



## Research article

# COVID-19 related barriers to institutional childbirth during the early phase of the pandemic in rural Arsi zone, Ethiopia, 2022: A qualitative study

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## A B S T R A C T

**Introduction:** Global, national, and local studies revealed that the COVID-19 pandemic has significantly reduced institutional childbirth. However, it is not well understood how the COVID-19 epidemic affected institutional childbirth service utilization. Therefore, this study aimed to evaluate COVID-19 related impediments to institutional childbirth service uptake during the early phase of the COVID-19 pandemic (March 20/2020–June 20/2020) in the rural Arsi zone of Ethiopia.

**Methods:** A community-based Phenomenological study was conducted from January 10–25/2022, among mothers who gave birth in the Arsi zone during the early phase of the COVID-19 epidemic (March 20/2020–June 20/2020) in Ethiopia. Data was collected by the primary author and a university graduated Midwives with experience in qualitative data collection. Eight focus group discussions and six in-depth interviews were conducted among mothers who gave birth in selected rural areas of the Arsi zone during the early phase of the COVID-19 pandemic. Nine key informant interviews were also conducted among Midwives, Maternity Ward Heads, and Community Health Extension Workers. Data was transcribed, translated, and analyzed thematically using Atlas Ti.7 version.

**Results:** Four major themes and eleven sub-themes emerged regarding the barriers to institutional childbirth during the early phase of COVID-19 pandemic. The COVID-19 related fear was a reason for avoiding institutional childbirth for almost all participants. COVID-19 restrictions such as transportation bans, market bans and public transport price doubling were also critical concerns to seeking institutional childbirth. Perceived Poor quality of institutional childbirth care during the curfew was also an impeding factor. Poor communication, incomplete care components and absenteeism were mentioned under this theme. Unbalanced mass media tragedies and rumors of unknown sources were COVID -19 related infodemics found affecting the practice of institutional childbirth.

**Conclusions:** COVID-19 related fears, COVID-19 restrictions, Perceived Poor quality of care during the COVID-19 pandemic and the COVID-19 Infodemic were the main reasons for reduced institutional childbirth service utilization during the early phase of the COVID-19 pandemic in Ethiopia. Therefore, strategies must be designed proactively to maintain essential maternal health services, particularly institutional childbirth, during pandemics like COVID-19 and similar future epidemics.

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## 1. Introduction

According to the World Health Organization (WHO), institutional childbirth is a process of giving birth within a healthcare facility under the supervision of trained healthcare professionals [1]. It is one of the universally accepted strategies to reduce maternal and neonatal deaths, especially in developing countries. On the other hand, 16 %–33 % of maternal deaths can be prevented just by accessing institutional childbirth service [2–4]. The World Health Organization (WHO) recommended that all women should have access to institutional childbirth to ensure the prevention, detection, and management of complications [1].

The global coronavirus pandemic, COVID-19, has posed significant challenges and hazards to human life and threatens health systems [5–7]. Several human mortalities and morbidities due to the COVID-19 pandemic were witnessed in every corner of the globe [8]. Many countries have implemented COVID-19 protocol, which includes a series of social distancing rules with full or partial lockdowns during different waves of the infection [9]. The lockdowns measures have jeopardized many years of effort and significant progress in maternal and child health. More specifically, institutional childbirth has substantially decreased after the occurrence of the COVID-19 pandemic in almost all developing countries [10–12]. For instance, before the COVID-19 outbreak, 50 % of pregnant women in Bangladesh preferred to give birth at a health facility, but the rate declined to 27 % following the announcement of the lockdown on March 26, 2020 [13].

Like other developing countries, Ethiopia witnessed a dramatic reduction in institutional childbirth services uptake during the lockdown. According to a pre-post longitudinal study conducted in Ethiopia, the relative risk of giving birth in a health facility had dropped by 77 % during the COVID-19 outbreak [14]. Additionally, a systematic review and meta-analysis study revealed institutional childbirth service utilization in Ethiopia decreased by 17.82 % due to the direct or indirect impact of the COVID-19 outbreak [15]. A similar study by Amare reported that institutional childbirth in Ethiopia declined by 23.7 % during the COVID-19 pandemic [16].

