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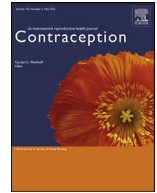
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COVID-19's impact on contraception experiences: Exacerbation of structural inequities in women's health

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ABSTRACT

Introduction: Structural inequities may impact the relationship between COVID-19 and access to contraception.

Methods: In July 2020 and January 2021, we used social media to survey 2 samples of women of reproductive age who had not been surgically sterilized and were not currently pregnant about their experiences seeking contraception. We explore whether experiences differed for people experiencing social and/or economic disadvantage due to COVID-19, using multivariable logistic regression to control for age, education and income.

Results: In July 2020, 51.5% of respondents who sought contraception (total $N = 3064$) reported barriers to care compared to 55.3% in January 2021 (total $N = 2276$). A larger percent (14% in July 2020 and 22% in Jan 2021) reported not using their preferred method of contraception due to COVID-19. Individuals experiencing income loss (OR = 1.61, 95% CI 1.27–2.04 early in the COVID-19 pandemic and OR = 1.58, 1.21–2.06 mid COVID-19 pandemic) and hunger (OR = 1.73, 1.24–2.40 early and OR = 2.02, 1.55–2.64 mid-COVID-19 pandemic) were more likely to report they would be using a different method if not for COVID-19, compared to respondents without income loss or hunger.

Conclusions: COVID-19 has complicated access to contraception, especially for disadvantaged populations.

Implications: Efforts are needed to ensure access to contraception despite the COVID-19 epidemic, especially for disadvantaged populations.

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1. Introduction

Structural inequities (i.e., sociocultural and political disadvantages created by unfair systems) in access to reproductive health care, including contraception, in the United States (US) predated the COVID-19 pandemic [1–4]. The COVID-19 pandemic may be exacerbating existing structural inequities in the US and shifting the context of people's lives through restrictions on movement, negative economic impacts, fear of infection, and limitations on access to health care [5]. Throughout this paper we use the term "COVID-19" for the broad range of COVID-19's impacts including lockdown, restrictions on movement, availability of services, and

the disease itself. These shifts may alter people's decisions, intentions, and behaviors around pregnancy prevention as well as pregnancy outcomes [6,7], including access to and use of contraception [8,9]. Populations that already experience social disadvantage (i.e., people of color, immigrants, those living in poverty, etc.) or economic disadvantage (insecurity in terms of food, housing, or income) are particularly vulnerable to negative impacts of the social and structural effects of COVID-19 on reproductive autonomy [10–12].

Across the US, critical services have shifted, if not stopped entirely due to COVID-19. As hospitals and clinics have reduced hours for nonurgent care, including preventive, prenatal, and contraception care, delayed abortion procedures, and imposed restrictions during labor and delivery, women's ability to exercise reproductive autonomy has become increasingly strained [13]. Many health systems have transitioned to virtual care encounters to mitigate

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changes in routine care delivery [14,15]. Preliminary findings from a national survey from early in the COVID-19 pandemic (late April–early May 2020) showed that since the onset of the COVID-19 pandemic nearly 30% of women delayed care, yet telehealth provided an alternative for some to access care such as obtaining or refilling a prescription for contraception [16]. This same study found that barriers to obtaining health care were more pronounced for lower-income (those with a household income less than 200% of the 2019 federal poverty level) women. Another recent study from early in the COVID-19 pandemic found that women who experienced challenges paying for food, housing or transportation were more likely to report a decreased desire to be pregnant [17]. Furthermore, women who experienced these same challenges, and who had their income decrease, were more likely to report more difficulty in accessing contraception during COVID-19. Catastrophic disasters can greatly affect the health care system, including reproductive health and access [18,19]. For instance, women who experienced multiple traumatic situations during Hurricane Katrina had an increase in preterm deliveries [20]. Emerging estimates of socioeconomic, ethnic and geographical inequalities in COVID-19 infection and mortality rates, mirror the inequalities seen during prior pandemics such as the 1918 Spanish influenza or the 2009 H1N1 influenza [21]. Delivery of primary care services has changed with the COVID-19 pandemic, including increased use of telemedicine [22].

