbreak in health workers in China, Epidemiol. Infect. 148 (2020) 1–6.
[41] J. Lai, S. Ma, Y. Wang, Z. Cai, J. Hu, N. Wei, et al., Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019, JAMA Network Open 3 (2020) 1–12.
[42] S. Pezaro, W. Clyne, A. Turner, E.A. Fulton, C. Gerada, Midwives overboard! Inside their hearts are breaking, their makeup may be flaking but their smile still stays on, Women Birth 29 (2016) 59–66.
[43] S. Manulik, S. Manulik, K. Lomper, A. Rozensztrauch, A. Zborowska, J. Kolasinska, et al., Life satisfaction, job satisfaction, life orientation and occupational burnout among nurses and midwives in medical institutions in Poland: a crosssectional study, BMJ Open 9 (2019) 1–9.
[44] S. Kisely, N. Warren, L. McMahon, C. Dalais, I. Henry, D. Siskind, Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: rapid review and meta-analysis, BMJ 369 (2020) 1–11.
[45] I. Hildingsson, K. Westlund, I. Wiklund, Burnout in swedish midwives, Sex. Reprod. Healthc. 4 (2013) 87–91.
[46] K. Matsuishi, A. Kawazoe, H. Imai, A. Ito, K. Mouri, N. Kitamura, et al., Psychological impact of the pandemic (H1N1) 2009 on general hospital workers in Kobe, Psychiatry Clin. Neurosci. 66 (2012) 353–360.
[47] A. Sawyer, S. Ayers, J. Abbott, G. Gyte, H. Rabe, L. Duley, Measures of satisfaction with care during labour and birth: a comparative review, BMC Pregnancy Childbirth 13 (2013) 108–118.
[48] L. Lewis, Y.L. Hauck, F. Ronchi, C. Crichton, L. Waller, Gaining insight into how women conceptualize satisfaction: western Australian women's perception of their maternity care experiences, BMC Pregnancy Childbirth 16 (2016) 29–41.