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SYSTEMATIC REVIEW

Changing birthplaces to care for healthcare workers, lessons from the pandemic: A scoping review

[version 1; peer review: 1 approved, 1 not approved]

Alessia Melacca[1], Claudia Urso[2], Jean Calleja-Agius[3], Olga Gouni[4], Rosita Gabbianelli[5], Joan Lalor[6], Sandra Morano[7]

[1]Department of Biomedical Science, University of Florence, Florence, Italy
[2]Academic Unit of Obstetrics and Gynaecology, IRCCS Ospedale Policlinico San Martino, Genoa, Italy
[3]Department of Anatomy, Faculty of Medicine and Surgery, University of Malta, Msida, Malta
[4]Cosmoanelixis, Athens, Greece
[5]Unit of Molecular Biology and Nutrigenomics, University of Camerino, Camerino, Italy
[6]Faculty of Health Sciences, School of Nursing and Midwifery, Trinity College Dublin, Dublin, Ireland
[7]Medical School and Midwifery School, University of Genoa, Genoa, Italy

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Abstract

Background: Together with women giving birth, healthcare professionals involved in perinatal care faced significant challenges due to Covid-19 restrictions. The birth environment has been affected, influencing the quality and nature of interactions between care providers, women, and their families as well as the quality of care provided to women.
Aim: To identify, categorize and reflect on the most relevant aspects of the experience of healthcare workers, especially obstetricians and gynecologists, involved in the peripartum period, after the first wave of the Covid-19 pandemic up till now.
Methods: A scoping review was conducted. After conducting a literature search using a variety of online data- bases, 22 articles were included, and the main/recurrent themes were identified.
Results: The following main themes were described: fear of the virus, changes in the way care is provided, increase in the workload, mental health, psychological distress, support strategies, university education, and perspectives of health managers.
Discussion: Standard maternity departments appeared not appropriate to face the pandemic. Psychological distress on perinatal healthcare workers', the majority of whom were women, led to the impairment of their mental health, affecting the quality of care provided to women. A key role was played by healthcare managers support in shaping how doctors can cope and recover, and in reducing the mental health impact.
Conclusion: It is very important to address some of the most relevant issues to acknowledge the role of healthcare workers and improve the health systems organization to face future pandemics.

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1. **Elena Spina**, Università Politecnica delle Marche, Ancona, Italy

2. **Christina Derksen**, Queen Mary University of London, London, UK

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Keywords
Childbirth, Workforce, Health care Organization, Pandemic, Covid-19, Birthplaces, Perinatal health, Birth trauma, Birth experience

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Corresponding author: Alessia Melacca (alessia.melacca@unifi.it)

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Background

Since the beginning of the COVID-19 pandemic, a lot of emphasis has been placed on the suffering of women giving birth (Aydin & Aktaş, 2021).

Pregnant and breastfeeding women have been negatively affected during this period regarding both the physical and mental health (Mayopoulos *et al.*, 2021; WHO, 2020).

A key cause of poor maternal health relates to a traumatic birth experience as documented in previous research (Ayers *et al.*, 2016; Greenfield *et al.*, 2016; WHO, 2018). Women recognized their own potential vulnerability as well as that of their babies in the process. Uncertainty about what would happen was combined with a strong desire for safe, supportive, kind, respectful, and empathetic care during labor. These apply to professionals and birth partners, and everyone involved in the care process and environment (Downe *et al.*, 2018).

Healthcare professionals involved in perinatal care faced a significant impairment in carrying out their work impairment, due to general Covid restrictions. Given the pandemic scenario, a rapid change in protocols and practices suddenly occurred within the hospitals.

The birth environment has been affected, influencing the quality and nature of interactions between care providers, women, and their families. Perinatal health care workers did not have much time to reflect or gather evidence and had to adjust their practices (Horsch *et al.*, 2020). The impact of the pandemic on the maternity wards and the traumatic stress on perinatal workers has been shown to affect directly and indirectly the quality of care provided to women (Stuijfzand *et al.*, 2020).

Aim

The aim of this review is to identify, categorize and reflect on the most relevant aspects of perinatal workers' experience, especially obstetricians, after the first wave of Covid-19 up till now. Our focus on the experience of healthcare workers aims to address some of the most relevant issues to acknowledge their role and improve the organization of health systems in order to face future pandemics.

Methods

Design

We conducted a scoping review, in order to identify knowledge gaps and clarify concepts (Munn *et al.*, 2018). We have followed the five stage-process based on Arksey and O'Malley (2005) to: (1) identify the research question; (2) identify relevant studies; (3) study selection; and (4) collate, summarize, and report the results.

Sample

Articles containing information about aspects of the experiences of obstetricians related to the Covid-19 pandemic.

Exclusion criteria

We excluded studies which were: not specific for perinatal workers, conducted in a low-income country, not in the English language or not specific to the aim of the study.

Data collection

The literature search was conducted from September to December 2021 by the first author, using the following databases: Cochrane, Embase and PubMed.

