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Perceptions of Inequity in the Provision and Utilization of Maternal, Newborn, and Child Health Services in Tigray, Ethiopia. A Qualitative Explorative Study

Alem Desta Wuneh (alemdw@gmail.com)
Mekelle University College of Health Sciences https://orcid.org/0000-0003-2497-4494
Afework Mulugeta Bezabih
Mekelle University College of Health Sciences https://orcid.org/0000-0003-0707-4363
Lars Ake Persson
London School of Hygiene & Tropical Medicine
Yemisrach Behailu Okwaraji
London School of Hygiene & Tropical Medicine
Araya Abrha Medhanyie
Mekelle University College of Health Sciences

Research

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Abstract

Background: We have earlier shown that the utilization of Ethiopian maternal health services was distributed pro-rich, while child immunization was equitably distributed. Hence, this study aimed at exploring rural Ethiopian women's and primary health care workers' perceptions of inequities and their causes in the provision and utilization of maternal, newborn, and child health services.

Methods: The study was conducted from August to December 2019 in two rural districts of Tigray, Ethiopia. We performed twenty-two in-depth interviews and three focus group discussions with women who had given birth the last year preceding the survey, women's development group leaders, health extension workers from health posts, and health workers from health centers. The final sample was determined based on the concept of saturation. The interviews and focus group discussions were audiotaped, transcribed, translated, coded, and analyzed using thematic analysis.

Results: The provision and utilization of antenatal care, facility-based delivery, and care-seeking for sick children were perceived inequitably distributed. Immunization was perceived as an equitable service. The inequity in the provision and utilization of maternal and child health services was linked to the economy, distance, social and cultural norms, low quality of service, maternal age, and education. Poor implementation of the Government's equity-oriented policies, such as community-based health insurance, was perceived to result in health inequities.

Conclusion: Mothers and primary healthcare providers in rural Ethiopia indicated weaknesses in delivering equitable services and reasons for inequitable utilization. The narratives could inform efforts to provide universal health coverage for mothers, newborns, and children. These problems require multisectoral actions to address the identified sources of inequities.

Background

The provision of equitable maternal, neonatal, and child health services enhances the possibilities to reach the current global goals for women and children (1). Equity was not an identified goal or target in the Millennium Development Goals (2,3). Despite progress in the utilization of services and maternal and child health indicators, inequities remain a challenge (4,5). In response to this problem, equity was prioritized in the goals and targets of the Sustainable Development Goals (6). Inequities in the utilization of maternal health services in Africa have been linked to household wealth, the distance between home and health facility, educational level, women's age, and rural or urban residence (1,3). Social differences and gender inequities have led to low utilization of maternal health services (7,8). Efforts to reach disadvantaged groups with maternal, newborn, and child health services need to be guided by data on coverage and different inequality dimensions (9).

Ethiopia has made substantial progress in maternal, newborn, and child health in recent decades. The proportion of pregnant women attending antenatal services four or more times increased from 12% in 2005 Demographic and Health Survey to 43% in 2019. Over the same years, facility-based deliveries

increased from 5% to 48%. The under-five mortality rate was 123 per 1000 live births in the 2005 survey and 55 per 1000 in 2019. The neonatal mortality rate changed less – from 39 per 1000 live births in the 2005 study to 30 per 1000 live births in 2019 (10). Despite this progress, inequities in services coverage and different maternal and child health outcomes remain a challenge (11). Coverage of maternal health services and basic immunizations have favored the wealthiest, more educated, and those living in urban areas (10). The Government has committed itself to improve equity through the health extension program and other initiatives (12). The equity focus is relatively new in Ethiopia and was included in the health sector transformation plan (13) after the Millennium Development Goal era. This perspective was prompted by the large social and geographical differences in the coverage of health services (14).

Previous qualitative studies from Ethiopia have mainly focused on barriers to maternal, newborn, and child health services utilization (15,16). Qualitative studies exploring the perceptions of inequity of maternal and child health services in the country are scarce. Based on a recent survey in four Ethiopian regions, we performed a wealth-based equity analysis of the utilization of maternal, newborn, and child health services. The utilization of maternal health services was low and inequitably distributed, favoring the better-off women. In contrast, basic immunizations of children were equitably distributed (17). These results prompted us to learn more about the experiences and perceived causes of inequity in the provision and utilization of maternal and child health services. Hence, in this study, we aimed at exploring mothers' and primary health care services providers' perceptions of inequity and why inequities exist in the utilization of maternal, newborn, and child health services in rural areas of the Tigray region, Ethiopia.

