

**PLACE OF DELIVERY AND ASSOCIATED FACTORS AMONG
PASTORALIST COMMUNITY MOTHERS WHO GAVE BIRTH IN THE
PAST 12 MONTHS IN LIBEN DISTRICT OF GUJI ZONE, SOUTHERN
ETHIOPIA, 2015**

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GENERAL PUBLIC HEALTH**

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Abstract

Background: In 2012, 40 million births in developing regions were not attended by skilled health personnel, and over 32 million of those births occurred in rural areas. Home delivery if was not conducted by professionals increase the risk of transmission of HIV/AIDS to relatives or traditional birth attendants who conduct deliveries without protective equipment's. It is estimated that 85% of births in Ethiopia occur at home without skilled attendance though, 40% receive some level of antenatal care from a skilled provider (that is, from a doctor, nurse, or midwife) for their most recent birth. In 2014 Oromia regional health bureau report, in Liben District, even though large numbers of mothers attend antenatal clinic at least once is 84.7% in their period of pregnancy, only 12.3% deliver in health institutions.

Objective: aim this study was to assess place of delivery and identify associated factors among mothers of pastoralist community who gave birth in the past 12 month in Liben District of Guji zone, Ethiopia, 2015

Methods: A community based cross-sectional study was conducted from March 15 to April 6, 2015, among 645 mothers who gave birth in the past 12 months in Liben pastoralist District of Guji Zone, Oromia region. Study participants were selected by multistage sampling technique. Data were collected by eight trained primary school teachers by face-to-face interview using structured questionnaire. Descriptive statistics was conducted to determine prevalence of outcome (place of delivery) and describe distribution of different factors. Bivariate and multivariable logistic regressions were conducted to identify factors independently associated with place of delivery. Odds ratio (OR) was used as a measure of association. P-value < 0.05 was used to declare statistical significance.

Results: A total of 645 (99.4%) mothers participated in the study. Out of all deliveries, only 167(25.9%) took place at health institutions. Attending at least primary school [AOR = 5.82, (95%CI: (2.64, 12.83)], having sufficient knowledge on danger signs of pregnancy and labor [AOR = 12.99, (95%CI: (5.43, 31.06)], having hospital [AOR = 4.08, (95%CI: (1.95, 8.55)] and health center [AOR = 2.71, (95%CI: (1.04,7.04) in the vicinity, had no previous experience of delivery at HI [AOR = 0.06, (95%CI: (.02, .21)], middle [AOR = 0.27, (95%CI: (.10, .73)] and high wealth quintile[AOR = 0.37, (95%CI: (.14-.98)], Had no ANC visit [AOR = 0.54, (95%CI: (.06,0.75)]and 1 to 3 ANC visit [AOR = 0.27, (95%CI: (.12,.61)], Husband/relative decided place of birth [AOR = 12.73, (95%CI): (5.05, 32.05)], previous obstetric history [AOR = 0.003, (95%CI): (.001, .031)], satisfied with service provided at HI[AOR = 3.77, (95%CI: (1.63, 8.75)] were factors independently associated with place of delivery.

Conclusion Even though 97%of the mothers attended at least one ANC visit, only 25.9% of them delivered at health institutions and the rest majority delivered at home with help of relatives or TBAs depicting gap between ANC and delivery care. Educational status of mothers, knowledge of mothers, economic status, level/type of health institution, perceived quality of service, use of ANC, previous obstetric history, decision maker of place of birth and previous delivery at health institutions were factors associated with place of delivery.

Key words: place of delivery, pastoralist community, mothers

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Abbreviations and Acronyms

ANC: Anti Natal Care

AOR: Adjusted Odds Ratio

CBAW: Child bearing age women

CI: confidence Interval

COR: Crude Odds Ratio

ECSSA: Demographic and Health Survey of Ethiopia

EDHS: Ethiopia Demographic and Health Survey

EmONC: Emergency Obstetric and Neonatal Care

FMOH: Federal Ministry of Health

HEWs: Health Extension Workers

HI: Health institutions

MDGs: Millennium Development Goals

MMR: Maternal Mortality Ratio

OR: Odds Ratio

PCA: Principal Component Analysis

SBA: Skilled Birth Attendance

TBAs: Traditional Birth Attendants

UNFPA: United Nations Population Fund

UNICEF: United Nations International Children's Emergency Fund

UN: United Nation

WHO: World Health Organization

ZHD: Zonal Health Department

1. Introduction

1.1 Background

Maternal mortality remains a major challenge to health systems worldwide and improving maternal health has been on the global health agenda for many years (1).

Targets for MDG5 aim to reduce the maternal mortality ratio (MMR) by 75% between 1990 and 2015, to achieve universal access to reproductive health and to ensure 80% of births are assisted by a skilled attendant by the year 2015 (2–4). Globally, there are estimated 287,000 maternal deaths in 2010. Developing countries account for 99% (284,000) of the global maternal deaths. Out of this Ethiopia, accounts 9000 of the global maternal deaths are reported in 2010 (3). Reducing maternal mortality is one of the MDGs targeted reduce maternal mortality rate by an average of 5.5% every year over the period 1990-2015 (5); however at the global level, decreased by less than 1% per year between 1990 and 2005 which is far below 5.5% to reach (6).

Ethiopia is a signatory to the MDGs. The country aimed to reduce maternal mortality to a level of 267/100,000 live births by the year 2015 (7). A systematic analysis of maternal mortality for 181 countries from 1980 to 2008 by *MC Hogan et al.* showed Ethiopia together with India, Nigeria, Pakistan, Afghanistan and the Democratic Republic of the Congo accounted for more than 50% of worldwide maternal deaths in 2008 (2,3,8).

Ethiopian national surveys conducted in 2005 and 2011 found no evidence of a decline. These surveys found that for every 100,000 live births, maternal deaths occurred in 673 cases in 2005 and 676 cases in 2011 (9,10). Achieving good maternal health requires quality reproductive health services and a series of well timed interventions to ensure women's safe passage to motherhood (11).

Having a trained provider with midwifery skills present at every birth, availability of transport for referral services and availability of quality emergency obstetric care are the most important interventions for safe motherhood (12).

Ethiopia is home for more than 12-15 million pastoralists who reside in 61% of the nation's landmass. The pastoral areas are estimated to comprise 42% of the national total livestock population, which contribute a lot to the national economy (13).

1.2 Statement of the Problem

Almost 300,000 women died globally in 2013 during pregnancy, childbirth, or within 42 days of termination of the pregnancy, from causes (excluding accidental or incidental causes) related to—or aggravated by—pregnancy or its management. The proportion of deliveries in developing regions attended by skilled health personnel rose from 56 to 68 per cent between 1990 and 2012. In 2012, 40 million births in developing regions were not attended by skilled health personnel, and over 32 million of those births occurred in rural areas (14).

Despite progress in all world regions, the maternal mortality ratio in developing regions—230 maternal deaths per 100,000 live births in 2013—was fourteen times higher than that of developed regions, which recorded only 16 maternal deaths per 100,000 live births in 2013. Sub-Saharan Africa had the highest maternal mortality ratio of developing regions, with 510 deaths per 100,000 live births, followed by Southern Asia, Oceania and the Caribbean, each registering 190 maternal deaths per 100,000 live births, and then by South-Eastern Asia. In other developing regions, maternal death has become a rare event nowadays, with less than 100 deaths for every 100,000 live births. Most of the maternal deaths in 2013 took place in sub-Saharan Africa (62 per cent) and Southern Asia (24 per cent) (14).

Women in developing regions were 15 times more at risk of dying due to pregnancy and pregnancy - related complications than women in developed regions. Maternal mortality has been difficult to measure accurately in resource-poor settings and maternal mortality ratios in most Sub-Saharan African countries range from 600 to 999 per 100,000 live (3). In resource-poor settings, home delivery is usually the cheapest option, but is associated with attendant risks of infection and lack of available equipment should complications occur (6).

Delivery in health institutions is still challenging in developing countries in which higher number of women attend antenatal clinic but about half of them they deliver home without assistance of skilled professional (15).

Low delivery in health institutions as a result of many factors leads to high morbidity and maternal mortality therefore proper interventions must be taken to increase delivery in health institutions. Home delivery if was not conducted by professionals increase the risk of

transmission of HIV/AIDS to relatives or traditional birth attendants who conduct deliveries without protective equipment's. It is estimated that 85% of births in Ethiopia occur at home without skilled attendance though, 40% receive some level of antenatal care from a skilled provider (that is, from a doctor, nurse, or midwife) for their most recent birth (16). This figure is among the lowest in the world as the average skilled birth attendance for developing countries is 59% (15).

The Global Picture of the Health Workers Reach Index ranks Ethiopia 4th from the bottom out of 161 countries (17); one of the parameters of the Index is skilled birth attendance. The target of the Federal Ministry of Health, 60 % skilled birth attendance by 2015 seem to be unrealistic given the current 10 % skilled birth attendance (18). Unskilled birth attendance and maternal mortality are strongly correlated, as risks for mothers and their new born are highest at the time of labour and delivery (19).

Skilled care at birth, including emergency care for mothers and newborns, is critical to achieving Millennium Development Goals 4 and 5: about 2 million lives a year are lost to complications occurring during labour and childbirth (9). It is estimated that around 16%-33% of all maternal deaths may be avoided through the primary or secondary prevention of complications during delivery by skilled attendance (20). This lack of skilled attendance could be considered as one of the major factors in maternal and infantile mortality (19).

The level of skilled birth attendance in Ethiopia is amongst the lowest in the world and is one of the reasons why the maternal mortality ratio in Ethiopia remains high and why progress towards the Millennium Development Goal 5 has been slow. Yet, despite the rapid expansion of the health institutions and the deployment of health personnel at all levels, the skilled birth attendance(SBA) rate remains very low: 10 percent at the national level and even much lower than that in the developing regional states . Nevertheless the government of Ethiopia is committed to improve maternal health with a target of reducing maternal mortality ratio (MMR) to 267/100,000 live births through multi-pronged approaches including provision of free delivery service. But institutional delivery service use was low (15%) and majority of women in Ethiopia have been giving birth at home (85%) (16).

Moreover Antenatal Care Coverage (at least 1 visit) and Skilled Birth Attendance of Ethiopia in 2013 was 89% and 29.5% respectively (21). Studies have noted that additional factors may also impact on the low level of skilled birth attendance in Ethiopia, and these can be classified (according to Gabrysch, 2009a), into the four categories, namely: 1. Socio-cultural factors, 2. economic accessibility factors 3. Physical accessibility factors and 4. Poor healthcare delivery (22).

It is argued that differential access to health care facilities between the rural-urban areas is an important factor for lower maternal healthcare services particularly for institutions delivery assistance by health personnel in rural areas. Only 1 in 25 live births among women in rural areas are delivered in a health institution compared with half of live births among women in urban areas.

In Oromia 48% of women deliver in health institutions with marked variation among regions in mainland ranging from 28% in Finfine special zone to 65% percent in West Arsi zone and health institutions delivery is low in Guji zone 5th out of 18 zones from bottom (23).

In Liben District, large numbers of mothers attend antenatal clinic at least once is 84.7% in their period of pregnancy and only 12.3% deliver in health institutions (24).

Also DHS had conducted in the Oromia region but the analysis of place of delivery is more descriptive and lacks meticulous analysis of associations between the place of delivery and the factors that determines these. Particularly, in Liben district there is no previous study conducted in the area that identifies the determinants of the place of delivery. To improve delivery in HFs, it is necessary to determine the nature, magnitude and associated factors of place of delivery.

In this respect I believe that accurate information, if made available, would assist decision makers and health personnel to make informed decision. In this study I will assess place of delivery and identify its associated factors. Therefore, this study meant to find out factors that hinder delivery in health institutions', preference of home delivery and knowing these factors will help to improve delivery in health institutions at pastoralist community of Guji zone which is situated in Oromia region

2. Literature review

2.1 Global picture of maternal morbidity and mortality

Maternal mortality remains a major global public health concern more than twenty years after the international Safe Motherhood Initiative was launched. Each year, 358,000 women die worldwide from pregnancy-related causes, nearly all in Sub-Saharan Africa and Asia, and many women die from obstetric complications (3).

