

Increasing barriers to women and men's access to maternal and reproductive health care in India due to COVID-19 over time

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Abstract

COVID-19 and its associated lockdowns and restrictions on movement may be impacting women and men's fertility preferences and access to and use of health care services including family planning, prenatal and postnatal care. Yet we know little of its impact to date, especially in low- and middle-income countries, including India. Understanding how COVID-19 impacts preferences and use of these services now, and as persists, is essential for improving access and use today. Additionally, collecting data as the pandemic unfolds can inform fertility and other health related outcomes we may see in the future. To meet this need, we conducted 4 rounds of monthly online surveys with a volunteer sample of men and women on Facebook from India between April and July 2020; a period when the national lockdown was tapered from the strictest to restricted. We find that about 70% of people reported that their fertility preferences were changed, mostly to wanting children later. While about 75% of respondents reported no barriers to family planning due to COVID-19, about half of those pregnant or postpartum reported barriers to pre and postnatal care. Fear of going to a facility and financial concerns were primary barriers. These early findings mirror what has been seen in developed countries. Results also suggest that information assuaging fears about going to facilities may be important for ensuring continued care for maternal and reproductive health in this setting.

Background

There have been reports and commentaries highlighting the possible impact of COVID-19 pandemic and associated lockdowns on family planning services, and resulting mistimed or unintended pregnancies (1,2). UNICEF estimated a potential 7 million unintended pregnancies globally, caused by disruptions in contraception supply and use due to COVID-19 (3). Another analysis of women in low-and-middle-income countries (LMICs) estimated that a 10% decline in the use of contraception could result in roughly 49 million women with an unmet need for family planning and an extra 15 million unintended pregnancies in the year following the COVID-19 pandemic. The same decrease in access to safe abortion services (10%) was estimated to lead to an additional roughly 3.3 million unsafe abortions and 1,000 additional maternal deaths. Other reports have highlighted the potential risk of reduced access to and care-seeking of prenatal, delivery, and postnatal services in health facilities (2). This study also estimated that a 10% decrease in coverage in prenatal and newborn care would result in an additional 28,000 maternal- and 168,000 newborn-deaths.

In India specifically, data from public health care centers suggested a drop in women receiving contraception as early as March (1) when the COVID-19 pandemic started receiving serious attention but before the lockdown was imposed. Another study among maternal and child health care providers in many countries, including India, found reports of a drop in patients coming for services, non-compliance with vaccination schedules in the postpartum period, and other disruptions to standards of care and procedures leading to outcomes such as increased caesarean rates and shorter stays in the facility (4). There are myriad explanations for this, including staff shortages, the system being overwhelmed with COVID-19 response, and patients' fear of visiting facilities (2). Additionally, private clinics providing contraception and abortion in India, such as Marie Stopes International, were forced to close due to COVID-19, again reducing options for women (5). In India, many women receive contraceptive services outside of health facilities, from pharmacies and social marketing agencies. Lockdowns and resulting restrictions on movement outside of the home and limits on transportation options, are likely to make accessing contraception challenging for many, in addition to supply chain disruptions (2). Finally, many women especially in rural areas or poor urban areas receive information and support for family planning and prenatal and postnatal services from community health workers, who have been re-assigned to providing care and information related to COVID-19.

If we see a change in contraceptive use patterns, either increases or decreases, it could be due to actual barriers (or facilitators) to services themselves, as discussed above. However, people might also be changing their fertility preferences (desire in the timing of childbearing, number of children desired, etc.) in a time of upheaval. Thus, collecting data on fertility preferences and how they might be impacted by COVID-19, and accounting for these alongside changes in contraceptive use, is essential.