Methods

Study setting

The study was conducted in two districts, Enderta and Saharti Samre, of Tigrai regional state. These two districts have 25 and 17 tabias, respectively, the lowest administrative unit with a population of about 5000 people. A majority of the population in the two districts are farmers and predominantly Christian Orthodox followers. The region has a three-tier health system comprising primary, secondary, and tertiary care. The health system is responsible for providing maternal and child health services, such as antenatal care, facility-based delivery, postnatal care, immunization, and treatment of sick children. The primary care unit includes primary hospitals, health centers, and health posts responsible for providing the services to the rural population (18). A health center serves approximately 25,000 people. It is also a referral center and training institution for the health extension workers from health posts that provide preventive, promotive, and selected curative child health services (13). The health extension workers are also supported by the women's development groups, which involves six neighboring households in a one-to-five women's network. This network is mainly engaged in promoting and mobilizing women to improve women's health-seeking behavior and liaise with health extension workers.

Study design, sampling, and recruitment

This study had a qualitative and explorative research design with purposive sampling. The study was conducted in four tabias from two districts; two remote tabias and two located closer to the health center. The villages far from the health center had limited access to roads and transportation. Participants in the in-depth interviews (n=22) and focus group discussions (n=27 mothers) included women, who had given birth the last year before the interview, women's development group leaders, health extension workers from the health posts, and healthcare workers at the health center and officials from the woreda health office. Participating women were recruited by the health extension workers and women's development group leaders, while the healthcare workers were recruited by the health center directors and district health office heads. We collected our sample based on the principle of saturation (19).

Data collection

Data were collected from August to November 2019. Three university instructors and researchers with masters' degrees who had prior experience in qualitative data collection and analysis collected the data after one-day training. The interviews and focus group discussions were undertaken using a pretested guide prepared in English (additional file 1) and later translated into the local language, Tigrigna. The guide included questions on maternal, newborn, and child health services utilization, any perceived difference between groups in the utilization of services, women's experiences of the services, and perceived causes of inequity in the maternal, newborn, and child health services utilization. In the process of data collection, the field guides were continuously reviewed and edited.

The in-depth interviews with women from the community were carried out face-to-face in a separate room in their homes to ensure privacy and with the healthcare workers in their office rooms. The focus group discussions were held at a nearby health post. Women from the communities were interviewed first. Following a preliminary analysis of these interviews, the healthcare providers were interviewed, and focus group discussions were conducted.

During the focus group discussion, we tried to establish a rapport to make participants feel comfortable and trustworthily share their perceptions and experiences. Before the interviews and discussions, participants were briefed about the study's purpose and invited to sign the consent. All in-depth interviews and focus group discussions were audiotaped, transcribed, and translated. Interviewers met with the principal investigator daily to discuss the emerging information, refine the guides, and ensure data collection consistency. Focus group discussions and in-depth interviews were applied to triangulate the evidence.

Data analysis

Data were analyzed using thematic analysis according to the theoretical approaches of Miles & Huberman (20). We followed a step-by-step analytic strategy; the transcribed data were coded, thematized, and complemented with hand-written field notes. Transcripts were done word-for-word to capture all voices and reviewed repeatedly to get familiarized with the data. The principal investigator, together with the data collectors, analyzed the data through consensus, i.e., in case of disagreement this

was harmonized through discussion. The analysis started during the data collection. This start allowed us to know the nature of the data and determine whether saturation in data collection had been reached. The coding was done by attaching an underlying meaning for each line or paragraph of the text. Themes were formed by grouping codes that had similar concepts. The themes were supplemented by verbatim quotations to present the respondents' perspectives. ATLAS.ti qualitative software (version 7.5.16) was used to store and analyze the data. The coding was reviewed repeatedly, and revisions were made accordingly.

Results

Characteristics of the in-depth interviewees and focus group participants

The age of the interviewed women ranged from 22 to 40 years. A majority had primary (grades 1-8) education. Most focus group participants were between 25 and 34 years, six were less than 25 years, and another six 35 years or older. More than half of the focus group participants (16 out of 27) had attended primary education, while three had no formal education. All respondents were married, farmers, and orthodox Christian followers. The healthcare providers were two health extension workers and four health workers from health centers and woreda health offices. Four women's development group leaders also participated in the study (Table 1). Interviews, as well as focus group discussions, had a duration of 45 minutes to two hours.