In developing regions, skilled health personnel attended 68 per cent of deliveries in 2012 compared to only 56 per cent in 1990. Southern Asia and sub-Saharan Africa—two regions that have had the lowest rates of deliveries attended by skilled professionals—have increased attendance by 10 percentage points or more since 2000 (14).

Despite improvements in access to maternal health care, there are still large disparities between urban and rural areas. In developing regions, the urban-rural gap in the proportion of births attended by a skilled health professional narrowed merely from 33 to 31 percentage points between 2000 and 2012. Over 32 million of the 40 million births not attended by skilled health personnel in 2012 occurred in rural areas (14,25).

In Ethiopia, what is more alarming is that the maternal mortality rate has not improved since the last demographic and health survey in 2011 which was 676 per 100,000 live births (26).

2.2 Delivery Practice of Pregnant Women in Ethiopia

Ten percent of births in Ethiopia are delivered at a health institution—9 percent in a public facility and 1 percent in a private facility. Nine women in every ten deliver at home. The percentage of deliveries in a health institution doubled from 5 percent the 2005 EDHS, while home deliveries decreased slightly from 94 percent to the current level of 90 percent. First births are much more likely than births orders six or higher to be delivered in a health institution (21 percent versus 4 percent). Delivery in a health institution is more common among births to mothers age 20-34, births to mothers who had at least four ANC visits, and births to highly educated mothers and mothers in the highest wealth quintiles. Urban births are notably more likely than rural births to be delivered in a health institution (50 percent versus 4 percent). The

percentage of births delivered in health institution ranges from less than 10 percent in SNNP, Affar, Oromiya, Somalia, and Benishangul-Gumuz regions to 82 percent in Addis Ababa (10).

2.3 Factors affecting place of delivery

2.3.1 Factors affecting delivery in health institution

2.3.1.1 Socio economic factors

A limited ability to pay and high hospital costs have been identified as the major barriers for the rural poor wishing to access health care, due to economic difficulties in rural areas women are not able to afford costs related to deliveries even if the services in some places are free of charge they unable to pay for transport in case of referral or the facility is away from home (27,28).

Family income is also associated with the utilization of skilled birth attendance because of the costs of transportation and care, and the opportunity costs incurred (22). According to the study conducted in Gonder Amhara, women with lower incomes (<100 Birr) were less likely to deliver at health institutions than women having incomes of 500 Birr and above (OR=0.04, 95%CI: 0.08, 0.02) (29).

2.3.1.2 Health services factors

According to the study that was undertaken in Haramaya Districts in Oromia, women who get good service choosing health institution were more likely than women who had no satisfaction [COR (95%CI) 2.3(1.5-3.6)]. Women who said the approach of service providers were poor less likely to choice health institution compared to those women who replied the approach were very good [AOR (95%CI) .154(.026-.917) (30).

Unreliable transport is also a barrier to access skilled delivery in rural areas, failure to plan in advance for transport cause higher number of women to deliver in their homes even if they had planned to deliver in health institutions. Distance to a health institution is a major factor in the selection of delivery care services. Because of poor infrastructure, it often takes women hours or even days to arrive at a health institution, which encourages women to stay at home to deliver their babies. The issues of distance and transportation often overlap because transportation is very unreliable and often women are on foot (28,31). Similar findings have been documented by

study done at Nepal where by women who planned to deliver in health institutions 18% delivered in home due to lack of transport (32). In a rural Tanzania for instance 84% of woman who give birth at homes are intended to deliver in health institution but due to transport problem and long distance to health institutions they end up delivering home (33).

Perceived quality of care, which only partly overlaps with medical quality of care, is thought to be an important influence on health care-seeking and place of delivery. Assessment of quality of services is largely depends on personal experience with health system (34). Elements such as less waiting times, satisfaction with the service received – including staff friendliness, availability of supplies and waiting times are perceived as good quality.

Perceived quality of services plays a major role in choice of place of delivery. In some areas women decided to go to private health institutions, where they pay instead of going to government health institutions which are closer to their homes and services are provided free (28).

Lack of privacy is also documented as a barrier for delivery in health institutions because some older women they don't want to be attended by younger mid wives at health institutions who they think there are like their daughter or younger women they fair to be attended by male health workers during delivery. Improves skills and knowledge among health providers and increase access of health services in rural areas will increase access to pregnant mother to deliver in health institution.

Health provider behavior and attitudes are also determinant factor for a choice of place of delivery for pregnant mother, some of the health workers are very rude, using abusive language and refusing to assist the patients, these attitudes prevent the women to deliver in health institutions however positives attitudes of health workers attract women to deliver in health institutions (28).

Health institution can be geographically accessible; however, if human and material resources are not available women are not likely use the health institution for deliver (35).

Staff attitude, space, comfort of delivery rooms, privacy, cleanliness, opening times, systems of payment and referral service efficiency should be ‘‘user friendly.’’ Costumers may not be

satisfied with the way health services are organized in terms of operating hours and time of waiting before being attended to (36).

Several studies emphasize factors like cultural beliefs, Socio-demographic characteristics, economic conditions, and physical and financial accessibility to be important determinants of the use of maternal health care services (37,38).

2.3.1.3 Socio- demographic factors

According to the study in north Gonder in Amhara indicate educational status was secondary high school and above (OR= 10.6, 95% CI: 6.7, 16.7), Sekela District in Amhara mothers who secondary and above education (AOR = 11.98, 95% CI = [3.46, 41.4]), Munesa District in Oromia mothers who attended at least primary (AOR = 6.68, 95% CI = 1.40, 31.98), Bahir Dar City administration primary education (AOR = 4.7[95% CI: 1.3-16.7] and secondary education (AOR = 3.5[95% CI: 1.1-10.7]) and Dodota District (district) women with no education (AOR =3.94, 95% CI= (1.3, 11.99) showed that mothers with educational level is independent predictor of place of delivery (29,39–42)

According to the study in Mayoyao in Philippines showed that women who delivered at home were significantly more likely to have larger families ($p = 0.046$), to be economically worse off ($p < 0.001$), to need a longer time to travel to the nearest birthing facility ($p < 0.001$), to have lower household asset scores ($p < 0.001$), and to have lower education levels ($p < 0.001$) (43).

According to the study conducted in Mayoyao show that women who delivered at a facility were more likely to involve their husbands and other people in the decision about delivery location ($p < 0.001$) (43).

2.3.1.4 Medical and obstetric factors

Study conducted in north Gonder Zone in Amhara as birth order increases utilization of safe delivery services decreases ($\chi^2=43.7$, $P=0.000$) and Munesa district in Oromia Mothers who were delivering their first babies (AOR = 2.41, 95%CI: 1.17, 4.97) indicated that birth order is independent predictor of place of delivery (29,44).

Study in Dodota District (district) in Oromia showed that as the length of labour prolonged in the previous delivery the woman prefers to deliver in health institution (42).

In study that was undertaken in Goba District in Mothers who visited health institutions for ANC at least once (AOR=2.7 and 95%CI=1.42, 5.24), in Sekela District in Amhara mothers who had ANC visit at least during pregnancy (AOR = 4.26, 95% CI = [1.1, 16.4]) and in Munesa district in Oromia mothers who visited health institutions for ANC at least once (AOR = 4.18, 95%CI: 2.54, 6.89) showed that mothers who visited ANC at least once more likely to delivery in health institution than those who didn't have ANC visit during last pregnancy (39,44,45) .

In study that was conducted in Undra Pradesh, India Women are more likely to get care for their first delivery than others that follow. This is associated with factors like fear of the unknown or excitement that is probably associated with the first child birth (46). In Ethiopia, the nationwide DHS indicated that delivery in a health institution is more common among mothers with first order births, and mothers who have had at least 4 antenatal visits (47). Similarly study in Gonder indicated that mothers who have had past history of intrapartum complication were more likely to seek safe delivery care than those with no such history (OR 1.63, 95% CI: 1.1, 2.24) (29).

The research on delivery location in Nepal showed that women consider their previous birthing experience as a proxy for future deliveries; therefore, if they delivered at home and had no complications, they perceive that all future births can safely occur at home (48,49).

Regarding previous experience, mothers who had experience of giving birth at health institution were about 16 times more likely to give birth at health institution than those who did not have experience (AOR = 15.65, 95% CI = 6.48, 37.79) (40).

In summary, the above studies identify several factors that determine the use of SBAs at delivery and delivery at health institution including: parental education, received ANC service, birth order, religion, gender of the head of the household, perceived quality of services, birth complications in previous and immediate pregnancies, decision maker of place of delivery, family size and household economic status. It is also evident that the determinants are not consistent in different regions and countries; they vary within and between regions and countries.

2.3.1.5 Knowledge and Attitude factors

In study that was undertaken in Banja District in Amhara, mothers who had enough knowledge on danger signs of labor (AOR = 2.51, 95% CI = 0.1.003, 6.263), in Banja District and Sekela District (AOR = 2.51, 95% CI = 0.1003, 6.263) showed mothers who had sufficient knowledge more likely to institutional deliver than mothers who had insufficient knowledge (39,40). In study that was undertaken in Banja District in Amhara indicated that mothers who were knowledgeable on ANC and delivery services were about 3 times more likely to deliver in health institutions than mothers who were not knowledgeable (AOR = 2.97, 95% CI = [1.1, 8.6]) respectively (39).

2.3.1.6 Cultural factors

A study in north-west Ethiopia found that the need for closer attention from relatives during delivery (61%), the tradition of giving birth at home (58%), and the influence of family members (14%) are the main reasons women do not seek skilled birth attendance (29).

In study that was undertaken in Haramaya Districts in Oromia, presence of traditional remedies were less likely to choice health institution delivery compared to women those responded for the absence of remedies [AOR (95%CI) 0.3(0.06-0.76)] (30).

Different ethnicities have different cultural values and these cultural values may prevent women to access health institution for delivery. Knowing these values and addressing them in the community could improve delivery in health institutions.

2.3.2 Factors affecting delivery in home.

According to study conducted in Banja District in Amhara region reasons mentioned by mother for preference of home delivery includes, labor was smooth and short(41%), 15% reported that they feel more comfort, 11% mothers reported that home delivery fulfills cultural needs and 9% mothers were needing the support of their relatives at home (43). Similarly finding in Goba District, showed that reasons for their preference to deliver at home 250 (84%) and (37%) of them reported that their labor was smooth and short and previous home delivery had no problem respectively (45).

In study that was undertaken in north Gondar Zone regarding reasons for preferring home delivery, 44.7% of the respondents reported that labor was short and smooth. The rest 55.3% of the mothers reported preference to give birth the in presence of relatives, trust in TBAs, cultural reason and lack of money as reasons for non-use of health institutions (29).

