

## Original Article



# Exploring the Midwives' Experiences of Providing Delivery Care for Women with Suspected or Confirmed COVID-19 Infection: A Qualitative Study

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## Abstract

**Introduction:** Midwives were at the forefront of caring for pregnant women during the COVID-19 pandemic, therefore, the present study was conducted with the purpose of exploring midwives' experiences of providing delivery care for women with suspected or confirmed COVID-19 infection.

**Methods:** In this qualitative study, 18 midwives working in the public hospitals affiliated with Guilan University of Medical Sciences (Iran). Who had experience in providing delivery care to women with suspected or confirmed COVID-19 infection were selected using purposive sampling. Data were collected via individual semi-structured interviews until reaching data saturation, and analyzed through conventional content analysis.

**Results:** Data analysis led to the extraction of three main categories and six sub-categories. The main categories included "COVID-19 and organizational support" with two sub-categories including lack of resources/neglecting the role of midwives, "COVID-19 and positive achievements" with two sub-categories including professional resilience/turning threats into opportunities, "COVID-19 and informational support" with two sub-categories, including up-to-date training/empowering pregnant women.

**Conclusion:** According to the findings, to realize and guarantee the provision of high-quality maternity care to pregnant women in dealing with epidemic diseases such as COVID-19 in the future, the attention of policymakers and healthcare service officials to the physical and psychological needs of midwives is necessary. Also, organizational and informational support, improving job satisfaction, and paying attention to the importance of midwives' role in the medical team are recommended. Moreover, empowering pregnant women during epidemic diseases is essential.

## Introduction

The World Health Organization (WHO) declared the COVID-19 pandemic on March 11, 2020.<sup>1</sup> One of the essential aspects of the COVID-19 infection was its widespread through tiny droplets released into the air, which showed the need to observe more personal and social hygiene.<sup>2</sup> The fast spread of the virus caused countries to face a large amount of infected people,<sup>3</sup> so that 767 972 961 people were infected with this virus and 6 950 655 people lost their lives worldwide until July 14, 2023. In Iran, the total number of infected people and deaths was 7 612 662 and 146 301, respectively.<sup>4</sup>

The rapid spread of COVID-19 has put a lot of pressure on the healthcare system.<sup>5,6</sup> Lack or inadequacy of medical facilities, lack of personnel, unpredictable

nature of the disease, widespread transmission of the virus, fear of contracting the disease and transmitting it to others, increased working hours, work pressure (physical and emotional), burnout, disruption in service delivery and Changing to telemedicine has been one of the challenges.<sup>7-11</sup>

Immediately after the announcement of the COVID-19 pandemic, mandatory restrictions were imposed on providing midwifery care in hospitals and health centers. The primary goal of these mandatory measures was to reduce the transmission of the virus by reducing physical contact.<sup>12</sup> Healthcare workers without experience working with infectious diseases experienced great stress under these conditions.<sup>13</sup>

Based on the evidence, the outbreak of COVID-19

had high psychological effects on midwives and they experienced problems, such as fear, anxiety, discomfort, uncertainty and lack of knowledge and support.<sup>14,15</sup> The fear of contracting COVID-19 and needing to protect their families caused considerable stress for many midwives.<sup>16</sup> In Shoorab et al study, some midwives decided to quit their jobs in the coping process following COVID-19, and the reason for this decision was the stress of their family being infected, especially their children.<sup>17</sup> According to studies, in addition to the fear of contracting the disease and the risk of its transmission to family members, lack of protective facilities, lack of access to diagnostic tests for screening, feelings of insufficient support, settling in a new and unfamiliar unit, compliance with rapid changes in guidelines were among other challenges that could lead to a decrease in the quality of midwifery care services.<sup>7,18</sup>

On the other hand, many changes were made in the way healthcare services were provided, which included social distancing measures, postponing unnecessary surgeries, avoiding unnecessary referrals, and performing some healthcare operations online.<sup>19</sup> Pregnancy and childbirth care significantly changed under these conditions. For this purpose, to prevent the spread of COVID-19, maternal healthcare professionals, who were on the front lines of caring for pregnant mothers and newborns, had to adapt how they provided care.<sup>20</sup> Due to working conditions, lack of infection prevention knowledge, limited and inadequate information, and lack of organizational support, it may sometimes be difficult for service providers to follow guidelines and protocols and provide the best possible care. Accordingly, mothers may be at high risk of receiving inadequate health care during childbirth.<sup>15</sup>