India's COVID-19 response timeline

India reported its first COVID-19 case on January 30, 2020, and as number of positive cases increased to 563, India closed its international borders and enforced the world's strictest nationwide lockdown on March 24, 2020 until April 14, 2020. During this period, all government offices were shut for 21 days, except essential services such as fire, police, and hospitals. All private and public sector operations were shut except essential manufacturing, banking, vegetables and groceries, and pharmacies. Logistics and supply

chains were severely restricted. This containment measure was meant to give the government time to prepare for a possible surge in cases. (6,7) Lockdown 2.0 was 19 days (from 15th April- 3rd May) when only selected additional activities were allowed by the district administrative officer. In lockdown 3.0(4th -17th May), the lockdown guidelines were applicable based on risk profile of the districts such as red(hotspot), orange and green zones. The guidelines of lockdown 4.0 (from 18th -31st May) were announced by the states depending on the state level intensity. Domestic travels are allowed through -bus, train and flights under the precautions by the ministry of health (social distancing, compulsory of face mask and home-quarantine). On May 30, 2020, the government of India announced “Unlock 1.0”. Afterwards, between July to October, phase-wise unlock has been announced. Further, this nationwide lockdown was extended until May 17, 2020 by which time nearly 50,000 confirmed cases were reported. Around the same time, the Indian government also established a 3-zone system which divided the districts based on the number of reported COVID-19 cases into red, orange, and green with certain relaxations applied based on the severity of case load. (8)

Beginning June 8, 2020, the Indian government established phased reopening guidelines after 75 days of nation-wide lockdown. During this phased reopening, the states were given autonomy to impose lockdown restrictions only in the containment zones, while certain activities were allowed in other zones in a phased manner. This first phase of reopening (June 1-30th) was called Unlock 1.0 which permitted shopping malls, religious institutions, hotels, and restaurants to start functioning. However, night curfews were observed and gatherings or inter-state travel was still not permitted. (9)The next phase of reopening (July 1-31st), Unlock 2.0 included continued lockdown in containment zones based on COVID-19 caseload but allowed reopening of state borders and limited international travel. (10) At the time of writing this paper, India has instituted Unlock 4.0 phase which involves continued lockdown in containment zones until 30th September 2020. Physical distancing and face coverings / masks continue to be mandatory in public places, workplaces, and public transport. (11) It is also important to note that the un-lockdown norms were often more stringent than center guidelines in states and districts with high burden of COVID-19 cases.

Status of reproductive and maternal healthcare in India

According to the National Family Health Survey of India (NFHS-4, 2015-16) estimates, 53.5% of the currently married women of reproductive age group (15-49 years) use any type of contraception method. The majority of currently married women rely on female sterilization (36%) and only 11.20% of women on reversible or temporary modern method such as Intrauterine Devices (IUD), Pill or condoms. The unmet need for postponing or stopping childbearing at national level is 13% and it varies widely between 30% in Manipur to 4.6% in Andhra Pradesh (12). The total fertility rate has fallen from 2.7 children in 2005-06 to 2.2 children per woman in 2015-16 with simultaneous marginal reduction in current use of contraception (56.3% in 2005 to 53.5% in 2015-16); this may indicate an increasing trend in abortion in India (12). Nearly half of pregnancies were unintended (13). Most women seek prenatal services, with 51% of women having the recommended four prenatal visits (12). Because of a conditional cash transfer scheme, the percent of institutional deliveries has raised substantially from 38.7% to 78.9% between 2005-06 and 2015-16 (16). Postnatal care is much lower, with 30% of women not having any postnatal visits.

Contraceptive use in India is highly women-centric due to existing patriarchal norms, gender inequality, and female stereotyping in unions and reproduction (14). Men are important decision-makers in contraceptive uptake and method choice (15). Therefore,

gathering men's perspective on maternal and reproductive health service access and use during COVID-19 is important to study (17).

Challenges of Research during COVID-19 times

From a methodological standpoint, due to COVID-19, there is increasing interest in methods of data collection that can collect data quickly from people without personal interactions, such as over the phone and online. Recruitment via social media platforms, such as Facebook, is one such approach for recruiting people and collecting data from them. A number of studies have employed this technique during the recent pandemic, and interesting contributions are being made in terms of thinking about the ethics, representativeness, weighting, and general approaches of such methods (18,19).