The following search terms and Boolean operators were used to identify the main body of the literature and further citations have been retrieved looking at "similar articles/cited by/references" of the relevant studies:

> *covid AND ("midwifery" OR "midwifery" OR "midwives" OR "midwife" OR "obstetric" OR "obstetrically" OR "obstetrics OR "obstetrics" OR "obstetrical") AND (attitude OR belief OR experience OR mentality OR psychology) ("Hospitals, Maternity" OR "Obstetrics and Gynecology Department, Hospital") AND "COVID-19"*

In total 1290 studies have been identified. After removing duplicates, unique citations were screened by title and abstract to determine if the articles met the inclusion criteria, and 1180 of these were excluded. The remaining 110 full text articles were screened for relevance and 66 full texts carefully read by two authors. After full text reading 22 studies were selected (Figure 1).

Data analysis

The 22 articles have been classified according to the following variables: first author and year of publication; study design; country in which the study was conducted; number of participants (and their characteristics); and main contributions. Two authors extracted data from each selected article.

Findings

A summary of variables extracted from each article is detailed in Table 1. These included demographic variables (e.g., country where the study was done, year of publication); study methods (e.g., design, sample size); type of sample (when present); and the outcome variables of interest for this review that are discussed below. We categorized results for main themes as follows (Table 2).

Fear of the virus

Fear of the virus was widespread among healthcare workers (Bradfield *et al.*, 2021; Costa *et al.*, 2021; Hantoushzadeh *et al.*, 2021; Iorga *et al.*, 2021). Personal protective equipment (PPE) shortage has been shown to be a strong source of stress, especially in the beginning of the pandemic period (Costa *et al.*, 2021; Iorga *et al.*, 2021).

Fear to infect family members was perceived as one of the major sources of stress beyond the fear of getting infected

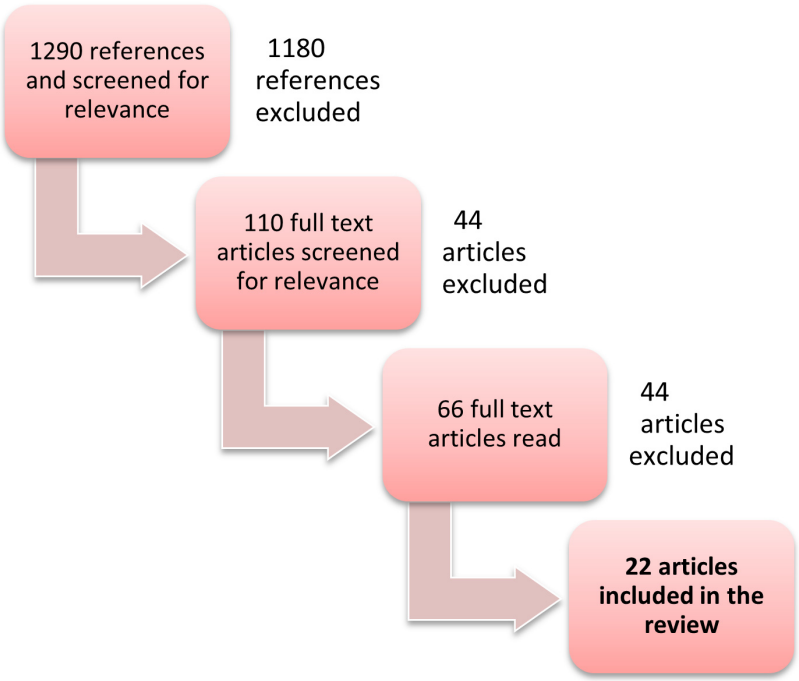


Figure 1. A Studies selection.

during the provision of care (Bradfield *et al.*, 2021; Del Piccolo *et al.*, 2021; Yalçın Bahat *et al.*, 2020). The concern of exposing relatives brought a lot of healthcare workers to spend time (days, nights) without going home or not meeting their families as well as maintaining protective measures when getting home (Hantoushzadeh *et al.*, 2021; Iorga *et al.*, 2021; Yalçın Bahat *et al.*, 2020).

Due to health-related fear, which was eased having access to PPE (Yalçın Bahat *et al.*, 2020), some doctors asked not to treat COVID-19 patients (Costa *et al.*, 2021). Others increased the rate of cesarean sections to avoid intrapartum care (Iorga *et al.*, 2021) or, started wearing excessive PPE while attending the birth of women who had no symptoms of COVID-19 (Umazume *et al.*, 2021).

Research revealed doctors' concern about getting covid infection related to the different ways in which they provided care. Particularly doctors who were working with infected pregnant women preferred to perform caesarean section (Iorga *et al.*, 2021), in particular the older the doctor, the more the likelihood to perform a caesarean section (Iorga *et al.*, 2021). As Costa *et al.* (2021) reported, in more than one occasion, the fear and its consequences have led to heated debates among experts with different perspectives.

Changes in the way care was provided

Changes in healthcare provision around the peripartum period were implemented. These included the introduction of technology for communication; the use of protective measures in the birth setting; and revised inpatient and outpatient management.

Introduction of technology for communication

Telehealth represents the most common solution for follow-up of women with suspected or confirmed Covid-19 or for taking care of women during standard antenatal or postnatal care (Costa *et al.*, 2021; Khot & Kumar, 2020; Szabo *et al.*, 2021; Van Manen *et al.*, 2021).