Maternity services differ from other health services because they cannot be stopped.<sup>16</sup> Therefore, to better prepare health policymakers to design appropriate strategies for possible future pandemics, it is necessary to understand midwives' experiences and challenges during COVID-19.<sup>5</sup> A deeper understanding of midwives' experiences will reveal the real needs of midwives in the face of the epidemic of infectious diseases and help plan to improve the quality of care they provide. The present qualitative study aimed to explore the midwives' experiences of providing maternity care to women with suspected or confirmed COVID-19 infection. Qualitative studies have a unique ability to help researchers achieve a better understanding of studied phenomena and can explain and describe people's experiences, views, and points of view based on their cultural and social backgrounds.<sup>21</sup>

### Materials and Methods

The present study was conducted with the purpose of exploring midwives' experiences of providing maternity care to women with suspected or confirmed COVID-19 infection.

This is a qualitative study with a conventional content analysis approach. Considering the main objective of the present study and the limitation of existing theory or few related qualitative studies in regard to the phenomenon under study, particularly in an Iranian social and cultural context, we used inductive conventional qualitative content analysis to explore the qualitative data with regard to research questions.

The study population included midwives working in public hospitals affiliated with Guilan University of Medical Sciences, Rasht, Iran, who had experience in providing maternity care to women with suspected or confirmed COVID-19 infection. The criteria for entering to study were experience in providing maternity care to women with suspected or confirmed COVID-19 infection, consent to participate in the study and express experiences, and employment in the labor and delivery wards of public hospitals affiliated with Guilan University of Medical Sciences.

Purposive sampling was performed and data was collected via individual semi-structured interviews using interview guide questions. Interviews continued until reaching data saturation. Data collection and data analysis were simultaneously performed from October 2021 to January 2022. The face-to-face interviews were conducted with participants in their work environment. Interviews began with several open-ended questions such as "If possible, tell us about your experiences providing maternity services to mothers with suspected or confirmed COVID-19", "What are the problems and challenges during delivery of mothers with suspected or confirmed COVID-19" Have you encountered? Please explain", and continue with probing questions, such as: "If possible, explain more about this", "What exactly do you mean by this sentence you have expressed?" and "Do you want to know something else you think is necessary to bring up?". Each interview lasted 25-60 minutes on average. After obtaining informed consent from the participants to participate in the study and audio recording, all interviews were recorded and were written down verbatim on paper immediately after each interview. After the implementation of interviews, their content was first investigated to discover the connections among the ideas and this process continued until reaching the main themes.

The data analysis and data collection were performed simultaneously using steps suggested by Graneheim & Lundman<sup>22</sup> as follows: 1. The audio recorded interviews were analyzed and the contents were re-read with the purpose of obtaining a general and detailed understanding, 2. All information was considered a unit of analysis, 3. Paragraphs, sentences and words, as meaning units with the same meaning and content were included which were then summarized and juxtaposed according to their content, 4. Based on the hidden concept in the units, they were brought to the level of

conceptualization and abstraction and named using codes, 5. Considering similarities and differences in the codes, they were compared with each other and placed in categories with more precise and abstract concepts, and 6. Categories were compared frequently at the end of the process and the hidden content in the data, was extracted as the research themes.<sup>22</sup>

Guba and Lincoln's four criteria were used to confirm the trustworthiness of data.<sup>23</sup> Therefore, credibility was maintained by the researchers' sustained involvement in the study, their establishment of adequate and appropriate communication with the participants, and collecting reliable data and reconfirming collected information by the participants (member checking). To increase the confirmability of the data, the additional opinions of the faculty members who were familiar with qualitative studies were used. Data dependability was ensured through the regular process of simultaneous data collection and analysis and the use of expert reviews. To accurately assess the applicability of the study in other scientific fields and its transferability, an effort was made to provide a detailed and rich descriptive report of the research process.

The Ethics Committee of Guilan University of Medical Sciences, Rasht, Iran, approved the study proposal and confirmed its ethical considerations. Prior to interviews, midwives were made aware of the objectives of the study, and their oral and written informed consents were obtained. They were assured that the collected data would only be used for research objectives. It was also announced to the participants that their information would remain confidential during and after the study.