Limited research of this nature has been carried out in LMICs, especially studies involving multiple rounds of data collection. One recent study that did use Facebook Ads for recruitment in India noted that they found no other published studies in India using this approach (20). Internet recruitment of participants through advertising are relatively cost-effective and time-efficient and have been used to recruit adolescent girls for a clinical trial. (21) However, there have been debates on best practices to design online surveys during COVID-19 using social media including duration of such surveys, monetary/non-monetary incentives to increase response rate, to managing fraudulent data problems. Providing some insight into these questions will help future researchers design better surveys and collect higher quality data.

Research Objectives

To date, there is limited data on how COVID-19 has actually impacted men and women's family planning and abortion access and use, and use of prenatal and postnatal services, and what specific barriers they are facing due to COVID-19. We also do not know how these have changed over time as restrictions on movement shifted throughout the course of the pandemic and its corresponding response. Understanding the impact of the COVID-19 pandemic and associated lockdowns can help us understand how to continue to provide services to women and men, which is vital in light of the fact that COVID-19 is likely to continue and lockdowns of various types are likely to continue over the coming months. The primary objective of this paper is to describe the impact of COVID-19 on fertility preferences, and barriers to family planning, prenatal and postnatal care use in India and explore if differences emerge by sex. A secondary objective is to describe our data collection approach, and discuss successes, challenges and lessons learned about using social media to recruit and collect data from respondents in an LMIC, India, over time.

Methods

Online survey data was collected at four timepoints: mid-April, mid-May, mid-June and mid-July, 2020. Men and women living in any part of India were recruited for the survey using Facebook advertisements (ads). We attempted to oversample women of reproductive age since there are more men on Facebook in India in general and we were interested in reproductive and maternal health outcomes. A number of visual ads with images of women and men at different stages of their life-course were sent out using Facebook ads (see Appendix X). Ads would appear in someone's Facebook news feed stream, with a link for respondents to click on to learn more. If respondents clicked on the link, they were directed to a webpage with information about this study and an

informed consent. If they consented to participating in the survey, they were then fed the survey questions. Data was collected using a survey programmed into Type form survey software for Round 1 and Qualtrics survey software (Provo, Utah, USA) for Rounds 2 through 4. Respondents could take the survey in either Hindi or English. Eligibility criteria included being over 18 years old and living in India. Respondents could send the survey link to their family and friends either living in India or outside India. However, analysis was restricted to only respondents living in India.

In addition to basic demographics, the survey covered domains related to barriers to pregnancy, postpartum, family planning and abortion care due to COVID-19, as well as barriers to health care in general (questionnaire will be available with open-data). The survey also included questions about the impact of COVID-19 on mental health, violence, income/job loss, and food security, respondents' top concerns, COVID testing, and an open-ended response box to capture their lived experiences during COVID-19. Given the cultural norms around pregnancy and contraception use outside of marriage, our study team felt it was appropriate that unmarried respondents skipped the questions related to pregnancy and contraception. Additionally, all respondents who reported that they were currently sterilized skipped these questions.

At the end of the first survey, we also attempted to recruit a panel of respondents who would be interested in participating in the subsequent rounds of this study. Respondents were asked to provide their email IDs if were willing to be part of a longer, 4-month study. If respondents provided us with their email IDs, they were contacted again for subsequent rounds of the survey via email. The respondents were encouraged to participate in the survey for a chance to win an iPad mini if they completed all the four rounds of the survey.

In addition to following up via email with respondents who were interested in being part of the panel, we also sent out the Facebook ads every month for 3 more rounds (total of 4 rounds) to recruit a new set of respondents at each time point. However, our analysis considers each round data as independent cross-sectional data and doesn't include any longitudinal analysis with a small panel data.

Small changes were made to the questionnaire between rounds 1 and the subsequent rounds. We added more questions to the survey after round 1 to explore themes that emerged after analysis of Round 1 data. We also added emojis next to the response categories in round 2-4 for visual cues to aid respondents with limited-literacy skills.

This study received human subjects approval from the University of California, San Francisco (should the IRB number / study protocol ID be provided?).

