






RESEARCH ARTICLE

“Getting pregnant during COVID-19 was a big risk because getting help from the clinic was not easy”: COVID-19 experiences of women and healthcare providers in Harare, Zimbabwe

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Abstract

The COVID-19 pandemic and associated measures may have disrupted delivery of maternal and neonatal health services and reversed the progress made towards dual elimination of mother-to-child transmission of HIV and syphilis in Zimbabwe. This qualitative study explores the impact of the pandemic on the provision and uptake of prevention of mother-to-child transmission (PMTCT) services from the perspectives of women and maternal healthcare providers. Longitudinal in-depth interviews were conducted with 20 pregnant and breastfeeding women aged 20–39 years living with HIV and 20 healthcare workers in two maternity polyclinics in low-income suburbs of Harare, Zimbabwe. Semi-structured interviews were held after the second and third waves of COVID-19 in March and November 2021, respectively. Data were analysed using a modified grounded theory approach. While eight antenatal care contacts are recommended by Zimbabwe’s Ministry of Health and Child Care, women reported only being able to access two contacts. Although HIV testing, antiretroviral therapy (ART) refills and syphilis screening services were accessible at first contact, other services such as HIV-viral load monitoring and enhanced adherence counselling were not available for those on ART. Closure of clinics and shortened operating hours during the second COVID-19 wave resulted in more antenatal bookings occurring later during pregnancy and more home deliveries. Six of the 20 (33%) interviewed women reported giving



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birth at home, assisted by untrained traditional midwives as clinics were closed. Babies delivered at home missed ART prophylaxis and HIV testing at birth despite being HIV-exposed. Although women faced multiple challenges, they continued to attempt to access services after delivery. These findings underline the importance of investing in robust health systems that can respond to emergency situations to ensure continuity of essential HIV prevention, treatment, and care services.

Introduction

The SARS-CoV-2 pandemic impacted healthcare service management globally, including in Zimbabwe [1, 2]. Zimbabwe recorded its first SARS-CoV-2 case on 20th March 2020. At the onset of the COVID-19 pandemic, several demand and supply challenges were reported, which disrupted health services uptake. Reassignment of medical and laboratory staff, reallocation of resources, closure of healthcare facilities and insufficient personal protective equipment (PPE) resulted in reduced availability of clinical care in some settings, compounded by a lack of availability of public transport, which prevented health care staff getting to work [3, 4]. Healthcare workers went on strike due to the lack of PPE, further compromising patients' access to care [5]. Decreased care seeking was reported due to the difficulty in navigating police road-blocks, coupled with fear, mistrust and financial difficulties during lockdowns [6].

Evidence from low-income countries suggests severe COVID-19 related disruptions to healthcare in early 2020 [1, 2, 6, 7]. In 2020, the Global Fund reported widespread disruptions of HIV, TB and malaria service delivery, impacting approximately three-quarters of HIV, TB and malaria programs [7]. A rapid assessment conducted in Zimbabwe between March and April 2020 found that about 19% of people living with HIV were unable to get antiretroviral therapy (ART) [8], and similar data have been reported in other African countries [9–12]. Studies have reported widespread declines in antenatal care (ANC) attendance, with ANC appointments cancelled or rescheduled at both the facility and individual levels [13–15]. Studies also reported delayed ANC initiation, reduced number of ANC visits and limited access to ANC services due to facilities closure, or not accepting patients, fear of contracting the virus at the healthcare facility and lack of trust in the healthcare system [15, 16]. Increases in home deliveries, with the assistance of traditional birth attendants, were reported in some low-income countries [16–18].

PMTCT in Zimbabwe

Zimbabwe has registered notable declines in HIV prevalence in the last decade, but continues to have one of the highest burdens of HIV in Southern Africa [19]. HIV prevalence is estimated at 11.8% among women and men aged 15–49 years [19] and 16.7% among pregnant women [20, 21]. In 2011, Zimbabwe scaled up an accelerated national PMTCT program to eliminate paediatric HIV. PMTCT services are integrated within all public health facilities (N = 1560) providing ANC and maternal and child health services, and Zimbabwe is targeting triple elimination of mother-to-child transmission of HIV, syphilis and hepatitis B by December 2025 [22, 23].

