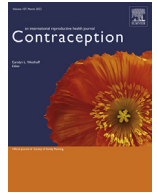




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Original Research Article

Geographic disparities in disruptions to abortion care in Louisiana at the onset of the COVID-19 pandemic ☆☆☆

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ABSTRACT

Objectives: Prior research identified a significant decline in the number of abortions in Louisiana at the onset of the COVID-19 pandemic, as well as increases in second-trimester abortions and decreases in medication abortions. This study examines how service disruptions in particular areas of the state separately affected access to abortion care based on geography.

Study Design: We collected monthly service data from Louisiana's abortion clinics (January 2018–May 2020) and conducted mystery client calls to determine whether clinics were scheduling appointments at pandemic onset (April–May 2020). We used segmented regression to assess whether service disruptions modified the main pandemic effects on the number, timing, and type of abortions using stratified models and interaction terms. Additionally, we calculated the median distance that Louisiana residents traveled to the clinic where they obtained care.

Results: For residents whose closest clinic was consistently scheduling appointments at the onset of the pandemic, the number of monthly abortions did not change (IRR = 1.07, 95% CI: 0.84–1.36). For those whose closest clinic services were disrupted, the number of monthly abortions decreased by 46% (IRR = 0.54, 95% CI: 0.45–0.65). Similarly, increases in second-trimester abortions and decreases in medication abortions were concentrated in areas where residents experienced service disruptions (AOR = 2.25, 95% CI: 1.21–4.56 and AOR = 0.59, 95% CI: 0.29–0.87, respectively) and were not seen elsewhere in the state.

Conclusion: Changes in the number, timing and type of abortions were concentrated among residents in particular areas of Louisiana. The early stages of the COVID-19 pandemic exacerbated geographic disparities in access to abortion care.

Implications: Disruptions in services at the beginning of the COVID-19 pandemic in Louisiana meaningfully affected pregnant people's ability to obtain an abortion at their nearest clinic. These findings reinforce the importance of developing mechanisms to support pregnant people during emergency situations when traveling to a nearby clinic is no longer possible.

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1. Introduction

In early 2020, as the COVID-19 pandemic spread across the United States, many states enacted policies that limited health care to essential services [1], raising questions about whether abortion

was legally considered essential or elective [2]. The early months of the pandemic also presented challenges related to clinic capacity due to social distancing requirements, availability of providers and staff, and challenges securing personal protective equipment and other supplies [3,4]. Abortion providers were left unsure whether and how they could serve their patients. Since 2020, a body of research has emerged detailing impacts of the COVID-19 pandemic on the availability and provision of abortion. Studies have documented temporary closures of clinics [3]; delays and cancellations of appointments [3,5]; increased out-of-state travel [6]; decreased abortions in regions with existing restrictive policies [5,7]; and changes in service provision including increases in online medication abortion requests and shifts to telehealth services [8,9].

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Louisiana was an early COVID-19 hotspot, with cases quickly spreading across the state in March 2020 [10]. On March 21, the state Department of Health issued a directive postponing medical procedures except those to treat emergency conditions. Ambiguity regarding whether abortion was considered an essential service continued until early May 2020 [1]. Our prior research documented service disruptions at Louisiana abortion facilities during those months and further identified a 31% reduction in the number of abortions among Louisiana residents at the onset of the pandemic. We also found a significant increase in the proportion of abortions provided in the second trimester and significant decrease in the proportion using medication abortion [5].

This initial study, however, did not account for geographic patterns of service disruption. Among the many obstacles faced by pregnant people seeking abortion is the uneven geographic distribution of abortion providers across the country [11,12]. As a result, many pregnant people travel far from home to obtain an abortion. Traveling greater distances for an abortion is associated with increased financial and logistical challenges, mental health stresses, visiting the emergency room rather than the local abortion clinic for follow-up care, delays in care, and decreased use of services [13–17]. Understanding geographic patterns of service disruption and how these disruptions affect travel distance and use of services is particularly relevant given the US Supreme Court's recent *Dobbs v. Jackson Women's Health Organization* decision that eliminated the constitutional right to abortion. Similar to the early days of the COVID-19 pandemic, the immediate post-*Dobbs* landscape has involved considerable uncertainty about the legality of abortion provision, with service disruptions varying across and within states. In Louisiana, there have been challenges to the state's trigger ban in court, resulting disruptions in care since the *Dobbs* ruling [18]. Thus, information from experiences from the pandemic is highly relevant to what might be anticipated in the months after the *Dobbs* decision.