CONCEPTUAL FRAMEWORK

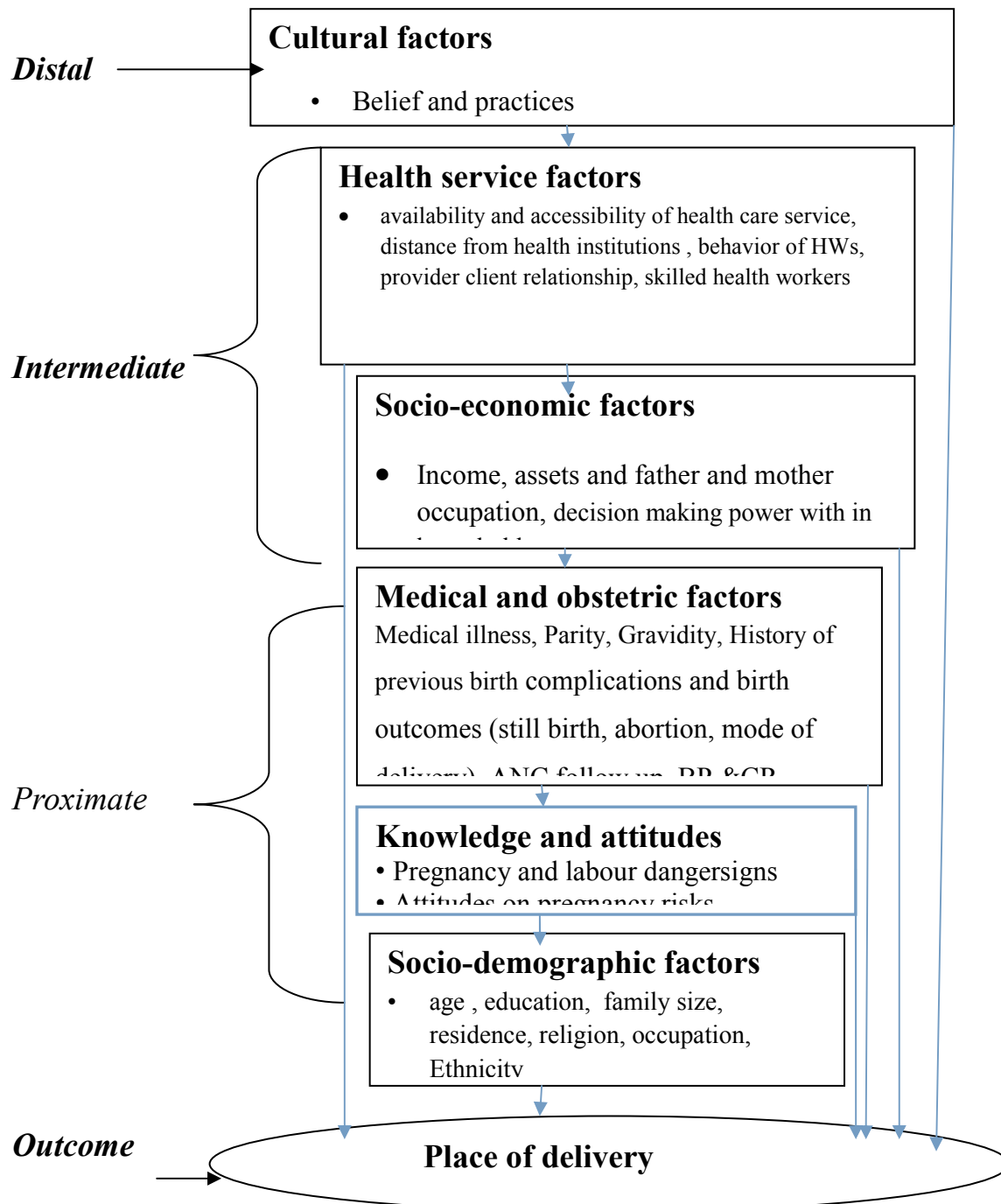


Figure 1: Conceptual framework for factors associated with place of delivery (adapted from Andersen's behavioral model of use of health services (50,51), Reproductive health outcomes (29,52)), gender framework (29,52) and Innovations conceptual framework and research approach for Maternal, Newborn and Child Health(53)

2.4 Significance of the Study

Service and knowledge gap

Pastoralists often dwell in border areas; highly volatile and insecure environments that are often beyond the reach of formal health services. Various studies indicated that the health care needs of pastoralists have been less addressed as compared to agrarian and settled communities. This inequality in health care utilization and access has been shown to be common particularly among Ethiopian pastoralists.

In spite of the fact that maternal health service utilization is a one of a factor to improve the maternal health, but there are still gap regarding the prevalence and factors influencing the use of these services in Ethiopia, particularly, rural and poorly accessible regions specifically, pastoralist community such as Liben district . This study, therefore, aimed at filling the gaps, by attempting to identify the factors that were assumed to be barriers to safe delivery service utilization in pastoralist community.

A major concern is which factors are contributing to the observed low institutional delivery service utilization in Ethiopia and which strategies can best bring about changes to the current situation.

Policy implications

Thus the result of this study will be provide information or the evidence about place of delivery and associated factors and decision makes at the Zone and regional level in planning, implementing and evaluating various interventions, will contribute towards maternal health improvement in pastoralist community and achieve millennium development goals.

The findings will be relevant and useful to the planners of reproductive health services for appropriate and effective interventions. This study will assist in giving inputs to the policies and strategies that would be put in place and would be evidence based. Furthermore, the study will provide more information on efficient and effective utilization of the scarce resources available for health to address issues of reducing maternal morbidity and mortality.

3. Objectives

3.1 General objective

- To assess place of delivery and identify associated factors among mothers of pastoralist community who gave birth in the past 12 month in Liben District of Guji zone, Ethiopia, 2015

3.2 Specific objectives:

- To determine places of delivery among mothers of pastoralist community who gave birth in the past 12 months in Liben District of Guji zone, Ethiopia, 2015
- To identify factors associated with place of deliver among mothers of pastoralist community who gave birth in the past 12 months in Liben District of Guji zone, Ethiopia, 2015

4. Methods

4.1 Study area and period

Study area

Data were collected in Liben district of Guji zone Oromia Regional State, Ethiopia, from March 15 to April 6, 2015.

Liben district is located in the southern part of Guji zone bordering Meda Welabu (Bale zone) in the east, Somali region to the south, Saba Boru district to Northwest, Arero (Borena zone) to the southwest and Goro Dola district in the North. The climate is generally semiarid with annual average rainfalls ranging from 500 mm in the South to >1500 mm in the North. Rainfall is bimodal with the main seasons, the Summer, accounting for 65% of the annual precipitation which falls between mid March to May and the small rains, Autumn which provide the remaining 35% of rainfall from September until the end of November (54). Annual mean daily temperature varies from 19°C to 24°C with moderate seasonal variation. The District has an estimated total population of 98297 of which 42,646 are females. Total number of estimated deliveries of the district in 2006 E.C was 3411. The district is divided into 17 kebeles and has four health centers and fifteen health posts

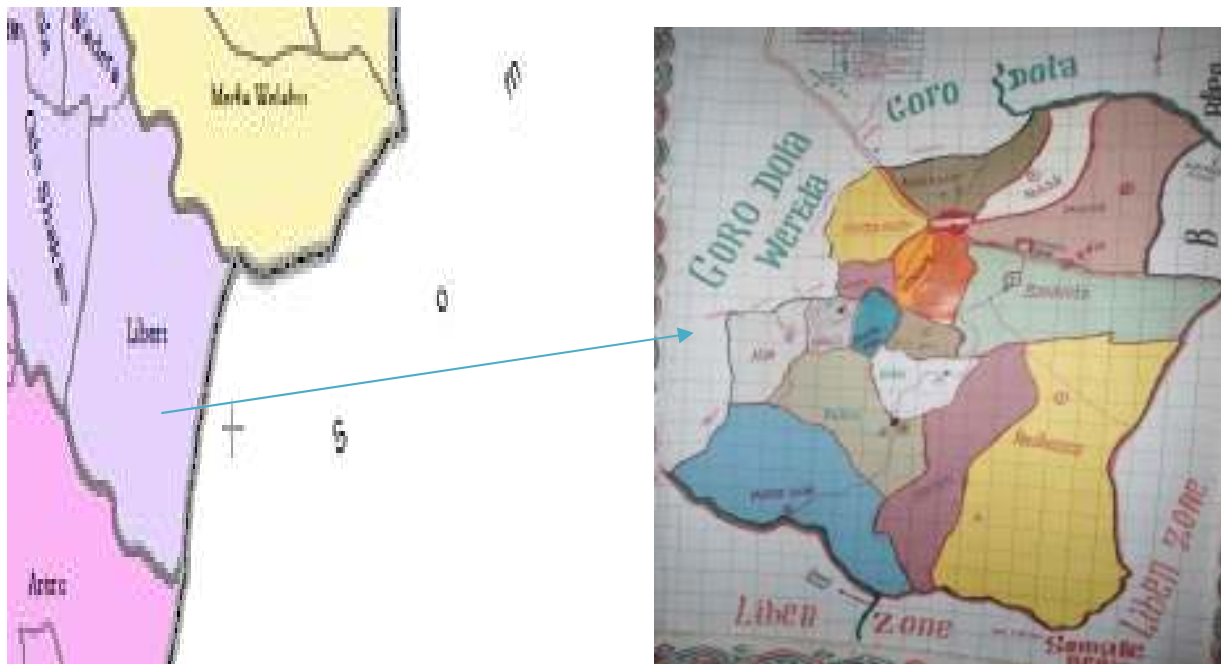


Figure 2 Map of Liben District of Guji Zone

4.2. Study design

A community based cross-sectional study design was used

4.3. Population

4.3.1 Source population

All mothers who gave birth in the past 12 months in Liben district of Guji zone

4.3.2 Study population

All mothers who gave birth in the past 12 months in selected kebeles of Liben district and who fulfill inclusion criteria

4.4. Inclusion and exclusion Criteria:

4.4.1 Inclusion Criteria

- All mothers who gave birth in the past 12 months in selected kebeles of Liben district

4.4.2 Exclusion Criteria

- Mothers with difficulty of speaking and seriously ill at the time of data collection.

4.5. Sample size and sampling technique

Sample size was determined using a single population proportion formula using the following assumptions: 5% type I error , 4% margin of error, 95% confidence level, 17% proportion of mothers who gave birth in health institution (55) and design effect of 2. Therefore, the required samples size was:

$$n = \frac{(Z_{\frac{\alpha}{2}})^2 p(1 - p)}{d^2} = 339$$

Where:-

n-minimum sample size=339

p- Proportion of mothers who gave birth in health institution = 17%

d- Margin of error =4%

$Z_{\alpha/2}$ -standard normal variable at $1-\alpha$ % =1.96

But since the total number of mothers who gave birth in past 12 months in study area is less than 10,000, the finite population correction formula was used to modify the sample size.

Where:-

n_c = corrected sample size

N = total numbers of mothers who gave birth in past 12 months in Liben district

n = minimum sample size=339

$n_c = 339/[1+(339/3411)]=309$

Design effect of 2; $309*2= 618$, Adding 5% of $618=31$ study participants, the final sample size was 649. Therefore, the required samples size was 649 mothers

4.6. Sampling procedures

Multistage sampling technique was used to recruit study participants. Purposive sampling was used to select one pastoralist district from five pastoralist districts and as a result Liben district was selected. Then, simple random sampling was used to select kebeles in Liben district and as a result 8 kebebels (Gobicha, Bururi, Siminto, Hardot, Daka kala, Bura dera, Korati and Hadessa) were selected from 17 kebeles in district. Sampling frame of mothers who gave birth in the past 12 months was prepared by conducting census in selected kebeles. Then, proportional allocation to the size of study participants to each kebele was used to determine 649 mothers were participating in the study. Finally, simple random sampling technique was used to select mothers.

During data collection process, closed houses were visited for three times and the mothers who were not participating in the study after they were selected for the study, were considered as non-respondent.

