

CHANGES IN MATERNITY CARE IN POLAND PERCEIVED BY MIDWIVES WORKING IN THE SARS-CoV-2 PANDEMIC. A PRELIMINARY STUDY

Joanna Gotlib^{1A,B,C,D,E,F}, Barbara Baranowska^{2A,B,C,D,E,F}, Ewa Rzońca^{3B,C,D,E}, Paulina Pawlicka^{4A,B,E,F}, Urszula Tataj-Puzyna^{2B,D,E,F}, Ilona Cieślak^{1E,F}, Mariusz Jaworski^{1A,C,E,F}, Mariusz Panczyk^{1A,B,C,D,E,F}

¹Department of Education and Research in Health Sciences, Faculty of Health Sciences, Medical University of Warsaw, Poland

²Department of Midwifery, Centre of Postgraduate Medical Education, Warsaw, Poland

³Department of Obstetrics and Gynaecology Didactics, Faculty of Health Sciences, Medical University of Warsaw, Poland

⁴Institute of Psychology, University of Gdańsk, Poland

Authors' contribution:

A. Study design/planning • B. Data collection/entry • C. Data analysis/statistics • D. Data interpretation • E. Preparation of manuscript • F. Literature analysis/search • G. Funds collection

Address for correspondence:

Ilona Cieślak
Department of Education and Research
in Health Sciences
Faculty of Health Sciences
Medical University of Warsaw
Warsaw, Poland
e-mail: ilona.cieslak@wum.edu.pl

SUBMITTED: 26.12.2021

ACCEPTED: 13.01.2022

DOI: <https://doi.org/10.5114/ppiel.2021.115838>

ABSTRACT

Introduction: The outbreak of the SARS-CoV-2 pandemic necessitated rapid and unexpected changes in the health care system, including maternity care.

Aim of the study: To evaluate changes in maternity care in Poland as perceived by midwives working in the SARS-CoV-2 pandemic.

Material and methods: This cross-sectional study involved 100 midwives. This was a preliminary study conducted in April 2020. The data were obtained using an online questionnaire (CAWI method). The questionnaire link was distributed by the snowball sampling technique.

Results: Risk assessment using a 10-point visual analogue scale demonstrated that the study participants had a moderately high overall level of perceived risk due to the pandemic. The highest level of concern was recorded in connection with the perceived burden at work caused by the pandemic (mean = 7.42, SD = 1.99). The smallest concern, although still quite high, was related to the fear of contracting the virus or developing COVID-19 (mean = 5.62, SD = 2.14).

Conclusions: The study demonstrated that the need for support, conversation, and presence was the most frequent topic in requests made to midwives. The outbreak of the pandemic did not unequivocally affect interdisciplinary cooperation, cooperation with women, and the interest in maternity services provided outside the hospital. The research should be continued to obtain a larger sample size and analyse the trends developing in maternity services during the SARS-CoV-2 pandemic.

Key words: perinatal care, prenatal care, midwifery, COVID-19, SARS-CoV-2.

INTRODUCTION

The outbreak of the SARS-CoV-2 pandemic influenced all social aspects of life, causing widespread fear, psychological problems, and social isolation [1]. It also created the need for the introduction of rapid and unexpected changes in the health care system, including maternity care [2]. These changes included recommendations for providing perinatal care, wearing personal protective equipment, cancellation of in-person scheduled appointments, telemedicine, rules of conduct in the case of women infected with COVID-19, as well as guidelines for methods of delivery, breastfeeding, and hospital visits. The aim of these numerous recommendations in the field of care for women in

the perinatal period has been to limit the possibility of SARS-CoV-2 infection both for the patients and the healthcare providers [3-7].

