


# Impact of COVID-19 on perinatal care: Perceptions of family physicians in the United States

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## Abstract

**Background:** Patient-centered care is the best practice in the care of pregnant and postpartum patients. The COVID-19 pandemic prompted changes in perinatal care policies, which were often reactive, resulting in unintended consequences, many of which made the delivery of patient-centered care more difficult. This study aimed to understand the impact of the COVID-19 pandemic on perinatal health care delivery from the perspective of family physicians in the United States.

**Methods:** From October 5 to November 4, 2020, we surveyed mid- to late-career family physicians who provide perinatal care. We conducted descriptive analyses to measure the impact of COVID-19 on prenatal care, labor and delivery, postpartum care, patient experience, and patient volume. An immersion-crystallization approach was used to analyze qualitative data provided as open-text comments.

**Results:** Of the 1518 survey respondents, 1062 (69.8%) stated that they currently attend births; 595 of those elaborated about the impact of COVID-19 on perinatal care in free-text comments. Eight themes emerged related to the impact of COVID-19 on perinatal care: visitation, patient decisions, testing, personal protective equipment, care continuity, changes in care delivery, reassignment, and volume. The greatest perceived impact of COVID-19 was on patient experience.

**Conclusions:** Family physicians who provided perinatal care during the COVID-19 pandemic noted a considerable impact on patient experience, which particularly affected the ability to deliver patient-centered and family-centered care. Continued research is needed to understand the long-term impact of policies affecting the delivery of patient-centered perinatal care and to inform more evidence-based, proactive policies to be implemented in future pandemic or disaster situations.

## KEYWORDS

COVID-19, health care delivery, maternity care, patient-centered care, perinatal care

## 1 | INTRODUCTION

During the COVID-19 pandemic, the cycle of life continues, and pregnant patients still need access to quality perinatal care. Perinatal care is generally provided by obstetricians, family physicians, or midwives. Family physicians (FPs) play a significant role in improving perinatal health equity as they fill gaps in access to care in rural areas and among underserved populations, conducting seven percent of all deliveries (translating to approximately 280,000 deliveries per year) and an even greater percentage of prenatal and postpartum care.<sup>1</sup> FPs are distinctive in that they provide a comprehensive model of “dyad care,” providing longitudinal care for the family including reproductive and preconception care through postpartum, infant, and pediatric care.<sup>2–4</sup> Because FPs are trained in the biopsychosocial model to have a broad understanding of patients, families, and communities, and to understand multiple stressors placed on patients as seen in the COVID-19 pandemic, they provide a unique perspective on the impact of the pandemic on the care of pregnant and postpartum patients.<sup>4,5</sup>

Clinics and hospitals have implemented new protocols and policies aimed at reducing the spread of COVID-19. Changes have included social distancing measures, increased use of telemedicine, use of personal protective equipment (PPE) including masking during the second stage of labor, and limitations on support people for laboring patients.<sup>6–8</sup> Despite a joint statement on protecting patient-centered care for pregnant patients and their families during the pandemic, new policies were often reactive rather than evidence-based.<sup>9,10</sup> Recent evidence has shown that reactive policies, such as not allowing visitors or support people to be with hospitalized patients, may lead to worse health outcomes and may not prevent further transmission of COVID-19.<sup>11</sup> Furthermore, early literature on the COVID-19 pandemic has already documented the potential for anxiety, depression, and lack of support during pregnancy and the postpartum period.<sup>12–14</sup>

The aim of this paper was to explore the impact of COVID-19 on perinatal care delivery from the perspective of FPs who provided perinatal care services during the pandemic. Understanding how the COVID-19 pandemic affected the ways perinatal care was provided and how patients experienced that care can inform better, less disruptive, protocols and policies in future pandemic or disaster situations.