Table 1: selected kebeles with their total population, estimated deliveries and proportional allocation

Sr.	Kebeles	Population	Estimated deliveries	HHs	No. of deliveries from census	no of mothers to be selected
1	Deka Kela	4254	148	886	106	84
2	Gobicha	9225	320	1922	81	64
3	Hardot	3542	123	738	89	70
4	Siminto	6457	224	1346	77	61
5	Korati	6395	222	1332	123	97
6	Hadessa	8102	281	1688	144	114
7	Bururi	9688	336	2018	86	69
8	Bura Dera	4273	148	890	114	90
Total		51936	1802	10820	820	649

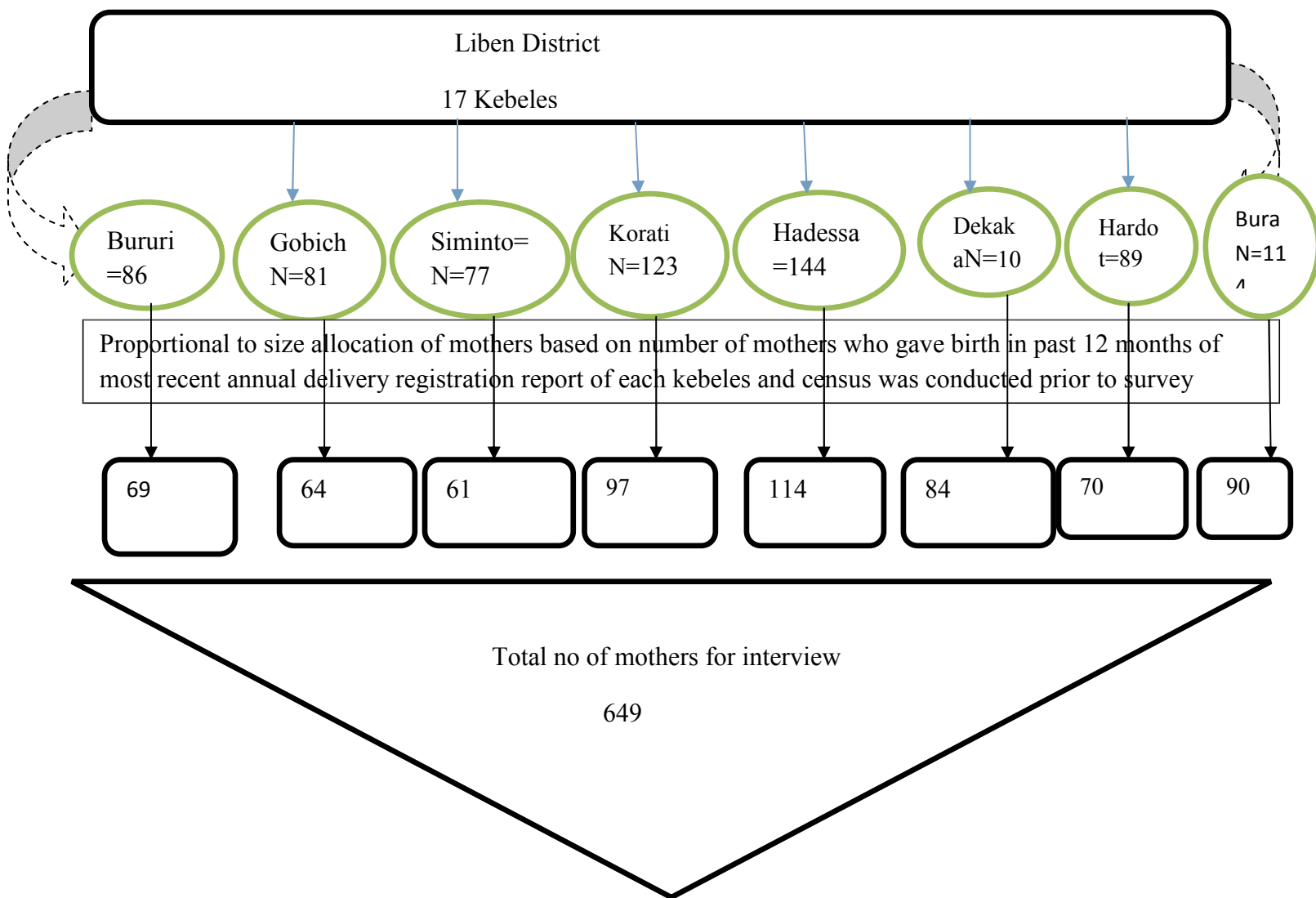


Figure 3: Schematic presentation of sampling procedure

4.7 Study Variables

4.7.1 Dependent variables

Place of delivery (home or institutional delivery)

4.7.2. Independent variable

- Socio demographic factors(education, family size, marital status , age, religion, occupation, residence , decision making power, husband education level, ethnicity)
- Health service factors(distance to health institution, behavior of HWs, quality of care, or skilled delivery/skilled delivery attendance, provider client relationships, availability and accessibility, waiting time at health institution, availability of health care workers, Service satisfaction and birth preparedness
- Socio economic factors(income, assets, father and mother occupation)
- Cultural factors(belief and practices)
- Knowledge and attitude factor(pregnancy and labour danger sign, knowledge about pregnancy risk, attitude on pregnancy risk and attitude on health institution)
- Medical and obstetric conditions (Medical illness, parity, gravidity, history of previous birth complications and birth outcomes (still birth, abortion, mode of delivery), ANC follow up

4.8. Data collection methods and Instrument

Data were collected by face-to-face interview using structured questionnaire adapted from DHS and related thesis works (28,39–41,45,56,57) and modified based on local context. Data were collected by eight trained primary school teachers and supervised by two BSc. Nurse.

The questionnaire has four parts:

Part one: Socio-demographic/economic factors: helps to assess respondents' age, gender, ethnicity, religion, income, household asset, occupation, family size, marital status and educational status.

Measurement

Income and asset: This was based on the questions about whether a household had items such as radios, televisions, Refrigerator and bicycles, farm land and farm animals (Milk cows, oxen, bulls, horses, donkeys, mules, camels, goats, sheep, or chickens) and facilities such as type of

floor, piped water, toilets, and electricity. Each asset was assigned a weight, and each household was then assigned a score for each asset, and the scores were summed for the particular household. Individuals were then ranked according to the total score. *Wealth index: Household assets were used to construct wealth index using PCA.*

Part two: Health Service Factors: helps to assess respondents' health service factors such as distance -from health institution, behavior of HWs, quality of care, or skilled delivery/skilled delivery attendance, provider client relationships, availability and accessibility, waiting time at health institution, availability of health care workers and Service satisfaction.

Measurement

Perceived quality of services: was measured by 12 items questions. Each item was scored on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5) which yields a score range of 12-60. The items in this scale includes: waiting time, comfort of delivery rooms, opening time, staff attitude, system of payment, privacy from having others see the examination etc. In this study, factor score of the satisfaction scale will be used to measure the level of mothers' satisfaction

Part three: Respondents Cultural Factors, Perception, Knowledge and Attitudes: help to assess respondents' Belief, knowledge about pregnancy and labour danger sign, knowledge about pregnancy risk and attitude on health institution.

Measurement

Knowledge score was calculated by asking seven different questions on danger signs of pregnancy and labour, prevention and control measures of maternal health risks(benefit of delivery services utilization) and by coding the responses as 1 for correct answer and as 0 for incorrect answer and summing all the values. Respondent who scored above or equals to the median was labeled as having sufficient knowledge and those scored below the median was labeled as having insufficient knowledge.

Attitude: attitude score was calculated by asking ten different questions on belief and intention of labor and delivery complication, pregnancy risks and delivery service provided at health

institution. Likert's scale was applied to measure the attitude. All individuals' answers were computed to obtain total scores and calculated for means. The mean score was used to divide the participants into two groups that are positive group, (favorable) and negative group (unfavorable)

Part four: Respondents Medical and obstetric Factors: help to assess respondents' Medical and obstetric Factors such as Medical illness, parity, gravidity, birth order, history of previous birth complications and birth outcomes and ANC follow up

4.9. Data processing and analysis procedures

Filled questionnaires were checked for completeness and consistency of the responses. Then, data were entered into Epi-Data version 3.1, exported to SPSS version 20.0 software and cleaned for analysis. Descriptive statistics was performed and presented by text, tables and graphs. Chi-squared test was used to determine adequacy of the cells and association between independent variables and the outcome. Binary logistic regression was done and variables with p-value < 0.25 were selected for next analysis. Possibility of multicollinearity was checked before running multivariable logistic regression. Then, considering all indicators together, variables which had VIF greater than $10(1/(1-R^2))$, tolerance less than $0.1(1-R^2)$, condition index greater than 50 (or 30), Eigenvalue value less than 0.01 and Proportion of Variation greater than 0.8(or 0.7) was excluded from multivariate analysis. As a result, variable "who did assist your ANC visit?" was excluded. Then, back ward stepwise multiple logistic regression analysis was performed to identify factors independently associated with the outcome. Odds ratio was used as measure of strength of association and p-value less than 0.05 was used as statistical significance. The mean score for Service satisfaction was computed by using likert scale and subjected to factor analysis to represent the satisfaction scale by varimax rotation method. Factor loadings greater than or equal 0.40 indicate that an item related or associated with a given factor was retained. Reliability coefficient of 0.70or higher was considered acceptable.

The wealth index was constructed using household assets. Assets information was collected using structured questionnaire during the survey and covers information on household ownership of number of items ranging from television, radio, bicycle, motorbike, phone, refrigerator, car, and possession of house, farm animals, farm land and facilities such as type of floor, piped water, toilets, and electricity and principal component analysis. Reliability (0.786) of items was

checked before running PCA.

Then, the factors mean scores were re-categorized into three different wealth quintiles of equal proportion (the low, middle and high). These indicates their socio economic status the low, middle and high respectively. Similarly, for perceived quality of service: Reliability (0.907) of items was checked before running PCA. Then, two appropriate numbers of factors was determined and relationship between each item and each factor was calculated. Finally, factor mean scores re-categorized into two, favorable and unfavorable.

4.10 .Data quality management

To assure quality of the data the following measures were undertaken: The questionnaire which is prepared in English was translated to Afan Oromo and back translated to English by a translator who is blind to the original questionnaire, to check consistency between the original English version and Afan Oromo version, The questionnaire was pretested on 5 percent of the sample size in adjacent district (i.e. Goro Dola district) before the actual data collection take place and corrections on the instruments were made accordingly. A total of two days' intensive training on (role and responsibilities of data collectors and supervisors, purpose, objective and methodology of the research, contents of questionnaires, data collection and interviewing techniques, meanings of each question and data recording) was given for eight primary school teachers and two nurse supervisors. The training course was given by the Principal investigator (PI) prior to data collection. Overall activity was controlled by the supervisors and principal investigator carefully during data collection.

4.11. Ethical consideration

Research clearance was sought from Jimma University Research Ethics Committee of college of Public Health and Medical Sciences.

Permission was also granted from Oromia regional health bureau, Guji zone health department, Liben district and selected Kebele. During field work, information sheets about the study in Afan Oromo were given out, explaining why it was carried out, by whom, and what it was involve. In the household survey, the consent from the participant was sought before starting the interview

and thanks them at the end of the interview. Participant was allowed to withdraw from interview at any time she want.

Confidentiality of all study participants was assured. Everybody was informed that no names or direct identification made to the questionnaire except numerical identification number was used for follow up. Before interview, study respondents were requested to participate voluntarily. Respondents were also told the aim of the study to know the problem that lead to higher maternal and newborn mortality, Identified gap will help to improve maternal and child in that area.

4.12. Dissemination plan of the study finding

The result of the study was presented to Jimma University community as part of MPH thesis and a copy of study will be disseminated to Jimma University College of public health and medical science, department of Epidemiology, Oromia regional Health Bureau, Guji zone health department, and to the respective district health offices. Further attempt will be made to publish it on reputable journal.

4.13. Operational definitions

Institutional deliveries – Deliveries that are conducted within health institution set-up(Health post, health center or Hospital) (58)

Skilled attendants refer to people with midwifery skills (midwives, doctors and nurses with additional midwifery education) who have been trained to proficiency in the skills necessary to manage normal deliveries and diagnose, manage or refer obstetric complications’ (58).

Skilled deliveries – Deliveries conducted by health workers who are trained on midwifery skills. These are clinical nurses, health officers, doctors, midwives (58)

Perceived quality of service: Health institution performance in organizing and providing maternal services addressing women’s needs and responsiveness of the health institution to perceived health needs of women. (35,36) and was measured by 12 items questions. Each item was scored on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5) which yields a score range of 12-60. The items in this scale includes: waiting time, comfort of delivery rooms, opening time, staff attitude, system of payment, privacy from having others see

the examination etc. In this study, factor score of the satisfaction scale was used to measure the level of mothers' satisfaction

Availability-In this study availability is refer to having medicines continuously available and affordable at public or private health institutions or medicine outlets that are within one hour's walk from the homes of the population. (59)

Accessibility: In this study accessibility is measured in terms of time to reach health institution, demonstrated that it was critical to ensure the proximity of health services to the communities.

Knowledge: Women who scored above or equals to the median were labeled as having sufficient knowledge and those scored below the median was labeled as having insufficient knowledge on danger signs of pregnancy and labour, prevention and control measures of maternal health risks (benefit of delivery services utilization)

Attitude: Women who scored above or equals to the mean were labeled as favorable and those scored below the mean was labeled as unfavorable on belief and intention of labor and delivery complication, pregnancy risks and delivery service provided at health institution.

Birth preparedness: identifying a skilled provider and making the necessary plans to receive skilled care for all births

Wealth index: wealth index was constructed from data on household possession. 'The higher the score, the higher the economic status of the household.' Assets mean scores were re-categorized into three different wealth quintiles of equal proportion (the lowest, middle and high). These indicates there socio economic status the lowest, middle and high respectively.

