The Impact of Armed Conflict on Services and Outcomes Related to Maternal and Reproductive Health in North Wollo, Amhara, Ethiopia: A Qualitative Study

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Introduction: Armed conflict is a public health problem that poses a serious challenge to the health system. Maternal and reproductive health is among the most affected areas. Maternal death rates were highest in conflict-affected countries. Sexual violence and rape are commonplaces, which contributes to the rise in the number of unwanted pregnancies. Reliable data related to the health of mothers and reproduction is required to inform public health policies. Therefore, this study aimed to assess the impact of armed conflict on services and outcomes related to maternal and reproductive health.

Objective: To explore the impact of armed conflict on services and outcomes related to maternal and reproductive health in North Wollo, Amhara, and Ethiopia by 2022.

Methods: This study used an institutional and community-based exploratory design. Six focus group discussions and 44 in-depth interviews were conducted with healthcare professionals, administrators, women, and Non Governmental Organization workers. Each item was recorded in audio, verbatim transcription was made and converted into English. By using OpenCode version 4.03 thematic analyses was performed.

Results: Three overarching themes were identified. The first theme was the inadequate standards of maternal and reproductive health services. This includes the breakdown of infrastructure, shortages of medicines and medical supplies, and the lack of sterility of available limited materials and procedures. The second theme was poor maternal and reproductive health status. It includes poor pregnancy, delivery, reproductive and fertility-related health outcomes. The last theme was the limited access to maternal and reproductive services.

Conclusion: Armed conflicts have enormous effects on services and results related to the health of mothers and reproductive processes. Addressing these effects is essential for designing and implementing public health measures to improve services related to the health of mothers and the reproductive system.

Keywords: armed conflict, effect, maternal and reproductive health, qualitative study

Introduction
Conflict is one of the biggest threats and difficulties the population and health systems in developing nations face.  

Armed conflicts are a major challenge to health systems and a public health issue. Maternal and reproductive health is one of the areas significantly impacted by these circumstances.
Non-international armed conflicts are defined as protracted armed conflicts that take place solely on a State’s territory or between armed groups that are governmental and those that are not. The term “maternal health” describes a woman’s condition during her pregnancy, delivery, and postnatal period. Reproductive health encompasses all aspects of an individual’s physical, mental, and social well-being and is not limited to the lack of illness or disability in relation to the reproductive system and its operations. Reproductive health is the state in which an individual can have a fulfilling and safe sexual life, reproduce, and have the autonomy to choose whether, when, and how often to do so.

One of the majority significant measures to lower maternal related illness and death are maternal and reproductive healthcare services. As a result, over the past 20 years, Ethiopia has given this subject particular attention. One of the six main focuses of a nation’s reproductive health plan is maternal health.

By 2030, the global maternal mortality ratio is expected to drop to fewer than 70 per 100,000 live births. The world is not on track to achieve this goal. On a daily basis in 2017, around 810 women lost their lives due to preventable factors associated with conception, labor, and delivery. Lower- and lower-middle-income nations account for 94% of all maternal fatalities. In 2017, nations grappling with conflict and fragility experienced the highest maternal mortality ratio per 100,000 live births using estimations of 1150 in South Sudan, 1140 in Chad, 829 in Central African Republic, 829 in Somalia, 638 in Afghanistan and 385 in Yemen.

Maternal morbidity and death rates are also elevated during times of conflict due to the increased prevalence of sexual violence and rape. Ethiopia ranks among the six Sub-Saharan countries experiencing elevated maternal mortality rates. A report from the Ethiopian Demographic and Health Survey (EDHS) states that in 2016, the Maternal Mortality Ratio (MMR) was 420 per 100,000 live births.

Maternal health may be impacted by armed conflicts through the disruption of essential reproductive health services, such as limited access to obstetric care and contraceptive methods. This could lead to the maintenance of elevated fertility rates due to heightened social insecurity, diminished access to reproductive health services, and reduced levels of female education.