Due to their work setting, healthcare professionals are more at risk of contracting SARS-CoV-2 [8-11]. In a study conducted by González-Timoneda *et al.* (2021), midwives in Spain shared their experiences of providing childbirth care to women infected with COVID-19. The study was based on an analysis of 3 areas: "challenges and differences when working in a pandemic", "emotional and mental health and well-being", and "women's emotional impact perceived by midwives". They showed that organizational issues, the initial phase of working in chaos, the experience of fear, anxiety, and discomfort, as well as a lack of

systematic knowledge about the virus were just some of the concerns raised by Spanish midwives [12]. Research carried out by, among others, Pappa *et al.* (2020), Luo *et al.* (2020), Al Maqbali *et al.* (2020), and da Silva and Neto (2021) on the wellbeing of healthcare providers demonstrated increasing levels of psychological stress, depression, and fear [8-11]. Furthermore, the fear of transmission of the virus to one's family members, social discrimination of healthcare workers as a potential source of infection, being overworked, staff shortages, and limited access to protective equipment constituted additional stressors and prevented the optimal organisation of work during the pandemic [1, 8, 12].

Moreover, changes in perinatal care were inevitable because the help brought by midwives to women in pregnancy, delivery, or recovery cannot be simply discontinued or postponed even during the pandemic [2, 7, 12]. Baumann *et al.* (2021) carried out an interesting study on the adaptation of independent midwives to the SARS-CoV-2 pandemic at the beginning of its duration in France. The authors demonstrated that, prior to the implementation of guidelines, almost all midwives had made changes to their professional practice, resulting in cancelling or postponing non-urgent counselling appointments, especially those regarding preparation for childbirth and rehabilitation of the pelvic floor after childbirth. At the same time, midwives expressed concern that the reduction of in-person contact might affect the safety and continuity of the provided care [13]. It should be stressed at this point that perinatal care provided by midwives to women and their families is based on a unique relationship built on trust. Eye contact, touch, or tone of voice are very important elements of this care, and during the SARS-CoV-2 pandemic they have been greatly hampered, as highlighted by Horsch *et al.* (2020), D'Angelo *et al.* (2021), and Renfrew *et al.* (2020) [2, 14, 15]. Moreover, in their paper on the provision of maternal health services in the pandemic, but also regardless of it, Renfrew *et al.* highlight that in order to develop high-quality solutions for COVID-19, one needs an active strategy based on scientific evidence and collaboration with healthcare workers, pregnant women, and their families [2]. The outbreak of the SARS-CoV-2 pandemic, which forced changes in midwifery practice, maternity care, and women's expectations during the perinatal period, formed the basis for this study. The lack of scientific reports in this regard at the outbreak of the SARS-CoV-2 pandemic in Poland justified the need to explore this issue.

AIM OF THE STUDY

The aim of the study was to analyse changes of maternity care in Poland as perceived by midwives working in the SARS-CoV-2 pandemic.

MATERIAL AND METHODS

Design

To explore the perspectives and experiences of midwives in providing services during the pandemic, we conducted a preliminary, cross-sectional study [16]. Given the rapid changes in the maternity care services resulting from the SARS-CoV-2 pandemic, a cross sectional exploratory design was chosen.

Sample

This cross-sectional study involved 100 midwives. The inclusion criteria for the study were the profession of midwife and an active license to practice. On the other hand, the exclusion criteria were the lack of work in the profession during the pandemic and the lack of informed consent for the study. The study participants were informed in writing about the anonymity and voluntary nature of the study, and that completing and sending the questionnaire was tantamount to consent to participate in the study.

Data collection

It was a pilot study conducted in April 2020. The data were collected using an on-line survey questionnaire. The questionnaire link was distributed by the snowball sampling technique. The online questionnaire was shared on Internet forums for midwives, on the website of the Foundation for Midwifery Support, and on the Facebook profile of the Foundation for Childbirth with Dignity. The study was conducted using an original questionnaire designed for the purpose of the study: "Questionnaire for Perinatal Care Providers during the pandemic". A panel of experts consisting of 2 midwives, 2 psychologists, and 1 obstetrician developed the questionnaire using the Delphi method. The experts determined which questions corresponded to the research aims. The final version of the questionnaire included only those questions which, in the opinion of the experts, were those that "definitely answer" the research aims, while 3 questions that the experts described as those that "rather not and definitely do not answer" the research aims were excluded from the questionnaire. The perceived sense of threat was assessed with a 10-point visual analogue scale. A pilot survey was carried out on a group of 20 people. As a result of the pilot survey, the content of 2 questions was modified. Ultimately, the questionnaire comprised 21 questions, including 2 open-ended questions and 4 questions on demographics. The cross-sectional study was conducted in April 2020. The protocol of the study had not been reported in any database. Permission to conduct the study was issued by the Ethics Committee for Research Projects at the Institute of Psychology of the University of Gdańsk, No. 35/2020.

