



# Forward-Looking Strategies for the Advancement of Obstetrics and Gynecology to Operate in a COVID-19 Pandemic World and Beyond: A Scoping Review

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## Abstract

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**BACKGROUND:** The difficult epidemiological situation of COVID-19 infection in the world and in the country requires drastic measures to strengthen the material, technical, and staffing of health-care provision in the obstetrics and gynecology practices. It has also created an environment conducive to innovation and the accelerated implementation of new ideas. This is an attempt to discuss the potential implications for obstetrics and gynecologic practice in the world.

**AIM:** This study review gives a comprehensive overview on the effects of the COVID-19 pandemic of the potential implications for obstetrics and gynecologic practice.

**METHODS:** The data-based used in the source search were MEDLINE and PubMed databases using terms such as: COVID-19/SARS-CoV-2, impact of corona virus on the health sector and COVID-19 in obstetrics and gynecology care. We searched several databases for English articles published between January 2020 and February 2022 that discussed or touched on the effects the pandemic had of the potential implications for obstetrics and gynecologic practice in OECD countries.

**RESULTS:** In total, eight relevant articles discuss the relationship between reorganization of the practice of obstetrics and gynecology and other challenges that placed health-care providers under considerable psychological stress. Some studies showed that the discussed extensively the potential implications of COVID-19 for obstetrics and gynecologic practice.

**CONCLUSION:** Successful coping strategies have been adapted to local conditions and the working conditions of staff and, most importantly, patients, so we recommend turning these temporary strategies into permanent solutions that can be quickly applied during future pandemics.

## Introduction

The impact of the novel coronavirus disease 2019 (COVID-19) pandemic is catastrophic, with the cumulative number of confirmed worldwide cases reaching 1,610,909 by April 11, 2020 [1]. Despite the necessary reassignment of many healthcare resources to the care of patients with COVID-19, obstetric and gynecologic patients must still receive a diagnosis and be treated. Therefore, guidelines for the safe management of these patients during the pandemic are needed to protect patients and the healthcare workforce [1]. Health-care providers have made significant adjustments to the health-care delivery system to prevent infection [2], [3]. Thus, the pandemic

has created enormous challenges and required massive changes in the care of maternity staff; prenatal examinations and births could not be postponed, unlike conventional medical procedures [4], [5]. At least 116 million babies will be born during and after the pandemic; millions of women will need care during pregnancy, childbirth, and childbed. UNICEF emphasizes the urgent need for medical personnel so that women can continue to receive healthcare services [6]. Maternity hospital staff are usually in close physical contact with pregnant and women giving birth and thus at high risk of infection [7], especially because infected pregnant women are often asymptomatic or have mild COVID-19 infections that are difficult to detect [8], [9], [10], [11].

In addition, clinic appointments are infrequent in low-income settings because of limited availability

of health-care providers and patients tend to wait long hours at crowded clinic waiting areas for antenatal care, contraceptive counseling, or other reproductive health services. This portends great danger for the patients, their providers and the society as there is a higher risk of infection transmission [12].

The safety of the medical front liners in which women make up an about 70% of the world's global health and social sector workforce is currently being compromised through contact with high-risk environments and lack of personal protective equipment (PPEs) [13].

Since the mental health and psychosocial well-being of health-care providers during a pandemic is as important as their physical health [14], we need to understand both the structural and organizational implications of the COVID-19 pandemic and its psychological implications for staff. We aimed to deepen our understanding with an overview that could serve as a basis for future research.

## Materials and Methods

This review was written based on the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA, 2019) accessible at <http://prismastatement.org/PRISMAStatement/Checklist.aspx>. The research was approved by the Ethical Committee of Kazakhstan's Medical University "Kazakhstan School of Public Health," (Almaty, Kazakhstan) approved our study before it was started (Protocol No IRB-A108, dated 19 December 2019). The systematic review was not registered under any systematic review database.

### Searching and strategy

The method used in this paper is the scoping review and is to summarize literature on the effects of the COVID-19 pandemic of the potential implications on the obstetrics and gynecology practice. The search for articles was carried out by collecting themes around the discussion of the relevant to imbalances in health care provision in the obstetrics and gynecology practices. The criteria for inclusion of a search for library sources is the year the article was published which was used from January 2020 and February 2022 in English and the full article. Furthermore, reference lists of published articles including reviews and documents on databases such as the WHO, UNFPA, and FIGO were browsed for potential articles. A MEDLINE and PubMed search were performed for the key words "obstetrics and gynecology care" or "obstetrics care" AND "COVID-19/SARS-CoV-2" in the title or abstract.