Analysis

First, we summarize the response rate and sample achieved for all four rounds. We describe what steps we took to search for fraudulent data, and how many responses were lost with each step. First, data was dropped for respondents who did not meet eligibility criteria (were under 18 or not living in India), and who did not complete the survey. Next, we removed those who answered in less than 60 seconds, assuming that this was too fast to have completed the survey. Next we removed those with repeated IP addresses, assuming that this was someone taking the survey multiple times with the goal of being entered into the raffle multiple times. Finally, in round 2-4 we added a

“honeypot” question of “Please select answer C” and provided the answer choices A, B, C, D. We subsequently dropped all people who did not select C. This data can help future researchers anticipate response rate from Facebook ads, completion rate, and expected loss due to duplicate records or data quality issues.

We summarize various indicators related to sample characteristics, fertility preferences, and impact of COVID on access and use of family planning methods, and pre- and post-natal services by sex. Given small sample sizes in later rounds, especially among those reporting about prenatal and postnatal care, we present data from all rounds combined. In analyses not shown, we explored the data by round and there were no substantial differences by round.

Results

As can be seen in Table 1, an increasing number of people were shown (“fed”) the ads each round, with 4.5 million in round 1, almost 21.5 million in round 2, 11 million in round 3 and 14.3 million in round 4. About the same percent (~1.5%) clicked on the Ads in each round. In Round 1 almost 10% of people started the survey, however, this was much lower (<2%) in all subsequent rounds.

Table 1: Number of people shown the Facebook Ad, who clicked on the add and who started the survey, by round, April-July 2020, India

| | Number fed the Ad, N (%) | Number clicked on Ad, N (%) | Started survey, N (%) |
|---------------------|--------------------------|-----------------------------|-----------------------|
| Round 1: (April 14) | 3,653,633 | 63,392 (1.7%) | 6,063 (9.6%) |
| Round 2: (May 15) | 21,437,430 | 332,850 (1.6%) | 2,408 (0.7%) |
| Round 3: (June 18) | 11,077,620 | 159,783 (1.4%) | 2,936 (1.8%) |
| Round 4: (July 17) | 14,307,319 | 237,790 (1.7%) | 1,491 (0.6%) |
| TOTAL | 50,476,002 | 793,815 (1.6%) | 12,898 (1.6%) |

From the total 12,898 people who completed the sample, we dropped 78 due to repeated email addresses, 1,426 due to not answering “c” to the honeypot question, 155 with repeated IP addresses and 1,702 people who answered in under 60 seconds. This resulted in a final sample of 9,140, of which over half were recruited in Round 1 (5,980) (Table 2). Sample characteristics varied across all rounds which is expected given volunteer nature of the online surveys (Table 2). Overall, Round 1 and Round 2 had higher proportion of young people, compared to Round 3 and 4. Between 40-50% of respondents were women in Round 1,3 and 4, but 78% of the respondents were women in Round 2. Proportion of married respondents increased every round. Geographic distribution did not change dramatically between rounds but most respondents were from North India. The proportion pregnant, recently delivered, not pregnant and sterilized

also didn't fluctuate a lot between rounds. For example, 20-30% of the respondents were sterilized and not eligible to answer questions on fertility, family planning use, etc.

Table 2: Demographics of the sample, by round.

| | Round 1 | Round 2 | Round 3 | Round 4 |
|------------------------------|---------------|-------------|-------------|---------------|
| Total N | 5,980 | 620 | 1,881 | 659 |
| Age Ranges | | | | |
| <20 | 335 (5.7%) | 22 (3.6%) | 52 (3.0%) | 14 (3.0%) |
| 20-29 | 2,985 (50.8%) | 316 (51.1%) | 423 (24.7%) | 100 (21.4%) |
| 30-39 | 1,683 (28.6%) | 138 (22.3%) | 495 (28.9%) | 93 (19.9%) |
| 40-49 | 548 (9.3%) | 86 (13.9%) | 348 (20.3%) | 136 (29.1%) |
| 50-59 | 209 (3.6%) | 52 (8.4%) | 398 (23.2%) | 125 (26.71 %) |
| Over 60 | 121 (2.1%) | 4 (0.7%) | 0 (0.0%) | 0 (0.0%) |
| Female | 2,455 (41.8%) | 484 (78.3%) | 624 (50.5%) | 124 (46.8%) |
| Married | 3,410 (58.0%) | 412 (66.7%) | 965 (78.5%) | 214 (81.4%) |
| Region of India | | | | |
| North | 2,908 (52.2%) | 343 (55.5%) | 628 (53.9%) | 127 (51.8%) |
| South | 610 (10.9%) | 39 (6.3%) | 70 (6.0%) | 19 (7.8%) |
| East | 1,053 (18.9%) | 107 (17.3%) | 234 (20.1%) | 53 (21.6%) |
| West | 1,005 (18.0%) | 110 (17.8%) | 211 (18.1%) | 41 (16.7%) |
| Pregnancy Status | | | | |
| Pregnant | 198 (6.0%) | 25 (7.9%) | 38 (6.7%) | 7 (6.3%) |
| Postpartum 1 month | 97 (3.0%) | 22 (7.0%) | 15 (2.7%) | 7 (6.3%) |
| Not pregnant, not sterilized | 1,346 (41.0%) | 146 (46.2%) | 201 (35.6%) | 35 (31.5%) |
| Sterilized/wife sterilized | 613 (18.7%) | 100 (31.7%) | 188 (33.3%) | 36 (32.4%) |