Data analysis

G*Power software version 3.1.9.7 was used to calculate the optimal sample size (University of Kiel, Germany). α level = 0.05 and statistical power β = 0.85, as well 1 covariate and 4 factor levels, were a priori assumed. The established sample size should be 100 with the assumed effect size of f = 0.45 (large effect).

RESULTS

The mean length of seniority in the group of midwives was 11.51 years (max. = 36, median = 7.5, SD = 10.37). The studied groups of midwives were employed in tertiary reference hospitals (n = 40), primary and secondary reference hospitals (n = 18), community care centres (n = 16), private practice (n = 10), and outpatient clinics (n = 7), respectively. The groups of study participants worked in cities with > 300,000 inhabitants (n = 64), towns with < 50,000 inhabitants (n = 15), towns with 50,000-150,000 inhabitants (n = 13), cities with 150,000-300,000 inhabitants (n = 9), and in villages (n = 2), respectively.

Quantitative analysis of the obtained results

The study collected data on the opinions of midwives regarding their concerns and the sense of threat due to the SARS-CoV-2 pandemic (Figs. 1 and 2). Risk assessment using a 10-point visual analogue scale demonstrated that the study participants had a moderately high overall level of perceived risk due to the

pandemic. The smallest concern, although still quite high, was related to the fear of contracting the virus or developing COVID-19 (mean = 5.62, SD = 2.14). An even higher level of concern was observed in the case of experiencing the effects of limitations resulting from the imposed rules of social distancing and the necessity to use personal protective equipment outside the workplace (mean = 6.53, SD = 1.97). The highest level of concern was recorded in connection with the perceived burden at work caused by the pandemic (mean = 7.42, SD = 1.99). These 3 statements had mean values above the neutral level of 5.00. The perceived impact of the pandemic on professional practice in the surveyed group of midwives is presented in Table 1.

Qualitative analysis of the results

The analysis of answers regarding the need for information showed that most midwives declared that they had received questions from women in the perinatal period (97%). Based on the midwives' answers, 3 main topics were identified (Table 2).

Half of the study participants declared that the information requests of women had not changed due to the pandemic. The midwives also declared: "I work in a hospital at the maternity ward, there is not much difference, except that [the patients] want (and must) go home sooner", "Pretty much the same as before".

A total of 95% of the study participants specified the requests made by women in the perinatal period.