Table 1: Characteristics of study participants

Characteristics	Women (n=39)	Women Development Group leaders (n=4)	Health workers (n=6)
Age			
<25	8	0	
25-34	23	2	5
>=35		2	1
	8		
Education			
No education	8	1	
Primary	23	3	
Secondary and above	8	0	6
Occupation			
Farmer	39	4	0
Employee		0	6
Marital status			
Married	39	4	5
Single		0	1
Religion			
Christian Orthodox	39	4	6
Muslim		0	0

The concept of equity was difficult for women respondents. They used to define it in terms of timely service provision and utilization. However, during the pretesting of field guides, we explained inequity in terms of unfair differences in the utilization of maternal and child health services. We used an equivalent local term *fithawnet* in service utilization. We asked the respondents if the differences in the utilization were *fithawi* (fair)? All respondents understood the local term for 'fairness'.

We identified the following major themes and sub-themes emerging from the data (Table 1). Below follows a presentation of the results complemented with direct quotes from the respondents.

Table 1: List of themes and sub-themes that emerged from the data

Major themes	Sub-themes
Perceived inequity in maternal, newborn, and child health services utilization	1. Equitable services
	2. Inequitable services
Perceived causes of inequity in maternal, newborn, and child health services utilization	
Structural causes	1. Economic/financial barriers
	2. Lack of physical accessibility
Social and cultural causes	1. Lack of husband's support
	2. Women's heavy housework
	3. Women's cultural taboos
Perceived quality of service	1. Healthcare providers' bad behavior
	2. Poor availability of drugs
Individual-level causes	1. Maternal age
	2. Maternal education
Insufficient implementation of equity-oriented interventions	
Suggestions	

Perceived inequity in maternal, neonatal, and child health services utilization

Equitable services

Immunization was perceived as a fairly distributed service. All interviewed mothers reported that their children had been vaccinated. They attributed this completion to the immunization services provided by the health extension workers at outreach centers. An interviewed woman explained this:

In our village, you don't find a child left unvaccinated. They (the health extension workers and women's development group leaders) mobilize us for vaccination. There is no single woman who remains at home during a vaccination day. Vaccination is the most satisfactory service for all women in our village. They (the health extension workers) come to our village every month on the day of St. Mary, our leisure day, and vaccinate our children (IDI woman, age 35).

A focus group participant explained:

In vaccination, there is no difference. Because we are told to vaccinate our children 45 days after delivery, we, all women, vaccinate our children without any difference (FGD woman, age 27).

Inequitable services

All respondents reported that the utilization of maternal, newborn, and child health services was increasing at health facilities. More women attended antenatal care and gave birth at a nearby health facility. They stated that giving birth at a health facility could save both their lives and the newborns if complications arose. However, some women did not fully use the antenatal services. The respondents underlined that antenatal care and facility-based delivery were still inequitably distributed. Women's development group

leaders considered antenatal care to be most problematic since pregnant women got tired and lacked money for transportation to the health center's services. Also, they didn't have access to ambulance services to reach a health facility during labor. The health workers underlined that poor women from remote places were less likely to attend antenatal care and deliver at health facilities.

The participating women reported that they did not attend postnatal care at health facilities after giving birth. Once a woman had delivered safely, she didn't see the importance of going back to the health facility for health check-ups. According to their understanding, a woman should go back to the health facility if she or her newborn baby experienced any illness symptoms or had developed any complications, such as postpartum bleeding. An interviewed woman explained:

I did not visit the health facility after birth because my baby was fragile; how can I take her to the health center at this age. Here, we don't have the practice of going to the health facilities before baptizing our children. Now, my baby is one month and two weeks old; I will take her for vaccination tomorrow (IDI woman, age 30).

Another interviewed woman explained:
After birth, I was healthy; hence I did not see the importance of going to the health center for a checkup. We (mothers) do not go to the health center if we and our babies are healthy. But we go there if the mother or baby is not feeling well (IDI woman, age 35).

The health workers corroborated with the mothers' perceptions of postnatal care utilization. A young health extension worker said that mothers came to the health posts after delivery to vaccinate their babies, but not for a health check-up. Another healthcare provider also noted that mothers who gave birth at the health facility could attend the first postnatal care within 24 hours at the facility. But the subsequent postnatal visits at days 7 and 42 were missed.

Perceived causes of inequity in the maternal and child health services utilization

The themes identified were structural, social, cultural barriers, perceived quality of services, individual-level causes, and insufficient implementation of equity-oriented interventions.