### Selection criteria

The inclusion criteria were: (1) The studies which directly or indirectly evaluated the overview on the effects of the COVID-19 pandemic of the potential implications for obstetrics and gynecologic practice from anywhere in the world were included, (2) observational studies which contain relevant outcomes were included; (3) studies conducted in the past 3 years; (4) title and abstract based on the research question and the results discuss about COVID – 19 and obstetrics and gynecology care. The exclusion criteria were (1) non-human studies, (2) non-full-text studies, (3) duplicate studies, and (4) review studies, dissertations, theses, letter to the editor. Two researchers independently searched and screened article abstracts following the eligibility criteria and search strategy. The final decision regarding inclusion and exclusion was made after discussion among the researchers.

### Data extraction

The selected articles were extracted using a grid synthesis format. This format contained information on authors, year, country of origin, research title and design, study objectives, research results, and conclusions.

### Quality assessment of the selected article

All authors assessed the quality of the included studies, and differences of opinion were resolved by discussion. Guidelines were used to evaluate the quality of all of the eight articles included was systematically assessed. The methodologic quality of each studies was assessed using the Newcastle-Ottawa Quality Assessment Scale (according to the research designs of the respective studies), accessible at [https://www.ohri.ca/programs/clinical\\_epidemiology/oxford.asp](https://www.ohri.ca/programs/clinical_epidemiology/oxford.asp). The Newcastle-Ottawa quality checklist consists of three sections, that is, selection, comparability and outcome that are rated based on the study characteristics using "\*" or "-". In addition to the three sections given by Newcastle-Ottawa assessment scale, one more domain on "Relevance of the findings" was added to this checklist which could also be rated as "\*" or "-". The quality of the studies was judged based on the total number of stars obtained across the four domains of the checklist. The second and third review authors (VL and MK) reviewed results and made the final decision through a discussion process.

### Statistical analysis

Data analysis was carried out qualitatively by the authors (SA, OT, and AM) of the selected studies. The strength of the evidence generated from this review was established based on the criteria described in a

study by Arksey *et al.* [15]. According to this criteria, consistent findings from minimum 33% studies of good quality would indicate a “strong” evidence whereas relevant findings from only 15% studies of fair quality would indicate a “weak” evidence. However, consistent findings from minimum 33% studies of fair quality or 15% studies of good quality would yield moderate evidence.

## Results

The PRISMA flowchart depicting the results of the review process is provided in Figure 1.

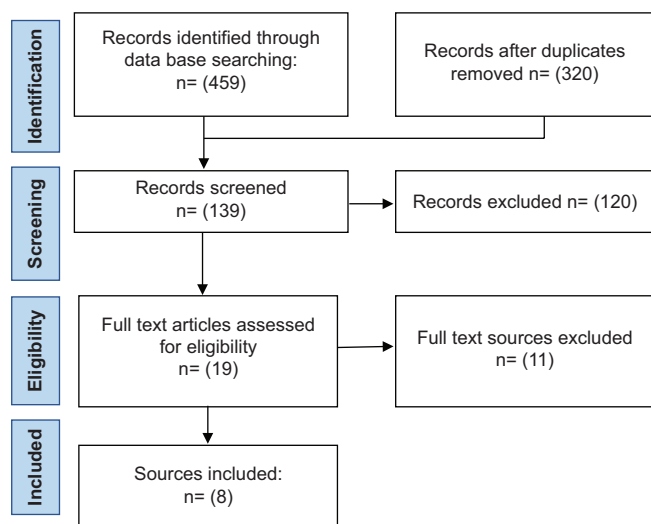


Figure 1. Flow diagram of the study selection

The search through the data bases returned 459 published publications from the period between January 2020 and February 2022. After de-duplicating, 320 publications remained. In total, 139 papers were included in the review following screening. After our reviewers searched through their titles and abstracts, they excluded 120. After first review of the remaining 19 publications, we identified two main topics. The first was structural challenges posed by the pandemic and the adjustments health-care providers made to adapt to new circumstances. The second was subjective effects of the pandemic on the health-care providers, especially psychological effects.

From the 19 publications, we excluded another 11 after reviewing the full texts. We excluded those that only made recommendations and advice from health-care providers that did not focus on the staff's individual problems or their mental health issues, or the challenges the COVID-19 pandemic posed, and those that proposed general guidelines or recommendations for care of women, pregnant women and women in childbed, but did not focus specifically on healthcare providers.

We also excluded publications that do not have full texts. We included the remaining eight publications. For a flow chart of publication selection, is shown in Figure 1. We created an analytical framework for reading the publications, and created a table following Arksey and O'Malley's design, into which we extracted source data [15]. A summary of the articles reviewed in this study is shown in Table 1.

A literature search through an electronic database resulted in eight articles was reconfirmed as we continued our review. We described the structural and organizational challenges posed by the pandemic and adjustments made by health-care providers and impact of the crisis on the mental health of health-care providers.