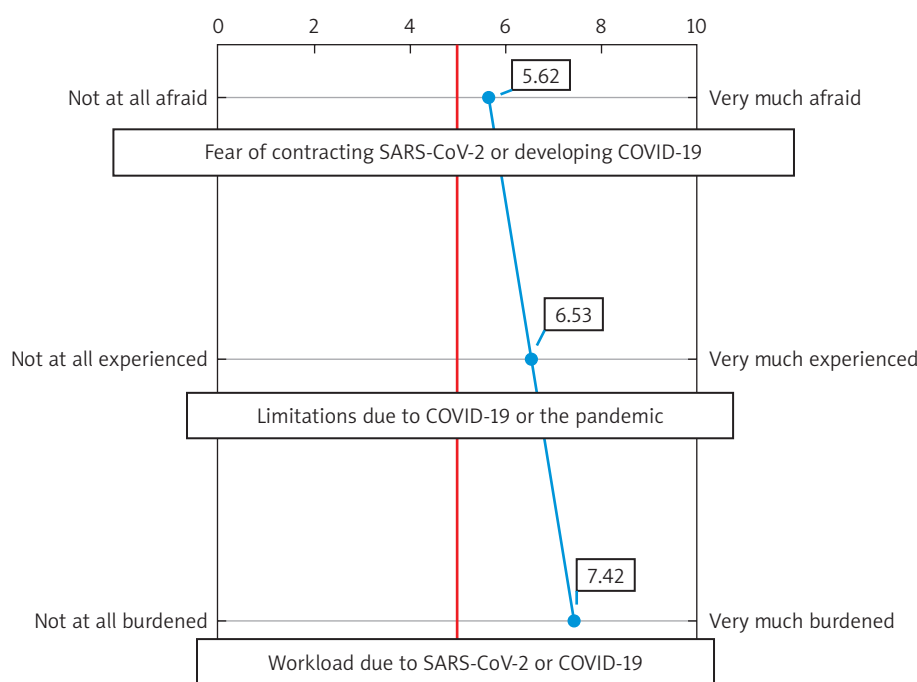


Figure 1. Sense of threat related to the pandemic (the mean score for each of the statements assessed on the visual visual-analogue scale)

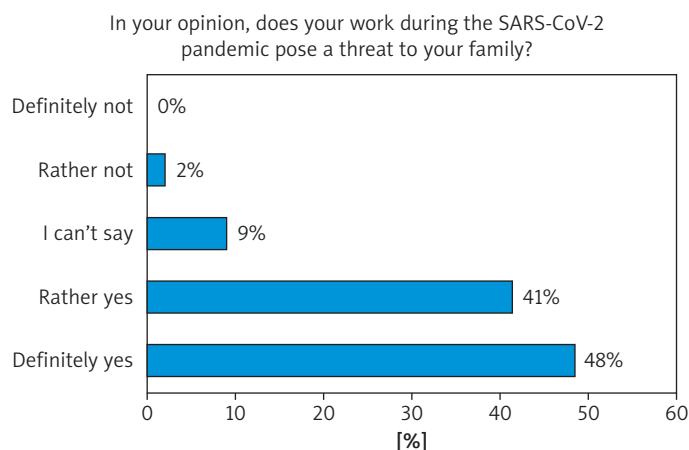


Figure 2. Sense of threat related to the pandemic

Table 1. Perceived impact of the pandemic on professional practice

| Question | Answer | Number (%) of midwives surveyed |
|---|---|---------------------------------|
| To what extent has the SARS-CoV-2 pandemic affected your cooperation in the interdisciplinary team? Entry 2 | Improved it | 18 (18) |
| | Not affected it | 56 (56) |
| | Made it worse | 26 (26) |
| Choose the term that most accurately describes how the SARS-Cov-2 pandemic affected your cooperation with pregnant women/women at childbirth? | Made it stronger | 32 (32) |
| | Made it more difficult | 32 (32) |
| | Made it impossible | 7 (7) |
| | Had no impact on it | 29 (29) |
| To what extent do you experience empathy regarding the SARS-CoV-2 pandemic on the part of patients and their families? | Definitely not | 10 (10) |
| | Rather not | 19 (19) |
| | I can't say | 23 (23) |
| | Rather yes | 36 (36) |
| | Definitely yes | 12 (12) |
| Has the number of women interested in your services increased since the SARS-CoV-2 pandemic? | Yes | 29 (29) |
| | No | 38 (38) |
| | I do not know | 33 (33) |
| By what percentage has the interest in midwifery services increased? | Average: 19.10 max. 500 min. 0 SD = 52.849 | |

Table 2. The range of midwives' answers to the questions asked

| Sample questions | |
|--|---|
| Information on in-hospital situation during the pandemic | "Are face masks obligatory?", "Safety of childbirth and breastfeeding in case of infection", "How are hospitals functioning?" |
| Information about the possibility of home birthing | "The interest in home birthing has rapidly increased", "Possibility of having a home birth" |
| Information about preparing for delivery | "What to pack in a hospital bag" |

The analysis of midwives' answers to the question: "What do women ask of you during the coronavirus pandemic?" allowed us to distinguish 3 main topics (Table 3).