Different studies highlighted new ways of communicating with staff using technology such as video conferencing (Khot & Kumar, 2020); managing very quickly a multitude of recommendations from health services and government (where the need of scientific knowledge overlaps the need of communication) as well as coping with new ways of communicating with women, partners and other clinicians (when wearing PPE but not only) (Szabo *et al.*, 2021). Some maternal departments were provided with tablets to allow women to speak with their partners and families as visits were not allowed.

Most common protection measures in the birth setting

Due to the incipient danger of contracting Covid-19 infection, protection measures are executed to prevent transmission of SARS-CoV-2, as summarized in Table 3.

Outpatient and inpatient management

New protocols were implemented in all Obstetric Units to improve the quality of work despite the hard work conditions,

Table 1. Results.

	First author	Country	Method	Sample	Main findings
1	Costa *et al.* (2021)	Brazil	Mixed-methods	12 health managers 50% female managers	Main challenges: virus fears', doubts related to reliability of evidence, limited resources, need for mental health support.
2	Van Manen *et al.* (2021)	Netherlands	Survey	495 respondents Obstetrician 34 (6.9%) Resident obstetrics 22 (4.4%) Female 481 (97.6%)	Advantages: decrease in the number of appointments during prenatal and postnatal care (50.1%); more women choosing home birth (57.5%); increase of telehealth services. Disadvantages: limited partners access to antenatal care, (71.1%); limited community midwife access to labour care (56.8%). More tranquility due to the restricted number of family and friends' visits (59.8%); doubts on safety maternity care due to policy changes (48.0%).
3	Iorga *et al.* (2021)	Romania	Survey	94 obstetrics and gynecology Female 65 (69.15%)	High infection level of SARS-Cov-2 in doctors /reported 6 months without days off/ emerging of health issues / use of pharmaceutical products to treat work related stress (10%), experience of sleep disorders (25%) and appetite loss. Negative effects of wearing PPE and strict protection protocols.
4	Del Piccolo *et al.* (2021)	Ita	Cross-sectional survey	481 responders-Female 421 (83.7%)	Psychological distress (GHQ-12 ≥3) was reported in 51.1% of respondents and was associated with personal, interpersonal, and organizational factors.
5	Bradfield *et al.* (2021)	Australia	Cross-sectional survey	78 medical practitioner -female 66 (84.6%)	Perinatal workers were concerned of exposure to COVID-19 /midwifery students felt isolated/ greater stressors reported were health and family-related concerns.
6	Szabo *et al.* (2021)	Australia	Mixed methods	86 doctors - female (86%)	Major changes in guidelines and in health service delivery/ Information derived from colleagues / obstetricians reported being adequately informed to care for Covid positive women. Also described workforce disruptions with consequences on a personal and professional level.
7	Kiefer *et al.* (2021)	US	Survey	558 respondents - female 463	Report of high post-traumatic stress (PTS) symptoms were (37.8%), diagnosis of COVID-19 (9.5%), infected friends or family members (64.5%). Strong association between PTS symptoms and female sex or prior traumatic experience.
8	Shah *et al.* (2020)	UK	cross-section survey-based	207 respondents - female 167 (81.1 %)	Greater prevalence of major depressive disorder and generalized anxiety disorder as compared to the UK general population (more common amongst female doctors). Continuously updating guidelines as the most significant element for work-related changes to mental health. Respondents reported difficulties in sharing with colleagues their mental health matters.
9	Khot & Kumar (2020)	Australia	Semi-structured interviews	12 practitioners	Bringing value to connection regardless the imposed distance Roles and corresponding responsibilities brought anxieties to clinicians/ Adapt to practices variations/ Workflow adaptations/Implications for future practice.
10	Yalçin Bahat *et al.* (2020)	Turkey	Survey	253 respondents - female 135 (54.4%)	Respondents reported: fear of getting infected due to contact with Covid positive pregnant women (76.4%); fear of getting sick (74.4%); desperation due to the pandemic (64.8%); impact on their family lives (66.5%); moving away from their families due to the pandemic (72.4%).
11	Takeshi Umazume *et al.* (2021)	Japan	Survey	503 respondents - female 421 (83.7)	Respondents referred to experiencing a physical and mental stress equal to or greater than the worst catastrophe they had ever experienced (76%). A greater number of infected patients correlated to high mental and physical stress in clinicians. Greater stress was reported when wearing complete PPE during labour care of non-infected women.