Findings on impact of COVID-19 on fertility preferences, reproductive and maternal health

Fertility preferences: The same proportion of men and women (32%) reported that COVID-19 had not changed their fertility preferences (Table 3). Overall, among those who reported changes in their preferences, more people wanted to delay or had their desire decreased compared to increased, and financial concerns were mentioned by 14% (slightly more frequently among men). "Other" was the most frequently provided option, unfortunately there was not an option for respondents to tell us more in open ended responses for this question so we do not know details. In general, few differences emerged between men and women.

Table 3: Fertility preferences, by sex, April-July 2020, India

| How have your/your wife's pregnancy preferences been affected by COVID-19? | Women | | Men | | Total | |
|--|-------|-----|-----|-----|-------|-----|
| | N | % | N | % | N | % |
| It has not changed my preferences | 518 | 32% | 462 | 32% | 980 | 32% |
| Increased my desire to have a child/another child | 34 | 2% | 39 | 3% | 73 | 2% |
| Decreased my desire to have a child/another child | 60 | 4% | 63 | 4% | 123 | 4% |
| Feel that I can't afford a child/another child | 204 | 13% | 213 | 15% | 417 | 14% |
| Scared to be pregnant/have a/another child | 104 | 6% | 52 | 4% | 156 | 5% |
| Want to delay having a child for the next year | 138 | 8% | 146 | 10% | 284 | 9% |
| Other | 609 | 37% | 479 | 33% | 1088 | 36% |

Family planning access: The majority of both men and women said that their access to family planning had not been affected by COVID-19 (74% over all, slightly more so for women, 76% compared to men, 72%) (Table 4). Lack of time due to childcare/housework and not being able to go outside due to restrictions were more frequently mentioned than fears or facility closures. Two percent of both men and women said they had stopped their method due to COVID-19 and a handful said they had switched. Also, 2% of respondents said that it had become easier for them to obtain their method.

In the first round of the survey, we allowed people the option to write in “other” responses. A common theme that men and women brought up was that they were no longer having sex because they are now living in a different place or separated in some way from their partner due to COVID-19. Relatedly, respondents also wrote about their not being a “chance” to meet now due to COVID-19, which we interpreted as being related to rules about the nationwide lockdown, social distancing, and restrictions on movement. This response came up so frequently that we added another response category to the subsequent surveys, however, only 1% reported this (although this was only an option after Round 1). A number (about 20) of respondents wrote that they now got their method using an “app.”