In the North Wollo zone of Amhara, Ethiopia over 70,000 pregnant and lactating women have experienced disruptions in their access to maternal and child health services.

Armed conflicts frequently involve the use of sexual violence, including rape as weapons of war. Sexual violence leads to the increase in unintended pregnancies and sexually transmitted illnesses. Every year, 74 million women worldwide who reside in low- and middle-income nations become pregnant unintentionally. There has been a great deal of sexual violence and rape in the North Wollo zone of Amhara, Ethiopia, as a result of the conflict, and the victim’s and their family’s health has suffered greatly.

The conflict has resulted in 934 cases of sexual gender-based violence and 1035 unwanted pregnancies.

Armed conflicts are damaging the public health infrastructure and hampering healthcare provisions. The conflict in the North Wollo zone of Amhara, Ethiopia results destruction of health facilities, shortage of ambulances, medical supplies and equipments. Medical supplies such as anesthesia machines, operating tables, ultrasound machines, and other equipment needed for cesarean sections are unavailable during times of war.

Utilizing maternal health services has been recommended in Ethiopia as a financially sensible way to lessen the load of maternal mortality. Reproductive health holds a prominent position on the list of high-priority agendas. Nevertheless, a considerable number of women were not actively participating in the entire process of maternal care, leading to notable instances of disengagement. By destroying medical facilities, frightening medical staff, and fostering an environment of insecurity that deters travel, violent conflict lowers the use of health care. To guide public health initiatives, accurate data on the availability, use, and results of maternal health services are needed. Therefore, this study aimed to explore the impact of armed conflict on services and outcomes related to maternal and reproductive health in Northern Wollo, Amhara, and Ethiopia.

Materials and Methods
Study Design
A community and an institutional based exploratory study design were carried out.
Study Area and Period
One of the Amhara Regional State’s eleven zones is the North Wollo Zone. Its borders are as follows: Wag Hemra to the north, Tigray Region to the northeast, South Wollo Zone to the south, South Gondar to the west, and Afar Region to the east. It is separated into 312 kebeles and 14 Woredas. Woldia serves as the North Wollo zone’s capital city. It is located 360 km away from Bahirdar and 521 km away from Addis Ababa. According to the Central Statistical Agency of Ethiopia (CSA) report, there are 1,788,901 people living in this zone, from this 895, 189 are men and 893, 712 are women. There are six hundred forty three health extension workers (HEWs), two hundred ninety six operational health posts, sixty eight health centers, and six public hospitals, affiliated with the zone’s public health facility. From April 18 to May 17, 2022, the study was carried out.

Source and Study Population
The source population comprised all reproductive age group women (RAGW), healthcare providers (HCPs), administrators, and Non Governmental organization (NGO) workers in the North Wollo zone. The study population included women of reproductive age, healthcare providers, administrators, and NGO workers in selected woredas of the North Wollo Zone.

Inclusion and Exclusion Criteria
Women of reproductive age, healthcare providers, administrators, and NGO workers residing in the selected woredas of the North Wollo Zone for at least six months were included. Participants who were not living in the study Zone at the time of the war were not included.

Sample Size Determination and Sampling Procedure
Sample Size Determination
A total of twelve focus group discussions (FGDs) and forty-eight interviews were held with study participants at the selected sites (Table 1).

Sampling Procedure
The research subjects were chosen using a purposive sampling technique. Reproductive-age women were selected from communities. Hospitals, clinics, and health centers were used to choose healthcare professionals. It comprised doctors, nurses, midwives, and public health officers who worked on maternal and reproductive health (MRH) concerns. Administrators were selected from Woredas who worked at the Health Bureau. Employees from various NGOs involved in the field of MRH were chosen.

Operational Definition
Maternal health: The well-being of women when getting pregnant, giving birth, and recovering after giving birth.
Antenatal care: the care provided by medical personnel at least once throughout pregnancy.