## 2 | METHODS

Our original study aimed to understand the experience of FPs who provide perinatal care throughout their career, unrelated to COVID-19. However, because the COVID-19

pandemic emerged before we began data collection, we took the opportunity to include questions about COVID-19. The questions about COVID-19 included a 5-point Likert-scale matrix question asking about the perceived impact of COVID-19 on five aspects of perinatal care (volume, prenatal care methods, delivery care methods, postpartum care methods, and patient experience), and an open-text question asking respondents to provide more details about the impact of COVID-19 on their experiences providing perinatal care.\*

We used the American Board of Family Medicine (ABFM) Continuing Certification Examination Registration Questionnaire (2013–2019) to identify our sample. This questionnaire is completed by all FPs who are preparing to take the ABFM Continuing Certification Examination, which is required every 10 years after initial board certification to maintain certification. As those who answered this survey were at least 10 years past their initial board examination, they were classified as mid- to late career. The 4139 FPs who answered “yes” to the question, “Do you deliver babies?” were sent an e-mail invitation to complete a 34-question online survey distributed through SurveyMonkey. The survey was open between October 5 and November 4, 2020, and included questions about personal and professional characteristics, motivations, barriers, and the impact of COVID-19 on providing perinatal care.

Descriptive statistics were completed for physician demographics and practice site characteristics. To determine whether any physician or practice characteristics were associated with perceived impacts of COVID-19, we used t tests and ANOVA. We used STATA 15.1 for analyses. Free-text responses were analyzed using an “immersion-crystallization” approach to identify emerging themes, and Microsoft Excel was used to manage the coding process.<sup>15</sup> All five researchers (including three practicing FPs and two experienced medical anthropologists who are qualitative researchers) coded a random subset of 40 comments in an iterative fashion to identify and define themes. Once a codebook was developed and applied to the open-text comments with consistent agreement across researchers, the remainder of the comments were divided up and coded independently by one of the three clinician-researchers. Finally, the themes that emerged through this coding process were categorized into three broader and often overlapping groups, using the same intercoder approach to ensure agreement between all five team members.

## 3 | RESULTS

Of the 4139 FPs who met inclusion criteria and were sent an e-mail invitation to complete the survey, a total

of 1517 FPs responded to the survey, for a 37% response rate. Of these, 1055 (69.8%) reported they are still *currently* delivering babies and answered at least one of the COVID-19 perinatal Likert-scale questions; only these participants are included in this paper. Participants predominantly identified as non-Hispanic (95.97%) and White (91.71%) and were between the ages of 40 and 60 years (76.08%). Most participants were from the Midwest or West census regions (74.81%). Participants had on average 20.71 years of experience providing perinatal care (full participant demographics are reported in Table 1).

Respondents reported that COVID-19 had an enormous impact on patient experience (52.2% of respondents), and on prenatal care (38.2%), delivery care (34.9%), and postpartum care (22.3%). Only 13.9% of respondents reported COVID-19 greatly affected their patient volume (Figure 1). There were no significant differences noted between any of the respondent or practice characteristics included in Table 1 and perception of impact of COVID-19 on patient experience or physician volume.

When asked to elaborate on the impact of COVID-19 on perinatal care in a free-text field, 595 FPs (56.0%) responded. Eight primary themes emerged from the open-text comments, as summarized below. Table 2 reports theme frequencies (the number of respondents who discussed each theme) and presents additional illustrative quotes. These eight themes fell into three often overlapping affected groups—“family,” “patient,” and “family physician”—which demonstrates the impact of COVID-19 on patient-centered perinatal care and the resultant policies and protocols (Figure 2). Each quote is attributed with the sex, year of residency graduation, and state of the respondent’s practice.

### 3.1 | Visitation

Many respondents commented on hospital or clinic regulations that restricted who could be present for clinic visits and labor support, or during the postpartum stay. These regulations sometimes included the number of people who could be present, and/or the relation to the pregnant person (ie, the partner but not the aunt, no additional people like doulas). At its most extreme, pregnant patients were not allowed any family member or support person physically present in clinic visits or even during labor. Respondents often mentioned how these regulations caused distress for the family and the patient, and some pointed out that patients of color were disparately affected.