In this analysis, we consider whether there were disparate effects of abortion clinic disruptions for pregnant people in Louisiana in early 2020 based on their geographic proximity to a clinic that was consistently scheduling appointments or was experiencing service disruptions. We build on our original analyses, modeling whether the observed changes in the number, timing and types of abortions at pandemic onset were modified by geographic variation in clinics' service disruptions. In addition, we examine how disruptions in particular areas of the state affected abortion access by calculating distance traveled by Louisiana residents.

2. Material and methods

2.1. Data collection

As part of an existing project, we obtained data on all abortions provided at Louisiana's three abortion clinics between January 1, 2018 and May 31, 2020 by abstracting data from the Induced Termination of Pregnancy (ITOP) forms required by the state. Most (83%) abortions at Louisiana clinics were for Louisiana residents, with the remainder largely traveling from neighboring states. We limited our analysis to Louisiana residents, as we could determine their closest abortion clinic (as described below).

Additionally, we conducted mystery client calls between April 2, 2020 and July 8, 2020 to determine whether these clinics were open and scheduling abortion appointments (procedural and/or medication abortion), or if their services were disrupted. This analysis relies on 6 rounds of calls that were made weekly in April and biweekly in May. For each round, we called each clinic up to 3 times over 3 consecutive days or until successful contact was

made. The Institutional Review Board of the University of California, San Francisco approved the study protocol.

2.2. Measures

Abortion data included 3 outcomes: 1) *total abortions*, number of abortions provided per month; 2) *second-trimester abortions*, number of abortions provided in the second vs. first trimester per month; and 3) *medication abortions*, number of medication abortions vs. procedural abortions per month.

We created additional variables for analysis. The variable *COVID-19 pandemic* indicates whether the abortion was provided before or after pandemic onset. We used March 2020 for total abortions and medication abortion analyses to reflect when shelter-in-place orders were imposed; we used April 2020 for trimester analyses to allow time for delay to appear. *Time* is a continuous measure of months from January 2018 through May 2020 (1 to 29). The variable *time since pandemic onset* is given as 0 for months January 2018 through February 2020 and continuous [1–3] beginning March 2020, delayed by 1 month for trimester analyses. *Season* is a categorical variable indicating which quarter the abortion occurred to account for known seasonal trends in abortion [19]. In addition, patients' home *zip code* and *parish* (county) were available on state ITOP forms, which were used for distance analyses.

The mystery client calls determined whether each of Louisiana's 3 clinics was open and scheduling appointments in April and May 2020, or whether its services had been disrupted (due to the clinic being closed, not answering calls, or not scheduling appointments at that time). We created a dichotomous variable, *scheduling*, to indicate whether an abortion patient's closest clinic was consistently scheduling appointments or disrupted.

2.3. Analysis

We first examined the abortion data descriptively to understand the number of abortions and proportions of second-trimester and medication abortions at each clinic across the study period, with particular attention to the comparative 3-month period of March–May in 2019 and March–May 2020.

We used segmented regression, a method of interrupted time series analysis, to examine the impact of the pandemic on the number, timing, and type of abortions. Interrupted time series analysis is one of the most robust quasi-experimental methods for evaluating the impact of a large-scale intervention, policy or event [20]. The analysis benefits from a large number of data points, taking into account time trends that preceded the onset of the pandemic. We used generalized linear models with Poisson link functions for count (i.e., total abortions) and logit link for binary (i.e., second-trimester and medication abortions) outcomes. We replicated our original analyses [5] for each outcome, estimating models over the 29-month study period including COVID-19 pandemic as the main predictor and controlling for time, postpandemic onset time and season. To examine whether the main pandemic effect was modified by disrupted services at the closest clinic, we included an interaction term (*COVID-19pandemicXscheduling*) in each model. We also ran models for each outcome stratified by whether the closest clinic was scheduling appointments or disrupted.