Waiting time: in this study waiting time refer to the time between mothers arrived at facility and were able to see a provider for the consultation

5. RESULT

5.1 Socio-demographic characteristics

In this study, a total of 645 (99.4%) mothers who gave birth in the past 12 months were participated in the study. Four mothers were excluded from the study as the data were incomplete. From mothers who were participated in the study, 478 (74.1%) and 167 (25.9%) mothers delivered at home and HI respectively. From mothers who delivered at home, majority 167(34.9%) were in 30-50 age group while 74 (44.4%) mothers who delivered at HI were in 20-24 age group. The mean age of the mothers who delivered at home and HI was 26.75 +5.72 and 23.54 + SD 5.03 respectively.

Among mother who delivered at home, 461(96.4%) most of respondents were married while 163(97.6%) mothers who delivered at HI were married. More than half of the mothers were Muslim 256(53.6%) and 83(49.7%) for home and health institution delivery group respectively and followed by Protestant in both groups. Among mothers who delivered at HI and home 148 (88.6%) and 409(85.6) respectively were Oromo followed by Somale in both groups.

Among mothers who delivered at home 356(74.5%) nearly three fourth had no any education while 77(46.1%) mothers who delivered at HI have attained primary (grade 1-8). Among mothers who were delivered at home 330(69.0%) more than half of their husband have no any education while 57(34.1%) more than one third of husband of mothers who delivered at HI have attained primary (grade 1-8). Among mothers who delivered at home about 470(98.6%) and 453(94.8%) most of mothers and their husbands were housewife and pastoralist respectively.

Among mothers who delivered at home and HI 296(61.9%) and 137(82%) respectively both mothers and their husband were jointly decided on household expenses. Socio economic status was classified according to wealth index using principal component analysis were categorized into tertile quintiles from low, middle and high quintile (from the respondent's level) accounted for 215 (33.3%), 213(33.0%) and 217(33.6%) respectively which indicates their social economic status respectively. Among mothers who delivered at home 170(35.6%) mothers were from low economic family while 74(44.3%) mothers who delivered at HI were from middle economic family. The mean family sizes of the participants were 5.98± 2.615 persons. Among mothers who delivered at home 249(52.1%) more than half mothers had more than five family members while

108(64.7%) more than half mothers who delivered at HI had less than five family members.

The 15-19 age group (<.0001), 20-24 age group (<.0001), Muslim (p=.003), Christian (<.0001), Mother education: primary (1-8 grade) (<.0001), secondary (9-12 grade) (<.0001), Father Education: primary (1-8 grade) (<.0001), secondary (9-12 grade) (<.0001), diploma (p=.004) family size(<.0001) and wealth index(<.0001) were statistically significant on bivariate analysis (Table 5.2)

Table5. 2-demographic characteristics of respondents by category, Liben District, Guji zone, Oromia Regional State, Southern Ethiopia, 2015

Characteristics of mothers	Place of last 12 months delivery						COR(95%CL)
	Home(n=478)		Health Institution(n=167)		P-value		
	No	%	No	%			
Age	15-19	47	9.8	39	23.4	<.0001	5.77(3.16,10.55)
	20-24	129	27.0	74	44.3	<.0001	3.99(2.39,6.68)
	25-29	135	28.2	30	18.0	.143	1.55(.86,2.77)
	>=30	167	34.9	24	14.4	1.0	1.0
Religion	Christian	127	26.6	73	43.7	<.0001	4.96(2.50,9.87)
	Muslim	256	53.6	83	49.7	.003	2.80(1.43,5.48)
	Wakefata	95	19.9	11	6.6	1.0	1.0
Ethnicity	Oromo	409	85.6	148	88.6	.291	1.35(.77,2.34)
	Ahmara	2	0.4	1	0.6	.291	1.86(.16,21.701)
	Somale	66	13.8	18	10.8	1.0	1.0
Educational status of mothers	Illiterate	356	74.5	54	32.3	1.0	1.0
	Read and write only	48	10.0	8	4.8	.818	1.10(.49,2.45)
	At least Primary	74	15.5	105	62.9	<.0001	7.93(5.12,12.29)
Occupation of mothers	House wife	470	98.4	166	99.4	1.0	1.0
	Others*	8	1.6	1	0.6	.329	.35(.04,2.9)
Current marital	Married	461	96.4	163	97.6	.470	1.50(.50,4.53)
	Others**	17	3.6	4	2.4	1.0	1.0

status							
Educational status of Fathers	Illiterate	330	69.0	50	29.9	1.0	1.0
	Read and write only	35	7.6	11	6.7	.053	2.07(.99, 4.35)
	Primary	78	16.3	57	34.1	<.0001	4.82(3.07,7.59)
	Secondary	11	2.3	38	22.8	<.0001	22.80(10.94,47.50)
	Diploma	5	1.0	5	3.0	.004	6.60(1.85,23.61)
	Degree and above	2	0.4	2	1.2	.062	6.60(.91,47.92)
	Others***	17	3.6	4	2.4	.445	1.55(.50,4.80)
Occupation of husband	Pastoralist	453	94.8	153	91.6	1.0	1.0
	Gov't employee	7	1.5	5	3.0	.207	2.12(.66,6.76)
	Others***	18	0.2	9	3.1	.349	1.48(.65,3.36)
Family size	<=5	229	47.9	108	64.7	<.0001	1.99(1.38,2.87)
	>5	249	52.1	59	35.3	1.0	1.0
Wealth index	Low	170	35.6	45	26.9	1.0	1.0
	Middle	139	29.1	74	44.3	.002	.93(.59,1.48)
	High	169	35.4	48	28.7	.764	1.84(1.22,2.87)
Decision on household expenses	Myself	32	6.7	8	4.8	1.0	1.0
	Husband	150	31.4	22	13.2	.243	.59(.24,1.44)
	Both of us	296	61.9	137	82.0	.132	1.85(.83,4.12)

* Pastoralist, merchant, employed by gov't, died, divorced **divorced, widowed***Died, divorced****merchant, daily laborer, driver, +grade 1-8

5.2 Respondents Health Service Factors

Among mothers who delivered at home 342(71.5%) nearly three fourth of mothers were reported that health institutions available within 5km radius while 138(82.6%) majority of mothers who were delivered at HI reported that health institutions available within 5km radius. Types of nearby health institutions reported by mothers who delivered at home 320(66.9%) more than half

were health posts while types of nearby health institutions reported by mothers who delivered at HI 74(44.3%) more than one third were hospitals. Among mothers who delivered at home and reported that they had nearby health institutions, 342(71.5%) nearly three fourth of mothers said that time taken on foot to the nearby health institution were less than one hour while 138(82.6%) majority of mothers who delivered at HI said that time taken on foot to the nearby health institution were less than one hour.

Regarding perceived quality of services at health institution, among mothers who delivered at home 284(59.4%) more than half mothers were not satisfied with the service given at health institution while 120(71.9%) nearly three fourth of mothers who delivered at HI were satisfied with the service given at health institution. Among mothers who delivered at home and HI 455(95.2%) and 164(98.2%) respectively majority of the mothers were spent less than one hour at health institution to get service. Regarding decision making power on previous and last place of delivery among mothers who delivered at home 397(83.1%) and 461(96.4%) majority of mothers were decided by themselves respectively while 112(67.1%) and 92(55.1%) of mothers who delivered at HI were decided previous and last place of delivery by themselves respectively.

Place of delivery

Out of the 645 mothers interviewed about the place of their past 12 months delivery, 478 (74.1%) had delivered at home and the remaining 167(25.9%) had delivered in health institutions. Out of mothers who gave birth at health institution, 52 (8.1%) gave birth at health center, 93 (14.4%) at hospital, 21(3.3%) at health post and the rest 1 (0.3%) at private clinic. Among mothers who were delivered at health institution 152(91.0%) of them were planned to delivery at health institution while mothers who delivered at home 411(86%) of them were planned to delivery at home. Among mothers who delivered at home 476 (99.6%) of them were assisted by TBAs while 166(99.4%) mothers who delivered at HI were assisted by skilled health professionals.

Presence or absence of health institution within 5km radius ($p=.003$), Distance from health institution ($p=.005$), type of HI available nearby: health center ($<.0001$) and hospital ($<.0001$), decision making power on previous and last place of delivery ($<.0001$ and $<.0001$) respectively were statistically significant on bivariate analysis. **(Table 5.3)**

Table 5. 3 Health services characteristics of respondents by category, Liben District, Guji zone, Oromia Regional State, Southern Ethiopia, 2015

characteristics		Place of last 12 months delivery					COR(95%CL)
		Home(n=478)		Health Institution(n=167)		p-value	
		No	(%)	No	(%)		
Is there health institution in your vicinity within 5km radius?	Yes	342	71.5	138	82.6	.003	1.99(1.27, 3.13)
	No	136	28.5	29	17.4	1.0	1.0
Distance from HI in minute	<=60minutes	342	71.5	138	82.6	.005	1.89(1.21,2.96)
	>60minutes	136	28.5	29	17.4	1.0	1.0
Type of health institution	Health post	320	66.9	36	21.6	1.0	1.0
	Health center	71	14.9	58	34.7	<.0001	7.26(4.45,11.84)
	Hospital	87	18.2	73	43.7	.000	7.46(4.69,11.87)
Was it the place you intended to deliver at?	Yes	411	86.0	152	91.0		1
	No	67	14.0	15	9.0	.095	.61(.34,1.09)
Were you happy with the services provided at your health institution?	Yes	442	92.5	158	94.6	.352	1.43(.67,3.04)
	No	36	7.5	9	5.4	1.0	1.0
Waiting time	<=60minutes	455	95.2	164	98.2	.101	2.76(.82, 9.33)
	>60minutes	23	4.8	3	1.8	1.0	1.0
Perceived quality of service	Unsatisfied	346	72.4	51	30.5		1
	Satisfied	132	27.6	116	69.5	<.0001	5.96(4.06, 8.77)
Decision making power							
Who decided your previous place of delivery?	Myself	397	83.1	112	67.1	1.0	1.0
	Husband	26	5.4	11	6.6	.280	1.50(.72,3.13)
	I haven't gave birth before	55	11.5	44	26.3	<.0001	2.84(1.81,4.44)
Who decided place for your last birth?	Myself	461	96.4	92	55.1	1.0	1.0
	Husband/relatives	17	3.5	75	44.9	<.0001	30.07(14.34, 63.03)

The reason for home delivery

Respondents were also asked on the reasons for preference of home to HI deliveries. About Nineteen percent (18.8%) of the respondents reported their previous deliveries were at home, customary/usual practice (17.4%), their belief in supernatural power (16.5%), labor was smooth and short (10.5%), fail to get person accompanying then to HI (8.2%), need to give birth at home (7.9%), giving birth at home has no problem (7.7%), my home was far from HI (7.5%), fear of operation(2.9%) . (Figure 5)