In 2013, the Zimbabwe Ministry of Health and Child Care (MoHCC) adopted the WHO guideline which recommended the provision of lifelong ART to all HIV positive pregnant and breastfeeding women (Option B+) [24, 25]. With the implementation of Option B+, pregnant women are encouraged to register for ANC services in the first 12 weeks of pregnancy and have at least eight antenatal contact visits [26]. Dual HIV and syphilis testing services are

offered to all women through an “opt-out” strategy at the first ANC contact [27]. Women who test HIV positive and are already on ART at first ANC visit continue with their treatment and have HIV viral load monitoring every 3 months till delivery. ART naïve women are initiated on ART and followed up till delivery [26, 28, 29]. After delivery, the mother-infant pairs are followed-up at maternal child health clinics until 24 months or breastfeeding cessation [28]. HIV negative women are retested at 32 weeks gestation and 6 weeks post-delivery.

In 2018, an estimated 93% of all pregnant and breastfeeding women living with HIV received ART through the national PMTCT programme [21]. In 2019, HIV and syphilis antenatal testing coverage were 98% and 91%, respectively. The risk of vertical transmission at 18 months postnatal was estimated at 15% in 2015 and had fallen to 7.8% in 2018 [21]. During 2019, 56% of HIV-exposed infants received early infant diagnosis (EID) [25]. Although progress has been made in reducing vertical transmission of HIV and syphilis, there were some gaps in the provision of PMTCT services before the COVID-19 pandemic. COVID-19 likely disrupted delivery of maternal and neonatal healthcare services across the country.

We therefore conducted a qualitative study with pregnant and breastfeeding women, health promoters (known as Village Health Workers in rural areas) and healthcare workers (HCWs) to describe the impact of COVID-19 on provision and uptake of PMTCT services in urban low-income areas in Harare, Zimbabwe. Uptake of ANC in this study is defined as seeking ANC services from trained healthcare providers and remaining in care pre- and postnatally while provision of care is referring to the provision of a range of ANC services on time by trained healthcare providers. This qualitative study was embedded within a larger mixed-methods study which retrospectively looked at the effects of COVID-19 on key PMTCT indicators, using programme (District Health Information System-2) and population-level data (ZIMSTAT) [24] and analysis of the outcomes of HIV-exposed neonates using NeoTree data [25].

Methods

Ethics statement

Ethical approval was granted by the Joint Parirenyatwa Hospital and College of Health Sciences Research Ethics Committee (#196/2020) and the national ethics committee, Medical Research Council of Zimbabwe (#A/2682). Approval to conduct the study was also granted by the MoHCC and City of Harare Health Department. All participants provided written informed consent and participation was voluntary (S1 Text).

Study design, sampling, and recruitment

Longitudinal, semi-structured, in-depth face to face interviews were held after the peak of the second and third waves of COVID-19 in March and November 2021, respectively. The first interviews were conducted after the introduction of stringent COVID-19 control measures in order to capture the perception of COVID-19 and its impact on antenatal care among women, health promoters and healthcare providers. Repeat interviews with the same participants were conducted when COVID-19 measures had been slightly eased two months later.

The study was conducted in two City of Harare polyclinics which provide maternity services. Mabvuku and Kuwadzana polyclinics are in low-income, densely populated, urban suburbs in Harare. The clinics were selected because they have some of the highest number of deliveries among the municipality-owned Harare clinics [30].

Women living with HIV who were pregnant or had given birth in the preceding 12 months were purposively recruited. A list of all pregnant and breastfeeding women who were in care or had delivered between March 2020 and February 2021 was drawn from the two clinics’

ANC and delivery registers. From this, a stratified purposive sample of 20 women was selected to ensure a wide range of experiences considering age, history and duration of ART use, parity, and outcome of delivery. Additionally, 10 health promoters and 10 HCWs from the two clinics were purposively recruited based on years in service and age. They were followed up at the same timepoints as the pregnant and breastfeeding women.

In Zimbabwe, community-based health promoters act as liaisons between the health facility and the suburbs and are knowledgeable about various health issues within their communities, including the number of pregnant and breastfeeding women, children (alive and deceased) and women who have discontinued HIV care and treatment programmes. HCWs were included because of their integral role in the provision of PMTCT services and their insight into structural influences such as the availability and accessibility of these services at the health-facility level.