As the COVID-19 pandemic continues, ongoing data collection is important for understanding how COVID-19 continues to impact people's access to and use of contraception for informing care today, especially for populations for whom pre-COVID-19 pandemic care was already suboptimal. There are limited studies on the impact of COVID-19 on access to contraception in the US, specifically what barriers women may be facing. Furthermore, more data are needed about which existing inequities might be heightened by COVID-19, and if economic impacts of COVID-19 further exacerbate barriers to contraception. The aim of this paper is to describe barriers to and satisfaction with contraception use in the US due to COVID-19 and how these changed over the COVID-19 pandemic. We also explore sociodemographic factors, including race and the role of economic impacts of COVID-19 on barriers to care and satisfaction with contraception methods. Our sample includes people who responded to our survey indicating that they were women (we use the word “women” to describe those that answered the survey in the remainder of the paper, while acknowledging that trans, nonbinary, and gender expansive people may also need and benefit from contraception care).

2. Methods

This data is part of a larger study on the experiences of women seeking contraception, prenatal, postnatal, miscarriage and abortion care during COVID-19. In this paper we report on the findings related to contraception care. We recruited English- or Spanish-speaking women ages 18 to 45 through Facebook and Instagram Ads (henceforth referred to as Facebook Ads since both are owned by Facebook) in July 2020 for 1 week. We used the same approach to recruit a new sample of women in January 2021 (although ads ran for 3 weeks to recruit a similar sample size). To recruit participants, we designed Facebook Ads (Fig. 1) which were then shown in Facebook users' feeds. The Ads had a link to an informed consent, followed by the survey (Fig. 1). All data were recorded in Qualtrics and stored on a secure network. This study was approved by a University Institutional Review Board.

Tell us about your current reproductive health experiences and earn up to \$40 by participating in research conducted by UCSF



Fig. 1. Sample advertisement for recruitment on Facebook.

2.1. Data

We cleaned the data first to remove responses that stemmed from the same IP addresses, incomplete surveys, surveys filled out too quickly (potentially bots) and women who were not eligible, including those who reported permanent contraception, under 18 or over 49.

Contraceptive care variables: Among those who indicated interest in contraception, a need for contraception at the present moment, and they had tried to make an appointment, we asked about barriers faced in obtaining care, giving them a selection of options (Table 1). We then asked all women if they had barriers switching, discontinuing or starting a new method during the COVID-19 pandemic, again with a list of options (Table 2). Finally, we asked all nonpregnant women if they would be using a different method if it was not for the COVID-19 pandemic, with the option choices of yes, no and not sure. We created a binary variable for this item combining yes (1) compared to no/not sure (0).

Sociodemographics: We included the following sociodemographic variables in our models: age (continuous), education (categorical: college degree, 4 years of college, technical or at least 1 year of college, high school or GED or less than high school), and annual household income (categorical, \$25,000 income ranges). We also included a binary variable for race with those identifying as non-Hispanic white coded as 0 and BIPOC (Black, Indigenous, and People of Color) coded as 1.

Impact of COVID-19 on economic stability: To measure the impact of COVID-19, we asked respondents if they had lost income or a job due to the COVID-19 pandemic (2 separate questions, Yes/no response options). We also asked if there was any day in the last 3 months (since COVID-19 began) that respondents or anyone in their house went hungry because there was not enough money for food (Yes/no response options).

2.2. Analysis

We described (using frequencies and percentages) barriers to receiving care for contraception, barriers obtaining a method, and usage of a different method if it were not for COVID-19. We then conducted chi square tests to explore differences by food security, income and job loss, and BIPOC in women's reports that they would be using a different method if it were not for COVID-19.

Table 1
Characteristics of respondents to an online survey in United States, 2020-21

	Early-COVID-19 pandemic (July 2020) <i>n</i> (%)	Mid-COVID-19 pandemic (Jan 2021) <i>n</i> (%)	Total <i>N</i> (%)
Age group			
<=20	178 (5.8)	111 (4.9)	289 (5.4)
21-29	1234 (40.3)	811 (35.6)	2045 (38.3)
30-39	1316 (43)	1034 (45.4)	2350 (44)
40+	336 (11)	320 (14.1)	656 (12.3)
What is your the highest completed education level?			
8th grade or less	7 (0.2)	34 (1.7)	41 (0.8)
Still in HS, have not graduated yet	4 (0.1)	16 (0.8)	20 (0.4)
Some HS, did not graduate	48 (1.6)	67 (3.3)	115 (2.3)
HS graduate or GED	294 (9.6)	455 (22.3)	749 (14.7)
Some college or specialized training	803 (26.3)	697 (34.1)	1500 (29.4)
4-year college degree	981 (32.1)	521 (25.5)	1502 (29.4)
More than a 4-year college degree	922 (30.1)	253 (12.4)	1175 (23)
In which annual income category does your household belong?			
<\$25, 000	612 (20%)	583 (29%)	1195 (24%)
\$25,000–75,000	1277 (42%)	960 (48%)	2237 (44%)
\$75,000–150,000	867 (29%)	410 (20%)	1277 (25%)
Over \$150,000	282 (9%)	66 (3%)	348 (7%)
Race/ethnicity			
White	1816 (59.2)	952 (41.8)	2768 (51.8)
BIPOC	1249 (40.8)	1327 (58.2)	2576 (48.2)
Have you lost income due to COVID-19 related work changes?	1375 (44.9)	1084 (52.6)	2459 (48)
Have you lost your job due to the COVID-19 pandemic?	546 (17.9)	628 (30.4)	1174 (22.9)
In the past 3 months, was there any day when you or anyone in your household went hungry?	265 (8.7)	417 (20.7)	682 (13.5)