Table 1 Sample Size Determination for Study on the Impact of Armed Conflict on Services and Outcomes Related to Maternal and Reproductive Health in North Wollo, Amhara, Ethiopia, 2022

<table>
<thead>
<tr>
<th>Study Area</th>
<th>RAGW</th>
<th>HCPs</th>
<th>Administrators</th>
<th>NGO Workers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kobo</td>
<td>4 interviews and 1 FGD</td>
<td>4 interviews and 1 FGD</td>
<td>4 interviews and 1 FGD</td>
<td>4 interviews and 1 FGD</td>
<td>16 interviews and 4 FGDs</td>
</tr>
<tr>
<td>Lalibela</td>
<td>4 interviews and 1 FGD</td>
<td>4 interviews and 1 FGD</td>
<td>4 interviews and 1 FGD</td>
<td>4 interviews and 1 FGD</td>
<td>16 interviews and 4 FGDs</td>
</tr>
<tr>
<td>Woldia</td>
<td>4 interviews and 1 FGD</td>
<td>4 interviews and 1 FGD</td>
<td>4 interviews and 1 FGD</td>
<td>4 interviews and 1 FGD</td>
<td>16 interviews and 4 FGDs</td>
</tr>
<tr>
<td>All woredas</td>
<td>3 FGDs and 12 interviews</td>
<td>3 FGDs and 12 interviews</td>
<td>3 FGDs and 12 interviews</td>
<td>3 FGDs and 12 interviews</td>
<td>12 FGDs and 48 interviews</td>
</tr>
</tbody>
</table>

Abbreviations: RAGW, Reproductive Age Group Women; HCPs, Health Care Providers; NGO, Non Governmental Organization; FGD, Focus Group Discussion.
Institutional delivery: delivery at health facilities runs by health professionals.
Postnatal care: the care provided by medical personnel to the mother from the moment of delivery until about six weeks.
Reproductive Health Services: Voluntary counseling and testing (VCT), Family planning services, prevention of mother-to-child transmission (PMTCT), and screening for Sexually Transmitted Infections (STIs).

Data Collection Tool and Procedure
Six professionals with an MPH degree conducted focus group Discussions (FGD) and in-depth interviews (IDI) to gather data. The IDI and FGD guides were drafted by reviewing the related literature. Each focus group had 6–10 people.

Data Quality Management
Credibility: Triangulation using various techniques for gathering data, classifications of study participants, and locations for conducting research were employed.
Conformability: Initially, the IDIs and FGDs guides were drafted in English, translated from English into the Amharic language and back again. All verbal and nonverbal messages were recorded. Furthermore, quotes are provided to support each of the major findings.
Dependability: Two appropriate and well-recognized data collection methods (IDIs and FGDs) were used. Orientation and training were provided to the data collectors. Data collection procedures were supervised by two supervisors.

Data Processing and Analysis
The average duration of FGDs and interviews with health professionals was between 30 and 60 minutes, whereas those with women endured between 20 and 45 minutes. Audio recordings were made for all FGDs and IDIs. Verbatim transcription were done and converted to English. The analysis was performed using open code version 4.03. Data were entered into an open code, and codes were provided. To analyze the data, a thematic analysis method was used, and themes were created.

Results
A total of ninety one participants, 44 in the interviews and 47 in the six FGDs took part in this research: 35 “RAGW”, 36 “HCPs”, 8 “NGO workers” and 12 “managers”. Of these, 38 were male and 53 were female.

Three overarching themes emerged throughout data collection. Each theme contained three sub-themes. Theme one is the inadequate standards of maternal and reproductive health services. Theme two involves unfavorable outcomes for the health of mothers and reproduction. The last theme was the limited access to maternal and RH services.

The Presence of Armed Conflict Contributes to the Inadequate Standards of Maternal and Reproductive Health Services
This theme contained three subthemes. These include the breakdown of infrastructure, shortage of medicines and medical supplies, and lack of sterility in the available limited materials and procedures.