Data collection

All participants had two repeat interviews conducted eight months apart. The first interviews conducted at the peak of the second COVID-19 wave in March 2021 explored retrospective experiences of being pregnant and giving birth during the first COVID-19 wave, when there was little knowledge and severe preventative measures had been introduced. The interviews also explored current experiences during the second wave when restrictions were being relaxed. The second set of interviews were conducted in November 2021 before the subsequent surge in COVID-19 driven by the omicron variant. At this point COVID-19 restrictions were more relaxed, and information (and COVID-19 vaccination) had become more widely available.

Data were collected by the first author (ZM) and a trained research assistant using a semi-structured interview guide ([S2 Text](#)). All interviews were conducted in Shona, the participants' language. Interviews lasted 40 to 60 minutes. Interviewers adhered to the MoHCC-guidelines on prevention and control of COVID-19 which included handwashing, wearing of masks, social distancing, and use of well-ventilated private rooms.

Data processing and analysis

All audio-recorded data were transcribed and translated verbatim into English. A coding framework was developed by the first author and an experienced research coordinator. Transcripts were then uploaded, coded, and summarized using a qualitative software package (NVivo 9.0, QSR International). Data were analysed using a modified grounded theory approach. In the initial stages, we explored emerging themes and then adopted a constant comparison approach between different participants and clinics. The findings are presented under two main themes: uptake and provision of maternal and child health services. The perspectives of the women, health promoters and HCWs are presented together.

Patient and public involvement

During interviews, participants were asked about their preferences regarding research dissemination. Most mothers cited community meetings, posters and fliers summarising the findings. Study findings have been disseminated through these channels.

Findings

Socio-demographic characteristics of women, health promoters and healthcare providers

Twenty women aged 20–36 years were recruited. Of these, 17 (85%) were married and staying with their partners, while two (10%) were unmarried and one (5%) was widowed during her

Table 1. Socio-demographic characteristics of women, health promoters and healthcare workers.

	n (%)
Pregnant and breastfeeding mothers (N = 20)	
Age (years)	
20–24	5 (25%)
25–30	7 (35%)
31+	8 (40%)
Marital status	
Single	2 (10%)
Married	17 (85%)
Widowed	1 (5%)
Pregnancy and breastfeeding status	
Pregnant	4 (20%)
Breastfeeding	16 (80%)
Employment status	
Formally employed	1 (5%)
Informal trader	12 (60%)
Unemployed	7 (35%)
Timing of HIV diagnosis	
Prior to ANC booking	17 (85%)
At ANC booking	3 (15%)
Health promoters (N = 10)	
Age (years)	
30–40	1 (10%)
41–50	3 (30%)
51+	6 (60%)
Education status	
Primary level	4 (40%)
Partial secondary level	2 (20%)
Completed secondary level	4 (40%)
Healthcare workers (N = 10)	
Professional qualification	
Midwife	5 (50%)
Registered general nurse	5 (50%)
Age (years)	
30–40	2 (20%)
41–50	5 (50%)
51+	3 (30%)
Gender	
Female	10 (100%)
Male	0

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pregnancy (Table 1). Twelve (60%) were informal traders, seven (35%) were unemployed and only one (5%) was formally employed. Sixteen women (80%) were breastfeeding while four (20%) were still pregnant at the first interview. Among the breastfeeding mothers, their infants were aged between one to nine months while the pregnant mothers ranged from 13- to 28-weeks gestation. Nineteen (95%) had been infected with HIV later in life while one was perinatally infected.

Seventeen women (85%) knew their HIV status prior to pregnancy while three (15%) were diagnosed following HIV testing at the first ANC contact, and were immediately initiated on ART. Of the seventeen who knew their HIV status, fifteen (88%) were initiated on ART prior to pregnancy and two (12%) were not on ART despite knowing their HIV status. Denial of HIV status and fear of commencing ART were cited as the reasons for refusing ART. Of the seventeen that were married, fifteen knew their partner's HIV status and two did not. Of the twenty women, six (30%) were first time mothers while fourteen (70%) already had children ranging from two to five children.

The age range of the 10 health promoters was from 32 to 61 years, four (40%) had completed secondary level education, two (20%) had partial secondary education while four (40%) had primary level education. All the health promoters had been working in the communities for more than five years. Among the 10 healthcare workers, five (50%) were midwives and five (50%) were registered general nurses and were aged between 37 and 55 years (Table 1).

Uptake of maternal and child health services

Interviewed women, health promoters and HCWs talked about COVID-19 in terms of the challenges they experienced in accessing or providing healthcare services at family, community, and health facility level.