I feel covid 19 mostly impacted the delivery because the patient can only have 1 person in

TABLE 1 Characteristics of survey respondents (N = 1055)

Variable	n (%) or mean (SD)
Age	
<40	153 (14.50)
40–49	470 (44.55)
50–59	333 (31.56)
>60	99 (9.38)
Race	
Asian	48 (4.55)
Black or AA	18 (1.71)
Other	21 (1.99)
White	968 (91.75)
Ethnicity	
Hispanic	45 (4.27)
Gender <sup>a</sup>	
Female	545 (51.66)
Male	510 (48.34)
Residency graduation year	1998 (range: 1975–2010)
Years providing perinatal care	20.68 (SD: 7.67)
Vaginal deliveries per year	32.14 (SD: 31.17)
Primary cesarean deliveries per year	6.86 (SD: 16.34)
Perinatal patients attended <sup>a</sup>	
Group call/OB rotation only	169 (16.19)
Continuity and group call	614 (58.81)
Continuity only	123 (11.78)
Other	138 (13.22)
Practice region <sup>a</sup>	
Midwest	429 (41.25)
West	349 (33.56)
South	170 (16.35)
Northeast	92 (8.85)
Rurality <sup>a</sup>	
Urban	583 (67.32)
Micropolitan	75 (8.66)
Large rural	183 (21.13)
Small rural	25 (2.89)
Main practice site <sup>a</sup>	
Independently owned	299 (28.61)
Academic/faculty practice	264 (25.26)
Government	236 (22.58)
Hospital/health system–owned	188 (17.99)
Other	58 (5.55)
Practice size <sup>a</sup>	
Solo	45 (4.31)
2–5 clinicians	201 (19.27)
6–20 clinicians	441 (42.28)
>20 clinicians	356 (34.13)

<sup>a</sup>Total does not equal 1055 for this variable because of missing data.

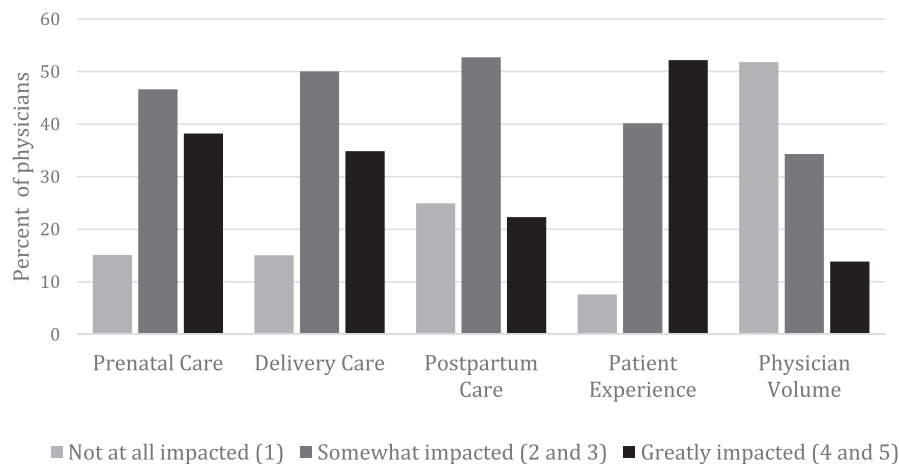


FIGURE 1 Magnitude of impact of COVID-19 on aspects of perinatal care from the perspectives of family physicians