From different studies done in different parts of the world, it was understood that movement restrictions acted as a barrier to maternal health service utilization [17,18]. One of the studies done in Pakistan has depicted that essential maternal health care services and routine follow-up at public hospitals were significantly delayed due to the national lockdown and staff reallocation to COVID-19-specific activities. On the other hand, perceived poor quality of care by mothers and healthcare providers panic attack resulted in low maternal service utilization during the COVID-19 pandemic. Poor client-provider communication and mistrust were also recognized as pushing factors that prevented clients from using the services [19].

In Ethiopia, few quantitative studies highlighted some barriers to essential maternal health service utilization during the COVID-19 pandemic. Those barriers include fear of disease transmission, economic hardship, cultural events and transport service disruption [20–22]. However, no study explored COVID-19 related barriers specific to the uptake of institutional childbirth care in rural areas. Thus, this study aimed to explore barriers to the uptake of institutional childbirth during the early phase of the COVID-19 pandemic in the rural Arsi zone, Ethiopia.

## 2. Methods

### 2.1. Study setting

This qualitative study was conducted from January 10–25/2022 in Arsi zone, which is located 165 km from Addis Ababa, the capital city of Ethiopia. According to the 2007 Census, the zone has a total population of 2,637,657, of whom 1,323,424 are men and 1,314,233 women. The zone is divided into 25 woredas (districts) and more than 88 % of the population of the zone are rural dwellers. The zone has nine hospitals, 107 health centers, and about 400 health posts. All of the hospitals are found in urbans, while majority of health centers are established in rural areas. Almost all health institutions provide essential maternal health services like Antenatal Care, Delivery, and Postnatal Care.

### 2.2. Study design

A phenomenological qualitative study design was applied to explore barriers to the uptake of institutional childbirth care in the early phase of the Covid-19 epidemic.

### 2.3. Study participants

The study participants were mothers who gave birth during the early phase of the COVID-19 pandemic (March 20/2020–June 20/2020) in four rural districts of Arsi zone (Lemu-Bilbilo, Tijo-Digalu, Tiyo, and Hetosa). Additionally, Community Health Extension Workers (CHEW), Midwives (Mid), Hospital Maternity Ward Heads (MwH), and Health Center Maternal & Child Health Unit Leaders (MCHuL) were incorporated into the study.

### 2.4. Sample size and sampling techniques

A data saturation point was used to decide on the number of focus group discussions, In-depth interviews, and key informant interviews. Accordingly, eight focus group discussions (FGDs) and six in-depth interviews (IDIs) were conducted among mothers to understand COVID-19 related barriers to Institutional childbirth services utilization from their perspective. Thirteen key informant interviews (KIIs) were also conducted to understand perceived barriers from providers' point of view. Seventy mothers and three

CHEW, four Mid, three MCHuL, and three MWH have participated. Three FGDs were conducted among mothers who delivered at health facilities, and five FGDs were conducted among mothers who gave birth at home. Regarding the sampling technique, A criteria-based purposeful sampling method was used to select FGDs, in-depth interview, and Key Informant interview participants. Seniority, position, and being an active service provider before, during, and after the early phase of the COVID-19 pandemic were used as criterion for selecting key informants. Mothers with at least para II (the previous delivery at the facility and the latest at home), another group of mothers with at least para II (the previous delivery at the facility and the latest also at the facility) and being rural residents were used as criterion to be enrolled into the FGD and in-depth interview.

### 2.5. Data collection

To have comprehensive understandings of barriers to institutional childbirth service utilization during the early phase of the COVID-19 pandemic, different data-gathering methods and sources were applied. The questions in the FGD and In-depth interview guide included broad, open-ended questions regarding barriers related to institutional childbirth during the early phase of the pandemic. The same but relatively shorter questions used in key informant interview with main purpose to understand the phenomenon from a provider's perspective. All focus group discussions and In-depth interviews were conducted in Afan Oromo, a local language, and at convenient places for the mothers (organized by CHEW). Key informant interviews were conducted in the private offices in the health institutions. Three MSc. maternity and reproductive health professionals with qualitative data collection experiences involved in data collection. The principal investigator has also involved in three FGDs and three KIIs. All the KIIs, IDIs, and FGDs were audio-recorded, and notes were taken to supplement the audio recording with participants' permission.