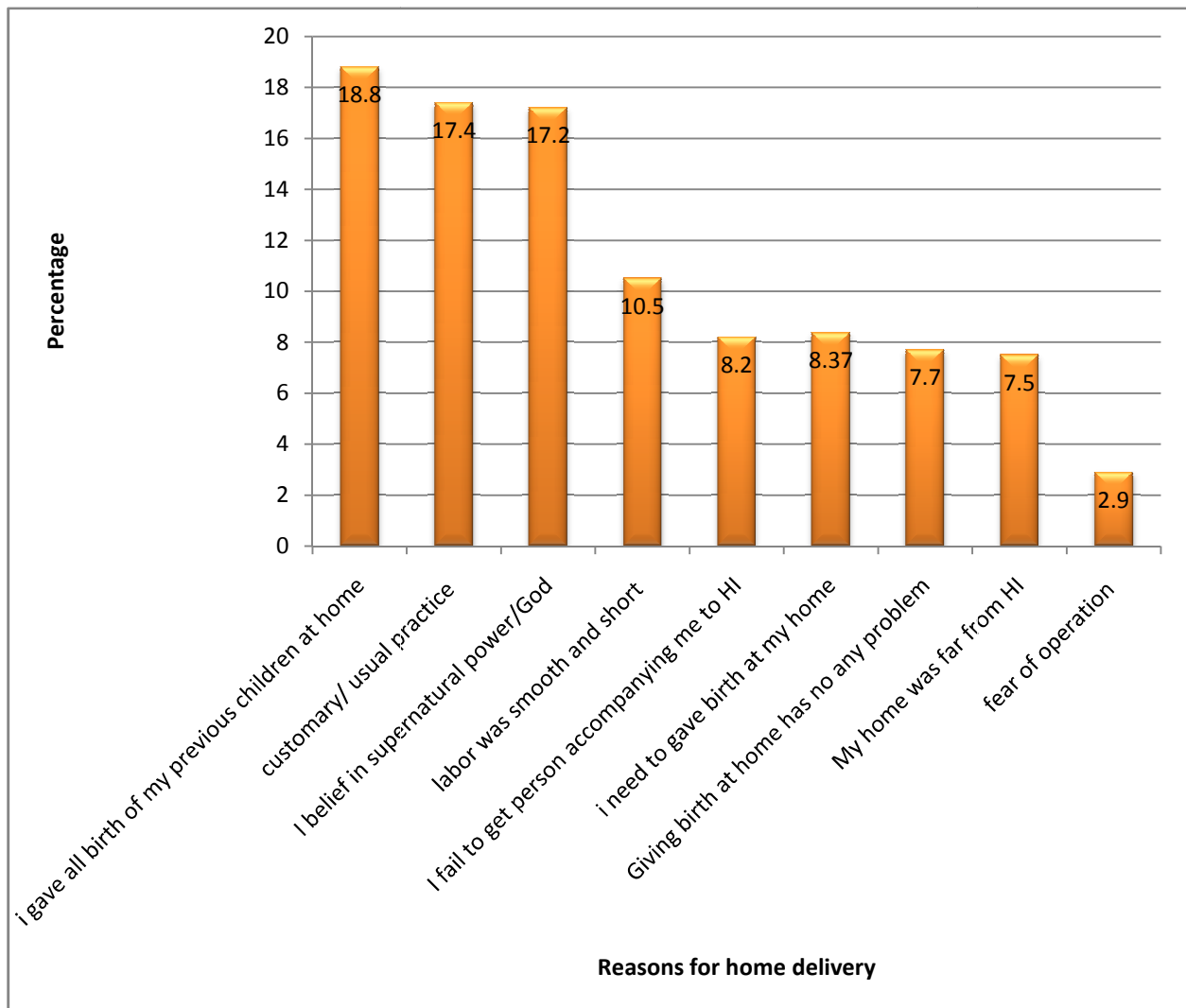


Figure 4 Reason for home delivery mentioned by responded Liben District, Guji zone, Oromia Regional State, Southern Ethiopia, 2015

The reason for health institution delivery

Respondents were also asked on the reasons for preference of HI to home deliveries. About fifty eight percent (58%) respondents reported that I need better service, their previous better out come with delivering at HF (28.7%), I was told to deliver at health institutions(17.4%),Bad outcome with previous HD(9%),Difficult labor(4.8%) and HF was near to me(1.2%). (Figure 6)

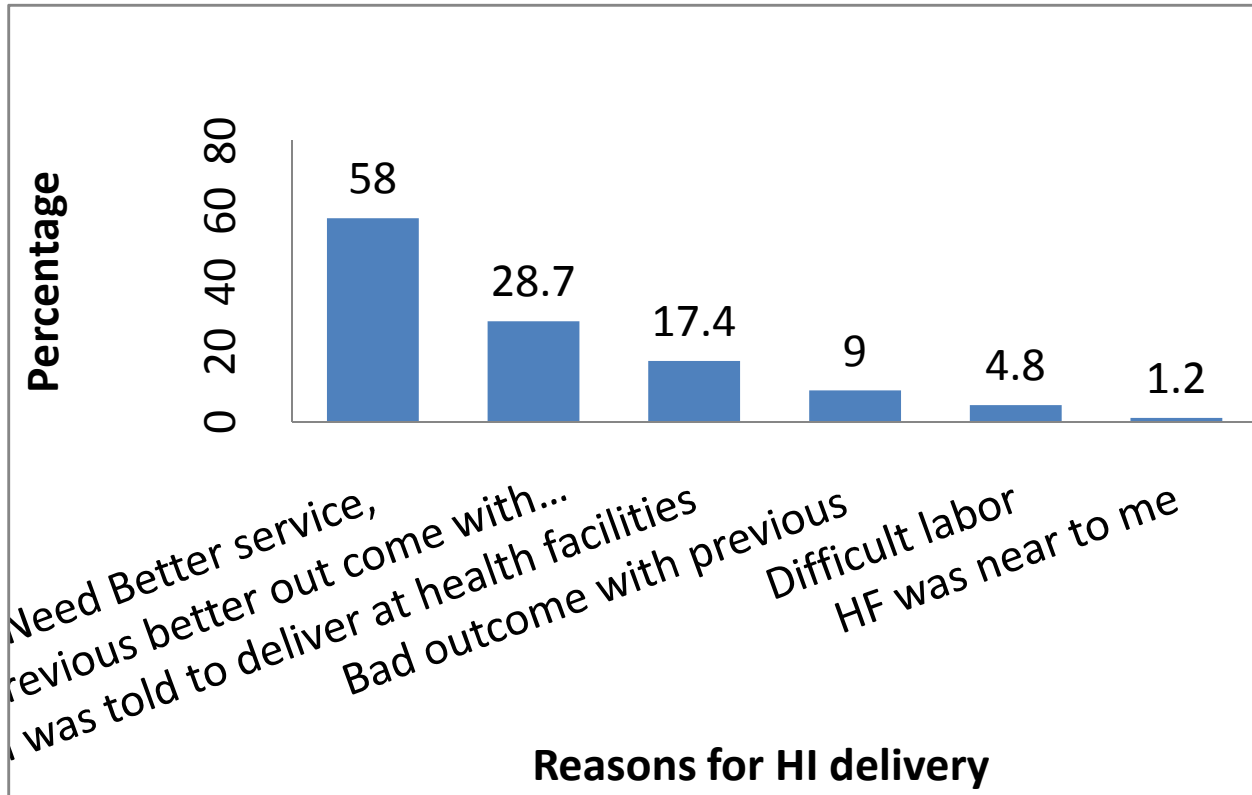


Figure 5 Reasons for health institution delivery mentioned by responded Liben District, Guji zone, Oromia Regional State, Southern Ethiopia, 2015

5.3 Respondents Knowledge and Attitudes Factors

Among mother who delivered at home 286 (59.8%) more than half of mothers had insufficient knowledge on danger sign of pregnancy and labor, risks of pregnancy, complication of labor and delivery services provided at health institution while 147(88.0%) majority of mothers who delivered at HI had sufficient knowledge on danger sign of pregnancy and labor, risks of pregnancy, complication of labor and delivery services provided at health institution. Similarly, among mothers who delivered at home 257 (53.8%) more than half of the mothers had poor attitude on SBA, delivery complication, risks of pregnancy and delivery services while

127(76.0%) three fourth of mothers who delivered at HI had good attitude on SBA, delivery complication, risks of pregnancy and delivery services. Attitude (<.0001) and knowledge (<.0001) were statistically significant on bivariate analysis (**Table 5.4**)

Table 5. 4 Knowledge and Attitudes characteristics of respondents by category, Liben District, Guji zone, Oromia Regional State, Southern Ethiopia, 2015

characteristics	Place of last 12 months delivery				P-value	COR(95%CL)	
	Home(n=478)		Health Institution(n=167)				
	N0	(%)	N0	(%)			
Attitude of Mother on SBA, delivery complication, and delivery services	Unfavorable	257	53.8	40	24.0	1.0	1.0
	Favorable	221	46.2	127	76.0	<.0001	3.69(2.48,5.50)
Knowledge of Mother on danger sign and risks of labor and pregnancy and delivery services	Insufficient knowledge	286	59.8	20	12.0	1.0	1.0
	Sufficient knowledge	192	40.2	147	88.0	<.0001	10.95(6.63. 18.08)

5.4 Medical and obstetric factors

With regard to the last pregnancy, among mothers who delivered at home 133 (27.8%) of mother were become pregnant at the age group between 25-29 years while 72(43.1%) of mothers who delivered at HI were become pregnant between the age group of 20-24 years. Among mothers who delivered at home most of them 461 (96.4%) had got at least one ANC services during the last pregnancy from which 337 (70.5%) and 124(25.9%) were attended one to three and four and above respectively while 135(80.8%) of mother who delivered at HI were attended four and above.

Among mothers who delivered at home 222(46.4%) of mothers had 5 and above births while 43 (25.7%) of mothers who delivered at HI have gave birth for first time. Among mothers who delivered at home 233(48.7%) of mothers had gravida 5 and above while 43 (25.7%) of mothers

who delivered at HI had gravida one. Among mothers who delivered at home 177(37.0%) of them had parity 5 and above while 44(26.3%) of mothers who delivered at HI had no any parity.

Among mothers who gave birth at home, 476 (99.6%) were assisted by TBA while 166(99.4%) of mothers who delivered at HI were assisted by skilled health professionals. Seventeen (2.6%) of the total respondent had come across obstetric difficulties during child birth from them 15 (88.2%) of mothers visit health institution and 2(11.8%) of them get solution at home by taking traditional treatment

Before the last birth, 58 (9.0%) of the respondents had ever gave birth at health institutions during birth. Of them 52(89.7%) had gave birth their last children at health institution. Number of ANC visit: None (<.0001) and one to three (p=.005), Gravidity: gravida one (<.0001), gravida two (<.0001), gravida three (<.0001) and gravida five (.007), Parity zero (<.0001), parity two (p=.003) and parity four (p=.003), birth order (.000), age groups at last pregnancy(<.0001), Previous experience of giving birth at HI (<.0001) and obstetric history(<.0001) were statistically significant on Bivariate analysis (**Table 5.5**)

Table 5.5 Medical and obstetric characteristics of respondents by category, Liben District, Guji zone, Oromia Regional State, Southern Ethiopia, 2015

Characteristics		Place of last 12 month delivery				p-value	COR(95%CL)
		Home(n=478)		Health Institution(n=167)			
		No	(%)	No	(%)		
Mode of delivery for last birth	Spontaneous vaginal delivery	476	99.6	109	65.3	.456	.01(.002-0.03)
	Others*	2	0.4	58	34.7%	1.0	1.0
Who assisted your last child birth?	Health professionals*	1	0.2	166	99.4	1.0	1.0
	TBA	475	99.4	0	0	.989	<.000
	Others***	2	0.4	1	0.6	.546	.003(.00- .07)
Have you ever attended	Yes	461	96.4	166	99.4	.079	6.12(.81- 46.34)
	No	17	3.6	1	0.6	1.0	1.0

ANC in your last pregnancy?							
Number ANC visit during last pregnancy	None	17	3.6	1	0.6	.005	.05(.01- .42)
	One to three	337	70.5	31	18.6	<.0001	.09(.06- .14)
	Four and above	124	25.9	135	80.8	1.0	1.0
Who did see you during your ANC visit?	Physician	11	2.4	1	0.6	1.0	1.0
	Health officer/Nurse	362	75.7	160	96.4	.130	4.89(.63-38.21)
	Health extension workers	88	18.4	5	3.0	.680	.63(.075-.85)
	Others****	17	3.6	1	0.6	.998	.000(.000-)
Gravidity/number of total pregnancies	1	52	10.9	43	25.7	<.0001	5.21(3.06-8.87)
	2	53	11.1	27	16.2	<.0001	3.21(1.80-5.72)
	3	61	12.8	33	19.8	<.0001	3.41(1.97-5.89)
	4	79	16.5	27	16.2	.007	2.15(1.23-3.76)
	>=5	233	48.7	37	22.2	1.0	1.0
Parity (Number of live births)	0	54	11.3	44	26.3	<.0001	4.81(2.76-8.38)
	1	7	1.0	2	1.2	.318	2.36(.44-12.72)
	2	91	19.0	35	21.0	.003	2.27(1.31-3.93)
	3	79	16.5	27	16.2	.019	2.03(1.13-3.62)
	4	72	15.1	29	17.4	.003	2.38(1.33-4.24)
	>=5	177	37.0	30	18.0	1.0	1.0
Birth order of last child	First to	126	26.4	73	43.7	<.0001	3.57(2.27-5.63)
	Second to	130	27.2	58	34.7	<.0001	2.75(1.72-4.40)
	Third to fourth	222	46.4	36	21.6	1.0	1.0
	Fifth and above						
How old	15-19	86	18.0	48	28.7	<.0001	3.76(2.07-6.83)

were you at your last pregnancy?	20-24	131	27.4	72	43.1	<.0001	3.70(2.11-6.49)
	25-29	133	27.8	28	16.8	.278	1.42(.76-2.67)
	>=30	128	26.8	19	11.4	1.0	1.0
Previous delivery at HF	Yes	6	1.3	52	31.1	<.0001	0.03(.01,.07)
	No	472	98.7	115	68.9	1.0	1.0
Obstetric history	Yes	2	0.4	15	9.0	<.0001	.04(.01,.19)
	No	476	99.6	152	91.0	1.0	1.0