	First author	Country	Method	Sample	Main findings
12	Hantoushzadeh *et al.* (2021)	Iran	Descriptive phenomenological	4 gynecologists	"Fear of Disease": Reducing maternal referrals for prenatal and postnatal care", "The preference of mothers to give birth in safe centers ", "concerns on maternity complications ", and " Workplace insecurity ". "Burnout", "Increased workload ", "Reduced family relationships "and "lack of motivational factors" and "Lessons Learned from the COVID-19 Pandemic": adaptation to new conditions" and "The need to strengthen and support maternity health services ".
13	Gutschow & Davis-Floyd (2021)	USA	Follow up study	28 respondents: 1/3 obstetricians, 2/3 midwives	Key lessons learned were to improve testing and accessing PPE for providers and customers, the necessity to integrate hospital and community providers; modifications of restrictive protocols related to birth companions, rooming-in, skin-to-skin and breastfeeding. Pandemic offered an opportunity to transform maternity care in the United States toward a more integrated and sustainable model.
14	Gonzalez *et al.* (2020)	USA	Commentary		A report of mental health initiatives and outcomes undertaken by academic medical centers to support healthcare workers during the pandemic.
15	Alfieri *et al.* (2020)	Italy	Report		Changes in antepartum, intrapartum, and postpartum care
16	Wilson *et al.* (2021)	Australia	Report		Collaboration, forward planning, and having access to PPE are key. To avoid stress and burnout, it's important to think about clinicians' needs. Availability to emotional and psychological support throughout the pandemic.
17	Madkhali *et al.* (2021)	Saudi Arabia	Descriptive		Changes in antepartum, intrapartum, and postpartum care
18	Relph *et al.* (2021)	UK	National survey.	101: 69,1% obstetricians, 18,2% residents, 11,1 midwives	Reduction in antenatal appointments (70%) and in postnatal appointments (56%); incrementation of remote consultation (89%). Different protocols for gestational diabetes screening (70%), disruption of service like home births and midwife-led units (59%). A great reduction in emergency antenatal presentations was reported (86%).
19	Harkness *et al.* (2021)	UK	Survey	92 respondents	Changings practices related to induction of labour were reported together with lack of evidence about around outpatient cervical ripening: the basis on which implementations of protocol were made remain unclear.
20	Campbell *et al.* (2020)	USA	Descriptive		Lessons learned from the pandemic included the importance of developing teamwork and workflows to ensure safety to patient and healthcare worker.
21	Ross-Davie *et al.* (2021)	USA	Descriptive		Intrapartum care: testing of pregnant at admission for labour and birth; approaches to labour care for asymptomatic women; timing, place, and overall labour care; PPE during labour care –clinicians, women, and birth partners; protocols for using birthing pools and waterbirth; foetal monitoring, newborn care.
22	Montagnoli *et al.* (2021)	ITA	Scoping review		Decreased number of contacts, guaranteeing appropriate care integrating care with remote consultations. Referral to epidemic-free community centres with interdisciplinary teams including IT experts. Delayed access for symptomatic pregnant women is controversial as it increases the risk of delayed detection of pregnancy complications.

Table 2. Main themes.

Theme	Subthemes	Reference
Fear of the virus	Access to protecting equipment	Costa *et al.*, 2021; Iorga *et al.*, 2021
	Fear to infected family	Bradfield *et al.*, 2021; Del Piccolo *et al.*, 2021; Hantoushzadeh *et al.*, 2021; Iorga *et al.*, 2021; Yalçin Bahat *et al.*, 2020
	Health-related fear	Costa *et al.*, 2021; Iorga *et al.*, 2021; Umazume *et al.*, 2021; Yalçin Bahat *et al.*, 2020
	Changing practice due to fear	Costa *et al.* (2021); Iorga *et al.*, 2021
Changes in the way we provide care	Technology for communication	Costa *et al.*, 2021; Khot & Kumar, 2020; Szabo *et al.*, 2021; Szabo *et al.*, 2021; Van Manen *et al.*, 2021
	Protection measure in the birth setting	Campbell *et al.*, 2020; Madkhali *et al.*, 2021; Ross-Davie *et al.*, 2021
	Inpatient management	Alfieri *et al.*, 2020; Gutschow & Davis-Floyd, 2021; Harkness *et al.*, 2021
	Outpatient management	Alfieri *et al.*, 2020; Montagnoli *et al.*, 2021; Relph *et al.*, 2021; Van Manen *et al.*, 2021
Increase of the workload	Disruption in the workforce	Costa *et al.*, 2021; Szabo *et al.*, 2021
	Continuous updating protocols	Del Piccolo *et al.*, 2021; Khot & Kumar, 2020
	Full-body protective equipment	As Iorga *et al.* (2021); Umazume *et al.* (2021)
	Increased work hours	Costa *et al.*, 2021; Iorga *et al.*, 2021; Szabo *et al.*, 2021
Mental health	Psychological distress	(Hantoushzadeh *et al.*, 2021; Iorga *et al.*, 2021; Szabo *et al.*, 2021);
	Dysfunctional coping strategies	Del Piccolo *et al.*, 2021
	Being female	Del Piccolo *et al.*, 2021; Iorga *et al.*, 2021; Shah *et al.*, 2020
Support strategies	Psychological screening	Costa *et al.*, 2021; Del Piccolo *et al.*, 2021; Shah *et al.*, 2020
	Mental health support	Costa *et al.*, 2021; Del Piccolo *et al.*, 2021; Gonzalez *et al.*, 2020; Khot & Kumar, 2020; Shah *et al.*, 2020; .Wilson *et al.*, 2021
	Maintaining basic needs	Gonzalez *et al.*, 2020; Wilson *et al.*, 2021; Yalçın Bahat *et al.*, 2020
University education		Alfieri *et al.*, 2020; Madkhali *et al.*, 2021
Perspectives of health managers		Costa *et al.*, 2021; Shah *et al.*, 2020

as reported in Table 4, regarding outpatients, and Table 5, about inpatients.