The duration of the focus group discussion ranged from 40 to 60 min, while KII and in-depth interviews took around 30 min. FGD participants were provided with tea, coffee, water, soft drinks, and transportation cost reimbursement.

### 2.6. Data analysis

Inductive analytic approach was used to iteratively analyze field notes and transcripts [23,24]. All recorded KIIs, in-depth interviews, FGDs, and field notes were transcribed verbatim into Afan Oromo (the local language) and translated into English. The principal investigator and selected experienced research assistants prepared the transcripts. Some transcripts and audio files were cross-checked to confirm accuracy and consistence of files before coding. Sample transcripts prepared by research assistants were read by principal investigator to check consistency. Data analysis was conducted using Braun and Clark's (2006) thematic analysis approach [25]. To become familiar with the data and generate meaningful codes, the principal and research assistants read the descriptive information again and again. The analysis methodology relies on data-driven codes, which were generated through an open coding process that involved the classification of minor codes. The primary investigator and co-investigators separately coded a set of transcripts from each interview category and all authors came to an agreement on a list of codes to assure the validity of the coding. The computer software Atlas-ti, version 7, was used to categorize small codes using open coding techniques. The principal and co-authors independently coded a set of transcripts from each interview category to ensure the reliability of the newly emerging codes. Then, the small codes were grouped to generate main themes, which were debated and decided upon. Finally, the emerged themes become the categories for the analysis [26]. The framework developed based on these main themes.

**Table 1**  
Socio-demographic Characteristics of Focus Group Discussion Discussants  
in Rural Arsi Zone, Oromia Region, April 2021.

Variables	Frequency (%age)
Age	
23-30	28 (40)
31-45	42 (60)
Parity	
II	45 (64.2)
>III	25 (35.8)
Education	
No formal education	14 (20)
Elementary	42 (60)
Secondary and high school	14 (20)
Actual place of delivery	
Home	49 (70)
Facility	21 (30)
>III	25 (35.8)
Education	
No formal education	14 (20)
Elementary	42 (60)
Secondary and high school	14 (20)
Actual place of delivery	
Home	49 (70)
Facility	21 (30)

## 2.7. Trustworthiness

Different activities were considered to ensure the study's credibility, dependability, transferability, and conformability. Based on a pre-test finding, the researchers edited and modified the FGD, IDI and KII guides. The credibility of the findings was increased by team triangulation of the data from mothers, health professionals, and health extension workers. The risk of researchers' reactivity was managed by normalizing the research process during the FGDs, KIIs and IDIs by explaining the purpose and goals of the study to assure participants that their honest and authentic responses are valued, regardless of whether they align with the researchers' expectations. Establishing rapport and trust has been also used to build a trusting relationship with participants to create a comfortable environment for sharing their experiences and perspectives. Emphasize was given to confidentiality and assurance to participants that their responses will be kept anonymous. A non-intrusive and unobtrusive approach training was given to data collectors to minimize observer effect used by data collectors to data collection.

## 3. Result

### 3.1. Sociodemographic characteristics

Seventy mothers who gave birth during the early phase of the COVID-19 pandemic in Ethiopia participated in the focus group discussions. Additionally, six mothers were involved in the in-depth interview. Most FGDs participants were in the age range of 31–45 year, and 53 % of them attended at least elementary education. Regarding their actual place of delivery, 49 (70 %) gave birth at their home, and the remaining 21 (30 %) gave birth at a health institution (Table 1).

Regarding the Key informant interview, three health extension workers, four midwives, three maternity ward heads, and three maternal and child health unit leaders have successfully responded to the key informant interview. The majority of the key informant interview participants had professional experiences of at least three years (Table 2).

### 3.2. Themes

Four main themes and ten subthemes emerged to explain barriers to institutional childbirth during the early phase of the COVID-19 pandemic. These were: COVID-19 Fear, COVID-19 restrictions, Perceived poor quality of care and Infodemics.

#### 3.2.1. Fear of COVID-19

According to many participants, fear related to COVID-19 was the common cause of home childbirth during the early phase of the pandemic. Fear of infection, fear of COVID-19 test procedure and fear of isolation/quarantine were the sub-themes under this theme.