Breakdown of Infrastructure
Systems of efficient and well-organized ambulance services connect homes and medical facilities to offer emergency obstetric care, whether it is basic or comprehensive. However, many ambulances were lost during the conflict in the North Wollo Zone. Consequently, ambulance services are not provided. One participant stated,

Before the war we had four Ambulances that provide full service for the mothers. At that time they have access for transportation. But, during the war this all ambulances were looted. As a result no services were provided at all. (IDI, Lalibela Leader 2)

Another participant from Kobo also supports this idea. He said that,
There was a problem on transportation. Our ambulances were looted during the conflict. The ambulance we had at Woreda level was on maintenance. Therefore the community doesn’t get any ambulance services. (IDI, Kobo leader 1)

Maternal mortality can be significantly reduced by getting pregnant ladies to the right medical facilities. For referral cases, no transportation system was covered by health institutions. The cost of transportation is also high, affecting most women. Many participants raised this issue.

After the conflict the cost of transport becomes double. Before the conflict we used to refer patients to Kobo Hospital. But, now a days the services are not that much good. Therefore, we will refer them to Woldia Hospital. (IDI, Kobo leader 2)

The healthcare provider from Kobo also noted,

After the war one of our headaches is the issue of transport. The two ambulances we had are not available now, due to this they will reach to their referred site by paying their money. Now a day, the cost for transportation is high. We can say that the issue of transport for referral cases is stopped. (IDI, Lalibela Healthcare Provider 2)

Participant from Woldia said that

There are many people who were abused and gave birth on the street when they are refereed. What I saw with my own eyes is there was no any kind of transport. even if it’s available, it’s their (armed group) car, and it’s paid for. It is paid 5 thousand…6 thousand Birr. Those women didn’t get that much money anywhere. It’s very difficult. (IDI, Woldia NGO 1)

Absence of light and water was another issues raised by different participants.

There was no light. As a result for performing laboratory investigation and start up of an electric Generator it is said that ‘let many people become collected’. Therefore, without any laboratory investigation we treated them only by hearing their coming complain. (IDI, Lalibela Healthcare Provider 2)

Because of this conflict, different health facilities have been destroyed and closed. Participants from Lalibela said that “During the war three health centers were fully destroyed; only the buildings were left”. (IDI, Lalibela Leader 3). This idea is also supported by another participant “The mothers didn’t get ANC, delivery and PNC services. The continuum of care was compromised because; the health institutions were destroyed by the war”. (IDI, Kobo NGO worker, 3)

**Shortages of Medicines and Medical Supplies**

During the war, various materials that were important for the delivery of different services were destroyed. This affects the quality of maternal and reproductive healthcare services.

Many properties were destroyed. They broke it. A lot of medicine and a lot of properties were taken…” (IDI, Kobo Leader 2)

During the war, there was a shortage of family planning materials, drugs, and laboratory reagents. The shortage of laboratory reagents has persisted. Healthcare providers who worked at Lalibela Hospital stated the following.

There are currently no laboratory resources for mothers coming in for their follow-up. We don’t do blood group, and VDRL tests. Even we don’t do urine test. (IDI, Lalibela Healthcare Provider 4)

Another participant noted that “Different inputs were taken and looted. There is no delivery coach, no examination coach and no different delivery equipments. There are no materials at all”. (IDI, Lalibela leader 4)

These problems are also present in Woldia. Participant from Woldia said that

After the war, there is no medicine. The medicine was stolen. If a woman goes to her follow up and family planning service, she will not get any medicine, it is stolen. It’s what anyone knows. The hospital was robbed. (IDI, Woldia NGO 1)

In addition to medicines, gloves were unavailable. “There was no medicine, even there were no gloves” (IDI, Woldia NGO 1). Another participant said that “There were no Operation tables. Due to this, Operation services were not done…” (IDI, Woldia Health care provider 1)
Lack of Sterility of the Available Limited Materials and Procedures

Lack of sterility in the available limited materials and procedures is another sub-theme that has undermined the adequate standards of maternal and reproductive health services.