Some midwives declared that women's needs did not differ significantly during the pandemic: "[Wom-

en] They don't ask for it, but I think they need more, not even medical, contact. Just to spend time with them, talk to them. They are also very focused on going home as soon as possible", "I have the impression that the problem [of the pandemic] does not exist for them".

Table 3. Frequencies of questions addressed to midwives during the pandemic

| Topics of women's requests to midwives | Number of statements | Examples of statements |
|--|----------------------|---|
| Medical care requests | | "Birthing classes at home, additional support in childbirth, cardiotocography, lactation counselling" |
| Requests for information | 13 | |
| Individual perinatal care | 12 | |
| Telehealth and on-line birthing school | 7 | |
| Lactation counselling | 8 | |
| Home birthing | 5 | |
| Performing CTG recordings, phlebotomy, removing stitches at home | 3 | |
| Overall | 48 | |
| Requests for technical support | | "Help transporting a parcel", "handing over a parcel" |
| Collection or handover of parcels | 11 | |
| Taking photos for the family | 8 | |
| Overall | 19 | |
| Requests for support | | "Presence, to be with them when their husbands are absent; a conversation", "Women need comfort and awareness that they will not be left alone" |
| Emotional support | 23 | |
| Presence and constant telephone contact | 16 | |
| Conversation | 8 | |
| Overall | 47 | |

DISCUSSION

The SARS-CoV-2 pandemic prompted many changes to the health care system both for midwives as well as other healthcare professionals, which affected both their work and their personal lives [8, 12]. The presented research was carried out in April 2020, so it should be clearly emphasized that this was at the beginning of the COVID-19 pandemic. These numbers could be quite different after a few months, and now after almost 2 years of the SARS-CoV-2 pandemic.

Our study demonstrated that midwives expressed only moderate concern about contracting the coronavirus, but at the same time the majority stated that their work posed a threat to their own families. González-Timoneda *et al.* (2021) obtained similar study results. Almost all the midwives in their study were not worried for themselves or about becoming infected, but for the health of their family members, colleagues, or patients for whom they provided care [12]. Shorey and Chan (2020) presented conclusions to be drawn from previous pandemics and epidemics in 4 areas, i.e. psychological response, challenges, coping strategies, and the need for support and its sources. The researchers showed that midwives and nurses experienced public stigmatising and distrust. The general population treated them as a possible source of infection. On the one hand, families were a source of support, and on the other hand, midwives feared infecting their relatives [17]. The question of the fear of the possibility of infection with SARS-CoV-2 by a given person or his/her relatives was emphasized in the literature on the subject by

Mizrak Sahin *et al.* (2021), who demonstrated that the SARS-CoV-2 pandemic greatly affected the lives of pregnant women in Turkey – they expressed concerns and anxiety about their own health as well as the health of their children and families [18]. Sögüt *et al.* (2020) investigated the relationship between the level of knowledge about COVID-19 and the level of anxiety among Turkish midwifery students. Their study demonstrated that the level of anxiety among female midwifery students was higher when they entered the hospital and when any of their family members had a chronic disease [19].

Changes in the scope of midwifery and perinatal care that the current pandemic has caused are a subject of interest for researchers around the world, and they were also analysed by the authors of this study. Changes in perinatal care are experienced by women themselves, as emphasized by Mizrak Sahin *et al.* (2021), who described the experiences of pregnant women from Turkey, or by Ceulemans *et al.* (2020), who discussed the influence of the pandemic on pregnant and breastfeeding women in Belgium [18, 20]. According to Ceulemans *et al.*, more than 50% of the study participants reported the impact of the pandemic on their pregnancy, and of these at least 60% reported that they had fewer follow-up appointments with midwives and obstetricians in comparison to the pre-pandemic period. Over 40% of women reported a negative impact of the pandemic on medical counselling provided by specialist doctors or general practitioners. On the other hand, over 40% of women reported the impact of the pandemic on lactation counselling and consultation. Of these,