BIPOC, Black Indigenous and People of Color.

Table 2
Barriers to care for contraception users who sought care during the COVID-19 pandemic, online survey in the United States 2020-2021

	Early-COVID-19 pandemic (July 2020) <i>N</i> (%)	Mid-COVID-19 pandemic (Jan 2021) <i>N</i> (%)	Total <i>N</i> (%)
Not able to go to all scheduled appointments because of shelter in place	47 (9.3)	55 (10.5)	102 (9.8)
Not able to go to all appointments because I'm afraid to go to the clinic/facility	55 (10.8)	62 (11.6)	117 (11.2)
Not able to go to all appointments because I'm afraid to go outside in general	29 (5.7)	48 (9)	77 (7.4)
Not able to go to all scheduled appointments because clinics/facilities are closed or used for other services	71 (14)	66 (12.4)	137 (13.2)
Not able to go because not enough time due to household responsibility	32 (6.3)	65 (12.2)	97 (9.3)
Not able to go because I did not have enough money	17 (3.4)	39 (7.3)	56 (5.4)
Not able to have a companion with me at my visits	114 (22.4)	113 (21.2)	227 (21.8)
None of the above	240 (47.3)	235 (44.1)	475 (45.7)
Other	23 (4.5)	23 (4.3)	46 (4.4)

Participants could check all barriers that applied.

Next, we used logistic regression models to explore if these 4 factors are associated with a preference for using another method. In our models we included a continuous variable for age and categorical variables for education and income bracket.

3. Results

Respondents recruited early and mid- COVID-19 pandemic were relatively similar (Table 1). In total, there were 3064 nonpregnant respondents in July 2020 (early COVID-19 pandemic) and 2276 nonpregnant respondents in January 2021 (mid-COVID-19 pandemic).

Participants were asked if they were interested in using a contraceptive method and if they had a present need for contraception. Amongst those who indicated yes to these questions and had tried to make an appointment (Early COVID-19 pandemic *N* = 507, mid COVID-19 pandemic *N* = 533), just under half (48.5% and 44.7%) said that they did not face any barriers to contraception (Table 1). Of those that reported at least one barrier, the most common was not being able to have a support person with them (22.3% and 21.3%). This was followed by (for both rounds combined) the clinic being closed (13.2%), being afraid to go to the clinic (11.2%), shelter in place (9.8%), or not having time due to childcare/household responsibilities (9.3%). More women reported not having enough money, being afraid to go outside in general

Table 3
Challenges with contraceptive method use among contraception users, online survey in the United States 2020–2021

	Early pandemic (July 2020) N (%)	Mid-pandemic (Jan 2021) N (%)	Total N (%)
Because of the COVID-19 pandemic, have you faced a barrier with any of the following? [check all that apply]			
Yes, I had trouble getting a new prescription for the same method	185 (6.1)	236 (11.2)	421 (8.2)
Yes, I had trouble starting a new method	266 (8.7)	255 (12.1)	521 (10.1)
Yes, I had trouble getting my same method from a grocery store/pharmacy or other place I usually get it	183 (6)	174 (8.2)	357 (6.9)
Yes, I had trouble having my IUD removed	53 (1.7)	69 (3.3)	122 (2.4)
Yes, I had trouble having my implant removed	23 (0.8)	70 (3.3)	93 (1.8)
Yes, I had trouble getting another shot	20 (0.7)	35 (1.7)	55 (1.1)
No problems	2430 (79.7)	1482 (70.2)	3912 (75.8)
Would you be using a different method if it was not for COVID-19?	424 (13.9)	456 (21.6)	880 (17.1)

Table 4
Differences in preference for using another method by race and economic impact of COVID-19, online survey in the United States 2020–2021