Increase of the workload

The main cause for the increased workload was the disruption in the workforce, mainly due to temporary leave for suspected or confirmed COVID-19, or due to mental health disorders and deployment. (Costa *et al.*, 2021; Szabo *et al.*, 2021). More than one-third of the respondents (34%) in the research of Szabo *et al.* (2021) had been asked to work outside of maternity care, while Costa *et al.* (2021), highlighted the redeployment to different roles of those comprising the high-risk group for severe illness.

The need of adaptation to continuous updating of recommendations and measures was found to be the second source of stress. (Del Piccolo *et al.*, 2021; Khot & Kumar, 2020). Different screening methods and different guidelines for PPE were one of the most important results (Khot & Kumar, 2020). Iorga *et al.* (2021) and Umazume *et al.* (2021) showed that medical staff should wear full-body PPE and avoid contamination when removing the PPE; which meant that clinicians were not able to eat, drink or use the toilet for several hours.

Research showed that healthcare workers had no vacation leave for up to six months (Iorga *et al.*, 2021), worked for longer shifts (Szabo *et al.*, 2021), had to be available 24/7 (Costa *et al.*, 2021). This led to sleep deprivation (Iorga *et al.*, 2021).

Mental health

There was a significantly higher prevalence of symptoms of psychological distress amongst obstetricians during the

Table 3. Protection measures in the birth setting.

Training	Compulsory infection prevention training and N95 mask fit testing (Madkhali *et al.*, 2021).
Hand sanification	Availability of alcohol-based hand sanitizers were in all clinical settings (Madkhali *et al.*, 2021).
Screening tool for patients	Checklist for acute respiratory infections (temperature check and symptoms assessment) (Madkhali *et al.*, 2021).
Protection measures for positive women or with symptoms.	Full personal protective equipment for staff (PPE) and particulate air (HEPA) filters) (Madkhali *et al.*, 2021).
Inpatient admission	Use of flow chart for admitted women with suspected or confirmed COVID-19; swab test for COVID-19 to all women. (Campbell *et al.*, 2020; Madkhali *et al.*, 2021)
Early labor	Clinicians wore fluid resistant surgical mask and apron, gloves, and eye protection (Ross-Davie *et al.*, 2021).
Active labour	Clinicians wore 'droplet' PPE: a fluid resistant surgical mask and apron, gloves, eye protection (Ross-Davie *et al.*, 2021).
Theatre	In addition to the above PPE clinicians wore 'aerosol PPE', respirator (FFP3) mask (Ross-Davie *et al.*, 2021).

Table 4. Outpatient management.

Antenatal appointments	A reduction in antenatal contacts (Relph *et al.*, 2021). The proposal to convert some of the antenatal appointments to remote sessions, especially those of the first and second trimesters (Van Manen *et al.*, 2021); an increment of self-measurement of blood pressure; some changes in the screening program of GDM; a cut in the ultrasound made for fetal growth surveillance and less options to choose the place of birth (Alfieri *et al.*, 2020)
Visits by drive-through	The woman's temperature, blood pressure and fetal heart rate are checked while she is in the car. To examine fetal presentation and amniotic fluid, a portable ultrasound can be used. Clinic or obstetric triage centres will be able to perform additional exams in case of anomalies. (Montagnoli *et al.*, 2021).

COVID-19 pandemic, especially in the case of female doctors (Del Piccolo *et al.*, 2021). This led to decreased job satisfaction, impaired personal health and well-being; challenges with family and parenting; mental health concerns, stress, finances and loss of income (Szabo *et al.*, 2021). Iorga *et al.*, 2021 identified that sleeping problems affected 50% of responders. There was an increased incidence of appetite loss and use of pills to cope with stress and the intake of energy drinks in a quarter of responders. Also, 25% of the responders, the majority of whom were women, reported that they were thinking of changing jobs (Hantoushzadeh *et al.*, 2021; Iorga *et al.*, 2021).

One of the main factors associated with psychological distress appeared to be a female (Del Piccolo *et al.*, 2021; Iorga *et al.*, 2021; Shah *et al.*, 2020).

Del Piccolo *et al.* (2021) reported that clinically significant psychological distress was related to a greater use of dysfunctional coping strategies such as self-blame but also self-distraction.

Support strategies

Among the main results, there emerged the need for psychological screening and consequent mental health support (Costa *et al.*, 2021; Del Piccolo *et al.*, 2021; Shah *et al.*, 2020). As stated by Shah *et al.*, "changing attitudes and perceptions towards mental health has been an on-going challenge with greater efforts needed to destigmatize mental health in the profession". Providing small-group discussions (Costa *et al.*, 2021), identifying accessible mental health champions and support pathways (Shah *et al.*, 2020), daily experience sharing, and peer support, were some of the activities employed to reduce stigma and improve support for doctors (Del Piccolo *et al.*, 2021). Maintaining basic needs, like rest and relaxation, healthy eating, physical activity, good sleep routine and social connection, appeared effective for protecting mental health, with special areas opened 24/7 for all employees (Gonzalez *et al.*, 2020; Wilson *et al.*, 2021).