### Structural and organizational challenges

The COVID-19 pandemic raised concerns about the safety of patients and providers in inpatient and outpatient settings. In response there were implemented virtual visits to patients. Hospitals arranged flexible duty rosters [24]. Large health centers, insurers, and regulators, never known for being nimble, learned how to respond rapidly with needed change. In one case report, health-care professionals described an experience to balance her need to protect her own family against the needs of pregnant women who required continuous support at births, abortion appointments, prenatal examinations, and during medical treatment [25]. Infected health-care providers in quarantine made the staff shortage in the world worse [26].

Telehealth implementation was also accelerated. In March 2020, the Centers for Medicare and Medicaid Services (CMS) introduced interim measures that reduced or eliminated many barriers to the widespread adoption of telehealth [27]. The approach was inconsistent across countries. In some countries, maternity hospitals were closed because emergency services lacked capacity for transfers. In others, maternity hospitals were kept open so pregnant women did not have to go to general hospitals [28].

Around the world, there were reports of premature discharge of women in labor from hospitals [29], [30], even when maternity staff reduced the number of home visits or when postpartum visits were uncommon [31]. Postnatal care and interactions with newborns also contributed to the change. As a precautionary measure, health systems have begun to avoid evidence-based practices that strongly benefit to mother and child.

Waiting areas have been reorganized to reduce the risk of infection to patients and personnel [4], [23]. In addition, some departments advised the use of N95 respirators for all deliveries, particularly in the absence of universal testing [32]. Contact between hospital

**Table 1: Summary of articles reviewed**

Author	Country	Title	Methods	Results
Qiu <i>et al.</i> , 2020 [16]	Chinese	Management of gynecology patients during the COVID-19 pandemic: Chinese expert consensus	Qualitative study	This study found that the describe basic infection precaution principles, an epidemiologic screening tool, prioritization of surgical procedures, and operating room requirements
Alvarez <i>et al.</i> , 2020 [17]	USA	Reengineering academic departments of obstetrics and gynecology to operate in a pandemic world and beyond: A joint American Gynecological and Obstetrical Society and Council of University Chairs of Obstetrics and Gynecology statement	Qualitative study	The research result of this case is the COVID-19 pandemic has had a strong on the departments of obstetrics and gynecology around the country and has led many to reengineer patient care, education, research, and administrative activities
Oluwasola <i>et al.</i> , 2021 [18]	Nigeria	COVID-19 and its implications for obstetrics and gynecology practice in Africa	Qualitative study	This review has discussed extensively the potential implications of COVID-19 for obstetrics and gynecologic practice in Africa. The implications of the pandemic in several obstetrics and gynecology practices such as family planning services down to assisted reproductive techniques have been identified
Martinez-Portilla <i>et al.</i> , 2021 [19]	Mexico, Spain, Hong Kong SAR	Scientific effort in combating COVID-19 in obstetrics and gynecology	Qualitative study	In this study provided a timeline of the scientific research and main events in relation to COVID-19, focusing mainly on the obstetric and gynecological settings and the contribution of Ultrasound in Obstetrics and Gynecology
Bourne <i>et al.</i> , 2022 [20]	UK, Belgium, Chile, France, Italy	Experiences and well-being of healthcare professionals working in the field of ultrasound in obstetrics and gynaecology as the SARS-CoV-2 pandemic were evolving: a cross-sectional survey study	Quantitative study	This study provides insight into the experience and well-being of clinicians working in the field of ultrasound in obstetrics and gynaecology during the early phase of the SARS-CoV-2 pandemic
Schmitt <i>et al.</i> , 2021 [21]	Germany, Switzerland, Austria	Effects of the COVID-19 pandemic on maternity staff in 2020 – a scoping review	Qualitative study	In this study presented that the during the COVID-19 pandemic, maternity staff coped with drastic reorganization of their work and other challenges that placed them under considerable mental strain
Corbett <i>et al.</i> , 2020 [22]	Ireland	Anxiety and depression scores in maternity healthcare workers during the COVID-19 pandemic	Quantitative study	Overall, healthcare workers are at significant risk of psychological morbidity during the COVID-19 pandemic. Anxiety and depression is highest in young, female, and supportive workers
Pietrasanta <i>et al.</i> , 2020 [23]	Italy	Management of the mother-infant dyad with suspected or confirmed SARS-CoV-2 infection in a highly epidemic context	Qualitative study	In this study, the medical hospital management faced challenges and reacted by restructuring several maternity wards

COVID-19: Coronavirus disease 2019.

personnel and infected women has been kept to a minimum. Some personnel used the telephone or other means of communication to communicate with women in the hospital [23]. In many places, women who were required to go to hospital for examination or women who presented themselves at hospital were usually screened through questionnaires or email, for potential symptoms before being admitted to the hospital [23], [29], [33]. Scoring systems have been developed that account for patient- and disease-specific factors and for prioritization of cases [34] Algorithms were developed to coordinate care among clinicians and staff during vaginal or cesarean delivery in patients with COVID-19 and those suspected of having COVID-19. Additional precautions were taken during cesarean delivery when general anesthesia was required, given that intubation is an aerosol-generating procedure (AGP) [35].