The facility was completely destroyed. Like a traditional practice cutting was done by blade. Surgical blade was not available in the government input. As a result of its absence from government input we can’t make the services accessible. So now mothers are giving birth at home. (IDI, Lalibela Leader 3)

Another participant stated, “At that time there is no quality. We used their cloths as gauze. We even used metal vacuum without sterilizing it.” (FGD 2 HCPs, Woldia)

The Presence of Armed Conflict Contributes to Unfavorable Outcomes for the Health of Mothers and Reproduction

Upon the participants’ response to the impact of armed conflict on services and outcomes related to maternal and reproductive health in North Wollo, some portions of their speech focused on contributes of armed conflict to unfavorable outcomes for the health of mothers and reproduction. This theme contained three subthemes: poor pregnancy-related health outcomes, poor labor and delivery-related health outcomes, and poor reproductive and fertility-related health outcomes.

Poor Pregnancy Related Health Outcomes

Most respondents highlighted that poor pregnancy-related health outcomes are highly prevalent in the North Wollo community. The outcomes raised by the respondents were increased maternal morbidity and mortality, miscarriage, congenital abnormalities, and elevated rates of HIV/AIDS mother-to-child transmission.

Many pregnant mothers experience miscarriages due to stress. These patients also experience increased morbidity and mortality. One participant said

…Around my neighborhood, there was these pregnant women who died due to hearing a gun fire sound… hearing the sound of heavy ammunition, she died suddenly! I have the evidence of this. There was a lot of morbidity and mortality due to panicking. This was a horrific effect…

She also stated that

…It was very hard at that time. Yea, even there were women who had experienced miscarriage due to stress. Many women had miscarriage due to stress! Many women died because of lack of health services and because of lack of health care professionals for delivery. Many women with previous scar died due to unavailability of health care professionals for surgery. (IDI, Woldia Leader 1)

Women who experienced miscarriage said that “I was pregnant at the time of the war, but when I panicked, it leads to abortion” (Woldia FGD women). Another participant said that “Because of the war, many mothers have faced many things during childbirth, for example, I know a mother who died due to heavy bleeding” (FGD 2 RAGW, Kobo).

Mother to child transmission is also another problem. Many infants were born without prophylactic medication. One participant said,

After delivery to prevent the transmission of HIV there was drugs given for the baby. But, many babies were born without getting the drugs, because the time is passed. Therefore, Not only now but in the future there will be new cases of HIV. (IDI, Kobo NGO worker, 3)

Another participant also said that

There are HIV-positive mothers who had home delivery, some who did not take, Nevirapine, some who did not take Cotrimoxazole, and some who did not stop breastfeeding at the time they were supposed to. We recently started sending DBS. Now most of the DBS results have not come to us. So I think the damage will be known when the result comes. (IDI, Kobo Leader 3)
During the conflict, ANC services were not provided.

The conflict poses much impact. Many pregnant moms become late for their ANC follow up. They started their third and forth ANC follow up without attending their first and second visits. (IDI, Kobo NGO worker, 4)

Ultrasound was not performed at the time of conflict. Consequently, some congenital abnormalities were not detected early. One participant from Woldia said that

Congenital abnormality is now very common. After we started the service, hydrocephalus is a common congenital malformation. If the professionals had seen them earlier, it could have been diagnosed on ultrasound and terminated. But now, we sent them to Addis Ababa and exposed them for unnecessary expenses. (FGD 2 HCPs, Woldia)

Another participant also said that “IUFD was frequent because there was no ANC follow-up, so IUFD would happen, there was no ultrasound, and the presentation was not known” (FGD 2 HCPs,Woldia)

**Poor Labor and Delivery Related Health Outcomes**

Almost all the study participants’ responses indicated that there was a significantly poor labor- and delivery-related health outcome faced by many women in the community of North Wollo. These include prolonged labor, obstructed labor, home delivery, birth asphyxia, and pelvic organ prolapse.