To further understand Louisiana residents' experiences traveling during the early pandemic, we calculated the one-way distance traveled for patients from their zip code to the clinic where they obtained care, using the *georoute* program in Stata 15. We compared median distance traveled in March–May 2019 vs. March–May 2020, and then mapped these distances by parish using Microsoft Excel.

Table 1
Total number of abortions among Louisiana residents, by clinic, March–May 2019 and March–May 2020.

	Mystery call categorization	Total number of abortions		
		March–May 2019	March–May 2020	% Change
Clinic A	Scheduling	633	742	+17%
Clinic B	Disrupted	536	296	–45%
Clinic C	Disrupted	655	389	–41%

Table 2
Segmented regression models predicting changes in the number, timing, and type of abortions, stratified by whether the patients' closest clinic was scheduling or disrupted

	Total abortions IRR (95% CI)		Second-trimester abortions AOR (95% CI)		Medication abortions AOR (95% CI)	
	Scheduling	Disrupted	Scheduling	Disrupted	Scheduling	Disrupted
COVID-19 pandemic onset Time	1.07 (0.84–1.36)	0.54 (0.45–0.65)	1.21 (0.44–3.35)	2.35 (1.21–4.56)	1.32 (0.68–2.57)	0.59 (0.39–0.87)
Time since pandemic onset Season	0.99 (0.99–1.00)	1.00 (1.00–1.01)	0.99 (0.98–1.00)	1.01 (1.00–1.02)	1.00 (0.99–1.01)	1.00 (1.00–1.01)
January–March (ref.)	–	–	–	–	–	–
April–June	1.01 (0.94–1.13)	1.13 (1.04–1.22)	0.97 (0.52–1.80)	0.92 (0.62–1.38)	0.92 (0.67–1.27)	0.95 (0.80–1.13)
July–September	–	–	–	–	–	–
October–December	0.86 (0.80–0.93)	1.02 (0.97–1.07)	0.89 (0.72–1.11)	0.63 (0.52–0.75)	1.01 (0.80–1.27)	1.60 (1.44–1.78)
	0.75 (0.69–0.82)	0.92 (0.87–0.97)	1.02 (0.81–1.27)	0.82 (0.69–0.97)	0.82 (0.63–1.06)	1.44 (1.29–1.60)
	0.73 (0.67–0.80)	0.84 (0.79–0.89)	1.10 (0.88–1.38)	0.70 (0.58–0.84)	1.06 (0.82–1.37)	1.33 (1.19–1.49)

AOR, adjusted odds ratio; CI, confidence interval; IRR, incidence rate ratio.

3. Results

3.1. Disruptions to services

Mystery calls found differences in service availability across clinics at pandemic onset. Over the 6 rounds of calls, one clinic (Clinic A) was open and consistently scheduling abortion appointments every week; the other 2 clinics' services were disrupted. Clinic B was scheduling appointments 2 of 6 weeks called; Clinic C was not scheduling appointments any week called. When clinics were open and scheduling appointments, they were offering both procedural and medication abortion.

The change in the number of abortions, comparing March–May 2020 to March–May 2019, reflected the categorization of clinics as scheduling or disrupted based on the mystery calls. Descriptively, at Clinic A, the total number of abortions increased 17% compared to the prior year, whereas at Clinic B and C, the number of abortions decreased 44% and 41%, respectively, during that time (See Table 1).