## Results

A total of 18 midwives working in Labor and Delivery Wards of Eastern Guilan and Rasht hospitals, Iran, with an age range of 25-49 years and 2-25 years of work experience participated in the present study (Table 1). Data analysis led to the extraction of 360 initial codes. Then, the resulting codes were divided into six subcategories based on similarity and conceptual content (Lack of resources/neglecting the role of midwives/professional resilience/turning threats into opportunities/up-to-date training/and empowering pregnant women) and three main categories (COVID-19 and organizational support/COVID-19 and positive achievements/COVID-19 and informational support) (Table 2).

### COVID-19 and Organizational Support

One of the main categories extracted from the data was COVID-19 and organizational support. The participating midwives believed that lack of resources and neglecting the role of midwives in the treatment team were the most important concerns in dealing with the COVID-19 pandemic, which both of them reflected the necessity of more organizational support in the management of the

**Table 1.** Demographic characteristics of the study participants (midwives)

No.	Age	Employment years	Degree of education	Marital status	Infected with COVID-19
1	49	25	BSc	Married	-
2	38	14	BSc	Married	+
3	37	12	BSc	Married	-
4	45	17	BSc	Married	+
5	28	2	BSc	Married	+
6	25	2	BSc	Married	+
7	41	17	BSc	Married	+
8	36	12	BSc	Married	+
9	30	8	PhD candidate	Single	-
10	28	2	MSc	Married	+
11	30	5	MSc	Married	-
12	39	15	BSc	Married	+
13	26	2	MSc	Single	+
14	32	10	BSc	Married	-
15	46	20	BSc	Married	+
16	25	2	BSc	Single	-
17	40	18	BSc	Married	+
18	29	4	MSc	Married	-

COVID-19 pandemic.

### Lack of Resources

Participants' experiences explaining the concept of organizational support during the COVID-19 pandemic led to the extraction of the subcategory of lack of resources. The majority of the participants stressed the improper distribution of midwives in the labor and delivery ward, shortage of midwifery staff, burnout, inappropriate physical structure (lack of space and isolation room), lack of personal protective equipment upon the onset of the pandemic, refusal to assume the related responsibilities, and the need for teamwork between the medical staff to better manage maternity services during the pandemic. Midwife: "The lack of facilities and equipment, especially at the beginning of the pandemic, increased the worries and fears of midwives". (Participant No. 8).

Midwife: "Shortage of midwives was one of our problems. It caused no problem for the morning shift, but there were two of us in the evening and night shifts at the peak of the COVID-19 pandemic." (Participant No. 3).

Midwife: "One of our biggest problems, especially at the beginning of the pandemic when vaccination was not yet done, was the lack of cooperation of experienced midwives. Many of them did not enter the room of pregnant mothers with COVID-19 infection." (Participant No. 4).

### Neglecting the Role of Midwives

From the point of view of the participating midwives, among frequently emphasized needs that should be attended by the relevant officials as an important

**Table 2.** Codes, subcategories and main categories extracted from exploring the midwives' views and experiences of providing delivery care to women with suspected or confirmed COVID-19 infection

Main categories	Subcategories	Codes
COVID-19 and organizational support	Lack of resources	<ul style="list-style-type: none"> <li>- Improper distribution of midwives in labor wards</li> <li>- Shortage of midwives</li> <li>- Job burnout</li> <li>- The need for team cooperation among the medical staff</li> <li>- Improper physical structure (the lack of space and isolated room)</li> <li>- Lack of personal protective equipment upon the onset of the pandemic</li> </ul>
	Neglecting the role of midwives	<ul style="list-style-type: none"> <li>- Injustice in per-case payment to midwives working at labor ward</li> <li>- The need to encourage the efficient midwives</li> <li>- The need for the mental and emotional support for midwives</li> </ul>
COVID-19 and Positive achievements	Professional resilience	<ul style="list-style-type: none"> <li>- The dedication of midwives</li> <li>- More empathy of medical staff</li> <li>- Overcoming the fear of getting infected and adapting to conditions</li> <li>- Service commitment midwives, powerful arms of the medical staff</li> </ul>
	Turning threats into opportunities	<ul style="list-style-type: none"> <li>- Health, a valuable gift</li> <li>- Understanding the value of life</li> <li>- Coping with the experience of death</li> <li>- The positive attitude of the people towards the medical staff</li> <li>- Compliance with health protocols as a normal part of life</li> <li>- COVID-19 an opportunity to provide specialized midwifery care services</li> </ul>
COVID-19 and informational support	Up-to-date training	<ul style="list-style-type: none"> <li>- Lack of sufficient information at the beginning of the pandemic</li> <li>- Little experience in disease management</li> <li>- Confusion and stress caused by the unknowns</li> <li>- Extreme fear of disease and its transmission to family and relatives</li> </ul>
	Empowering pregnant women	<ul style="list-style-type: none"> <li>- COVID-19 as a taboo</li> <li>- Pregnant women concealing COVID-19 infection among themselves and their family members</li> <li>- Ignoring health protocols in delivery process</li> <li>- Lack of information regarding the pandemic</li> </ul>