Structural causes of inequity

Two sub-themes emerged under this structural cause of inequity in maternal, newborn, and child health services utilization: economy and distance.

Economy or lack of financial resources

The participants linked the inequity in the utilization of maternal, newborn, and child health services to the lack of money that prevented poor women from visiting the health facilities. Money was needed for transport, including the costs of their escorts, food, and buying drugs for their children. This problem was worsened when healthcare providers told them to buy medicines from private pharmacies that were very expensive. The inability to cover these costs discouraged women from using the health facilities. A woman explained:

The women who have money are taking public transport to go to health centers for delivery. However, the poor are giving birth at home, despite that services are free to all women. So, lack of money for transportation causes inequality between the poor and rich women (IDI woman, age 22).

The health workers and health extension workers also acknowledged the economy's influence on services utilization, especially lack of money for transportation and drugs. One health extension worker said: *…those women from the wealthiest households were hiring minibusses for ETB 300 (USD 8.1) to go to the health facility for antenatal care and delivery. However, women from poor households don't have this opportunity (IDI health extension worker, age 28)*.

Another woman also explained that the unfair child health-seeking behavior was linked to lack of money.

The poor woman doesn't go to a health facility when her child gets sick because she can't buy drugs. So, what can a poor woman do if she doesn't have money at hand? Nothing at all. Days pass, thinking of taking the child to a health facility, but she fail to seek medical care timely because of a lack of money (IDI woman, age 35).

Lack of physical accessibility

All respondents in the in-depth interviews and focus group discussions unanimously mentioned that traveling distance was the primary cause of inequity in maternal, newborn, and child health services utilization. Traveling distance included distance from residence to the nearby health facility, poor road conditions, and the villages' topography combined with limited availability of transportation for the community. Many women from remote villages did not utilize the health facilities for sick children.

… it (health center) is too far from our home. Those residing near the health facilities or living in urban areas use the health facilities more than us. In our village, let alone a pregnant woman, it is even more

challenging for non-pregnant to go to the health facility and seek medication. For example, it took me about three hours to reach the health facility for antenatal care follow-up, or six hours, including the trip back. It would be impossible to attend all antenatal care (FGD woman, age 40).

The respondents said that women previously used traditional stretchers to reach the health facilities for delivery. However, the women's development group leaders highlighted that young men are seasonally migrating to urban areas searching for jobs and are therefore absent when traditional transportation is needed. They stated that an ambulance is available, but the ambulance drivers' unfriendly behavior deters women from utilizing these services to reach health facilities. They reported that the drivers do not respond to phone calls or put their cell phones off. As a result, women are compelled to deliver at home or on the road to the health facilities.

The different health workers were also in agreement with the women respondents' opinions. They perceived that pregnant women from remote tabias attended the first antenatal clinic but could not participate in subsequent follow-ups. A maternal, neonatal, and child health expert at the district health office stated that the district had failed in achieving the planned coverage of antenatal care, i.e., four or more times, because women from remote areas were unable to comply with the recommended schedules. Inaccessibility by road was a major deterring factor. A women's development group leader highlighted the importance of constructing roads to each village so that ambulances could reach.

One health care provider underlined that causes of inequity in the utilization of the services were combined and not a single cause. He explained his view as follows:

Women have multifaceted problems that distance them from the health facilities. First, household-related problems, second, limited access to transportation, third, lack of awareness and understanding of the benefits of utilizing the health facilities. When these problems co-exist, they widen the distance between home and health facility. Even the distance alone causes a considerable disparity in maternal health services utilization, disregarding the other co-existing problems. If you are far away from the health facility, you are also distant from the information. Thus, lack of access to roads, no transportation, and lack of information combined with distance multiply the distance from the health facilities (Health worker, age 26).

Social and cultural norms

Under this heading, lack of husbands' support, women's cultural taboos, and women's heavy housework emerged as deterring factors from seeking maternal health services.

Husbands' support

Participants in the in-depth interviews and focus group discussions said that the husbands needed to be at home for women to attend antenatal care and seek care for their sick children. One reason was that husbands could cover their wives' responsibilities at home. Further, husbands arranged transport, including traditional stretchers, for pregnant women to go to the health facilities for delivery. Most

respondents also noted that a lack of support from husbands prevented women from accessing health facilities. Husbands migrate to urban areas these days searching for jobs, leaving women without their support, thereby reducing the chance of giving birth at a health facility.