Fear of SARS-CoV-2 infection. At the family level, fear of contracting SARS-CoV-2 emerged as deterring women from seeking ANC services. Women mentioned that they feared the highly infectious nature of the virus and that it was “uncurable and killing people in their thousands”. They feared failing to get the best possible care to help manage the infection if they got infected. Women anticipated devastating effects at family and community levels judging from the high mortality rates they were seeing on various news channels from high income countries. They took precautionary measures which included minimising their movements and interactions. Their fears were compounded by the myths and misconceptions circulated on social media platforms at a time when people had limited information about the pandemic.

“Fear gripped me, after I heard the number of people who were dying in countries abroad such as Italy. I have never heard of people dying in substantial numbers like that before and I imagined what it was going to do in a poor country like Zimbabwe and my poor community and I got so scared to such an extent that I did not want anyone near me or my family members. I was afraid to go to the shops, or to the borehole or even the clinic, I feared going out of my house as I could see COVID-19 all over in the air in people's hands. I did not want anyone coughing near me I can say I was so scared” (Participant 1, woman, in her 30s)

(S1 Data).

“I was afraid of COVID-19 because I heard that it was killing people with underlying health conditions like HIV. People were showing us videos of how people were getting infected in hospitals, and I imagined being in the same waiting area with someone with COVID-19 or being attended to by a nurse with COVID-19 and I was so scared, and I told myself I will only go if there is a problem”

(Participant 2, woman in her 20s).

During the first interviews which were conducted in March 2021, HCWs reported a decline in the number of women seeking ANC services due to several factors including fear of SARS-CoV-2 infection. Community members heard that HCWs had contracted SARS-CoV-2 and were afraid to come to the facility as one HCW mentioned.

“We have seen a decline in the number of patients, people are not coming as they used to do because staff tested positive and the community heard about it, and so maybe they are fearing that maybe when they come here, they might eh contract COVID- 19”

(HCW 1).

Health promoters also spoke about the negative reception they received during home visits leading them to suspend the community follow ups. This is what they said:

“We stopped doing home visits before the government announced the lockdown because people did not want us to come into their homes. We would come across notices at the gates or doors saying, ‘do not enter we do not want visitors here’. Many people in the community are still afraid of the virus considering how it is spread so they are not entertaining any visitors

(Health promoter 1).

This fear was not limited to the women; health promoters and HCWs acknowledged being afraid because of their increased exposure to, and risk of, contracting SARS-CoV-2. Looking after family members with underlying health conditions increased their fears.

“It affected me a lot because I am a known diabetic and hypertensive patient, and I was afraid and anxious that if I go to work what if I get infected with the disease. . . some of my colleagues got infected and tested positive though with minor symptoms so I was worried about doing home visits that maybe I will get the infection from there, so it was difficult for me to carry out my usual duties”

(Health promoter 2).

“When the COVID-19 started I was very afraid of getting the infection. I worried about getting the infection and passing it on to my mum who is asthmatic. I would dread coming to work and my fear worsened when my colleagues tested positive. As part of the mitigation measures, we resorted to use open spaces for our consultation since our rooms are very small and have poor ventilation”

(HCW 2).

During follow up interviews in November 2021, healthcare workers reported less fear of infection and that women were slowly re-engaging with health services, though the numbers had not yet reached pre COVID 19 levels.

“We are now beginning to see them [women] coming though the numbers are not as before COVID- 19. I guess it was the same with us [healthcare workers] we used to be afraid, but we are now used to working with clients and slowly getting back to our normal routine but at the same time being cautious since we don’t have adequate PPE, and we had 12 of our staff members who got infected”

(HCW 3).

Fear of inadvertent HIV status disclosure to partners and other people. In addition to the fear of contracting COVID-19 women also feared inadvertent disclosure of their HIV status. Of the 20 interviewed women, six had not disclosed their HIV status to their

partners. They faced challenges in collecting medication for themselves and their infants. The continued presence of their partners at home due to the travel restrictions made it difficult for these women to meet their scheduled ART refills and even to take their medication or administer the nevirapine prophylaxis to their babies. Prior to the COVID-19 pandemic, some women would hide their medication and take it in the absence of their partners. One HCW stated that;

“The issue of disclosure is a big issue we have so many cases of women who refused to disclose their status to their partners. So being in the same environment all the time, it was quite difficult, some were not taking well while others could not observe time but would randomly take at any opportunity which disrupted their routines. It was difficult and I think we will see the effects of COVID-19 on adherence soon enough”

(HCW 4).