component in the organizational support included attention to the importance of midwives' role in the healthcare team, justice in paying corona per-case to midwives, encouraging efficient midwives and providing emotional and psychological support to midwives during the COVID-19 pandemic.

Midwife: "The intense work and hardships that midwives endure in labor and delivery ward are never taken into account. Contrary to the staff of other wards, midwives get no perks or very minimal compensation per case from COVID-19." (Participant No. 13).

Midwife: "When midwives are not valued, their needs will certainly not be addressed." (Participant No. 12).

Midwife: "The poor attention from the officials during the COVID-19 crisis led to a sense of despair among the midwives. More attention was paid to the nursing staff in this regard instead!" (Participant No. 6).

### COVID-19 and Positive Achievements

The second main category that was extracted from the analysis of the views and experiences of the participants was COVID-19 and positive achievements. The analysis of the statements of the midwives depicted the themes of professional resilience and turning threats into opportunities, and in a way expressed the positive experiences gained by them during this pandemic.

#### Professional Resilience

From the point of view of the participating midwives, among the experiences which were repeatedly emphasized, were the selflessness and dedication of the midwives during

the COVID-19 crisis, the greater empathy of the medical staff, overcoming the fear of infection, and adapting to the conditions, and young service commitment midwives the powerful arms of the medical staff, which somehow indicated the professional resilience of midwives when facing the COVID-19 crisis.

Midwife: "Although we are accountable to our partners, kids, and families, we risked our lives during this crisis and made every attempt to provide moms with suspected or confirmed pregnancies the right care. COVID-19. Despite the many hazards, we continued working without pausing." (Participant No. 3).

Midwife: "During the pandemic, we realized that medical personnel should have more cooperation and empathy with each other. If one evades his/her responsibility, it causes the other colleague to bear more pressure." (Participant No. 9).

Midwife: "I think that young service commitment midwifery colleagues had a great performance during this pandemic, and undertook more pressure without fear of contracting the disease and even in some cases, filled the shoes of experienced colleagues in taking care of COVID-19 mothers." (Participant No. 12).

#### Turning Threats Into Opportunities

According to the midwives, understanding the value of life, coping with the experience of death, people's positive attitude towards the medical staff, compliance with health protocols as normal behavior in life, and Covid-19 an opportunity to provide midwifery care services were considered among the positive opportunities and experiences.



Midwife: "Health protocols in this crisis became a part of our daily routine." (Participant No. 9).

Midwife: "One of the wonderful experiences obtained during this pandemic is the fact that we recognized health is the greatest boon, it is always with us but unseen." (Participant No. 8).

Midwife: "COVID-19 taught us many things. We realized that we should appreciate our life and what we have." People attached more value to the medical staff." (Participant No. 5).

Midwife: "Working during the COVID-19 crisis was a very good experience for me. I learned a lot. I experienced a situation where death has become much more normal for me now". (Participant No. 7).

### COVID-19 and Information Support

The third main category consisted of two main categories the need for up-to-date training and empowering pregnant women.

#### Up-to-Date Training

Participants acknowledged the lack of sufficient information at the onset of the pandemic, the confusion and stress of medical staff and society caused by the unknown, the medical staff's extreme fear of infection and fear of transmitting the infection to family and relatives, and the lack of experience needed during disease management.

Midwife: "In my opinion, the educational needs of midwives are very important which should be considered in crises." (Participant No. 9).

Midwife: "One of the important needs of midwives and medical staff, in general, was to update information about the pandemic course. Webinars were very helpful." (Participant No. 18).

Midwife: "In my opinion, there was a need for counseling and training sessions for midwives, especially in the early days of COVID-19 when there is high fear of infection and the low information about disease." (Participant No. 7).