Creative strategies like mental health champions and support paths sent the clear message that support was available for professionals experiencing mental health difficulties (Gonzalez *et al.*, 2020; Shah *et al.*, 2020; Wilson *et al.*, 2021).

Lower prevalence of emotional distress was seen when interactions between professional and family support was present (Costa *et al.*, 2021; Del Piccolo *et al.*, 2021; Yalçın Bahat *et al.*, 2020).

Another crucial aspect was dealing with frequently updated guidelines, protocols, and pathways. As Shah *et al.* reported,

Table 5. Inpatient management.

Labors' induction protocols	Change to household cervical ripening and an apparent shift towards mechanical methods of induction, such as balloon catheter and Dilapan-S, which were often believed more secure and tolerable for domestic use than pharmaceutical methods with PG (Harkness *et al.,* 2021).
Labor management	To reduce the duration of labor, to limit the contact between the patients and midwives/obstetricians and to contain and prevent the complication with (Gutschow & Davis-Floyd, 2021): • fostering oxytocin usage at higher doses to reduce the duration of the labor; • adopting amniotomy in order to fix dysfunctional or delayed labor; • promoting prophylactic use of oxytocin in the third stage of labor to avoid hemorrhages; • using early epidurals to reduce the need for general anesthesia (which risks aerosolization of the virus); • trying to reduce the second stage of labor; • performing cesareans if labor does not progress after only 4 h; • limiting the use of antenatal corticosteroids after 34 weeks; • smart usage of magnesium sulfate for slowing preterm labor to avoid respiratory suppression;
	• refusing an aggressive fluid hydration; and reducing the frequency of cervical exams.
Discharge practice	Early discharge is offered and supported, and psychological help is provided to all women who requested it (Alfieri *et al.,* 2020).
Management of suspected positive patients	Respiratory rate >20 acts per minute, the health care personnel must perform to her a nasopharyngeal swab. While the result of the swab is waited, adequate insulation has to be observed in a short observation room for this purpose. One more isolation room is placed in the maternity ward for women with positive result of nasopharyngeal swab, symptomatic or not, who need to be hospitalized but cannot be moved to home or transferred in another hospital (Alfieri *et al.,* 2020).

mitigating the impact of continuous updated recommendations was absolutely necessary.

Possible methods included a platform with easy access to the latest evidence, protocols and clear summary of recommendations and changes from previous versions as well as an online virtual course to disseminate updates (Shah *et al.*, 2020). Acknowledging gaps in the evidence and an open and consultative approach by the leader created trust among participants (Khot & Kumar, 2020).

Szabo *et al.* (2021) emphasized the need for knowledge acquisition resulting from reliable sources of information. Finally feeling protected by PPE and accessing timely and complete information to deal with the pandemic were associated with reduced psychological distress (Del Piccolo *et al.*, 2021).

Overall, perinatal workers reported that the response of obstetric services to the pandemic has shown that change is possible in "a context where change was viewed as difficult in the past" (Szabo *et al.*, 2021). On the contrary participants were concerned with the future viability of private practice and the resulting increased burden on public health systems, and discussed the role of post-pandemic telemedicine (Khot & Kumar, 2020).

Professional education

Several hospitals host a 5-year OBGYN program with residents at different levels, from junior to senior level. They usually continue to attend the departments with adequate PPE, even though senior residents who still need to complete their essential rotations had their graduations delayed until they finished their outstanding rotations (Madkhali *et al.*, 2021). Didactic activities were maintained through online lessons and, where possible, were converted to real-time online activity and arrangement of virtual objective structured clinical evaluation (Alfieri *et al.*, 2020; Madkhali *et al.*, 2021). This pandemic has increased the need to develop virtual surgical skills training methods that can be used as an alternative to hands-on training for residents (Madkhali *et al.*, 2021).

Perspectives of health managers

The role of healthcare managers appeared to be extremely important for supporting the work of healthcare professionals. According to Costa *et al.* (2021) healthcare managers were responsible to review protocols every day or twice a week with all the difficulties of translating emerging evidence into practice and updating clinical protocols. Although healthcare managers reported that even though managing the best possible provision of healthcare interventions was quite an overwhelming challenge, the opportunity of making the difference was a good motivation (Costa *et al.*, 2021).

Healthcare managers had a strong impact on mental health conditions amongst obstetricians as shown by Shah *et al.* (2020). Research showed that two aspects can be pivotal in determining how doctors handle and recover, and in reducing the mental health impact. These are: the training of the healthcare managers who contribute to feeling confident by speaking about mental health, and clear and available leadership in the management of complex patients (Shah *et al.*, 2020).

Discussion

The results of this scoping review highlight the presence of recurring themes on the perspective of obstetricians during the covid pandemic. Some aspects are completely new, while others, already existing, have been exacerbated by the emergency (Vanderlaan & Woeber, 2022). With the onset of the pandemic, the organization of birth care in hospitals strongly impaired the maternal choices and birth rights (Morano & Calleja-Agius, 2020; Topalidou *et al.*, 2020).