The COVID-19 pandemic also brought about confidentiality challenges for women accessing PMTCT services. Prior to the COVID-19 pandemic, clients coming for routine HIV treatment and care services had a designated space which afforded them more privacy. However, with the advent of the COVID-19 mitigation and prevention measures, patients had to queue outside the clinics and have their ART cards collected at the gate, in the full view of other patients, which inadvertently exposed their HIV status. During the first interview, some women reported having stopped collecting their medication for fear of being stigmatised in their communities.

“The difference now is that, if you come here, like some of us who are on ART, if you come you are told to wait at the gate, so we do not want to be seen by many people, but the way they are doing it nowadays makes it so difficult for us, everyone on the queue get to know about our statuses. . . We stand in the same queue but when they come to collect cards, they say that those who are on ART please hand in your cards and then they will call us one by one. I once left without getting served as my sister-in-law was also in the queue. . .”

(Participant 3, woman in her 30s).

Health promoters also shared the same concerns about the inadvertent disclosure happening to patients queuing outside the clinics.

“The clinic admin staff will go to the gate and collect the patients’ cards, and after they look for their green cards and check them. They then go back to the gate and start to call their names out whilst everyone is listening, and they will be a lot of people there. It’s like forced disclosure because you have no option because everyone else who will be at the gate will get to know that so and so is on ART. In the communities you hear them saying they will not come until COVID-19 is over but who knows when this will go away, and you can imagine what will happen to those mothers and their babies”

(Health promoter 3).

Fear of inadvertent disclosure also made it difficult for health promoters to follow up on women who disengaged with HIV services or missed ART refills during the COVID-19 pandemic. The HCWs stated that before COVID-19, health promoters and Young Mentor Mothers (these are HIV positive young mothers trained to support peer young mothers) would assist by tracking women living with HIV in the communities through home visits, but when

COVID-19 came some women did not want to be followed up as they were staying with partners, in-laws, or relatives whom they had not disclosed to.

“The challenge with some of these women is that they stay with their in-laws and other relatives who are not aware of their HIV status so it becomes difficult for these women to freely access services unlike before the pandemic when they could access services without telling anyone at home that they were going to the clinic. Now that everyone knows that movement is restricted, they would question their whereabouts”

(HCW 2).

By the time of the follow up interviews, travel restrictions had eased, and free movement had resumed, and women were able to access services at the clinics without using their ART cards as travel passes. Women reported that they were now able to collect their own ART or their infant’s medication without their partners and in-laws questioning where they were going. Health promoters also reported that they had resumed home visits though some women were still not allowing visitors to their homes and others still had their partners at home. Health promoters had also started educating and reassuring communities about the need to access essential services such as PMTCT services.

“We have started conducting home visits and we are now going round educating people to go to the clinic when they have any health challenges. We have been assuring them that it is safe to seek services and that the clinics are doing all they can to protect patients from getting COVID-19”

(Health promoter 4).

ANC services registration and follow up. COVID-19 and its related control measures were reported to have affected ANC registration from both the uptake and supply side. At the family level, the COVID-19 pandemic and associated measures disrupted social and economic lives, which consequently impacted women’s uptake and utilisation of health services. Nine women stated that their partners lost income during the total shutdown while 12 women who were informal traders also lost opportunities to sell their wares. This affected household income, food security and ability to pay rent, resulting in some families relocating to their rural homes. Loss of income also impacted their capacity to raise the USD 25 required to register for ANC services within the City of Harare polyclinics. Five/20 mothers (25%) reported registering their pregnancy after 28-weeks’ gestation because of the need to pay a registration fee and the closure of clinics. Registering after 12 weeks is considered late as per the MoHCC guidelines.

Provision of maternal and child health services

Closure of clinics or reduced operating times resulted in women reporting difficulty with ANC registration, pre and postnatal care and facility delivery. During the first interviews, women narrated how difficult it was for them to register their pregnancy at the clinic, registration being the gateway to pre and postnatal care. However, despite all the challenges they encountered, women persisted trying to access PMTCT services for themselves and their babies. They repeatedly visited clinics to check if antenatal care and growth monitoring services had resumed.