#### Empowering Pregnant Women

The analysis of the experiences and statements of the midwives participating indicates taboo nature of COVID-19 infection from the point of view of patients and companions, pregnant women concealing COVID-19 infection among themselves and their family members, mothers' inattention to complying with health protocols in the delivery process and their lack of COVID-19-related information and somehow depicted the need to empower pregnant women.

Midwife: "Sadly, the referring moms did not get enough instruction during their pregnancies, particularly when they visited comprehensive health centers." (Participant No. 4).

Midwife: "Because of the negative social burden of the disease, many mothers concealed their illness. They think

that if they say they are sick, everyone will run away from them. Even these mothers, in terms of their illness conditions, were less cooperative than other mothers during childbirth and did not pay much attention to health recommendations." (Participant No. 3).

Midwife: "It is vital to train mothers. We have formed a WhatsApp group for them and we are training them all." (Participant No. 4).

### Discussion

The data analysis showed the experiences of participating midwives when providing maternity care to mothers with suspected or confirmed COVID-19. The analysis of midwives' experiences was explained based on 3 main themes (COVID-19 and organizational support/ COVID-19 and positive achievements/ COVID-19 and informational support).

The first main theme extracted from the findings was "COVID-19 and organizational support", which emphasizes the importance of environmental conditions and organizational support for providing adequate maternity care during the COVID-19 pandemic and is based on the two categories of lack of resources and neglecting the role of midwives. A lack of personal protective equipment, a lack of midwifery staff, work burnout, and an improper physical structure (lack of space and isolation room) during the COVID-19 epidemic were all mentioned by almost all of the midwives who participated in the study. COVID-19 created many problems for the health system.<sup>24</sup> There are reports that midwives had to work without PPE or had to use poor substitutes, as regular PPE was given to other healthcare workers. Although many midwives described how they struggled with PPE shortages, others emphasized that the main problem to encounter COVID-19 pandemic is the lack of coordination and resource management.<sup>15</sup>

The work environment plays an essential role to ensure the quality of care provided by midwives, as well as job satisfaction and professional development of midwives. Most midwives in the study by González-Timoneda et al stated that organizational chaos was evident upon the onset of the pandemic, and this trend was mitigated during the following weeks and months.<sup>15</sup> Leung et al showed how maternity care workers can be better supported during pandemics. This study identified key challenges to midwives' willingness and ability to work during COVID-19, including fear of personal risk of infection, uncertainty, shortage of PPE, lack of support, stress, and burnout.<sup>10</sup> One of the main findings of Hantoushzadeh et al study was job burnout. Almost all maternal healthcare providers suffered from work-related fatigue and stress during the COVID-19 pandemic. COVID-19 led to the emergence of new roles and responsibilities for staff, which in turn increased workload, job fatigue, and burnout.<sup>20</sup> Authorities and managers can play an important role in reducing employee burnout.<sup>25</sup> Managers should be aware

of the needs of those who offer maternal healthcare and take action to satisfy those requirements. Encouragement and spiritual support for employees in these circumstances might help them avoid burnout and be successful in offering women's services of the highest quality.<sup>20</sup> A recent qualitative study of Indonesian midwives stated that it is essential to provide adequate support for midwives during the delivery of maternity care through the availability of PPE, effective training, and health support during the pandemic.<sup>26</sup> Midwives expressed the need for team cooperation between medical staff. One of the problems raised by a number of midwives was the lack of 24-hour availability of infectious disease specialists on some days. They emphasized the need for team cooperation between midwives, the interaction between midwives and gynecologists. Promoting interprofessional collaboration during the COVID-19 pandemic should be recognized as a priority to ensure efficient and high-quality delivery care.<sup>27</sup> Interaction among maternity care providers (midwives and gynecologists) promotes evidence-based care.<sup>28</sup> In Hantoushzadeh et al study, participants acknowledged the importance of teamwork, empathy, and intergroup cooperation for better adaptation to new changes in their workplace.<sup>20</sup>