TABLE 2 Primary themes with illustrative quotes

Theme (frequency <sup>a</sup> )	Illustrative Quotes
Visitation (326)	<p>“Patients required to attend visits without their partners. Postpartum patients without partners present. At all times patients without extended family and friends. Required to eat more hospital food unable to come and go from hospital. Severe economic constraints on our patients. Our patients at risk of Covid. Increased stress on our patients.” Male, 1993, ME</p> <p>“Patients are not able to have support persons who can come and go due to processes in place. This is fairly significant in the case of a patient who has other children at home and has no one other than their significant other to care for those children at night. If you have a 2- or 3-day induction, that can create significant social problems.” Male, 2001, AK</p>
PPE (195)	<p>“I don’t touch my patients as much and the hunger for that is palpable ... human touch in labor is critical. I am masked and goggled during all of our interactions which is SO necessary to protect our population—especially 400 miles from an ICU—but feels so foreign and distant.” Female, 2001, MA</p> <p>“Addition[al] PPE puts barriers between clinicians and patients.” Female, 1996, MT</p>
Care delivery changes (174)	<p>“Mix of telehealth and in person visits for prenatal care, less continuity of care for prenatal visits, more telehealth for postpartum care. Centering group care no longer available.” Female, 2002, LA</p> <p>“Delivery experience has changed, with only one (healthy) support person in the room, no guests/visitors after. Trying to get moms out of hospital ASAP means less help with getting breastfeeding going.” Female, 2005, MN</p>
Testing (118)	<p>“Mandatory Covid testing done on all elective inductions and scheduled c-sections.” Male, 2004, TX</p> <p>“Mandatory testing of all patients is burdensome.” Female, 2001, IL</p>
Volume (46)	<p>“Volumes are lower. Spaced out prenatal appointments in the clinic more.” Female, 2002, WI</p>
Reassignment (44)	<p>“Our FMOB call group was pulled out of hospital rotations (along with all FM and non-FM residents on elective rotations) to prepare for the surge. It took a lot of effort to get everyone back into rotation and make up required OB time lost during those spring months of March to May.” Male, 2006, NC</p>
Continuity (39)	<p>“We converted to tele-med for some prenatal care and postpartum visits. Did not go in for continuity deliveries if I was not on call, to limit exposure to the patient and staff.” Male, 2002, WA</p>
Patient decisions (23)	<p>“There has been an increased number of patients choosing home delivery. Some visits have been completed virtually. We are limiting the number of people who can come to the hospital and that has been a deterrent for some people.” Female, 1996, SC</p>

<sup>a</sup>Frequency is the number of respondents who discussed each theme.

the room and I feel a doula or mother can be helpful. Also, if a patient has other children, they cannot visit the newborn.

(Male, 1986, NE)

Unfortunately, my patients have only been allowed one attendant during labor and

delivery and especially my native patients, as the reservation has been on lock down, there have been a couple instances where they had to give birth alone, not so much because we wouldn’t allow them, but because their family members were quarantined, or couldn’t find transportation, if they came by ambulance