A woman explained:
I had delivered at home because I was alone. My husband was not present at home. Had he been present, he would have taken me to the health center (IDI woman, age 35).

Other respondents reported that some husbands were helpful. They supported their wives by either accompanying them to the health facility for delivery or staying at home caring for their children when the women went to the health center. Focus group participants and healthcare providers stressed that a husband should not move away during his wife's pregnancy. A focus group woman said:

Those who are utilizing the health center are those whose husbands are present at home. Husbands encourage their wives to go there. If the woman shows the appointment card to her husband, he allows her to visit the health center. For example, my husband says, you need to go to the health center; I will take care of my children and animals (FGD woman, age 27).

Women's heavy housework

The respondents mentioned that women were overburdened with household chores. Because of this, they only traveled to the health facilities for delivery. The women's development group leaders also noted that husbands perceived themselves as breadwinners, negatively affecting women's health-seeking behavior. Husbands believed that their primary role was to make money for their families while women were busy with housework, like caring for children, cooking, and cleaning houses. Pregnant women worked the whole day to fulfill their household needs. This heavy housework prevented women from utilizing maternal, newborn, and child health services. A women's development group respondent described this:

Pregnant women here do not have any break time during their pregnancy. They work until the end of their pregnancy, cooking, caring for their husbands and children, and cleaning the house. They are very busy with the housework (IDI Women's Development Group leader, age 30).

Women's cultural taboos

Women encountered cultural limitations in seeking care after delivery. They were restricted from moving outside of their home post-delivery. This limitation made women not attend postnatal care before baptizing their babies. Also, the fear of exposing babies to the evil eye and witchcraft discouraged them from participating in postnatal care. An interviewed woman described the attendance to postnatal services:

It is uncommon to attend the services after delivery. In our village, no single mother attends postnatal care in the nearby health center. Because the culture doesn't allow us to go out after birth before baptizing our babies (IDI woman, age 35).

Women's development group leaders and health extension workers had also noted these restrictions.

Perceived quality of services

Bad behavior of healthcare providers

The participants had different experiences of the health workers' behavior at the health center. Some had been welcomed and treated with respect, while others had been mistreated. Some of the respondents reported that health workers became unreasonably angry when women arrived late, gave birth en route to the health facilities, or gave birth at home due to the delay of ambulances. They mentioned that the health workers did not even listen and understand that the situation had been out of the woman's control. The health workers' bad behavior discouraged some women from utilizing the health facilities and getting a facility-based delivery.

I have seen a health care provider snapping a laboring woman. They had to refer her to Mekelle, the regional referral hospital, and then she cried. They (health workers) then said you didn't feel ashamed when you got pregnant, but you lost the shame and cried while giving birth. They were just joking with her. Also, another female hakim (health worker) came and snapped at the woman for crying. It has never happened to me, but I have seen the health workers mistreating laboring women. Some women are not coming to the health facilities because of fear of mistreatment (FGD woman, age 30).

Many focus group participants stressed that women who were uncomfortable with the health workers' attitudes were negatively affected in their care-seeking behavior. They highlighted that negative experiences would also negatively influence other women in the utilization of health facilities. A focus group participant explained:

I don't think a woman mistreated by the health workers will go to the health facility again. A woman who was beaten by the health workers in her first visit will not come to the health facility again (FGD woman, age 40)

On the contrary, an interviewed woman who gave birth at a health center stated that the health care workers who assisted her during delivery were very respectful and caring. She explained her experience as follows:

The health workers assisted me during my delivery with much respect and care. Even your mother can't do what the health workers do for you. They (health workers) today are taking the role of our parents in caring for us. They are much worried and highly concerned about our health. For example, I had experienced bleeding while giving birth, but they immediately injected me with a drug and stopped the bleeding. I thank them all for saving my life (IDI woman, age 26).

A women's development group leader explained the health care providers' fair and non-discriminating treatment of woman based on her own lived experience:

The health workers are caring, especially for the poor women. I am poor and was referred to Mekelle regional referral hospital. The health care providers there were very caring. Some patients were dressed neatly and had their bedsheets and blankets. But I was served equally to those wealthy patients. I slept at the hospital for about three weeks, and I am satisfied with the services they provided me (IDI WDA, age 39).

Poor availability of drugs

All focus group participants and most in-depth interviewees noted that the unavailability of drugs was a significant concern in the government health facilities. The health workers in these facilities wrote a prescription and told the patients to buy medicines from private pharmacies. This problem made them skeptical about the availability of drugs at these facilities. They highlighted that this was deterring the poor people from using the health facilities.