Another subcategory of COVID-19 and organizational support was neglecting the role of midwives. In our study, midwives emphasized the neglect of their role in the health team during the pandemic, the lack of motivational factors in the work environment, and the need for emotional and psychological support. Maternity care providers are effective advisors at the community level and should be given adequate responsibility for managing health policy guidance.<sup>29</sup> As a group with a high risk of infection, midwives face special psychological challenges when facing the pandemic.<sup>30</sup> Regular assessment of their mental health and access to free psychological counseling services are very helpful. All midwives participating in Hantoushzadeh et al study complained about the lack of motivational factors in their work environment and mentioned motivational support.<sup>20</sup> In order to reduce the mental and psychological problems of healthcare workers during the COVID-19 pandemic, solutions, such as increasing positive manager-employee interaction, increasing facilities and resources, fair distribution of tasks and resources, adequate and timely payments, and spiritual and financial incentives are recommended.<sup>25</sup>

The second main theme of the research findings was "COVID-19, and positive achievements" with two subcategories of professional resilience and turning threats into opportunities. Considering the high risk of COVID-19 infection among midwives at work, they had a lot of negative experiences and feelings since the beginning of the pandemic.<sup>30</sup> These feelings sometimes lead to post-traumatic stress disorder in them.<sup>31</sup> Interestingly, the findings of our study showed that midwives had favorable experiences caring for pregnant mothers with COVID-19,

whether their infection was suspected or known. These experiences, which included building professional resilience and achieving satisfying results from offering services, had a significant impact on their capacity for responsibility and performance. Although the nature of midwifery services can be effective to create these positive feelings in this group of health personnel, the results of the present study, consistent with a similar study on the performance of midwives under critical situations, showed that the performance of this group of health service providers is affected by the type of service, has led to positive experiences and more motivations for self-sacrifice, and thus providing better services.<sup>32</sup> Therefore, strengthening positive experiences can be effective in improving the performance of health personnel during the COVID-19 crisis.<sup>33</sup>

Sense of duty makes midwives provide services even under difficult pandemic conditions,<sup>34</sup> but exposure to stress<sup>35</sup> and job burnout<sup>36</sup> under the COVID-19 crisis conditions can affect service delivery of health personnel. The current study, however, reveals that despite experiencing stress, the midwives were selfless in their efforts to provide the best care for their patients. In this regard, a similar study demonstrated how the duty to provide service in dire circumstances, such as during a war, led to self-sacrifice in medical personnel.<sup>10,37</sup> Furthermore, positive experiences could be affected by more support and empathy from the health system and medical team, which is consistent with a similar study.<sup>10</sup> In a study, it was found that cooperation, collaboration, and empathy are the main facilitators of midwives' teamwork.<sup>38</sup>

On one hand, the fear of being infected or of transmitting the virus to one's family among healthcare providers was reported as a common feeling in previous studies, which can affect their decision to leave their jobs,<sup>17,39</sup> but overcoming such fear and adapting to the circumstances is part of the positive experiences of the midwives in the present study, and these experiences can be effective on the continuity of midwifery services under critical situations. On the other hand, since a better understanding of the unknown aspects of the disease was achieved and more prenatal care protocols were provided over time, midwives could obtain better adaptability while providing healthcare services to mothers. A similar study showed that managing challenges and attempting to control critical conditions when providing midwifery services are considered as part of the process of adaptation to the COVID-19 crisis.<sup>17</sup> Health personnel can take different strategies for this adaptation. A similar study showed that despite the many challenges, adaptation and professional resilience of midwives has increased over time.<sup>40</sup> In a study of nurses, it was also discovered that this kind of adaptation encouraged nurses to have a favorable opinion of service delivery, which encouraged them to utilize it as a means of coping with challenging circumstances.<sup>41</sup> In this regard, healthcare workers

mentioned that they focused on God's will and trust in Him to overcome their fear of infection, which in turn help them better adapt to the critical conditions.<sup>10</sup> In the present study, the midwives stated that they were able to cope with the COVID-19 death and this issue was effective to create a positive feeling when providing the healthcare service. In this regard, it was shown that people turn to morality when facing critical and difficult conditions and focus on certain values in life.<sup>42</sup> The positive view of the relatives increased their motivation and support for the medical staff. Consistent with the present study, studies have shown that receiving support from relatives and the media during the COVID-19 pandemic has led to improved adaptation and hope for high-quality services.<sup>10,34,41</sup>

Participants acknowledged that COVID-19 has provided an opportunity for service delivery, as their experience and skills delivery have increased, which was consistent with a similar study.<sup>10</sup> In fact, having a clear purpose and meaning for doing something and pride in providing healthcare services during pandemic conditions was reported in the health personnel, which could have an effect on their service delivery.<sup>33</sup> One of the interesting results was the ability of the young service commitment midwives as powerful arms of the medical staff to provide services to mothers with suspected or confirmed COVID-19. Although their years of work experience were few, this issue was not mentioned as a weakness in this group.