**3.2.1.1. Fear of infection.** Discussants believed they would contract COVID-19 infection when traveling by bus since they (mothers) might come into contact with other people or inanimate vehicle parts like the doors and seats.

*"I could trust a bus; it transports many people from one location to another throughout the day. Who knows, one of the passengers could be a Corona carrier and intentionally contaminate the door or seat. As a result, I favored home childbirth, and I did it ...." (Home-delivery, FGD).*

On the other hand, all health facilities, particularly hospitals, were another feared source of COVID-19 infection among the discussants. Discussants explained that they were afraid of the risk of infection from the hospital, not only for themselves but also for their newborns.

*"... I was fearful as the time of delivery was approaching." I was afraid to go to the hospital for childbirth. Hospitals are places where people with Corona are treated ... " (Home delivery, FGD)*

**Table 2**

Key In-depth Interview Informants Characteristics in Arsi Zone, Oromia Region, April 2021.

Informants ID	Age	Sex	Education Level	Profession	Position	Experience
KII1	29	Male	Diploma	CHEW		3
KII8	28	Male	MSc in MRHN	Mid	MwH	7
KII2	38	Female	Diploma	CHEW		7
KII10	33	Male	Bsc Midwife	Mid	MwH	7
KII4	38	Male	Bsc Midwife	Mid		12
KII12	41	Male	Bsc Midwife	Mid	MCHuL	5
KII6	27	Female	Bsc Midwife	Mid		3
KII3	32	Female	Diploma	CHEW		3
KII9	41	female	Msc in MRHN	Mid	MwH	9
KII5	31	Female	Bsc Midwife	Mid		9
KII11	40	female	Bsc Midwife	Mid	MCHuL	8
KII7	27	Female	Bsc Midwife	Mid		3
KII13	39	female	Bsc Midwife	Mid	MCHuL	7

A community health extension worker has witnessed that a significant number of pregnant mothers in her catchment kebeles (the smallest administrative unit) gave birth at home because of fear related to the COVID-19 infection in transport and health institutions.

“... one of the pregnant mothers in my catchment kebele gave birth at her home despite my advice because she was afraid of COVID-19 contamination on the public transport and from health institutions ...” (*CHEW, KII*)

**3.2.1.2. Fear of test procedure.** Some participants did not have an interest in taking the COVID-19 test. They found it extremely worrying to think that a cotton swab would be sticking deep into their throat or nose. They believed the cotton stick inserted into the nose would touch the brain, while the one inserted into the throat would provoke vomiting.

“During my Antenatal Care follow-up, a doctor asked me to insert a stick into my nose, but I refused. I never went back to that clinic. I gave birth at home ...” (*Home delivery, IDI*)

A midwife also reported that,

“... taking swabs from the nose and throat is very difficult. Mothers hate it because they believe it touches the root of their brain or provokes vomiting in front of other people, which is embarrassing according to them ...” (*Mid, KII*)

**3.2.1.3. Fear of isolation/quarantine.** Some mothers were more worried about social isolation or quarantine than the COVID-19 infection itself. Mothers develop a critical fear of being isolated or quarantined when they go to a hospital for childbirth.

“It’s one thing to contract the virus. But what I was afraid of more was the so-called detention in the facility where you are not allowed to see even your kids. It is the worst jail ....” (*Home delivery, FGD*)

### 3.2.2. Covid-19 restrictions

Most discussants said the COVID-19 protocol had negatively impacted their day-to-day lives. The three sub-themes under this theme are transport scarcity, increased transport prices, and a shortage of cash.

**3.2.2.1. Transportation scarcity.** The lockdown directly impacted the transportation system and exacerbated the already poor Transportation access in the rural parts of the country.

“... during the first phase of COVID-19, I was a term, and my labor started very soon. I stayed about 4 hours at the bus station because there was no bus to go to a hospital, which is located 45 km away. My husband and I decided to go back home and seek help from a traditional birth attendant ...” (*Home delivery, FGD*).

A key informant participant supported this quote, stating that mothers far from the health facility could not come for childbirth due to transportation restrictions.

“During the early phase of COVID-19, almost all of the mothers who had antenatal care follow-up at our hospital gave birth at home because they could not get transportation from the village to our hospital ...” (*MWH, KII*).