more than half said they had received less advice from a healthcare professional than before in a comparable pre-pandemic period. An even more adverse influence of the pandemic on counselling could be observed for official perinatal organizations caring for the welfare of newborns and breastfed infants, with 84% of women reporting a reduction in the number of consultations [20]. In our own research, the need for lactation counselling appeared in the statements of the surveyed women. Additionally, the women asked the midwives for individual perinatal care (including CTG recordings made at home, removal of stitches, etc.). Observations concerning current perinatal care are also confirmed by studies showing changes in the field of maternity services carried out among healthcare workers. A study by Jardine *et al.* (2021) showed that health professionals providing maternity services made modifications to the services provided. The number of antenatal and postnatal appointments was reduced by 70% and 56% of units, respectively. On the other hand, 89% of units reported using telehealth services. There has also been a change in gestational diabetes screening in 70% of units. Moreover, 59% of these units temporarily withdrew their home birth offer or the possibility of giving birth in midwife-led units [21]. Similar results were presented by Rimmer *et al.* (2020) in a study on changes to obstetrics services in the opinion of junior doctors in the UK National Health Service [22]. At the same time, in our study, women asked midwives about the possibility of having a home birth. Considering that out-of-hospital births account for less than 1% of births in Poland, the interest in this type of service in a limited number of respondents deserves attention. These results are consistent with the analysis of changes in perinatal care described in previous studies [7]. Requests for homebirths may have resulted from fear of infection in the hospital or fear of separation from the partner and the baby. Similar conclusions were drawn by Nosratabadi *et al.* (2020) in a case study of a home birth due to the fear of being infected with the virus in a hospital setting [23]. Homer *et al.* (2021), reported that during the current pandemic, 93% of surveyed private midwives in Australia reported an increasing interest in home birth options. Most midwives participating in the study were very well or well informed, and nearly half appreciated relevant information, especially guidelines developed by professional organizations. One-third of the surveyed midwives felt prepared to use personal protective equipment (PPE), but many of them lacked PPE or disinfectants. A total of 64% of respondents purchased PPE online, in hardware stores, or made masks themselves. On the other hand, over two-thirds of private practicing midwives cooperating with local hospitals complained of a lack of support and having no possibility to help women who needed to be transferred to hospital [24].

The midwives' experiences are also important in this regard, which was raised in our study. Baumann *et al.* (2021) reported that almost all midwives made changes to their professional practice prior to the publication of recommendations. The modification of maternity care consisted of cancelling or postponing appointments, especially in the field of preparation for childbirth, rehabilitation of the pelvic floor after delivery, or postpartum appointments. At the same time, the vast majority of midwives modified their professional practice regardless of the local pandemic situation. Midwives also expressed concern that the reduction of in-person appointments might affect the safety and continuity of provided care [13]. In our study, 7% of midwives indicated that the situation related to the pandemic prevented them from cooperating with women, and one-third of respondents stated that cooperation with women had become difficult. As regards changes in maternity services, González-Timoneda *et al.* (2021) revealed that the midwives participating in the study stated that at the beginning of the pandemic work was chaotic and that it improved within the following weeks and months. Moreover, they concluded that not only were PPE shortages a problem, but for many the pandemic's bigger problem was disinformation, lack of coordination, and lack of management. At the same time, all midwives agreed that the pandemic contributed to an increased workload [12]. Similar results were obtained in our study, where midwives rated as high the burden associated with the pandemic and related occupational consequences. Another important aspect highlighted by midwives in the study by González-Timoneda *et al.* (2021), was the discomfort at work resulting from the necessity to wear individual protective clothing, which contributed to exhaustion and even dizziness or weakness in some midwives. The midwives stated that due to their lack of knowledge, it was difficult for them to provide high-quality care in difficult and rapidly changing circumstances. They reported feeling lonely, expressed the need for the support from other members of the healthcare team in order to provide best possible care and highlighted lack of such support [12]. In our study, the majority of midwives stated that the pandemic did not affect their cooperation in the interdisciplinary team, and 26% of the study participants claimed that the pandemic had made it worse.