The third main theme was "COVID-19 and information support" with two subcategories of up-to-date training and empowering pregnant women, which well shows the need for informational support of midwives, medical staff, and healthcare recipients during the pandemic crises.

The midwives stated that due to the lack of sufficient information at the beginning of the pandemic, they were afraid of contracting the disease and transmitting it to their families. Therefore, educational needs, holding counseling and educational sessions, and providing reliable information should be considered in terms of the lack of necessary experience in the disease management process during pandemics. The lack of knowledge and information during the pandemic was associated with a negative feeling in midwives when providing healthcare services<sup>15</sup> and this factor has been commonly associated with the feeling of inefficiency and inability in caring for COVID-19 patients among healthcare personnel.<sup>13</sup> The time interval since the beginning of the pandemic caused the midwives to gain more ability in theory and practice to provide services to patients. In this regard, the healthcare providers mentioned in a similar study that they are more capable of providing services to patients over time.<sup>10</sup>

The analysis of the experiences of participating midwives indicates the taboo nature of COVID-19 from the perspective of patients and their companions, the concealment of pregnant women regarding their

infection or family members, mothers' inattention to complying with health protocols in the delivery process, and their lack of COVID-19 information, which in turn somehow depicts the need to empower pregnant women. Consistent with the present study, Hamzehgardeshi et al stated that the studied pregnant women had poor knowledge, attitude and performance in facing the COVID-19 disease, and their anxiety was attributed to the limited information about the effect of the disease on the pregnant mother and the infant, absence of definitive treatment of the disease, the uncertainty of the duration of the quarantine, the fear of being in the hospital and healthcare centers.<sup>43</sup> The research by Freitas-Jesus et al found that pregnant women denied having COVID-19 infection and refused to recognize their sickness. They were terrified of the virus's potential prenatal effects, the onset of severe illness symptoms, incomplete recovery and death, as well as the isolation and shame associated with the condition. Guilt and false information about the disease were other factors contributing to disease denial in these women; therefore, they had not good adherence to quarantine.<sup>44</sup>

Dominant beliefs consider pregnancy and motherhood to be synonymous with protection and security. Therefore, after finding out about the disease, the pregnant mother may blame herself for not improper adherence to hygiene measures and social distancing. They may feel guilty to put their fetus and family at risk and the disease-related stigma may cause a person to hide his disease or seek medical care too late, which in turn can increase the risk of disease transmission in society.<sup>44,45</sup>

One of the limitations is that the research subjects may not have expressed their true opinions and feelings during the interview, or there may be a recall bias of some events with the passage of time since the beginning of the pandemic.

## Conclusion

Midwives are at the forefront of providing maternity services to pregnant women. To realize and guarantee the provision of high-quality maternity care to pregnant women in dealing with epidemic diseases such as COVID-19 in the future, the attention of policymakers and healthcare service officials to the physical and psychological needs of midwives is necessary. Also, organizational and informational support, improving job satisfaction, and paying attention to the importance of midwives' role in the medical team are recommended. Moreover, empowering pregnant women during epidemic diseases is essential.

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## Research Highlights

### What is the current knowledge?

- Maternity services have been affected by the COVID-19 pandemic around the world.
- Midwives were at the forefront of caring for pregnant women during the COVID-19 pandemic.

### What is new here?

- Teamwork between the medical staff especially gynecologists, midwives, and Infectious disease specialists (is essential).
- Attention of policymakers and healthcare service officials to various needs of midwives during epidemic infections is necessary.
- Financial, physical, and psychosocial support of the medical team and particularly midwives is necessary to improve maternity care.
- Empowering pregnant women during epidemic diseases is essential.

### Authors' Contribution

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### Competing Interests

The authors declare that they have no competing interests.

### Data Availability Statement

The datasets are available from the corresponding author on reasonable request.

### Ethical Approval

This study was approved by the Research Council and the Ethics Committee of the Research and Technology Vice-Chancellor of Guilan University of Medical Sciences, Rasht, Iran, with ID: IR.GUMS.REC.1400.297. All Ethical considerations related to human participants were considered.

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