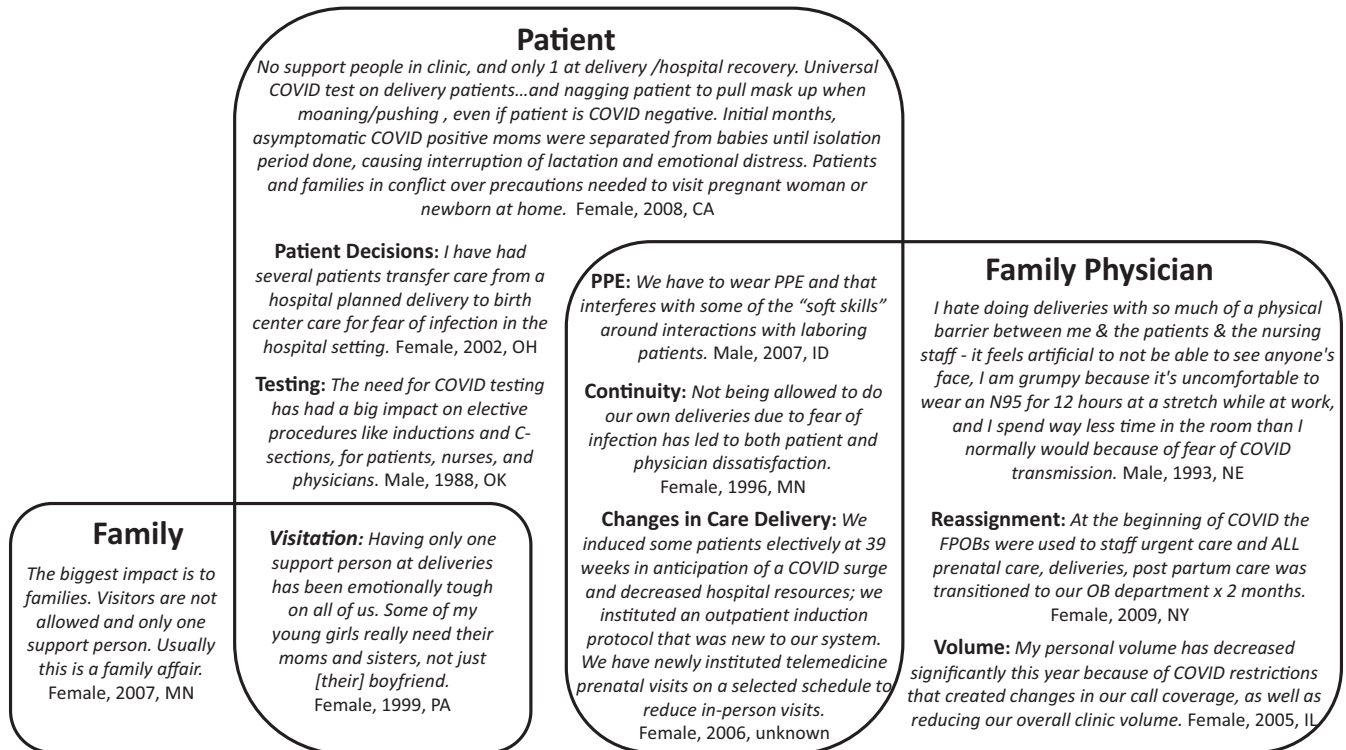


FIGURE 2 Thematic model representing family physician perceptions of COVID-19 impacts on patient-centered perinatal care

for instance, which is not uncommon even before COVID.

(Female, 1993, WI)

### 3.2 | Personal protective equipment (PPE)

Many respondents noted how PPE requirements have affected their interactions with patients, family, and other staff. Many described PPE as necessary, though a barrier to some of the more subtle forms of communication with patients, families, and even other health care professionals.

Masking patients and care providers may limit aerosol inhalation, but deeply affects nonverbal communication.

(Female, 1989, OH)

### 3.3 | Changes in care delivery

Respondents described delays or changes in delivery of perinatal care. For example, some respondents noted there was an established protocol for elective inductions of labor to ensure testing before arrival to the hospital in labor. Others noted delays in inductions of labor that were scheduled urgently for a clinical concern as the hospital

required a test result first. Many physicians discussed the increased use of telemedicine, including phone or video visits, especially for low-risk prenatal and postpartum care.

For prenatal care, we offer a combination of in-person and virtual visits (to limit time in clinic), as long as the patient remains low-risk. ... [O]ur community doula service that used to provide care for our Somali patients has not been available in the hospital during COVID. Also, for a short period of time we did not allow nitrous oxide for pain management, though now it is available again as long as the patient was negative on COVID testing.

(Male, 2003, TN)

### 3.4 | Testing

Respondents frequently commented on COVID-19 testing requirements. Some simply mentioned the new testing requirements, whereas others noted how these requirements affected the usual care patients receive. Pregnant patients may have needed another appointment near term to get a COVID-19 test, or sometimes, care was delayed while a pregnant person waited in their labor room for a COVID-19 result.

Because of Covid-19, we are screening all patients before they are admitted if possible. This can sometimes delay them getting to their rooms.

(Male, 2002, UT)

### 3.5 | Volume

Some FPs made comments about how COVID-19 has affected their perinatal care volume. Some discussed decreased obstetric volume because of temporary patient reassignment to obstetricians or patients choosing community birth (which includes both birth center and planned home birth). Some noted that decreased obstetric volume may affect future ability to provide obstetric care. Other FPs noted they have had higher patient volumes during the pandemic.

Due to restrictions at a larger hospital, I have been unable to attend observed deliveries needed to keep my delivery number high enough to maintain privileges for deliveries.