Table 4: Barriers to family planning use, by sex, , April-July 2020, India

| | Women | | Men | | Total | |
|---|--------|-----|--------|-----|--------|-----|
| Did COVID-19 affect your access to family planning? | N=1603 | % | N=1431 | % | N=3057 | % |
| Not affected | 1218 | 76% | 992 | 72% | 2210 | 74% |
| Made easier | 10 | 1% | 39 | 3% | 49 | 2% |
| Switched method due to COVID-19 | 4 | 0% | 6 | 0% | 10 | 0% |
| Stopped method | 33 | 2% | 31 | 2% | 64 | 2% |

| | | | | | | |
|--|-----|-----|-----|----|-----|----|
| Made harder because you are not allowed to go outside your home currently due to government restrictions | 61 | 4% | 67 | 5% | 128 | 4% |
| Made harder because the place you get your method is closed | 23 | 1% | 22 | 2% | 45 | 2% |
| Harder because you are afraid to go to the hospital/clinic | 28 | 2% | 31 | 2% | 59 | 2% |
| Harder because you are afraid to go to outside | 34 | 2% | 48 | 3% | 82 | 3% |
| Harder because you do not have enough money | 29 | 2% | 54 | 4% | 83 | 3% |
| Harder because you don't have time due to additional household work or childcare | 60 | 4% | 52 | 4% | 112 | 4% |
| No longer needed because we are separated due to COVID-19 | 24 | 1% | 12 | 1% | 36 | 1% |
| Other | 161 | 10% | 115 | 8% | 276 | 9% |

Prenatal care: Almost half (49%) of respondents reported no impact of COVID-19 on prenatal care, with fewer women (44%) reporting no impact compared of men (52%) (Table 5). Fear of going to the facility was the most commonly mentioned reason care was affected (20%) over all ((21% women and 18% of men). Women, compared to men, more commonly reported being unable to go to appointments because of lockdowns/restrictions on movement (21% vs 12%) and because the facility was closed (7% vs. 2%). More respondents mentioned fears as a reason they were not planning to deliver at a facility, compared to lockdowns/restrictions, and men were more likely to mention this than women (12% compared to 9%). Interestingly, 7% of women, compared to 2% of men mentioned being more likely to deliver in a facility because of COVID-19.

Table 5: Impact of COVID-19 on access to prenatal care, by sex, , April-July 2020, India

| | Women | | Men | | Total | |
|---|-------|-----|-------|-----|-------|-----|
| Did COVID affect your access to prenatal care | N=107 | % | N=147 | % | N=254 | % |
| Not affected | 47 | 44% | 77 | 52% | 124 | 49% |
| Unable to go to your appointments because of lockdown/restrictions on movement | 23 | 21% | 18 | 12% | 41 | 16% |
| Unable to go to your appointments because you are afraid to go to a facility/clinic | 23 | 21% | 27 | 18% | 50 | 20% |
| Unable to go to your appointments because facility/clinic closed | 8 | 7% | 3 | 2% | 11 | 4% |
| Unable to go to your appointment because of transportation issues | 1 | 1% | 0 | 0% | 1 | 0% |
| Less likely to deliver at a health facility because of transportation issues | 1 | 1% | 0 | 0% | 1 | 0% |

| | | | | | | |
|---|----|-----|----|-----|----|-----|
| Less likely to deliver at a health facility because of lockdown/restrictions on movement | 8 | 7% | 8 | 5% | 16 | 6% |
| Less likely to deliver at a health facility because you are afraid to go to a facility/clinic | 10 | 9% | 17 | 12% | 27 | 11% |
| Less likely to deliver at a health facility because facility/clinic is closed | 1 | 1% | 0 | 0% | 1 | 0% |
| More likely to delivery in a health care facility | 7 | 7% | 3 | 2% | 10 | 4% |
| OTHER changes of prenatal services change | 20 | 19% | 8 | 5% | 28 | 11% |

Not shown in the table, but pregnant people were asked if they were considering an abortion, and, of the 28 people who said they were considering an abortion or unsure, 7% said it was because of COVID-19, 39% for other reasons, and 54% were unsure.

Postnatal care: A little over half (52%) respondents reported no impact of COVID-19 on postnatal care, more so among men (63%) than women (46%) (Table 6). Similar to for prenatal care, fear of going to the facility was a primary barrier (16%, more for women, 20%, compared to men, 10%). Lockdowns and restrictions were also frequently mentioned (12%). Postnatal respondents reported fewer impacts on actual place of delivery than prenatal respondents, although a roughly similar percent (3% for postnatal and 4% prenatal) said they were more likely to deliver in a facility because of COVID-19.