3.2. Changes in number, timing, and type of abortions at pandemic onset

The overall segmented regression model indicated a 31% decrease in total abortions at pandemic onset (IRR = 0.69; 95% CI: 0.59–0.79). This effect was modified by whether the closest clinic was scheduling or disrupted ($p < 0.001$, see Appendix). The stratified models showed that, for Louisiana residents whose closest clinic was scheduling appointments, the number of monthly abortions did not change at pandemic onset (IRR = 1.07; 95% CI: 0.84–1.36). For residents whose closest clinic was disrupted, the number of abortions decreased 46% (IRR = 0.54; 95% CI: 0.45–0.65; See Table 2).

The overall model found greater odds of second-trimester abortions following pandemic onset (AOR = 1.91; 95% CI: 1.10–3.33). This effect was modified by whether the closest clinic was scheduling or disrupted ($p < 0.001$). In stratified models, the odds of second-trimester abortion did not change for Louisiana residents whose closest clinic was scheduling appointments (AOR = 1.21;

95% CI: 0.44–3.35), but significantly increased for those whose nearest services were disrupted (AOR = 2.35; 95% CI: 1.21–4.56).

The overall model found lower odds of medication abortion at pandemic onset (AOR = 0.61; 95% CI: 0.44–0.84). This effect was modified by whether the closest clinic was scheduling or disrupted ($p < 0.001$). In stratified models, the odds of medication abortion did not change for Louisiana residents whose closest clinic was scheduling appointments (AOR = 1.32; 95% CI: 0.68–2.57), but significantly decreased for those whose nearest services were disrupted (AOR = 0.59; 95% CI: 0.39–0.87).

3.3. One-way travel distance to abortion care

The one-way distance Louisiana residents traveled for their abortion varied by clinic, indicating farther travel to the clinic that was consistently scheduling appointments during the early pandemic than in the prior year. The median distance that residents traveled to Clinic A increased from 57 miles in March–May 2019 to 102 miles in March–May 2020. The distance stayed similar for Clinic B (27 miles in 2019, 23 miles in 2020) and Clinic C (11 miles in 2019, 12 miles in 2020), the 2 clinics with disrupted services.

Figure 1 displays the median distance traveled by parish of residence, in March–May 2019 and March–May 2020. Pregnant people in the Northwest and Southeast parts of the state continued to receive services at the clinics nearest to them. Those in the central areas of the state traveled farther in 2020 than in 2019.

4. Discussion

The early months of the COVID-19 pandemic were characterized by considerable disruptions to health care in general, and abortion specifically. As in other states [21], Louisiana experienced significant decreases in abortions during that time. In this analysis, we found that observed changes in the number, timing, and type of abortions were concentrated among residents in particular areas of the state. For residents whose closest clinic was consistently open and able to schedule appointments, abortions did not change; however, for those whose closest clinic services were disrupted, the number of monthly abortions decreased substantially, by 46%.

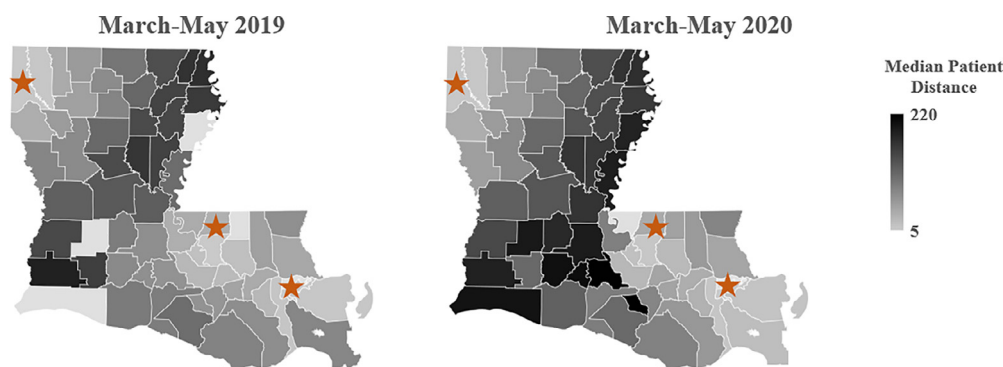


Figure 1. Median patient distance traveled by Louisiana residents to Louisiana abortion clinics, by parish, in March–May 2019 and March–May 2020. Stars indicate approximate location of Louisiana's three clinics.