“I could not register on four times because for one to be among the 10 women they were taking per day you were supposed to be here by 4 am . . . and one of the guards told us that some women were paying for overnight accommodation at one of the houses next to the clinic. I ended up paying \$7 USD to have accommodation and that’s how I managed to join the queue on time and got served”

(Participant 4, woman in her 20s).

“Things started to get slow at this clinic because of COVID-19, imagine we had to wake up at three in the morning to join the queue and then they say today we are not attending to clients, or they say that they are taking 5, or 10 people. So, it slowed service delivery so much. Like today I was here by 8 am but this is lunch time, and I am not yet served and after lunch they will be saying we are closing”

(Participant 5, woman, in her 20s).

Although ART provision or initiation, HIV testing and syphilis screening services were accessible at first contact, other services such as HIV-viral load monitoring, enhanced adherence counselling and other diagnostics, including ultrasound scan imaging and laboratory services were limited. Women reported that HCWs stopped doing the regular ANC examinations and reduced consultation time in a bid to promote social distancing and reduce the exposure risk as they had limited PPE. None of the 20 interviewed women managed all eight recommended ANC contact visits; six managed five, three had four, one had three, eight women managed only two while two women had their first contact at the onset of labour. Of the nine women who had at least four ANC contact visits, some of these were prior to facilities implementing strict mitigation measures. At the peak of the COVID-19, women were told at ANC registration to only come back at the onset of labour as other subsequent monitoring visits were suspended in a bid to decongest the clinics.

“Yes, getting pregnant was a big risk because getting the help from the clinic was not easy. When I came to register the pregnancy, I was turned away and only managed to register on the third attempt. After registering I was told to come back when I am due or if there is a serious need. They stopped all the other monthly ANC visits and even if you showed up for general consultation the nurses would just tell you to go back home so we missed some of the services”

(Participant 6, woman in her 30s).

Closure of clinics. During the national lockdown, several maternity polyclinics, were closed in a bid to limit the spread of SARS-CoV-2 and concentrate limited resources on the pandemic. HCWs reported that in their experience, the closure of polyclinics without prior notification led to an increase in home deliveries. One HCW commented.

“We had to close, everyone was in isolation and they [mothers] had to go to neighbouring clinics but some of them didn’t have money to go to other clinics so, they delivered at home. Those mothers, you will find them maybe accidentally and ask why they do not have baby cards or maternity records then they will tell you that ‘I gave birth at home’ and has not been initiated on ART and the baby is 8 weeks old”

(HCW 5).

Six women who had booked for a facility delivery ended up giving birth at home, assisted by untrained traditional midwives. Women stated that their home delivery experiences were painful; some mothers narrated how they delivered at the clinic gate having been refused entry by the security guards as the clinic was closed.

Health promoters cited several incidences where mothers would call on them to assist them deliver their babies. One health promoter had this to say.

“Countless times people were calling us to assist them to deliver their babies, but we also don’t know how to do it, so a lot ended up delivering on their own or with the help of traditional midwives. I know of a woman who reached a point of delivering by herself. The baby had a twisted umbilical cord and the baby died. She did not have the money to call an ambulance or even to look for someone to help, some of the traditional midwives were charging USD50”

(Health promoter 5).

Babies who were delivered at home were at increased risk of getting infected with HIV as they either delayed starting or did not receive the recommended nevirapine prophylaxis and missed the HIV testing at birth, despite being HIV-exposed. Most of the women also reported that they did not receive viral load testing during their pregnancy. Healthcare workers also confirmed that babies that were delivered at home missed essential PMTCT services. They were identifying babies coming for immunisation that had missed their nevirapine prophylaxis at birth and HIV testing at birth and at 6 weeks.

“We are seeing a number of babies that missed nevirapine dose, the first 72 hours, or babies who were never tested for HIV and some of the conditions they were giving birth in at home were dirty environments and you see babies with all sorts of infections”

(HCW 6).

HCWs also noted that they were beginning to see babies testing HIV positive at 6 weeks which had been rare previously. They stated that this could have been a result of the disruptions in viral load testing of pregnant mother, late HIV testing during pregnancy and babies missing ART prophylaxis.

“We are beginning to record babies with an HIV positive result at 6 weeks which was now very rare. Before COVID-19 we would go for close to two or three months without recording any positives [babies testing positive] but now we are getting one or two per month and we all suspect it was because mothers failed to access services on time”

(HCW 7).