Table 6: Impact of COVID-19 on access to postnatal care, by sex, , April-July 2020, India

| | Women | | Men | | Total | |
|---|-------|-----|------|-----|-------|-----|
| Did COVID affect your access to postnatal care | N=85 | % | N=51 | % | N=136 | % |
| Not affected | 39 | 46% | 32 | 63% | 71 | 52% |
| Unable to go to your appointments because of lockdown/restrictions on movement | 9 | 11% | 7 | 14% | 16 | 12% |
| Unable to go to your appointments because you are afraid to go to a facility/clinic | 17 | 20% | 5 | 10% | 22 | 16% |
| Unable to go to your appointments because facility/clinic closed | 2 | 2% | 0 | 0% | 2 | 1% |
| Unable to go to your appointments because of transportation issues | 2 | 2% | 0 | 0% | 2 | 1% |
| Made us not deliver at a health facility because of lockdown/restrictions on movement | 2 | 2% | 2 | 4% | 4 | 3% |

| | | | | | | |
|--|----|-----|---|----|----|-----|
| Made us not deliver at a health facility because you are afraid to go to a facility/clinic | 0 | 0% | 2 | 4% | 2 | 1% |
| Made us not deliver at a health facility because of transportation issues | 3 | 4% | 0 | 0% | 3 | 2% |
| Increased likelihood to deliver at a health facility | 4 | 5% | 0 | 0% | 4 | 3% |
| OTHER changes of postnatal services change | 15 | 18% | 3 | 6% | 18 | 13% |

Conclusions

Overall, COVID-19 led to changes in fertility preferences for about one third of respondents. Among those whose preferences had changed, it was mostly in terms of not wanting children at the time of the survey or due to financial concerns. A study in the US which collected data using established online panels from early in the pandemic (late April/early May) suggested that 40% of women changed their fertility preferences with an overwhelming majority wanting children later or fewer children, because of COVID-19 (22). Our findings are similar in magnitude and suggest that the impact was similar for both men and women in the Indian setting.

The majority of respondents in our sample did not have their access to family planning affected by COVID-19 (75%). We excluded respondents who were sterilized or whose partner was sterilized. Parenthetically, long acting methods are not as common in India, and therefore we do not believe that this explains our finding about contraceptive use not being impacted. The open-ended responses from the first round suggest that perhaps people were able to switch to getting their methods from online sources. The study from the US, mentioned above, found very similar proportions of women reporting barriers to contraceptive care, at about 30% reporting a barrier (22). Another interesting finding is that a subset, that is potentially not negligible, of respondents noted that changes in contraceptive use were due to not being with their partner at this time due to COVID-19 restrictions. This has interesting implications for both interpretations of method discontinuation during this time and, potentially more importantly, for what might happen after restrictions are eased and people are able to reconnect with their partners. If people have stopped using their method because of COVID-19 and then suddenly are able to be sexually active again, perhaps without much warning, this might lead to mistimed or unintended pregnancies. Ensuring that people have a choice of contraceptive methods on hand for the future thus may have added importance.

In contrast to few impacts on family planning-- prenatal and postnatal care appear to have been more affected by COVID-19, with about half of respondent reporting barriers. Women were more likely to see their care as being disrupted than men. We were unable to find other studies at this point in time that looked at the impact on COVID-19 on decisions around pre or postnatal care seeking in LMICs or HICs, and look forward to more evidence on this globally. Anecdotally, there has been a shift to the provision of prenatal and some postnatal care via telemedicine in India, as elsewhere, and more research is needed on how much of care has been able to be moved to telemedicine and the longer term impact of this approach on maternal and child outcomes and experiences. Fear of going to the clinic/facility was a main barrier for all types of health

care utilization. Delays due to fear of going to the facility has been found in a few other small studies on COVID-19 from other countries (mostly European) and for other types of health care seeking (23,24). It is interesting that actual barriers due to facility closure or restrictions on movement were not the primary barrier, but rather people were making choices not to go, due to fear. Helping women, especially those at high risk, feel safe and understand precautions taken at facilities to protect them, is essential.