Labor wards generally appeared not appropriate to face the pandemic. Birth facilities, like the Accident and Emergency Departments, had an unpredictable workload, and have been deeply transformed during the pandemic (Gold *et al.*, 2022). Standard maternity departments have shown to be not able to provide during pandemic appropriate care on the birthright perspective, so negatively influencing the pregnancy and childbirth experience of women and clinicians as well (Horsch *et al.*, 2020; Morano & Calleja-Agius, 2020; van Manen *et al.*, 2021).

The most relevant and common aspect underlined by this review was the psychological distress (fatigue, anxiety, depression, PTSD) leading to the impairment of healthcare workers' mental health (Stuijfzand *et al.*, 2020).

In particular, some authors stressed that the pandemic pointed out how much the stigma linked to mental health is present and widespread among the obstetricians impacting on health professionals (Costa *et al.*, 2021; Del Piccolo *et al.*, 2021; Shah *et al.*, 2020) as well as on their work.

A key role in the pandemic was played by healthcare managers. In fact, it has been highlighted the importance of the leaders support in shaping how doctors can cope and recover, and in reducing the mental health impact (Costa *et al.*, 2021). Not only organizational procedures, but continuous, responsible relationships with front line (labor ward) clinicians, and appropriate training provided to leaders, allow them to feel confident when facing emergencies and health-related problems (Shah *et al.*, 2020).

In line with previous studies this review confirms that women were personally involved in the pandemic: as mothers, caregivers, and health professionals (Lancet, 2021). They were, and still are, multi-affected by the negative effects of the pandemic.

Women, who globally form the majority of the health system workforce, suffered the greatest damage in terms of mental, physical, and interpersonal health during the pandemic (Del Piccolo *et al.*, 2021; Iorga *et al.*, 2021; Shah *et al.*, 2020; Szabo *et al.*, 2021).

However, the COVID pandemic showed that change in providing childbirth care was possible in a context where change was viewed as difficult in the past.

Many of the articles focus on appropriate education that can enable evidence-based care and respect the unique needs of perinatal patients. This includes workforce flexibility to move some types of care into home settings, which helps "maintain access to quality care, reduce hospital stays, and prevent worker burnout" (Vanderlaan & Woeber, 2022).

Conclusion

In line with some other authors (Van den Berg *et al.*, 2022) we acknowledge that time has come to learn which innovations or recommendations worked best. In fact, countries that responded better to the pandemic were those with consolidated assistance for out-of-hospital delivery (Hantoushzadeh *et al.*, 2021; Montagnoli *et al.*, 2021; Van den Berg *et al.*, 2022).

The pandemic has given us the opportunity to use experience and knowledge for transforming childbirth health policy and culture. Considering that we own an overall predominantly female-driven healthcare system, it is essential to look at the future of healthcare also on changing the current perspective. Starting from birthplaces perhaps is the best way to build a "new normal" (Bradfield *et al.*, 2021).

Data availability

Underlying data

All data underlying the results are available as part of the article and no additional source data are required.

Reporting guidelines

Zenodo: PRISMA checklist and PRISMA flow chart, https://doi.org/10.5281/zenodo.7385624. (Melacca *et al.*, 2022)

Data are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

Acknowledgements

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✘

Christina Derksen
Queen Mary University of London, London, England, UK

Changing birthplaces to care for healthcare workers, lessons from the pandemic: A scoping review

Dear authors,

Thank you for submitting “Changing birthplaces to care for healthcare workers, lessons from the pandemic: A scoping review” to Open Research Europe. The manuscript aims to reflect on relevant experiences of healthcare professionals involved in perinatal care during the pandemic, especially regarding potential alternatives to standard maternity care departments.

Although the scoping review addresses an important and often overlooked topic by looking at obstetric healthcare professionals’ experiences during the pandemic, there are too many details missing from the report to conduct a thorough review. Unfortunately, it is possible that the short and often flawed reporting of the rationale, methods and discussion mask major methodological issues. There seem to be a number of decisions made in the methodological process that are not reported, and no discussion of any potential limitations or their effect on the validity of the findings is provided. The conclusions are not sufficiently reported by the results. The search strategy provided does not yield any results and seems too narrow.

Taken together, I have unfortunately concluded that the review should not be indexed in this form. As many of my concerns relate to the quality of the reporting, I would like to encourage the authors to address the following points to enable a better peer-review. Please find a summary of my concerns and suggestions for potential improvement below.

The introduction is not sufficient and barely enables the reader to understand the rationale and importance of this study:

1. The introduction is very short and based on only very few references. It is thus likely missing important references and scientific evidence, weakening the rationale. Please provide a more detailed rationale, including how exactly the pandemic had an impact on maternity

care. What were common challenges during the pandemic? How did they affect healthcare professionals? How did their impaired workability in turn affect the experience of and care for women giving birth? What were impromptu solutions and why were those not sufficient?

2. The weak rationale affects the perceived importance of the objective of the study. Please provide more detail why you are focusing on obstetricians' rather than midwives' experiences, and why you are not conducting a review on organisational and system-level factors.

There are flaws in the way the methods are presented that make it hard to understand or replicate the search strategy and synthesis. Please revise the methods according to the PRISMA guidelines for scoping reviews (e.g., http://www.prisma-statement.org/Extensions/ScopingReviews).