	Early-COVID-19 pandemic (July 2020)		Mid-COVID-19 pandemic (Jan 2021)	
	Would not be using a different method* N (%)	Would be using a different method N (%)	Would not be using a different method* N (%)	Would be using a different method N (%)
Woman of color				
White	1589 (88)	223 (12)	780 (82.5)	165 (17.5)
BIPOC	1036 (84)	201 (16)	876 (75)	291 (25)
Income loss				
No income loss	1499 (89)	179 (11)	818 (84.4)	151 (15.6)
Income loss	1125 (82)	244 (18)	788 (73.2)	289 (26.8)
Job loss				
No job loss	2177 (87)	321 (13)	1171 (82)	254 (18)
Job loss	441 (81)	102 (19)	435 (69.7)	189 (30.3)
Food insecurity				
No food insecurity	2422 (87)	351 (13)	1300 (82)	287 (18)
Food insecurity	195 (74)	70 (26)	268 (65)	147 (35)

*Those who said “don’t know” categorized as “Would not be using a different method.”

and household responsibilities in mid COVID-19 pandemic compared to early COVID-19 pandemic.

While most women did not report difficulties with their contraceptive method, this was lower mid COVID-19 pandemic than early COVID-19 pandemic, 80.5% to 70.1% (Table 3). Challenges with getting a method were higher mid compared to early COVID-19 pandemic. By mid-COVID-19 pandemic, 11.9% of respondents stated that they had trouble starting a new method due to COVID-19, 11.9% had trouble getting a new prescription for the same method and 8.5% said that they had trouble getting their method from the place they usually get it (grocery store/pharmacy or other place). Specific methods mentioned included 3.4% having trouble getting an IUD removed, 3.4% an implant removed, and 1.6% a shot (data both rounds combined). Finally, early in the COVID-19 pandemic, 13.5% of all respondents who were contraceptive users stated that they would be using a different method if it was not for COVID-19 and this increased to 21% in mid-COVID-19 pandemic.

BIPOC women, women who experienced job or income loss, and who experienced food insecurity were all more likely to report that they would be using a different contraceptive method if it was not for COVID-19 both early and mid-COVID-19 pandemic (Table 4). These differences were significantly different (with $p < 0.00$), with the exception of early COVID-19 pandemic for BIPOC women. The difference in reports of difference in method they would be using between women who did and did not experience any of the economic shocks (job or income loss or food insecurity) also grew more extreme over time.

Adjusting for age, education, income as well as economic impacts of COVID-19, BIPOC women had increased odds by 1.25 (95%

CI 1.00–1.54) early COVID-19 pandemic and 1.51 (1.21–1.90) mid COVID-19 pandemic, compared to white women, of reporting that they would be using a different method (Table 5). Women who experienced income loss also had increased odds, compared to women who did not (early COVID-19 pandemic: OR = 1.61, 1.27–2.04, mid COVID-19 pandemic: OR = 1.58, 1.21–2.06). Similarly, women who experienced hunger due to COVID-19 also had increased the odds, compared to women who did not (early COVID-19 pandemic: OR = 1.73, 1.24–2.40, mid COVID-19 pandemic: OR = 2.02, 1.55–2.64). Higher education (compared to lower) was associated with decreased odds, and income level was associated with increased odds, but only in mid- COVID-19 pandemic.

4. Discussion

Our findings indicate that women were facing barriers to care because of COVID-19, both early and mid-COVID-19 pandemic, with about half of contraception users who sought care during the COVID-19 pandemic reporting at least one barrier to contraception. These findings are especially interesting in light of evidence that the number of births in the United States fell during COVID-19, as we would expect that barriers could lead to mistimed or unintended pregnancies [23]. Barriers included lack of support persons being able to attend health care visits (22%), barriers related to facility closures (8.6%), fear of COVID-19 (4.2%), and household burden/responsibilities (4%). It was surprising how frequently lack of support was mentioned by respondents, and we do not know what type of support women were lacking (for example, instrumental, like driving someone to an appointment, or emotional, such as

Table 5

Association between experiencing economic hardship, socio-demographics, and impact of COVID-19 on using method of choice, online survey in the United States 2020–2021 (Odds Ratios adjusted for all variables in the table)