**3.2.2.2. Transportation price.** A significant increase in transportation prices (almost double) was another COVID-19 restriction that negatively affected access to health institutions. Due to COVID-19 regulations, the bus’s care capacity was cut in half. Therefore, passengers had to pay twice as much as usual prices. This was challenging for several mothers because they had family members traveling with them.

“... I decided to take all risk of infection and give birth at a hospital. My husband and my mother also decided to escort me. But we changed our mind because transportation price at the time was very high: it was twice when compared with that of the previous normal period ...” (*Home delivery, IDI*)

A health extension worker from the same community attested that the increased transportation price was a real problem of the community and a barrier to institutional childbirth.

**3.2.2.3. Cash shortage.** Most discussants complained that a local market ban complicated their daily lives. In most cases, rural communities do not have cash in their pockets or at the bank. When the need arises, they sell properties like cows, hens, sheep, or crops at the local market. A serious cash shortage was created during the curfew due to the market ban, which complicated the already poor ability to pay for expensive transportation, medical services, and other indirect expenses.

“... there is no market in our area; the militia (community police) have repeatedly dismantled it. There was no way to sell crops in exchange for cash. So that my husband couldn’t get me cash, I gave birth at my home....” (*Home delivery, FGD*)

### 3.2.3. Perceived poor childbirth care

Poor institutional childbirth care during the early phase of the pandemic was mentioned as one of the barriers to utilizing the

service. Poor communication, incomplete service, and absenteeism were sub-themes for perceived poor childbirth care.

**3.2.3.1. Poor communication.** Healthcare providers' unwelcoming faces and poor communication with laboring mothers were repellent factors in utilizing institutional childbirth services. The use of unnecessary words, turning faces away from laboring mothers, avoiding simple body contact, and unnecessary use of COVID-19 wear were some of the communication-related problems that upset the mothers.

"I gave birth at a hospital; they had no interest in talking to me. The nurse shouted at me when I tried to hold her chair to tolerate my pain (she meant labor pain) ... she (meaning the nurse) always turns her face away from me ... " (*Institutional delivery, FGD*).

Another participant added:

"... as she (meaning the above discussant) said, it is difficult to control oneself during labor, but doctors were shouting to us to keep mothers away...." (*Institutional delivery, FGD*).

Clients were not comfortable and frustrated when they saw professionals use COVID-19 personal protective equipment in routine non COVID-19 care.

"The setup is quite unusual; sometimes, it is difficult even to identify who he or she is: they (meaning health professionals) were dressed from head to toe ... " (*Institutional delivery, IDI*)

Maternal healthcare providers are also afraid of clients, considering mothers may be positive for COVID-19. Therefore, they were irritants and could not be welcoming and supportive to the mothers.

"... most of my staffs were frustrated after the index case was reported in our country. I myself have shouted at clients so many times for no reason ... " (*MCHuL, KII*).

**3.2.3.2. Incomplete care.** The dramatic decline in the quality of childbirth care was raised by discussants and key informants that it was the main reason to seek home delivery. The cessation of some childbirth care components like per-vaginal examination, back rub, physical support, coffee and porridge ceremonies were critical for mothers.

"... I was admitted at a nearby health center in the morning. No one examined me until midnight when I was about to deliver. I can say I didn't get any care from the provider ... " (*institutional delivery, IDI*)

A midwife from one of the hospitals added

"... really, there was a frustration from the professional side; also, midwives were hesitating to do some procedures like vaginal examinations ... " (*Midwife, KII*)

Additionally, those mothers who gave birth in health institutions were offended because they could not get those traditionally accepted coffee and porridge ceremonies.

"This is my second childbirth at a health institution. The previous one, before Corona, was impressive. We celebrated our childbirth at the hospital; they provided us with coffee and porridge. But for this childbirth, we haven't celebrated at all (she laughed)." (*Institutional delivery, FGD*).

A maternity ward head told

"... the coffee and porridge ceremony was stopped intentionally to minimize the risk. But it negatively affected institutional childbirth care seeking behaviour ... " (*MWH, KII*)

**3.2.3.3. Absenteeism.** At the earliest phase of the COVID-19 pandemic in Ethiopia, there was no direction from the Ministry of Health on handling maternal healthcare services. So, hospitals and health centers took measures they thought were correct. Some facilities reduced the number of staff by half to minimize the risk and have a backup. Some facilities closed some essential maternal health services, like Antenatal Care and Family Planning services. This confusion created a sense of absenteeism among providers and affected the quality of care.