Increased workload. Healthcare workers in the Kuwadzana clinic, which remained fully operational throughout the various lockdowns and industrial action, cited being overwhelmed by the increased number of women coming for services. They mentioned that they had to suspend other services so that they could prioritise deliveries as they could hardly cope with the increased numbers coming from surrounding clinics. This was made worse by severe staff shortages because of staff needing to self-isolate following COVID-19 exposure. Additionally, some fellow HCWs took industrial action to protest shortage of PPE. Those HCWs at work had to work long and overlapping shifts.

“Sometimes we could not attend to all pregnant mothers, let’s say they are 50 who want to be helped and there are just only two nurses at ANC department because some were on strike because of lack of PPE, and some were sick and some in isolation so at most they were two or three nurses attending to deliveries, reviews, and other services. The surrounding clinics were closed, and all the mothers were coming here so, the nurses did what they could do under the circumstances and prioritised those in labour, but it was the most draining time. . .”

(HCW 8).

HCWs sounded very dedicated and committed to providing PMTCT services despite the difficulties they faced such as being constantly short staffed and challenges getting to work due to transport shortages. Frequent and often impassable police roadblocks/checkpoints compounded these issues.

“Transport was a nightmare because there was so much pressure at the ZUPCO buses. You wait at the bus stop for 3 hours waiting for ZUPCO and you will get to work at 9 am and even going back home, it was the same so because of the shortage of transport so we were now working till 2pm so that we will have time to look for transport and get home before curfew time”

(HCW 5).

Some HCWs narrated how they devised ways to escape police roadblocks so that they could get to work.

“The police roadblocks were too many and quite frustrating I remember one day I was not allowed to pass even after telling them that I was a midwife. Its fortunate that I was driving, and I had to find an alternative route to get to work. Others on public transport had challenges sometimes they would just call to say I was not allowed to pass by the police and one person will attend to all the mothers which was very stressful”

(HCW 9).

By the time of follow up interviews, services were starting to normalise, for example, HCWs reported that ANC contacts at their clinics had gone back to the recommended number and enhanced adherence counselling and viral load monitoring for women living with HIV had resumed. HCWs commented that the establishment of clear COVID-19 guidelines and standard operating protocols for infection prevention saw improvements in services provision. These improvements allowed resumption of the recommended ANC services. HCWs stated that they had undergone several trainings in the interim which improved their preparedness and safety. However, services such as physical examinations and infant growth monitoring were still suspended.

Discussion

This study assessed the impact of the COVID-19 pandemic and associated measures on the uptake and provision of ANC and PMTCT services in selected Harare clinics. The study highlighted that fear of both COVID-19 and inadvertent HIV status disclosure, and loss of income, limited uptake of ANC and PMTCT services. At the facility level, closure of clinics, staff shortages in part due to lack of transport, reduced clinic operating times and number of patients seen per day and ultimately the uptake of services.

Pregnant and breastfeeding mothers stopped using healthcare services for fear of contracting infection or putting their families at risk. They worried that their healthcare facilities lacked capacity to manage people who got sick with COVID-19 infection and therefore wanted to avoid infection at all costs. This mirrors findings from other studies in Zimbabwe, South Africa, Liberia, Malawi, and Sierra Leone which also reported significant declines in the uptake of healthcare services due to fear of infection [1, 2, 26–29]. An audit at central hospitals in Zimbabwe conducted in August 2020 found reduced utilisation of maternity services and a trend towards an increase in maternal mortality [28, 30]. Similarly, in South Africa, Zambia and Uganda, fear of exposure to the SARS-CoV-2 prevented women from seeking healthcare services [27]. As a result, maternal and child health indicators worsened substantially. Our findings suggested that the fear was worsened by the limited knowledge about the infection, highlighting the need to invest in provision of timely accurate information to reassure the public and importance of accessing essential lifesaving services such as PMTCT. As part of this project, we developed and disseminated educational materials for pregnant women, their families and HCWs to mitigate the impact of COVID-19 on PMTCT services and uptake.