	Early-COVID-19 pandemic (July 2020) Would be using a different method Odds ratio (95% confidence interval)	Mid-COVID-19 pandemic (Jan 2021) Would be using a different method Odds ratio (95% confidence interval)
Being BIPOC	1.24 (1.00–1.54)	1.51 (1.21–1.90)
Income loss due to COVID-19	1.61 (1.27–2.04)	1.58 (1.21–2.06)
Job loss due to COVID-19	1.03 (0.78–1.37)	1.24 (0.95–1.63)
Hunger due to COVID-19	1.73 (1.24–2.40)	2.02 (1.55–2.64)
Age	1.01 (0.99–1.02)	0.99 (0.970–1.004)
Education	0.84 (0.75–0.93)	0.88 (0.80–0.97)
Income level	1.01 (0.96–1.07)	1.10 (1.02–1.17)
Constant	0.22 (0.11–0.46)	0.28 (0.13–0.59)
Observations	3003	1978

being with someone at an appointment, or for shared decision-making, etc.). Specifically related to facility closures, evidence suggests that this could lead to challenges getting new prescriptions, new methods, or their method at the location that they usually go to. Fear of going to the facility for reproductive health services during COVID-19 has been noted in other countries, but not yet documented in the United States [24]. Additionally, COVID-19 led to an increase in household responsibilities for many caregivers, especially women, who now may be juggling having children at home, trying to provide care and education to them, while having their own careers and other household responsibilities [25]. We find that this additional burden created challenges for a minority of women to access contraceptive care.

Perhaps most alarmingly, a substantial and increasing proportion of women stated that they would be using a different method if it was not for COVID-19. This suggests lack of satisfaction and, potentially that women are not having contraceptive preferences met. More in-depth information is needed on why this was the case, and if this was an access issues, what methods women had trouble accessing and wanted to be on but could not access. This could also be reflective of women's reproductive autonomy being compromised, if they were not offered (given the choice to use) the methods that they desired because of the COVID-19 pandemic.

We find that barriers and lack of method satisfaction increased between July 2020 and January 2021. We might have expected that as our health care system became more adapted to COVID-19 that we may have been able to provide better care and that women would have more satisfaction with their method. However, this was not the case. This may be due to systems becoming increasingly overwhelmed with time and those barriers to care piling up for women, leading to more dissatisfaction over time. Also, there was a surge in COVID-19 cases in the winter, and thus, the January 2021 time period may actually be capturing a time when there were more restrictions on receiving care. July 2020 was a time of much lower COVID-19 case rates, and thus may, in some ways, represent a period of relative calm compared to the winter surge.

COVID-19 has also heightened differential access to sexual and reproductive health care by race and ethnicity. BIPOC are at increased odds of not using the method they would prefer to be using, as are all women who are facing economic hardship (income loss or food insecurity). Infection and death rates from COVID-19 disproportionately affect BIPOC [26,27], and our analysis shows that these populations may have also been disproportionately affected in terms of contraceptive care. Recent studies have linked income inequality to COVID-19 infection and cases, and research has found that racial/ethnic minorities were more likely to report economic impacts from COVID-19 [17,28].

Study strengths include collecting a large amount of data rapidly (and inexpensively) from a heterogeneous population of women across the US on COVID-19's impact on contraception ex-

periences and access, early and mid-COVID-19 pandemic, allowing for comparisons over time in the COVID-19 pandemic. This study also has limitations. First, as with all studies recruiting from social media samples, we do not know our sampling frame, in other words, who the sample of women on Facebook who were shown the ads and who chose to click on those ads were and how they differ from a random sample of women in the United States. Recruitment via social media has been used by a number of researchers who have compared findings to representative samples and found that they were fairly representative [29–31]. While not necessarily representative, a previous study has found smaller differences between online and more standard sampling techniques than between commonly used existing samples themselves [32]. While the findings from our sample cannot be generalized to the broader US population, we are able to draw inferences about a diverse sample of social media using women in the United States. Another limitation is that some of questions were only asked to women who sought care during the COVID-19 pandemic, which was a smaller sub-set of respondents, and thus limits our interpretation.

COVID-19 impacted women's ability to meet their contraceptive needs and goals, and potentially exacerbated already existing unmet contraceptive needs and inequities in the quality of contraceptive care, subsequently threatening women's contraceptive autonomy. In the short term, understanding the impact of the COVID-19 pandemic on contraceptive care experiences, use and decision making can inform interventions to mitigate adverse effects on sexual and reproductive health outcomes. Identifying which subgroups, who may be already disadvantaged, became increasingly disadvantaged by COVID-19, can help reproductive health providers, policy makers, and advocates address the impacts of this current and future crises on access to essential reproductive health services.

Declaration of Competing Interest

The authors declare no conflict of interest.

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