Throughout the world, obstetricians began to limit the number of people giving birth. Usually, only one accompanying person was allowed during the clinical puerperium and to attend the birth [31]. Partners of pregnant women were sometimes prohibited from attending prenatal consultations and ultrasounds [18], [20]. Midwives across Europe have been torn between continuing to offer partner- oriented care, protecting themselves from the virus, and protecting their family members [36].

For the foreseeable future, departments will need to continue many of these measures to identify patients with COVID-19 and protect healthcare providers and staff. Universal testing of all patients admitted to labor and delivery with appropriate use of PPE will likely constitute standard operating procedures

in the near future.

### ***Impact of COVID-19 on psychological health of healthcare providers and patients***

The novel coronavirus (COVID-19) pandemic has greatly increased mortality and morbidity worldwide due to the rapid rate of transmission. This global situation has had a negative impact on people's mental health. Less attention has been focused on the implications of infectious diseases on health-care providers' psychological health, which previous pandemics have shown to be significant [37], [38]. Health-care providers are confronted with ongoing resource, shift pattern, PPE and testing uncertainty [39], as well as COVID-19 exposure risk and the implications of this on their families [40]. Protecting the psychological health of the medical workforce is critical, particularly as anxiety, depression, and burnout are recognized complications for health-care providers' working in high-stress environments [41].

A qualitative survey of fourteen midwives in Spain identified barriers to creating a safe and respectful environment for women who had or were suspected of contracting COVID-19 while giving birth. They described the chaos at the start of the pandemic that disrupted organization, coordination and management.

They talked about ever-changing guidelines, increasing workloads, lack of access to proper protective clothing during childbirth, and changing roles as midwives. Midwives reported changes ranging from emotional support despite minimizing physical contact (due to exclusion of companions) to

dehumanization [42]. According to Lee *et al.*, there was a consistent association across higher levels of anxiety, depression, and stress and less clinical experience, poorer health, and more anxiety about COVID-19 [37].

## Discussion

This review offers a preliminary description of the impact of the COVID-19 pandemic on obstetric and gynecological practice in OECD countries. Publications reported on structural adjustments that staff had to make or challenges they had to overcome, and on subjective effects, especially on mental health.

Although the pandemic has forced hospitals to change their recommendations in response, often [43], the lack of uniformity and consistency in obstetric guidelines [44] has frustrated staff, who also had to cope with excessive external demands.

The obstetrics and gynecological practice had to cope with organizational changes that created challenges, such as constantly changing guidelines; these findings were confirmed in all online cross-sectional surveys. Uncertainty about the pandemic has also raised concerns about contagion and the spread of the virus. Combined, this increased anxiety and stress in healthcare providers. The fear of infection was not unreasonable and was the main cause of increased anxiety [45]. A recent study found that health-care providers are 3 times more likely to contract COVID-19 and transmit the virus [46]. Thus, many health-care providers isolated themselves from their families [25].

Considering several factors, the ongoing COVID-19 pandemic will significantly affect the practice of obstetrics and gynecology. Regular essential services are interrupted due to limited or unavailability of PPEs and test kits. In addition, fear of hospital-acquired infections in both health-care providers and patients, as well as the possible redeployment of health providers between emergency care services, creates additional problems that will have incalculable consequences for health systems in the future. We suggest researchers to conduct country-specific studies to systematically study the problems associated with pandemics and study and systematize individual coping strategies.

## Conclusion

This study concludes that during the COVID-19 pandemic, health-care providers coped with reorganization of their work and other challenges that placed them under considerable mental stress.

Successful coping strategies have been adapted to local conditions and took into account the working conditions of the healthcare providers. Therefore, further analysis is required to temporary strategies be developed into permanent solutions that can be rapidly deployed during future pandemics.

## Author Contributions

Sholpan Aliyeva determines the theme, conduct research, prepare manuscripts, selecting research articles, and all authors contributed substantially to the revision. Vyacheslav Lokshin, Maksut Kamaliev, Sholpan Sarmuldayeva, Gulnur Tanbayeva, Viktor Shafranskyi, Oxana Tsigengagel, and Aigerim Mukhamedyarova give supervision and monitor the research process, correcting the writing and preparation of the manuscript. Sholpan Aliyeva is responsible for the study overall.

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