I remember one mother who had a twin pregnancy trying to deliver at home at 2:00LT tonight. It is never expected that delivering a twin without complication yea….? It is very hard… how tough! Well, with the help of God she had delivered at home! Home! So, there was such kind of cases… This is because every health facility was closed after 11 or 12LT. Plus it was summer season… there was a heavy rain… there was fear of death. So you cannot go to anywhere. Staying at your home you have to just accept whatever comes…

This participant also said that

… Some other women who had a prolonged labor… She delivered at home after that prolonged labor and now I found her after 5 or 6 months. And due to that labor she is suffering from uterine prolapse. So, as you can see the conflict has this much long term poor labor and delivery related health outcomes… For example this woman had a prolonged labor for another extra day even after her delivery because they say there is second baby to be delivered but there was none. She had a prolonged labor and a home delivery for the first one and then she continued pushing for the next whole night expecting to have another baby! (IDI, Woldia Healthcare Provider1).

Postpartum hemorrhage and obstructed labor were observed in some pregnant women who underwent home delivery. One participant said,

…Due to the war most of the mothers had home delivery. What did they experience? Most of them died! For example I have seen a women dying due to postpartum hemorrhage. There are newborns that had died due to birth asphyxia … It is not something you can simply put saying this is this… there are a lot of effects. We cannot say these much of those mothers who had home delivery are healthy. They could have been exposed to a bunch of things like fistula… Most of them experienced obstructed labor. So, they might have developed fistula…(IDI, Woldia Leader2)

Lalibela participants said that

During the war no services were provided. There was No ante natal care and there was no postnatal care. The mothers delivered their baby at home because, there was no follow-up. (IDI, Lalibela Reproductive age group women 4)

Participants from Kobo also support this idea “Because the health facilities were closed, mothers were giving birth at home” (IDI, Kobo NGO 2).

**Poor Reproductive and Fertility Related Health Outcomes**

As the interviewees stated, there were also poor reproductive and fertility-related health outcomes, such as a high fertility rate, rape, unwanted pregnancy, and unsafe abortion.
Fertility rate increased after the conflict. Unwanted pregnancies occur at a high rate. This is because of the lack of contraceptives and rape. One woman who experienced unwanted pregnancy said that

At the time of the conflict, the pill was not available, the injection (Depo) was left, and so unwanted pregnancy occurred. For example, if you look at me, the child born now was unwanted. Because the health center was closed, I could not take the injection. (FGD 1 RAGW, Kobo)

Another woman said,

Many people stop taking the drug. For example, I was using the three-month birth control. At that time, there was neither hospital nor health center. As a result, we didn’t use any contraceptives. (IDI, Kobo Women 3)

Participant from Lalibela said that

…The negative effect of the war… it was a season of conflict for married couples. The reason is the husband wants (to have sex) and the wife doesn’t, because of lack of contraceptives. Many women had been forcefully raped and got pregnant. (FGD 1 RAGW, Lalibela)

Although contraceptives were not available at governmental health institutions, some private health institutions sold them at a high price. One participant stated that

…there had been no contraceptive. There was some in private health institution but it was very expensive. Those who can afford used that, and those who can’t, get pregnant… Because of lack of contraceptives many women faced unplanned pregnancy…. (FGD 1 RAGW, Lalibela)

During the conflict, there were many instances of rape. These rape cases result in unwanted pregnancy. One participant noted that “There was a 16 years old girl… Her mother is dead. They raped her, and when they came to us she is a two months pregnant” (IDI, Kobo leader 2). Another participant said that

… For example girls who had been raped come to our facility. There were 3 girls at our facility… There were also women who discontinued family planning and had unwanted pregnancy. Such women also come to our facility for counseling. (IDI, Woldia Healthcare Provider 1)

The healthcare provider from Woldia said that “there is this girl who I know… she had been raped by 6 guys. During the act they even showed her their follow up paper! They raped her saying this is our follow up paper! ART drug refill paper, they are known ART users” (FGD 2 HCP, Woldia).