However, despite the difficulties and problems arising from the pandemic, women in the perinatal period valued the midwives from whom they received care. In our study, only 10% of the surveyed midwives did not experience empathy on the part of women and their families. Fumagalli *et al.* (2021) reported women in northern Italy who had tested positive for COVID-19 and gave birth during the current pandemic. The surveyed women considered professional support from healthcare professionals as a significant calming fac-

tor, especially support from midwives, who were also seen as providing key support for their physical and psychosocial well-being. The women emphasized the importance of an interdisciplinary team in providing them with excellent care, especially that of a compassionate and supportive approach offered by midwives. Despite the pandemic circumstances, women who were professionally cared for demonstrated greater self-confidence in taking care of the baby or becoming a breastfeeding mother [25]. Our study demonstrated that the request for support, conversation, and presence was the most frequent topic in requests made to midwives. This was exacerbated by not being able to give birth in the presence of a partner. González-Timoneda *et al.* (2021) also drew attention to an undoubtedly important problem for pregnant/childbearing women, i.e. the limitation of hospital visits aimed at reducing the spread of the virus. Women felt lonely even though the midwives emphasized that they did not intend to leave their patients on their own [12].

LIMITATIONS OF STUDY

Our study has some limitations, i.e. a small number of study participants and the fact that the sampling technique did not ensure a random selection of participants. It should be noted that due to the small number of study participants and the preliminary nature of the study, it is essential to conduct further research on this subject.

CONCLUSIONS

The outbreak of the pandemic did not unequivocally affect interdisciplinary cooperation, cooperation with women, and the interest in maternity services provided outside the hospital.

Because study participants showed a high level of concern in connection with the perceived workload caused by the SARS-CoV-2 pandemic, it is essential to implement a psychological support system for midwives.

The research should be continued to obtain a larger sample size and analyse the trends developing in maternity services during the SARS-CoV-2 pandemic.

The study was conducted according to the guidelines of the Declaration of Helsinki and was approved by the Institutional Review Board (or Ethics Committee) of the University of Gdansk (No. 35/2020).

Disclosure

The authors declare no conflict of interest.