(Female, 1994, AZ)

### 3.6 | Reassignment

Some FPs mentioned having their duties reassigned during a COVID surge, or noted they were providing more perinatal care and losing out on required deliveries because of temporary reassignment. Thus, while a distinct theme, reassignment of duties is often related to volume of deliveries and affects the ability to provide continuity of care to patients.

I was pulled to do inpatient COVID care and spent 4 months not doing any deliveries as a result.

(Female, 2008, NM)

### 3.7 | Continuity

Respondents noted that continuity of care was disrupted because of COVID-19 and related regulations. Some respondents described changes in hospital staffing to minimize cross-exposure. These changes involved designating certain perinatal practitioners to be the only practitioners allowed on the labor and delivery unit. Practitioners not assigned to the labor and delivery unit were not able to attend the deliveries of their patients.

The hospital closed to outpatient providers doing deliveries for 6 months, so I was not able to deliver my primary patients.

(Male, 1983, WI)

### 3.8 | Patient decisions

Respondents commented on the decisions made by patients about where, when, and how to deliver because of COVID-19. Some noted that more patients chose to have a home birth or deliver in a birth center rather than the hospital because of fear of infection and/or restrictive regulations. They also commented that many patients who did deliver in the hospital did not arrive until well into active labor and/or asked to be discharged much sooner in the postpartum period than usual.

Patients want to leave the hospital earlier with COVID.

(Male, 1975, CO)

Although we were able to keep our clinics open, patients stayed away. We had lower volumes in the hospital as women chose home births for a few months. We weren't initially able to allow visitation at all, and this disincentivized women from coming to the hospital.

(Female, 2000, OK)

## 4 | DISCUSSION

Our findings elucidate the many ways COVID-19 affected the care of perinatal patients by FPs in the first few months of the pandemic. As Figure 1 illustrates, the FPs in our study noted a considerable impact on patient experience, particularly about visitation policies, changes in care delivery, the need for PPE, and additional COVID-19 testing. FPs described how the ability to deliver patient-centered care during the pandemic was limited or undermined by some of these policies. Even when discussing protocol changes that directly affect their own experience, such as wearing additional PPE and being reassigned to other areas of the hospital, FPs were largely focused on the interpersonal aspects of how those changes affected their ability to communicate with patients and families or to provide quality patient-centered, continuity of care. The implications of some of these policies have been described in other studies; for example, a randomized control trial found that patients

who were treated by a physician with a mask believed the physician to have less empathy, whereas clear masks have been shown to improve communication and the perception of empathy.<sup>16,17</sup>

The issue mentioned most often by FPs in this study was visitation policies, which were described as having a significant impact on patient-centered care. This is consistent with emerging literature that shows that visitor restrictions are associated with higher levels of clinically significant acute stress, higher levels of pain in labor, and higher neonatal intensive care unit admissions.<sup>18–20</sup> FPs in our study were acutely aware that the rationale for policies limiting visitors—to limit COVID-19 transmission—produced unintended consequences such as the inability to provide patient-centered and family-centered care. The importance of support persons for perinatal patients has been well documented and led to the World Health Organization advising that companions of choice should be present during childbirth even during the pandemic.<sup>21</sup> Others have noted the need to assess the risks and benefits of visitation restrictions more methodically, particularly for patients in labor.<sup>8</sup> Our findings also support other studies that show how COVID-19 has affected patients' decisions about place of birth, in that more pregnant patients are considering community birthing models such as home birth because of concerns related to hospital safety and undesirable visitation policies during the pandemic.<sup>22,23</sup>

As Figure 2 illustrates, all themes noted by family physicians fell under three broad categories: patients, families, and family physicians. The ways in which the categories overlap and the ways the themes interact reflect many possible implications for the quality of perinatal care patients received. For example, evidence has repeatedly shown that continuity improves outcomes, yet FPs noted interruption in continuity of care and reassignment of duties early in the pandemic that disrupted physician-patient relationships.<sup>24,25</sup>