The healthcare providers wrote a prescription and told us to buy drugs from private pharmacies. We are skeptical about the availability of medicines at government facilities. We do not trust facilities that run out of stock. How could the private pharmacies have a better supply of drugs than the government facilities? (FGD woman, age 40).

Individual-level barriers

Maternal age

Younger women used maternal, newborn, and child health services more than older women. This phenomenon was associated with modernity and education. Since younger women are more educated, they know the benefits of using maternal, newborn, and child health services. All in-depth interview respondents and focus group participants unanimously agreed on this issue.

Today's younger women are by far better than the older women in many aspects. They are educated and relatively modern so that they develop over time. These women more frequently attend antenatal care than older ones. They also have a good practice of giving birth at health facilities. Most women delivering at home are the older ones. You barely find younger women giving birth at home. Both wives and husbands of this generation are educated. This is why younger women more utilize health facilities (FGD woman, age 25).

An experienced and older women's development group leader described this as follows:

…most young women today are educated. There are even some women who completed grade 10. These educated women have a better understanding of the benefits of health services. Hence, the utilization of maternal and child health services is higher among these younger ones (IDI WDA, age 58).

Maternal education

Many respondents mentioned that lack of education reduces the utilization of maternal, newborn, and child health services. Home delivery was more common among uneducated women. These women were also more likely to drop-out of antenatal care. They associated this with limited knowledge and understanding of the benefits of utilizing maternal, newborn, and child health services. One interviewed woman explained her view as follows:

…yes, we, the non-educated women, are not delivering at the health facilities. For example, the health extension workers provided me with the cell phone number of ambulance drivers. But I didn't call the drivers because I don't know how to make a phone call. This is happening for all of the non-educated women in our village. In labor, I will be compelled to give birth at home, hoping St. Mary visits me with Her spirit. If I am educated, I will call the ambulance and give birth at the health facility. But, we (non-educated women) cannot make calls to ambulance drivers. So, our literacy level makes us give birth at home (IDI woman, age 30).

Insufficient implementation of equity-oriented interventions

Some equity-oriented policies, such as community-based health insurance, maternal waiting homes, and ambulance services were reported to be insufficiently implemented, resulting in inequities in services utilization. Health insurance was believed to potentially solve the financial barriers of poor women. However, the participants reported that they were not benefiting from this intervention. The focus group participants suggested that this scheme had become a reason for the drug unavailability because they were told to buy drugs from private pharmacies.

We pay 240 Ethiopian birr for health insurance every year (equivalent to USD 6.5). We go to the health center to get free services, but the health workers tell us that there are no drugs. So, health insurance is becoming worthless (FGD woman, age 27).

Another focus group participant said:

I had a seven-month-old infant who was sick, and I brought him to the health facility. They (the health workers) examined him and wrote prescriptions. They told me to buy the drugs from a private pharmacy. I showed my insurance card, but they didn't respond. I went back home without any drugs because I didn't have any money. Health insurance is not contributing to saving our children (IDI woman, age 25).

The respondents were aware of the maternal waiting homes, but women did not accept these services because of a lack of water, food, and electricity. Some women also mentioned that there was nobody at home who cared for their other children and animals if waiting to deliver at the health facility. Therefore, they preferred not to stay at those maternity waiting homes.

The women's development group leaders also mentioned that their role in promoting the use of health facilities was weakening because of insufficient contact and supervision from the health extension workers. They believed their contribution could be significant in creating demand for health facility utilization by increasing awareness and mobilizing the women within their network. They noted that they

used to support women disregarding social groups. Some women were also pleased with the support from women's development group leaders, especially during pregnancy and at delivery. The participating women also said that the women's development group leaders helped them mobilizing young men to carry a laboring woman on the traditional stretcher to the health facility.

Our (women's development group leaders) work is deteriorating now. We had a monthly meeting to monitor the activities of the women's development group. In this meeting, we reported who are delivering at home and who are not attending antenatal care. However, today our role is becoming passive due to weak coordination from the health extension workers. We have reduced the role we used to play in educating and making women go to the health facilities to use the maternal and child health services (IDI women's development group leader, age 39).