References

1. Digby R, Winton-Brown T, Finlayson F, et al. Hospital staff well-being during the first wave of COVID-19: Staff perspectives. *Int J Ment Health Nurs* 2021; 30: 440-450.
2. Renfrew MJ, Cheyne H, Craig J, et al. Sustaining quality midwifery care in a pandemic and beyond. *Midwifery* 2020; 88: 1-7.
3. Ashokka B, Loh MH, Tan CH, et al. Care of the pregnant woman with coronavirus disease 2019 in labor and delivery: anesthesia, emergency cesarean delivery, differential diagnosis in the acutely ill parturient, care of the newborn, and protection of the healthcare personnel. *Am J Obstet Gynecol* 2020; 223: 66-74.
4. Pavlidis P, Eddy K, Phung L, et al. Clinical guidelines for caring for women with COVID-19 during pregnancy, childbirth and the immediate postpartum period. *Women Birth* 2021; 34: 455-464.
5. London V, McLaren R. Jr, Stein J, et al. Caring for pregnant patients with COVID-19: practical tips getting from policy to practice. *Am J Perinatol* 2020; 37: 850-853.
6. Surita FGC, Luz AG, Hsu LPR, et al. Outpatient care for pregnant and puerperal women during the COVID-19 pandemic. *Rev Bras Ginecol Obstet* 2020; 42: 588-592.
7. Węgrzynowska M, Doroszewska A, Witkiewicz M, et al. Polish maternity services in times of crisis: in search of quality care for pregnant women and their babies. *Health Care Women Int* 2020; 41: 1335-1348.
8. Pappa S, Ntella V, Giannakas T, et al. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: a systematic review and meta-analysis. *Brain Behav Immun* 2020; 88: 901-907.
9. Luo M, Guo L, Yu M, et al. The psychological and mental impact of coronavirus disease 2019 (COVID-19) on medical staff and general public – a systematic review and meta-analysis. *Psychiatry Res* 2020; 291: 113190.
10. Al Maqbali M, Al Sinani M, Al-Lenjawi B. Prevalence of stress, depression, anxiety and sleep disturbance among nurses during the COVID-19 pandemic: A systematic review and meta-analysis. *J Psychosom Res* 2021; 141: 110343.
11. da Silva FCT, Neto MLR. Psychological effects caused by the COVID-19 pandemic in health professionals: A systematic review with meta-analysis. *Prog Neuropsychopharmacol Biol Psychiatry* 2021; 104: 110062.
12. González-Timoneda A, Hernández Hernández V, Pardo Moya S, et al. Experiences and attitudes of midwives during the birth of a pregnant woman with COVID-19 infection: A qualitative study. *Women Birth* 2021; 34: 465-472.
13. Baumann S, Gaucher L, Bourgueil Y, et al. Adaptation of independent midwives to the COVID-19 pandemic: A national descriptive survey. *Midwifery* 2021; 94: 102918.
14. Horsch A, Lalor J, Downe S. Moral and mental health challenges faced by maternity staff during the COVID-19 pandemic. *Psychol Trauma* 2020; 12: S141-S142.
15. D'Angelo A, Ferraguti G, Petrella C, et al. Challenges for midwives' healthcare practice in the next decade: COVID-19 – global climate changes – aging and pregnancy – gestational alcohol abuse. *Clin Ter* 2021; 171: e30-e36.
16. Shields L, Smyth W. Common quantitative methods. In: Schneider Z, Whitehead D, LoBiondo-Wood G, Haber J. *Nursing and midwifery research*. 5th ed. Elsevier, Chatswood – New South Wales 2016; 94-108.
17. Shorey S, Chan V. Lessons from past epidemics and pandemics and a way forward for pregnant women, midwives and nurses during COVID-19 and beyond: A meta-synthesis. *Midwifery* 2020; 90: 102821.
18. Mizrak Sahin B, Kabakci EN. The experiences of pregnant women during the COVID-19 pandemic in Turkey: A qualitative study. *Women Birth* 2021; 34: 162-169.

19. Sögüt S, Dolu İ, Cangöl E. The relationship between COVID-19 knowledge levels and anxiety states of midwifery students during the outbreak: A cross-sectional web-based survey. *Perspect Psychiatr Care* 2021; 57: 246-252.
20. Ceulemans M, Verbakel JY, Van Calsteren K, et al. SARS-CoV-2 infections and impact of the COVID-19 pandemic in pregnancy and breastfeeding: results from an observational study in primary care in Belgium. *Int J Environ Res Public Health* 2020; 17: 6766.
21. Jardine J, Relph S, Magee LA, et al. Maternity services in the UK during the coronavirus disease 2019 pandemic: a national survey of modifications to standard care. *BJOG* 2021; 128: 880-889.
22. Rimmer MP, Al Wattar BH, UKARCOG Members. Provision of obstetrics and gynaecology services during the COVID-19 pandemic: a survey of junior doctors in the UK National Health Service. *BJOG* 2020; 127: 1123-1128.
23. Nosratabadi M, Sarabi N, Masoudiyekta LA. Case report of vaginal delivery at home due to fear of Covid-19. *Iran J Psychiatry* 2020; 15: 366-369.
24. Homer CSE, Davies-Tuck M, Dahlen HG, et al. The impact of planning for COVID-19 on private practising midwives in Australia. *Women Birth* 2021; 34: e32-e37.
25. Fumagalli S, Ornaghi S, Borrelli S, et al. The experiences of childbearing women who tested positive to COVID-19 during the pandemic in northern Italy. *Women Birth* 2021; <https://doi.org/10.1016/j.wombi.2021.01.001>