"I sacrificed a lot to get to the health center at the time of Corona (no transportation). Do you know what happened upon my arrival? The guard told me there was no professional attending childbirth! Thanks to the almighty God, on my way back home, I gave birth to this baby (pointing at a breastfeeding baby)." (*Home delivery, FGD*)

#### 3.2.4. Infodemics

During the early phase of COVID-19, it was observed that an unprecedented infodemic was seriously harming essential maternal health service utilization, like institutional childbirth. Mass media tragedies and rumors were the two sub-themes that emerged under this theme.

**3.2.4.1. Mass media tragedy.** The widespread dissemination of daily unfortunate breaking news both at a global and local level was identified as a major reason for people to lose trust in health institutions and prefer home delivery. Everyday news of the quickly growing virus as well as terrible community losses increased the fear threshold and led to home delivery.

“I gave birth when the issue of Corona was hot in our country. My family and I felt sad as we heard the frightening news on the radio. Then my husband and I decided not to go anywhere ... death is inevitable ... “(*Home delivery, FGD*)

Another participant added:

“... at that time, I was nine months pregnant. I suddenly heard on the radio that Corona had appeared in Asella town (a nearby town). Immediately, I was shocked; my hands were shaking. Since then, I have lost the motivation to give birth at a health facility ... ” (*Home delivery, IDI*)

**3.2.4.2. Rumors.** According to most discussants, rumors from various sources or misunderstandings were the main reasons for getting confused and losing hope in the healthcare system. Some discussants perceived that health facilities were closed down completely for fear of COVID-19, so they gave birth at home.

“I gave birth at home as I heard a rumor that Bilalo Health Center (a nearby health center) was closed because of the disease (to mean Covid-19) (*Home delivery, FGD*)

A key informant MCH unit leader said that

“In the first few weeks of the COVID-19 pandemic in our zone, we tried to close antenatal care (ANC), but in the community, it was understood that our health center has also stopped delivery service which was wrong ...”

#### 4. Strength and limitation

**Strength:** Relatively wide perspectives (from mothers' perspective, providers' perspective, community level perspective) considered to generate strong evidence.

**Limitation:** Urban mothers who may be more affected by COVID-19 media tragedy were not considered in this study.

#### 5. Discussion

This study revealed that barriers to use institutional childbirth during the COVID-19 pandemic have maternal, institutional, and provider factors.

The fear of acquiring the COVID-19 infection from health facilities or during transportation was a critical concern for almost all mothers seeking institutional childbirth services in Ethiopia. This claim is consistent with other previously conducted studies in other developing countries. For instance, a study done in Nepal showed COVID-19 related fear and anxiety impacted mothers' decisions and then disrupted institutional childbirth service utilization [27]. Similarly, the current explanation is congruent with a study done in a relatively similar country, Kenya, which has revealed that fear associated with the pandemic has significantly reduced institutional childbirth [28].

Mothers' fear of quarantine and isolation has also affected the use of institutional childbirth services. As Ethiopia is a country where there is a strong connection between family members (collectivism), mothers' quarantine/isolation separates them from their families, especially their kids. The current result is also consistent with another qualitative study done in Kenya, which explained the fear of quarantine by mothers as the main reason for reduced antenatal care [27]. To address these concerns, providing accurate and up-to-date information on safety protocols implemented by health facilities and transportation systems can help alleviate fears and build confidence in seeking institutional childbirth.