* Instrumental delivery, Cesarean section, I did not remember ** Physician, Health officer, Nurse, Health extension workers, ***without any assistance with neighbor ****have not seen

5.5 Factor analysis and Principal Component Analysis

5.5.1 Wealth index

Variables retained in final analysis were with correlations greater than 0.30 and Kaiser-Meyer-Olkin measure of sampling adequacy greater than 0.706. Each variables with communality <0.5 was removed from analysis and Variables with complex structure having high loadings or correlations ≥ 0.40 on more than one component after varimax rotation was removed from analysis and reanalyzed again. Then two appropriate numbers of factors was determined and relationship between each item and each factor was calculated. The information on five variables (items) were represented by two components; component one includes the variables ‘television, fridge and house from town’ while component two includes ‘motorbike and car’ that relate strongly to the proposed factor were selected. The components explain at least 50% of the variance in each of the variables was included in the final analysis and cumulative variance explained by the last component was 78.8%

The communalities for all of the variables included on the components were greater than 0.50 and all variables had simple structure. The information in five of the variable was represented by two components; component one includes the variables ‘television, fridge and house from town’ while component two includes ‘motorbike and car.’

5.5.2 Perceived quality of services (Principal Component Analysis)

The information nine of the variable was represented by two components; component one includes the variables ‘Referral service efficiency at health institution , Opening and closing

hours of service at health institution, Relationship with health provider, The cleanliness of the health institution and Being treated with respect” while component two includes the variables “Time you waited to see a provider, Comfort of delivery rooms at health institution, Privacy from having others see the examination and Availability of drugs at health institution.” The components explain at least 50% of the variance in each of the variables was included in the final analysis and cumulative variance explained by the last component was 71.8%

5.6 Factors associated with place of delivery (Multiple variable analyses)

As compared to those mothers who were not able to read and write, mothers who attended at least primary school [AOR) = 5.82, (95%CI: (2.64, 12.83))] were nearly six times more likely to choice health institution as place of delivery.

Concerning number of ANC follow up, mothers those who had no any ANC visit [AOR) = 0.54, (95%CI: (.06,0.75)] and one to three ANC visit [AOR)= 0.27, (95%CI: (.12,.61)] had 46% and 73% respectively lower odds of choosing health institution as place of delivery compared to mothers who had four and above ANC follow up. Concerning perceived economic status mothers who were middle [AOR) = 0.27, (95%CI: (.10, .73)] and high wealth quintile [AOR) = 0.37, (95%CI: (.14-.98)] had 73% and 63% lower odds choosing home as place of delivery compared to mothers who were low wealth quintile. Regarding perceived quality of services mothers who satisfied with service provided at health institution [AOR) = 3.77, (95%CI: (1.63, 8.75)] were four times more likely to choice health institution as place of delivery compared mothers who were unsatisfied. Type of health institution present within vicinity of respondent was another independent predictor of place of delivery. Those mothers that hospital [AOR) = 4.08, (95%CI: (1.95, 8.55)] and health center[AOR)= 2.71, (95%CI: (1.04,7.04)] present in their vicinity were nearly four and three times respectively more likely to choice health institution as place of delivery compare to those mothers that health post were present in their vicinity. Concerning knowledge of mothers on danger sign of labor and pregnancy and delivery services, those mothers who had sufficient knowledge [AOR) = 12.99, (95%CI: (5.43, 31.06)] on danger sign of labor, pregnancy and pregnancy and labor complication and delivery services were nearly thirteen times more likely to choice health institution as place of delivery compare to mothers who had insufficient knowledge. Place respondent intended to delivery was another independent predictor of place of delivery. Mothers who did not deliver in place they intend to delivery [AOR)

= 0.08, (95%CI: (0.02,.28)] had 92% lower odds of choosing health institution as place of delivery compare to mothers who were delivered in place they intended to delivery at.

Regarding previous experience of giving birth at health institution and obstetric history were independent predictors of place of delivery. Mothers who did not have experience of delivery at health institution before [AOR = 0.06, (95%CI): (.02, .21)] had 94% lower odds of choosing health institution as place of delivery compare to mothers who had previous experience of delivery at health institution.

Mothers who did not encounter previous obstetric history/complication (AOR = 0.003, (95%CI): (.001, .031)] had almost 100% lower odds of choosing health institution as place of delivery compared mothers who did encounter. As compared to mothers who were decided their last place of delivery by themselves, mothers whom their husband/ relative (AOR = 12.73, (95%CI): (5.05, 32.05)] decided their place of delivery were nearly thirteen times more likely to choice health institution as place of delivery. (Table 5.6)

Table: 5. 6 Factors associated with place of delivery (Multiple variable analyses)

Explanatory variables	Place of delivery		p-value	Crude OR (95%CL)	p-value	Adjusted OR (95% CL)
	Home(n=478)	HI(n=167)				
	No. (%)	No. (%)				
Educational status of mothers						
Illiterate	356(74.5)	54(32.3)		1		1
Read and write only	48(10.0)	8(4.8)	.818	1.10(.49, 2.45)	.119*	2.56(.79,8.34)
At least primary	74(15.5)	105(62.9)	<.0001	7.93(5.12, 12.29)	<.0001	5.82(2.64,12.83)
Wealth index						
Low	170(35.6)	45(26.9)		1		1
Middle	139(29.1)	74(44.3)	.002	.93(.59,1.48)	.010	.27(.10,.73)
High	169(35.4)	48(28.7)	.764	1.84(1.22, 2.87)	.045	.37(.14,.98)
Perceived quality of service						
Unsatisfied	346(72.4)	51(30.5)		1		1
Satisfied	132(27.6)	116(69.5)	<.0001	5.96(4.06, 8.77)	.002	3.77 (1.63, 8.75)
type of HI present						

at your vicinity?						
Health post	320(66.9)	36(21.6)		1		1
Health center	71(14.9)	57(34.1)	<.0001	7.26(4.45,11.84)	.041	2.71(1.04,7.04)
Hospital	87(18.2)	73(43.7)	<.0001	7.46(4.69, 11.87)	<.0001	4.08(1.95, 8.55)
Was it the place you intended to deliver at?						
Yes	411(86.0)	152(91.0)		1		1
No	67(14.0)	15(9.0)	.095	.61(.34,1.09)	<.0001	0.08(0.02,.28)
Knowledge						
Insufficient knowledgeable	286(59.8)	20(12.0)		1		1
Sufficient knowledgeable	192(40.2)	147(88.0)	<.0001	20.95(6,63-18.08)	<.0001	12.99(5.43,31.06)
Number ANC visit						
None	17(3.6)	1(0.6)	.005	.05(.01,.42)	.037	.54(.06,.75)
One to three	337(70.5)	31(18.6)	<.0001	.09(.06, .14)	<.0001	.27(.12,.61)
Four and above	124(25.9)	135(80.8)		1		1
Previous delivery at HF						
Yes	6(1.3)	52(31.1)		1		1
No	472(98.7)	115(68.9)	<.0001	0.03(.01,.07)	<.0001	0.06(.02,.21)
Previous obstetric history/complica.						
Yes	2(0.4)	15(9.0)		1		1
No	476(99.6)	152(91.0)	<.0001	.04(.01,.19)	<.0001	.003 (.001,.031)
Decision maker of place birth						
Myself	461(96.4)	92(55.1)		1		1
Husband/relatives	17(3.6)	75(44.9)	<.0001	30.0(14.34,63.03)	<.0001	12.73(5.05,32.05)

* Not statistically significant

6. Discussion

The results of the study revealed that the proportion of mothers who delivered at health institutions was 26% while three fourth of mothers (74%) gave birth at home. The study conducted in Afar, one of the pastoralist areas in Ethiopia indicated, however, 17% of HI delivery(55). The difference between the studies might be explained by the difference in study periods (2011) as there is an improvement in accessing and utilizing of the service. Moreover, there could be differences in culture. The current health institution delivery is lower than other study findings in non-pastoralist areas of Ethiopia and abroad (Goba=47%, Haramaya=41.3%), Kenya (39.3%), and rural Tanzania (42%) (28,30,45,60). The difference between the studies might be explained by the difference in study settings (non pastoralist). All of those studies reported that still large numbers of mothers delivered at home under the care of untrained or unskilled birth attendants. This implies that lack of recognition of perceived seriousness of home delivery as a significant reason for attendant risks of infection and lack of available equipment which contributes to high maternal and infantile mortality in this population.

Reasons mentioned by mothers for home delivery, about nineteen percent (18.8%) of the respondents reported that their previous deliveries were at home, as it was usual practice (17.4%), their belief in supernatural power (16.5%), labor was smooth and short (10.5%), fail to get person accompanying them to HI (8.2%), need to give birth at home (7.9%), giving birth at home has no problem (7.7%), my home was far from HI (7.5%), fear of operation(2.9%). These are similar with finding from previous studies in different areas (28,44,55,57).This implies poor maternal knowledge in recognizing danger signs of labor, timing and great need of family support during labor.

The results of the present study revealed that the place of delivery is significantly influenced by level of education. Mothers who attained at least primary school [AOR = 5.82] were nearly 6 times more likely to choice health institution as place of delivery than those with no education. This finding is in line with most maternal and child health studies conducted in developing countries(29,40,44,61–63). This might be attributable to the fact that education can enhance the status of women and enable them to develop greater confidence and capacity to make decisions about their own health. Moreover, educated women seek out higher quality services and have greater ability to use health care inputs that offer better care. This implies that call for attention to

invest in females' education so as to increase the proportion of institutional delivery as important intervention to safeguard child and motherhood.

This study found that mothers with middle (AOR = 0.27) and high [AOR) = 0.37) socio economic status had 73% and 63% lower odds of choosing home as place of delivery compared to those with low socio economic status. This finding is in lined with study done in rural Tanzania (AOR=.07), study in Mayoyao in Philippines ($p < 0.001$), study in Bahi district in Tanzania (AOR=.37 CI) and study in Rwanda (28,43,64,65). A reason for this finding might be due to family members from higher level of household economic status are more aware of existing modern health care services and can afford those services easily. Another reason might be due to economic difficulties in rural areas mothers were not able to afford costs related to deliveries even if the services are free of charge. They are also unable to pay for transport in case of referral or the facility is away from home. This implies that ability of mothers to pay for service related to delivery obliged them not seeking modern health care services even if they intended to seek.

Mothers those who had no any ANC visit[AOR)= 0.54)and one to three ANC visit [AOR)= 0.27] had 46% and 73% respectively lower odds of choosing health institution as place of delivery compared to mothers who had four and above ANC follow up. This finding is consistent with many studies done in Ethiopia and abroad that find positive association between high number ANC visit and delivery at HI. Study done in Goba, Sekela district, Munesa and Rwanda (39,44,45,65). This might be due to the fact that ANC services could provide opportunities for health workers to promote a specific place of delivery or give women information on the status of their pregnancy which in turn alerts them to decide where to deliver. This implies that promotion of consistent ANC visit might increase delivery at health institution

Mothers who did not have any experience of delivery at health institution before [AOR = 0.06} had 94% lower odds of choosing health institution as place of delivery compare to mothers who had previous experience of delivery at health institution. This finding Consistent with the studies conducted in Banja district in Ahmara, SNNPR Ethiopia and Cambodia showed that women's use of skilled attendance at delivery for the most recent pregnancy was related with receiving care for the preceding birth (40,57,67) This might be due to mothers' confidence and trust on HIs

developed following previous use of the services. This implies that promotion of consistent practice of maternity care utilization might increase service reception by mothers.