We have some evidence that pregnant women/partners of pregnant women felt some fears about delivering in a facility due to COVID-19, although among those that had recently delivered it had not impacted actual place of delivery broadly. This may be because fears are increasing over time or those pregnant now may have more time to plan and think about how COVID-19 is impacting their choice of place of delivery compared to those who delivered early in the pandemic. Much more evidence is needed about actual impacts on place of delivery, and what longer term effects this has on maternal and newborn health outcomes.

Interestingly, overall differences between responses from men and women were minimal. While men reported slightly less impact on pre and postnatal care, and women cited fears slightly more frequently, in general, these findings suggest that collecting data from both sexes did not end up providing additional insights in this setting

Our “click rates” (the number of people who click on the ad after seeing it) were comparable to past studies using Facebook Ads for recruitment in India, Nigeria, and South Africa between 0.95% and 1.4%), based on our team’s previous experience. The percent of people who started the survey among those who clicked on it dropped off dramatically after the first round. It is possible that immediately after the start of COVID-19 and lockdowns people were more interested in taking surveys or sharing their thoughts about COVID-19, or bored at home and had more time on their hand, etc. However, as the pandemic lasted and restrictions on movement were eased, perhaps, they had less interest and time to participate in a survey like this. In the future it would be worth experimenting with surveys delivered either by Facebook Messenger or WhatsApp using the same Facebook Ad recruitment strategy. This approach could see a higher completion rate and lower the number of fraudulent or low-quality data.

Despite its strengths in terms of collecting data rapidly (and inexpensively) on the emerging pandemic’s impact, and doing so over time, this study has limitations. First, especially in the later rounds, the sample size of respondents to questions on reproductive and maternal health was quite small. This reduces our ability to draw conclusions about actual impacts of the pandemic on access and behaviors, or how those changed over time. We were interested in a broad range of questions and wanted to capture gendered effects; had we more narrowly targeted our Facebook Ads for women of reproductive age only (and not collected data on men), we likely would have recruited larger samples. Also, we did not offer an incentive for each round, which might have increased the sample, although likely would have drawn bots or more fraudulent or duplicated responses. The raffle offered to those participating in the 4 rounds of panel data was only an option for those who participated in the first round, which may have explained the larger sample recruited at that time. Finally, our survey was rather long, and mid-way through the second round we switched the ordering of the questions to put the reproductive and maternal health questions last (upon advice that having fewer sensitive questions at the end might actually increase respondents). However, this likely ended up reducing the sample that answered these questions specifically.

Additionally, while questions still remain about the use of Facebook ads for recruiting, this approach has been used by a number of researchers who have compared findings to representative samples and found that they were fairly representative (25,26). Post-stratification and sampling weights have been and can be used to make the data reflect a more representative sample. We have not yet done this for our study, since the data collected on reproductive and maternal health indicators was limited across time, but plan to in the near future for the broader study. The one study that we identified that has used a similar approach in India (recruitment via Facebook ads) found that their sample was less representative than a sample recruited in the US using the same approach (20). It is essential that these findings, both because of their sample size and recruitment approach, not be generalized to a wider population. At best, these provide some suggestive insights into the impact of the pandemic on a social media using population, mostly in the north of India.

A social media-using sample of women and men in India appear to face some barriers to their prenatal and postnatal care due to COVID-19. The pandemic seems to be making some respondents more likely to want to delay or not have children right now, primarily due to financial concerns. One of the main take-aways is that the pandemic did not appear to increase respondents' desire to have more children at the time of the survey. If we do see additional births, as has been widely touted as a possibility by the news media, we have some limited evidence that these were unintended (27).

In conclusion, this study provides timely information about the impact of COVID-19 and related lockdowns/restrictions on movement on reproductive and maternal health care access and use. While may not provide a comprehensive sense of the problem, it is suggestive that some barriers exist to seeking reproductive and maternal healthcare due to COVID-19 which can be addressed. Additionally, it gives opportune insight that programs or policy makers can use to help ensure that women and men are receiving the reproductive and maternal health care they need. Specifically, addressing concerns about fears related to going to facilities through mass media or, given the nature of the data collection approach and subsequent sample recruited, social media, might help assuage fears.

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