Suggestions to improve equity in the utilization of health services

The respondents emphasized the importance of improving access to maternal, newborn, and child health services by pushing the services closer to the community. They noted that the disparity created because of poor access to health facilities was unfair. One woman, aged 22, highlighted the construction of a health facility in each tabia to enhance equitable health services utilization. Some also suggested upgrading the health posts to health centers by equipping those with the required health workers, drugs, and other supplies. They also suggested constructing roads and increasing the number of ambulances, educate and take measures against bad behavior by health workers and ambulance drivers. It was also proposed to support the poor to improve inequity in the utilization of services. An interviewed woman suggested establishing a green bank to solve the poor households' money problem to cover medical and non-medical expenses. The woman explained her idea as follows:

I would suggest contributing cereals, especially during the harvesting season, and store in one place to support the poor. It is during this season that the farmers can easily get grains. If we contribute at least two shember (equivalent to 3 kilos) a year, it would be adequate to support the poor. The banked cereals could even cover the poor mothers' medical and non-medical expenses (IDI 6-woman, age 22).

Discussion

In this study, mothers and primary health care providers perceived that differences were unfair in providing maternal health services, antenatal care, skilled birth attendance, postnatal care, and services for sick children, while child immunizations were equitable. Distance, other structural reasons, and poverty made it difficult to reach facilities. Cultural norms in the postnatal period blocked access to services for mothers and neonates. Gender roles prevented mothers from seeking care when husbands were absent. Lack of medicines at health facilities and rude or unfriendly staff experiences prevented women from visiting health facilities. The informants felt that policies, such as health insurance, maternal waiting homes, and ambulance services, were equity-oriented but poorly implemented. They also perceived that outreach services tended to be more equitable than those delivered at health facilities (21).

The results of our study showed that maternal health services delivered at health facilities, mainly at secondary or tertiary levels, were inequitably distributed. These results corroborated with the recent Ethiopian Demographic and Health Survey 2019 results (10), and a study conducted in similar settings in Ethiopia (17). A systematic review covering low-income countries documented inequities in the utilization of maternal health services (3). In contrast, the community-based immunization services provided via campaigns and outreach activities tended to be equitable.

Economic status was linked to inequities in the utilization of maternal and child health services, despite the provision of free maternal health services to all women across all socioeconomic levels (13). The countries' socioeconomic level (22) is also associated with maternal and child health services utilization (11). The respondents in our study highlighted that lack of money for transportation and buying drugs was a major discouraging factor for poor women to utilize these services (23,24). Such accumulated costs may create a financial catastrophe to the household (22) and push them into poverty (25). Striving to reach the health-related SDG 3 targets for maternal and child health outcomes depends on progress in eliminating poverty defined in SDG 1 (3). Studies in other parts of Ethiopia (26,27) and elsewhere (3,28) have documented similar findings. The respondents suggested a way forward: initiating community-based self-funding schemes, such as a green bank, i.e., contributing cereals every harvesting season to support the poor.

Physical distance to health facilities affected the utilization of maternal, newborn, and child health services, despite the efforts to improve access through community-based interventions (29). Women from remote areas cannot use the health facilities for maternal and child health services, especially when combined with a lack of transportation, inaccessible roads, and mountainous topography (27,30). In our study, poor women, far away from health facilities, were found to utilize less services. Physical accessibility is associated with the utilization of services (28,31). Thus, emphasis should be given to strengthening the community- and home-based activities and expanding local maternal and child health services as suggested by the respondents.

The social and cultural barriers negatively affected maternal, newborn, and child health services utilization. The lack of support from husbands and women being very busy with household chores, which is the common situation in Ethiopia (32), resulted in inadequate follow-up of antenatal care and delivery at home. These findings suggest that the current gender equality weaknesses (14) cause inequities in the utilization of these services (16,33). As gender is socially and culturally constructed, women are affected by the sociocultural consequences resulting in maternal and child health inequities (7,34). Other studies from low-income settings have also found that women who lacked support, who were engaged in caring for their husbands and children were discouraged to utilize the health facilities (34,35). Progress in gender equity and women's empowerment have positive consequences for health and development (7,36).

The respondents noted that mothers only visit health facilities for postnatal care if experiencing complications. Sociocultural barriers, combined with a lack of awareness and understanding of the

benefits of preventive services, resulted in low coverage of postnatal care (11,37,38). Lack of home visits and counseling in remote rural settings also result in inadequate postnatal care (38,39). A way forward could be to strengthen home-based postnatal visits by health extension workers.