The study found that women had reduced access to the eight recommended antenatal care contact visits, with the majority only being able to access two. Women struggled to register their pregnancies on time as clinics were either closed or had shortened operating hours. Poor emergency preparedness saw maternity clinics across the country closing, including referral hospitals [28, 30], thereby limiting women's access to services. We found that depending on timing, some women failed to register their pregnancy within the recommended 12 weeks of gestation despite having the registration fees, with two women having their first contact already in labour. This is in line with our quantitative findings which showed a substantial drop in initial ANC bookings early in the pandemic, although this subsequently recovered to pre-pandemic levels [31]. Fewer women received repeat HIV testing in pregnancy, which may have been because they had fewer contact visits. Late pregnancy registration has been shown to delay ART initiation for women who test HIV positive and are ART naïve [20]. Delayed ART initiation, poor viral load monitoring during pregnancy and limited pre and postnatal follow up lead to high attrition in PMTCT programmes [32, 33]. In studies conducted in Ethiopia [34], Ghana [35], Malawi [36] and Zimbabwe [32], low retention in the first six months in PMTCT programmes was associated with higher HIV transmissions.

Analysis of the PMTCT cascade demonstrates that HIV transmission rates are driven by mother–infant pairs who fall out of the cascade at later stages [37, 38]. In our study, some women had to give birth at home due to clinic closures and their HIV-exposed babies missed out on ARV prophylaxis and HIV testing, which again increased the risk of MTCT. Quantitative findings also show a reduction in the number of infants who received HIV testing from 27% to 18% during COVID-19 [31]. The gaps healthcare workers described in the provision of PMTCT services due to COVID-19 appear to have increased the rate of MTCT as HCWs have been witnessing infants' seroconversions. In Zimbabwe the success of PMTCT programs has always leveraged high ANC contact visits and facility-based deliveries which mean a reduction in contact visits and facility based is likely to increase the risk of transmission. The findings point to the need to invest in robust health-systems that respond to emergency situations and ensure continuity of services for women throughout pregnancy and breastfeeding [1, 2, 32].

Despite the challenges both women and HCWs were very resourceful. At least some women were able to navigate the difficulties in accessing services. Despite their fears of COVID-19 infection, colleagues testing positive, limited PPE and transport challenges, HCWs came up with strategies to continue service provision. Several studies have highlighted HCWs being very resourceful in emergency situations. In West Africa, HCWs worked hard to provide

healthcare services during the Ebola outbreaks despite being at highest risk of contracting the Ebola virus [39, 40].

The findings highlight the need for creating public awareness on the importance of seeking health services before introducing stern preventive measures that have the potential to limit access to healthcare services [1, 2]. National lockdowns must be preceded by awareness campaign through several platforms to educate both the literate and illiterate members of the public on how to access services and the precautionary measures to take [1, 2]. Social and mass media become critical in fighting both misinformation and disinformation.

Although facility-based delivery is recommended by the government of Zimbabwe, some mothers resorted to untrained traditional midwives due to circumstances. Our findings resonate with those from other African countries [16] where mothers resorted to delivering with traditional midwives. It is important to build capacity of traditional midwives and provide them with basic sanitary kits to use in emergency situations or pandemics. Studies from other African countries have shown that training traditional midwives averted maternal deaths [16]. A study in Kenya recommended incorporation of traditional midwives into the maternity care system to avoid only calling them during crises as they may lose skills they would have gained during trainings due to lack of practice [16].

This study recruited a diverse sample in order to get a range of perspectives. Face to face interviews gave the research team an opportunity to build rapport and to obtain nuanced experiences. A potential limitation is that mothers were recruited from health facilities hence experiences of those who absolutely failed to access healthcare may have been missed. Additionally, as the study was conducted in urban Harare, it will not have captured all experiences, including those of rural mothers. Future research should additionally explore these experiences.

Conclusion

The COVID-19 pandemic disrupted provision and uptake of ANC and PMTCT services in Harare clinics. As the COVID-19 pandemic matures, further research is needed to understand which services continue to be affected in order to come up with effective mitigation measures. Importantly, to better apply lessons learned, it will be imperative to involve multiple stakeholders in design of interventions. Without such a participatory, inclusive approach, we are destined to repeat mistakes and be ill-prepared to respond effectively to the next pandemic [2]. Building the capacity of lay health workers and providing them with basic sanitary kits to use in emergency situations or pandemics may be an important first step.

Supporting information

S1 Text. Inclusivity questionnaire.

(DOCX)

S2 Text. Interview guides.

(DOCX)

S1 Data. Interviews with pregnant women and healthcare workers.

(ZIP)

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