Limited Access to Maternal and Reproductive Health Services Resulting from Armed Conflict

Theme three was emerged from three subthemes: insecurity and instability, the movement of people, and increased vulnerability.

Insecurity and Instability

The results of this study showed that there was insecurity and instability due to the war. This will work for everyone residing in the community, including healthcare professionals. This idea is described by the following quotes:

“… There was insecurity and instability during the war. If a women shout due to labor pain people would assume that it might be due to the presence of an armed group at her house and would say they might kill us too. Therefore, she may not access the health facilities fast enough ….”. (IDI, Woldia Manager 4)

A healthcare provider from Woldia said that “…You can take us for example. We leave the institution at 12LT. Because there was no light…There was fear of being killed …” (FGD 2 HCP, Woldia)
Movements of People
People’s movement was found to be another negative consequence of the conflict, which is described by limited availability of services related to maternal and reproductive health. The overall discussions and interviews showed that participants were highly displaced to other places. One participant said

…They will tell you to go to Alamata… you will try that Alamata journey with much expense… there was no bank… no money. There was only hunger. So, most women even died trying that journey. (IDI, Woldia NGO Worker 1)

During the war, various health professionals moved from their places of work to different sites. This movement has resulted in a shortage of healthcare providers in health institutions. “Almost all health care providers were not available. There were only some health care providers at our health institutions” (IDI, Woldia Health Care Provider 1). Another participant said that “Even though the healthcare providers deliver services by the available staffs, there was shortage of health care professionals” (IDI, Lalibela RAGW 4).

Increased Vulnerabilities
The respondents’ speeches attempted to show the horrific vulnerabilities of the population. The part of the community that steadily settled suffered from a variety of risks such as rape, psychological problems, mortality, and morbidity. These are described in the following quote.

“…It was not that much accessible functional service, especially at the time of the conflict, I was here. There were women who had delivered in the street! In the street! I know a woman who hugged her newborn from the hospital and went to home spilling her blood all over in the street! The long term effect of this would never be easy… due to unavailability of doctors many women suffered from many problems. Especially rape… there are still some mothers who are with as under a consultation service. Related to that, there are also women registered as new HIV positive cases. So the problem is very difficult. Besides, they are greatly harmed psychologically. So harmed! …” (IDI, Lalibela Manager 2)

Discussion
The most important social factor influencing health is conflict. To achieve the Sustainable Development Goals (SDGs), three health focuses must be placed on women living in conflict-affected areas. These findings suggest that conflict in this study area negatively affects the access, quality, and outcomes of the health of mothers and the well-being and functioning of the reproductive system.

Armed conflict in this study area results in the inadequate standards of maternal and reproductive health services. This outcome is in line with earlier research. In Kenya, the quality of care provided at the time of conflict was challenged. Maternal healthcare in Northern Uganda and Burundi was significantly compromised by armed conflict. The breakdown of infrastructure affects the adequate standards of services related to the health of mothers and reproductive health provided in the study area. Conflict has a negative impact on health infrastructure because warring parties may purposefully or inadvertently cause damage, destruction, or looting. If they are not completely destroyed, medical facilities might have to close or scale back their operations. The accessibility of healthcare services has been hampered by this conflict and has been linked to the damage to medical institutions. In Nigeria, the presence of services is limited due to the damage or closure of healthcare facilities and interruption in the supply chain.