The mothers' educational level was perceived to be linked to the utilization of maternal, neonatal, and child health services. This finding is consistent with other studies in Ethiopia (40,41). Educated women have better knowledge and understanding of the maternal and child health services (42–44). Education also enhances women's autonomy (24,42) to decide to attend services (1). Achieving equity in the SDG 3 targets for maternal, newborn, and child health outcomes depends on reaching access to education, as defined in SDG 4 (45). Hence, media and education programs should contribute to reducing gender-based and educational inequities. In addition to education, age was also associated with health service inequity in the provision and utilization of the services.

The informants gave several examples of the low quality of services, such as improper attitudes, maltreatment, and lack of medicines. Women who experienced intimidations did not return to health services, leading to home deliveries. The unavailability of drugs affected maternal health services utilization by demanding additional out-of-pocket payments (46) that widened inequities (47). Unfriendly services and the unavailability of drugs distanced women from utilizing the free maternal and child health services (46). Other studies from Ethiopia (32,48) and sub-Saharan African countries (34) have reported similar findings. There is also global evidence that improved quality of care increased service utilization and substantially reduced maternal, neonatal, and child mortality (49). So, the quality gap should be closed to improve equitable access and utilization to maternal, newborn, and child health services (49).

The poorest women in remote households were not benefiting from the community-based health insurance and maternal waiting homes at the health facilities. They mentioned that the maternal waiting homes lacked water, food, and electricity, which also was shown in a study conducted in other parts of Ethiopia (30). In low- and middle-income countries, the failure to implement government policies, insurance schemes, and other programs result in inequitable service utilization (50). This problem signals a need to monitor and evaluate the implementation and effect of the existing interventions in ensuring equitable service utilization.

A systematic review done in low-income countries showed that inequities in maternal and child health services utilization occur in the intersection between social determinants of health (42) and poorly functioning health systems (52). Thus, addressing poverty (SDG 1), coverage and quality of education (SDG 4), ensuring gender equality (SDG 5), and ensuring good health and well-being (SDG 3) will substantially reduce inequities (45). Equity-oriented policies and interventions need to be integrated with social development programs, such as targeting poverty reduction, promoting gender equality and empowerment, and mitigating inequalities (42,50). This effort requires multisectoral collaboration and action to reach the sustainable development goals and targets for maternal and child health (1).

Strengths and limitations

Our study contributes to the literature on perceptions of inequity in the utilization of maternal, neonatal, and child health services in low- and middle-income countries. Also, recruiting different study subjects allowed us to capture multiple perspectives and triangulate the evidence. Data were collected from different participants in multiple study sites using in-depth interviews and focus group discussion to improve the transferability of the results to other similar settings in Ethiopia. Also, the primary healthcare services' structure is similar in all agrarian rural regions of the country. There was peer debriefing throughout the data collection and analysis to ensure the validity of the data. Also, the data collected from multiple methods were triangulated to enhance validity and consistency. Social desirability bias was a potential threat to the findings. The study participants were selected by the health care providers, which could imply that mothers hesitated to share sensitive information about the health services. However, we tried to minimize this risk by carefully introducing the study, establishing rapport, and presenting issues with follow-up prompting questions.

Conclusion

Perceived inequities in maternal, newborn, and child health services existed in this study, whilst there was no evidence of inequity in immunization. The leading perceived causes of inequities in maternal, newborn, and child health services were economy, education, social and cultural norms, and women's age. Poor implementation of equity-oriented interventions had also contributed to the inequities. Hence, the equity-oriented policies and interventions need to be integrated with social development programs that require multidisciplinary action and multisectoral response.

Declarations

Ethical clearance

The Institutional Review Board of the College of Health Sciences at Mekelle University, Ethiopia, approved the study (Ref. No.: ERC 1434/2018). Informed and written consent was obtained from all interview respondents and focus group discussion participants. All respondents were informed that their participation in the study was voluntary and that any data were stored safely without identifiers and only accessed by the involved researchers.

Consent for publication

Not applicable.

Competing interests

We, the authors, declare that we don't have any competing interests.

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Abbreviations

EDHS: Ethiopian Demography and Health Survey, ETB: Ethiopian Birr, FGDs: Focus Group Discussion, IDIs: In-depth interview, LMIC: Low- and Middle-Income Countries, MDGs: Millennium Development Goals, IRB: Institutional Review Board, SDGs: Sustainable Development Goals, WDA: Women's Development Group,

Authors' contributions

AD conceived the idea and designed the study, collected data, and did the analysis, drafted the manuscript, and submitted it to the journal. AAM, AMB, YO, and LP conceived the idea and edited the manuscript. All authors read and approved the final version of the manuscript.

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Authors information

Not applicable.

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