On the other hand, COVID-19 restrictions have also complicated the already poor access to institutional childbirth in rural Ethiopia. The transportation ban with halved carrying capacity of buses has worsened the already poor transportation situation. This result is also similar to the study conducted in Kenya, which showed that mothers had to walk a long distance to reach the health facility because the means of transport available became scarcer during the pandemic [29]. There was no previous publication that complained about the transportation price as a barrier to institutional childbirth service utilization; however, it is frequently claimed as a reason for not using institutional childbirth during the early phase of the COVID-19 pandemic. More seriously, the local weekly market restriction during the curfew was a double burden and complicated the ability to afford the inflated transportation price and indirect medical costs. This finding is also similar to the study conducted in Wuhan, China, which reported financial problems and access to transportation may be limited access to health care [30]. A study conducted in northeast Ethiopia also suggested that stay-at-home orders lead to greater lost income and the inability to pay for services doubling the cost of public transport, which in turn limits the utilization of maternal health services [31]. From this, one can learn that it is always important to adopt global policy recommendations to local contexts with the involvement of community members and crafting alternative policy options for exceptional community components like pregnant mothers is important.

Furthermore, the poor quality of childbirth care during the early phase of COVID-19 reduced institutional childbirth service utilization. Poor communication, incomplete care and professional absenteeism critically affected mothers' health care seeking behavior.

This result is supported by lessons learned from the Ebola outbreak that poor communication from professionals caused adolescent mothers to avoid seeking health care [32]. Similar studies done in Nigeria come up with the suggestion that perceived poor quality of care during the early phase of the pandemic has negatively impacted the motive that the mothers will take for institutional childbirth [33]. The same argument was also reported from another study done in northern Ethiopia where mothers' unpleasant experiences of childbirth during COVID-19 increased home childbirth [31]. Therefore, to mitigate the disruption in the quality of maternal and child health care, a proactive institutional readiness and preparedness plan should be put in place by the Ministry of Health. Preparedness, as one of the most important phases of the risk management cycle, causes a more immediate, effective, and efficient response to the epidemic [34]. Additionally, strong monitoring and evaluation with modified laws and regulations is highly important to guide outlier professionals [35].

COVID-19-related daily unfortunate media tragedies have further fueled anxiety and fear towards the COVID-19 pandemic at the community and individual level, which resulted in the inability to make timely decisions to receive institutional childbirth. The continuous COVID-19 related tragic reports from the mass media, fueled the misinformation and rumors in the community and these led to unwanted health behaviors. This narration is congruent with the World Health Organization report which revealed misinformation and unbalanced news have negative effects such as an increase in erroneous interpretation of scientific knowledge, opinion polarization, escalating fear and panic have decreased access to health care [36]. Establishing centrally monitored reliable and acceptable information sources is very important to avoid misinformation and rumors.

## 6. Conclusions

It was understood that the COVID-19 pandemic has caused a significant disruption in institutional childbirth service uptake. COVID-19 related fears, COVID-19 restrictions, Perceived Poor quality of care, and COVID-19 Infodemic were the main reasons for reduced institutional childbirth during the early phase of the COVID-19 pandemic in Ethiopia.

Strategies must be designed proactively to maintain essential maternal health services, particularly institutional childbirth, during pandemics like COVID-19 and similar future epidemics. Wavering pregnant mothers' transportation and maternal health care costs could help to maintain care seeking during times of hardship like the COVID-19 pandemic.

The Ministry of Health, Ministry of Transport, Ministry of Communication, community police and local leaders should work together to address communities' wrong perceptions, misunderstandings and rumors about any potential pandemic or epidemic in future. Additionally, healthcare providers and the healthcare system must do drills regularly on how to manage pandemic conditions. Above all, media outlets (formal or informal media) should tailor their information according to a community understanding level.

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## Ethical consideration

Ethical clearance was obtained from the ethical review board of Arsi University, college of health sciences, with a reference number of A/CHS/RC/10/2021. An official permission letter was also obtained from Arsi Zone Health Department. After explaining the purpose of the study, written informed consent was obtained from each of the study participants. Confidentiality and anonymity were ensured throughout the execution of the study by taking only the required information without using the names of the participants.

## Data availability

The datasets collected and analyzed for the current study is available from the corresponding author and can be obtained upon a reasonable request.

## CRedit authorship contribution statement

**Hinsermu Bayu Abdi:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Data curation, Conceptualization. **Teresa Kisi Beyen:** Formal analysis. **Ashenafi Habtamu Regesu:** Supervision, Methodology. **Mulugeta Dile Worke:** Formal analysis. **Girma Alemu Wami:** Methodology. **Beker Ahmed Husen:** Visualization, Supervision. **Beyene Sisay Damtew:** Methodology.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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