Similarly, increases in second-trimester abortions and decreases in medication abortions were concentrated in areas where residents experienced service disruptions. The loss of one's closest clinic – even if it is not particularly close to home – had a measurable impact on access to abortion care.

Notably, while the overall number of abortions in Louisiana decreased in March–May 2020 relative to those months in 2019, services actually increased at the one clinic that was able to consistently schedule appointments that spring. This clinic was able to serve patients who, in a typical year, would have likely gone to another clinic. Median travel distance to the open clinic also increased considerably, as residents were coming from farther away. Interestingly, this displacement of pregnant people to that clinic also resulted in an overall decrease in the proportion of medication abortions, an unexpected finding given the ability of medication abortion to be distributed through protocols that can reduce COVID-19 exposure for clinic staff and patients [9,22]. Through post-hoc analyses presented in our prior paper [5] and further examined here, we found that medication abortion provision was typically less common at the open clinic than at the other sites. The statewide change thus reflected specific clinic practices, a further indication of how individual clinic closures, whether temporary or permanent, can affect the ability of pregnant people to realize their abortion preferences.

It is important to note that all three clinics continued to provide abortion care as COVID-19 spread across Louisiana. While we characterized the services at two clinics as “disrupted” due to challenges reaching the clinic to schedule an appointment, at no time did abortion care in the state cease. It is a testament to these clinics that they were able to provide care despite legal questions about the state order postponing nonessential health services, as well as workforce shortages, logistical challenges, and concerns about viral transmission [3]. It is not clear from these analyses why the one clinic was able to schedule appointments in this context, while the others were not. Further understanding of clinic experiences could inform, and potentially prevent, future disruptions in care.

Both during and irrespective of the COVID-19 pandemic, travel has been a considerable burden for people seeking abortion. People living in rural communities and in the Midwest and South have long been faced with increasing distances to reach an abortion provider [11,23,24], and this trend is likely to escalate with the US Supreme Court's recent *Dobbs* decision. While there are questions about the extent to which our findings generalize to other disruptions to the availability of abortion services [25,26] – these findings indicate that such disruptions meaningfully affect people's ability to obtain abortions. While some people were able to overcome the barriers to care presented by these service disruptions, many were

not, and thus may experience physical and socioeconomic consequences of being unable to obtain a wanted abortion [27,28]. With the *Dobbs* decision, clinics in many states will close. Our findings from the early COVID-19 pandemic highlight the greater impacts likely for pregnant people in areas of the country who live far from a clinic that remains open and scheduling appointments. As during the pandemic, the availability of medication abortion post-*Dobbs* – at clinics, through telehealth, and self-sourced over the internet – will be critical to providing safe and effective options for those experiencing service disruptions due to their geographic location [29–31].

We note this study's limitations. Due to the timeline of our overarching study, we ended data collection in May 2020 and therefore were unable to track trends after that point. We note, however, that this focus on the earliest months of the pandemic means that our data are unlikely to reflect pandemic-associated changes in the number of people who became pregnant or the intendedness of their pregnancies. Second, we began conducting mystery calls to clinics in April 2020, and therefore do not have data to examine disruptions in March as the pandemic began in Louisiana. As a result, our categorization of clinics as consistently scheduling or disrupted is imprecise. We also note that Louisiana residents may have traveled to other states for their abortion, if they found that their closest clinic was not scheduling appointments. We did not see this trend in our review of abortion data from neighboring states as part of our original analyses [5], but, if so, we overestimated the decrease in abortion and underestimated residents' travel distances.

In summary, service disruptions in Louisiana meaningfully affected pregnant people's ability to obtain an abortion at their nearest clinic. The early stages of the COVID-19 pandemic changed and exacerbated geographic disparities in access to abortion care in Louisiana. These findings reinforce the importance of developing mechanisms to support pregnant people during emergency situations when traveling to a nearby clinic is no longer possible.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.contraception.2022.07.012](https://doi.org/10.1016/j.contraception.2022.07.012).

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