Because our study did not directly address how COVID-19 contributed to disparities in perinatal care, few respondents explicitly discussed disparities or inequities. However, some FPs commented on family separation antepartum, intrapartum, and postpartum and the stress it creates, and the disproportionate impact of COVID-19 on patients of color. Extreme examples have been documented of hospitals that separated newborns without risk factors, based on the appearance of mothers who appeared Native American, exacerbating racial health disparities during the pandemic.<sup>26,27</sup> Targeting people based on skin color or race because they are assumed to be part of a high-risk population is an example of a policy that exacerbates health disparities. Policies should be implemented in such a fashion as not to worsen health care inequality.<sup>28</sup>

The long-term consequences of not providing evidence-based, respectful care and thoughtful policies could result in heightening the traumatic impact of the pandemic on mental health and family relationships, while further exacerbating health, social, economic, racial, and ethnic disparities.<sup>9,29,30</sup> In addition, policies that use exposure risk criteria to eliminate disparate care, that work to integrate medical coverage for all, and that disincentivize profit-driven decision making in the health care system may reduce perinatal health disparities exacerbated by pandemics or disasters.<sup>31</sup>

Evidence that reduced social support during birth has a negative impact on mental health of birthing persons is growing.<sup>32–37</sup> Restrictions on in-person support during prenatal visits and at births likely played a significant role in the increase in depression and anxiety in birthing persons during the pandemic.<sup>32,37</sup> Our findings support other studies showing that visitation policies varied from hospital to hospital, and evolved during the pandemic; for example, some hospitals allowed doulas, whereas others did not.<sup>37</sup> One way to address mental health issues in perinatal patients could be better access to doula support, which has been proven to improve perinatal outcomes, and which is an important part of patient-centered care.<sup>38</sup> In order to combat worsened postpartum mental health conditions directly related to the pandemic, it is important to emphasize the need for robust mental health screening and services offered by a variety of mental health practitioners in the perinatal period.<sup>32,35</sup>

#### 4.1 | Strengths and limitations

This study captured the perceived impact of COVID-19 on FPs on the front line in the care of perinatal patients while the pandemic was evolving. As we used ABFM data, we were able to analyze comments from a relatively large sampling of actively practicing FPs across the United States. There were limitations to this study. First, this study includes only the perceptions of FPs, as we did not survey patients or their families directly. Although we were able to survey many FPs across the country and in many different health systems allowing for a broad perspective, future studies should include patient perspectives to better understand the impact of COVID-19 on the patient experience in the perinatal period. Second, there are limitations to the collection of qualitative data by means of an open-text survey item. We were not able to ask for elaboration on specific topics or clarification of responses, including those about equity-related issues, which leads to variability in the length, substance, and quality of responses. Future studies could consider full interviews to provide a deeper understanding of these issues. Third, the

37% response rate is not ideal and may affect the generalizability of our findings. Finally, the survey was fielded at a particular moment in a rapidly evolving pandemic, so policies and protocols around perinatal care changed and adapted quickly given growing evidence on patient outcomes and experience.

## 4.2 | Conclusions

Family physicians are an important part of the perinatal care workforce in the United States, and this is clear in their role during the COVID-19 pandemic. As we reflect on the inequitable impact of COVID-19, family physician experiences and perspectives can help inform future health care policies to reduce harm and ensure that protecting the patient's health and well-being are the primary focus. Reactive health care policies during a pandemic or any prolonged disaster situation may have negative, unintended, and avoidable long-term consequences. The perspectives of family physicians who provided perinatal care during the COVID-19 pandemic highlight the importance of maintaining comprehensive, patient-centered perinatal care and the need for thoughtful and evidence-based support and national health care policy guidance that can be tailored to evolving local conditions.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available in [repository name] at [DOI/URL], reference number [reference number]. These data were derived from the following resources available in the public domain: [list resources and URLs]

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### ENDNOTE

\* Though we used the term "maternity care" in our data collection instrument, we have substituted this for "perinatal care" throughout this paper to honor gender inclusivity.

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