1. The authors provide only four of Arksey and O'Malley's stages, please add "charting the data" as (4) and "collating, summarising and reporting the results" as (5).

2. Please provide a more detailed description of inclusion and exclusion criteria. Did you include all study designs? Why (not)? The articles that were included in the review seems to include some questionable records with either no or very small samples.

3. Was there any for risk of bias in the studies? How did the quality of studies affect the overall results?

4. Please explain why you excluded studies from low-income countries completely – would these studies not show how the pandemic exacerbated existing negative work conditions and thus be even more relevant for the aim of the study? In my view, this is a limitation of the study.

5. The keywords/ search strategy presented here does not yield any results when used in PubMed, likely because using quotation marks for "Hospitals, Maternity" means that the search is restricted to articles that mention *exactly* this quotation. Additionally, "midwifery" is mentioned twice as keyword, there is a missing AND between parts of the search, and the keywords looking for attitudes/ beliefs/ psychology are restricted, as perception or burden could be part of the strategy. Why did the authors not use asterisks as truncation symbol? Please provide the correct search strategy. If this was actually the strategy, it is likely that an important and relevant studies were missed, thus limiting the quality of this review and potentially creating a bias.

6. Why were all data excluded regarding midwives when your search strategy explicitly includes midwives and midwifery? For example, Hantoushzadeh *et al.* (2021) base their results on 4 gynaecologists and 8 midwives, but you only list the 4 gynaecologists as sample. How do the main contributions included in this review not reflect experiences of both groups?

7. Please provide more details about why studies were excluded after full-text screening that did not exclude them. Which articles were selected and why?

8. How was the data synthesised and analysed? This section is too short to understand how the authors came to their findings. How were "main contributions" defined and identified in the selected resources? How were categories identified? Did you have pre-defined

categories (deductive approach) or did you create categories based on the data (inductive)? How were themes created? Was one author involved, did you solve disagreements by discussion, ...?

The results seem to be presented in a comprehensive, well-structured manner and are supported by the respective references. However, they might not be valid/generalisable due to the potential flaws in the methods.

The discussion is rather unstructured and lacks crucial points:

1. Please summarise the results at the beginning of the discussion in more detail.

2. Some paragraphs are single sentences and the observations made in the study are not integrated well with the existing literature. This would require a thorough revision of the literature and the discussion section.

3. The authors conclude that "Women, who globally form the majority of the health system workforce, suffered the greatest damage in terms of mental, physical, and interpersonal health during the pandemic". This is not supported by the review findings, in which the only reference to female members of the workforce is made in this sentence: "Also, 25% of the responders, the majority of whom were women, reported that they were thinking of changing jobs (Hantoushzadeh *et al*., 2021; Iorga *et al.*, 2021)." – the sample from Hantoushzadeh *et al.*, 2021 included 4 ob/gyns which is not enough to draw conclusions regarding the group of female ob/gyns in general.

4. There is no discussion regarding strengths and limitations of this review, which is a crucial part of any scientific study. Please point out all potential limitations, their significance for your findings as well as the generalisability of the results, along with strengths of this study.

5. The conclusions are not sufficiently supported by the findings. Please be more careful with your wording throughout the discussion and conclusion section and make sure that your conclusions match the findings.

Additional, minor comments:

1. In Table 1, Italy is sometimes shortened to "ita" or "ITA".

2. Language editing is required.

I hope that I was able to provide constructive feedback for the revision and improvement of this article.

Kind regards,
Christina Derksen

Are the rationale for, and objectives of, the Systematic Review clearly stated?

No

Are sufficient details of the methods and analysis provided to allow replication by others?

No

Is the statistical analysis and its interpretation appropriate?

Not applicable

Are the conclusions drawn adequately supported by the results presented in the review?
No

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Communication and patient safety in maternity care, health psychology, behavioural science, systematic reviews

I confirm that I have read this submission and believe that I have an appropriate level of expertise to state that I do not consider it to be of an acceptable scientific standard, for reasons outlined above.

Reviewer Report 07 February 2023

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Elena Spina
Università Politecnica delle Marche, Ancona, Italy

The article shows the results of a scoping review aiming at identifying, categorising and reflecting on the most relevant aspects of perinatal workers' experiences, especially obstetricians, during the first phase of the COVID-19 pandemic.

The review highlights how this phase is characterised by certain fundamental aspects/changes: fear of the virus; changes in the way care was provided; the implementation of the use of technology as a means of communication with patients; the management of patients; the increase in workloads; the increase in stress and stress-related disorders; the implementation of support strategies between obstetricians; management support.

The article discusses these data showing, on the one hand, how it is women (obstetricians and patients) who have suffered most from the pandemic (in terms of mental health, workloads, but also in terms of worsened service delivery) and, on the other hand, highlighting how change is possible in order to cope with possible future pandemics.

The article is comprehensive, very well constructed and can offer a great contribution to the scientific debate.

Are the rationale for, and objectives of, the Systematic Review clearly stated?
Yes

Are sufficient details of the methods and analysis provided to allow replication by others?

Yes

Is the statistical analysis and its interpretation appropriate?
Not applicable

Are the conclusions drawn adequately supported by the results presented in the review?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Sociology of professional groups; maternity care; midwifery; health policy

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.