People found it difficult and inaccessible to receive health care due to inadequate infrastructure, which included a lack of transportation. In Burundi, armed conflict affect accessibility, through insecurity that limits transportation. The results of this investigation showed that conflict leads to a lack of medicines and healthcare equipments as the supply chains of health facilities frequently collapse, causing deficits in essential medications, medical resources, and fundamental medical equipment. Medical supplies are in low supply as a result of the Syrian conflict, and service delivery is restricted in regions under siege. Afghanistan also faced shortages of supplies due to security situation affecting delivery. Yemen experienced severe power outages, which led to the suspension of laboratory services. Almost half of all maternal deaths worldwide take place in fragile and conflict-affected states, with mother illness and death rates being highest in these countries. Armed conflicts contribute to Nigeria’s high rates of maternal death by limiting access to...
Globally, armed conflict is linked to significant and ongoing excess maternal deaths as well as declines in important indicators of the access to structured medical care.\textsuperscript{29} In conflict situations, the provision of prenatal care and skilled birth attendance was declined.\textsuperscript{35} In Nigeria, there was a decreased likelihood of prenatal care visits, hospital deliveries, and skilled births due to the fighting.\textsuperscript{29} Even in situations beyond those specific environments, such as certain regions in Syria, women frequently encounter precarious healthcare disparities, characterized by inadequate prenatal care and elevated occurrences of unsafe home deliveries.\textsuperscript{33} In this study, movement of people was one of the consequences of armed conflict. This result is in line with other research findings. In Nigeria Services’ accessibility is limited by the emigration of health providers.\textsuperscript{29} Individuals residing in regions affected by armed conflicts are experiencing involuntary internal displacement within their respective nations. Widespread insecurity and instability in areas affected by conflict pose difficulties for individuals seeking health services and for healthcare providers attempting to reach populations requiring assistance. The journey to and from health facilities are often fraught with challenges and hazards.\textsuperscript{27} It was difficult for women in Kenya to get to the hospital, as well as for doctors to receive and administer care there.\textsuperscript{24} In Afghanistan Insecurity is the main barrier for access the health facilities.\textsuperscript{36}

\textbf{Conclusion}

Armed conflicts have enormous effects on Services and results related to the health of mothers and reproductive processes. The use of services related to maternal and reproductive health has declined as a result of this conflict. Armed conflict results in constraints in the health system of the North Wollo zone, which are attributed to the breakdown of infrastructure, a lack of medications and medical equipments, as well as inadequate number of medical staff.

Problems related to the adequate standards of health of mothers and the well-being and functioning of the reproductive system have also been observed. This conflict also results in unfavorable outcomes for the health of mothers and reproduction, such as poor pregnancy-related health outcomes, low-quality labor and delivery-related health outcomes, and deficient reproductive and fertility-related health outcomes.

Due to insecurity and instability, movements of people, and increased vulnerabilities, armed conflict in the North Wollo zone limits access to maternal and reproductive health services.

\textbf{Abbreviations}

ANC, Antenatal Care; CSA, Central Statistical Agency of Ethiopia; CI, Confidence Interval; EDHS, Ethiopian Demographic and Health Survey; FGD, Focus Group Discussion; HCPs, Health Care Providers, HEWs, Health extension workers; IDI, In-depth Interview; MMR, Maternal Mortality Ratio; MRH, Maternal and Reproductive Health; NGO, Non Governmental Organization; RAGW, Reproductive Age Group Women; SDGs, Sustainable Development Goals.

\textbf{Ethics Approval and Consent to Participate}

This research study has been performed in accordance with the principles stated in the Declaration of Helsinki. The Woldia University Community and Research Directorate Ethical Review committee granted ethical clearance, with reference number WDU/IRB001. Furthermore, the relevant offices provided a letter granting consent to carry out the study. The research’s objective was explained and all participants provided written agreement with full disclosure including publication of anonymized responses. To maintain privacy and confidentiality, non-participants were not included in the individual interviews or FGDs. Participants’ freedom to stop participating in the study whenever they felt uneasy was respected.

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Author Contributions
All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure
The authors report no conflicts of interest in this work.

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