Mothers who had not encountered previous obstetric history (AOR = 0.003) had almost 100% lower odds of choosing health institution as place of delivery compared mothers who had encountered. This finding agrees with studies conducted in Dodota in Oromia, in Gonder, in Bangladesh and Andhra(29,42,68,69) which showed that as the length of labour prolonged in the previous delivery and have had past history of intrapartum complication were more likely to seek safe delivery care than those with no such history. This might have been the case when the last delivery at home was complication-free, and mothers would have had a follow-up delivery at home as well. The possible reason for this finding might be due to significant proportions of mothers seek help from skilled birth attendants after developing obstetric complications and when other traditional interventions fail. This might imply that mothers visit HIs only when difficulties arise and home trials fail which might be attributed to poor knowledge and possible HI factors.

This study showed that mothers who had sufficient knowledge [AOR) = 12.99] on danger sign of labor, pregnancy and pregnancy and labor complication and delivery services were nearly thirteen times more likely to choice health institution as place of delivery compare to mothers who had insufficient knowledge. This in line with the studies conducted Banja District (AOR = 2.51) and Sekela District in Amhara (AOR = 2.97). (39,40) The possible reason might be when they have better knowledge on danger signs of labor and pregnancy and delivery services can perceive life treating conditions which in turn alerts them to decide where to deliver. This implies that low health institution delivery might be due to the inaccessibility of health services or lack of awareness about perceived seriousness of labor complications.

This finding indicated that those mothers that had hospital [AOR) = 4.08)] and Health center[AOR)= 2.71] at their vicinity were nearly four and three times more likely to choice health institution as place of delivery compare to those mothers that had health post at their vicinity. This study is consistent with study conducted in India (69). This might be due to the fact that mother perception of health problems, educational status of respondents,' availability of necessary equipments and supply, variation in human power and capacity for the service

provision at higher level health institutions and provide better service can perceive getting skilled birth assisted with higher professional. This implies that access to health institutions equipped with modern maternity facilities motivates mothers to utilize the available services.

This finding showed that mothers who did not deliver in place they intended to delivery [AOR] = 0.08] had 92% lower odds of choosing health institution as place of delivery compare to mothers who were delivered in place they intended to delivery at. This is line with study conducted in a rural Tanzania where 84% of woman who gave birth at home were intended to deliver in health institution but due to transport problem and long distance to health institutions they end up delivering at home. In Nepal, women who planned to deliver in health institutions 18% delivered in home due to lack of transport(32,33). The possible reason might be due to transportation is very unreliable and often women are on foot to access skilled delivery from rural areas, failure to plan in advance for transport cause higher number of women to deliver in their homes even if they had planned to deliver in health institutions. Moreover, because of poor infrastructure, it often takes women hours or even days to arrive at a health institution, which encourages women to stay at home to deliver their babies. This implies that distance to the health institution might be major factor in the selection of place of delivery.

This study showed that mothers who satisfied with service provided at health institution [AOR] = 3.77) were nearly four times more likely to choice health institution as place of delivery compared to mothers who were unsatisfied with the service provided at health institution. This finding is consistent with study done in , Haramaya in Oromia, South Africa and in Ghana (30,70,71). The possible reason might be due to mere presence of health delivery system does not assure the use of health services. It is influenced by the accessibility, quality, and cost of the services. However, even where there is a good supply of services, those services may not be fully used. Even under the same circumstances of availability, some women are more likely to use services than others. Therefore, a health delivery system is not the only factor that determines the level of use of health care services. Other factors such as social characteristics and structure influence the use of health care services. Health institution can be geographically accessible; however, if human and material resources are not available women are not likely use the health institution for deliver. This might implies that customers may not be satisfied with the way health services are organized in terms of operating hours and time of waiting before being attended to;

Staff attitude, space, comfort of delivery rooms, privacy, cleanliness, opening times, systems of payment and referral service efficiency should be ‘user friendly.’

As compared to mothers who decided their last place of delivery by themselves, mothers whom their husband/relatives (AOR = 12.73) decided their last place of delivery were nearly thirteen more likely to choose health institution as place of delivery, this finding is consistent with the study done in North Gondar by husband (AOR = 1.2) and by relatives (AOR = 0.40) (29). The possible reason might be due if women are encouraged by husbands and relatives they would also get financial and other social supports to go to health institution which would allow them to have health care assisted delivery. This might imply that family involvement in decision making on place of delivery might increase service utilization by mothers

Strength and limitations of the study

The main strength of this study is that, being community based, it could reflect the actual experience of the mothers during the study period and no any community based study was conducted in this area before. However, the cross sectional nature of the study means that it cannot establish causal associations. The study may be affected by recall bias and/or purposive selection of study area. Lack of literatures was done in pastoralist area in our country for comparison

7. Conclusion and Recommendation

7.1 Conclusion

Even though ninety seven percent(97%) of the mothers used ANC, delivery in health institution was still low (only 25.9 percent) of them delivered at health institutions and the rest majority delivered at home with help of relatives or TBAs depicting gap between ANC and delivery care.

This study conclude that, choice of place of delivery by mothers is mainly a personal decision and preference which is significantly influenced by knowledge of mothers, educational status of mothers, antenatal care, previous experience of delivery at HI, service provided at HI, family involvement in decision making on place of delivery, previous obstetric history/complication, infrastructure and affordability of services.

7.2 Recommendation

Based on the findings of the study, the following areas were identified and specific recommendations were made.

General

- Home delivery is a common practice that would endanger the health of mothers and children. Therefore, health improvement strategies with a focus on proper information, education, communication, and empowering mothers is essential which could help them in decision making regarding their own health, being committed to use the services and able to persuade their partner and family members if they encountered opposition should be designed and implemented
- Promoting female education, especially at least primary, as well as continued health education, which lead to sustainable safer motherhood practices should be promoted.

To health care providers

- Health care providers should pay special attention on information provision on risks of pregnancy, benefits of giving birth at health institutions, danger signs during pregnancy and labor to mothers, family members and the community.
- Early booking of antenatal care clinic and completion of more than four visits need to be promoted at community level as those attending antenatal clinic early acquire enough

information about safe delivery and majority of those attending more than four visit ending up deliver in health institution.

To local health sector officials

- Special attention should be given to pastoralist area to improve accessibility of health institutions by increasing the number of health institutions as well as infrastructure.
- The effort should be made to improve service provided at health institution(need to be equipped with basic supplies and equipments)
- Maternal health services need to continuously sensitize the community so that the number of pregnant mother delivered in health institution increased to attain the National target.
- Maternity health service should available at the recommended distance and easily accessible.
- Special attempts of delivery care services should be offered to the pastoralist community mothers as a long term strategy with mass awareness program to use those services and a reimbursable maternal health voucher by the government facilities should be introduced

To community

- In the rural areas, meetings or seminars with religious leaders should be promoted as a way of short term intervention to discuss the consequences of not using health institution at delivery.
- Community members should discourage harmful traditional practices those promoted home delivery.

Research

Further research should be conducted using:

- a qualitative study approach with in depth interview or focus group discussions involving health provider to have deeper understanding of factors affecting place of delivery.

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Annex: questionnaire

Annex A: English Version of Structured Questionnaire

My name is _____ I am working as data collector of study conducted by **Edao Sinba** (*MPH student*) in collaboration with Jimma University. The objective of the study is to assess place of delivery and associated factors among pastoralist community mothers who gave birth in the past 12 months. I am going to ask you some questions that are very important for the achievement of study's objective. Your name will not be written on this form and will never be used with any information you may tell me. You don't have to answer any questions that you don't want to answer and you may end this interview at any time you want. Participation in the study is on your own voluntary basis after a thorough understanding of the information given to you. Participating in this study has no any special benefit or risk. However, your honest answer to these questions is very important for the purpose of the study. We would very much appreciate your participation in this survey by genuinely responding to the interviews. It will take ___ minutes to complete the questionnaire. If you have any problem or question on the survey you can call to +251-912-008-000.

Would you be willing to participate? 1. Yes _____ 2. No-----

If No, thank you and stop here. If yes, proceed with the next questions.

Name and Signature of the interviewer certifying that informed consent has been given verbally by respondent _____.

Date of interview _____

001. Questionnaire identification number-----

002. Interviewer code -----

003. Result: 1. Completed 2. Partially completed 97.Others (Specify)

Checked by supervisor; Name _____, Signature _____

Part One: Respondents Socio Demographic Factors			
No.	Questions	Answer	Skip to
101	Age (in completed years)	-----	
102	Highest grade completed	1. Illiterate 2. Read and write only 3. Primary(grade 1-8) 4. Secondary(grade 9-12) 5. Diploma 6. Degree and above 97.Others(specify)_	
103	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Wakefata 97. Other(specify)	
104	Ethnicity	1. Oromo 2. Amhara 3. Tigre 4. Somale 97. Other, (specify)	
105	Current marital status	1. Married 2. Divorced 3. Separated 4. Widowed 5. Never married 97. Other, (specify)	
106	Occupation	1. House wife 2. Pastoralist 97. Other, (Specify)	
107	How much do you earn per month in ETB (from this	-----ETB/month	

	occupation)?		
108	Husband's Occupation	1. Pastoralist 2. Employed by Government 97. Other, specify	
109	How much do your husband earn from this occupation?	-----ETB/month	
110	Highest grade your husband completed?	1. Illiterate 2. Read and write only 3. Primary(grade 1-8) 4. Secondary(grade 9-12) 5. Diploma 6. Degree and above 97.Others(specify)_	
111	Family income per month in ETB?	-----	
112	Family size	-----	
113	Who is the decision maker for any house hold expenditures and other activities?	1. Self 2. Husband 3. Both of us	
114	Does the household own the following?	1. Radio 1. Yes 2. No	
		2. Television 1. Yes 2. No	
		3. Fridge 1. Yes 2. No	
		4.Phone: mobile 1. Yes 2. No	
		5. Bicycle 1. Yes 2. No	
		6. Motorbike 1. Yes 2. No	
		7. Car 1. Yes	

		2. No	
		8. Farm land 1. Yes 2. No	
		9. Farm animals 1. Yes 2. No	
		10. House (from town) 1. Yes 2. No	
Part two: Respondents Health Service Factors			
201	Is there health institution in your vicinity within 5km radius?	1. Yes 2. No	2→204
202	If yes or no, how far is it?	1. ___kms 2. ___walking hours	
203	What type of health institution is it?	1. Health post 2. Health center 3. Hospital 4. Private clinic 97. Other, specify	
204	Where did you deliver your last baby?	1. At my home 2. At relative's home 3. Health post 4. Health center 5. Hospital 6. Private clinic 97. Other, specify	1 or 2 →205 3 or 4 or 5 or 6 →215
205	Was it the place you intended to deliver at?	1. Yes 2. No	1→207
206	If no, where did you intend to deliver at?	1. At my home 2. At relative's home 3. Health post 4. Health center 5. Hospital 6. Private clinic	1 or 2 →207 3 or 4 or 6 →208

		97. Other, specify	
207	If 1 or 2, why do you prefer to deliver at home? (Ask for those delivered at home only.) More than one response is possible	-----	
208	If 3-6, why did you prefer to deliver at Health institution? Ask for those who delivered at health institutions. More than one response is possible.	-----	
209	What were the reasons that made you to deliver on road? Ask for those who delivered on road	1. Lack of transport to health institution 2. Long distance to health institution 3. Sudden onset of labour 97. Other specify	
210	What was the means of transport when a pregnant mother referred to district hospital? Ask for those who had referred to hospital?	1. Local stretcher 2. On foot 3. On horse/mule back 4. Vehicles 97. Other specify	1 or 2 or 3→213
211	Were you able to afford the cost of transport when referred to another health institution? Ask for those who used Vehicles means of transport for pregnant mothers referred to hospital?	1. Yes 2. No	2→213
212	If yes, what have you done to get money to reach a required health institution?	1. Borrowed money from neighbor/ friend 2. Sell property 3. Sell a piece of land 4. Refuse referral 97. other, specify	
213	Were you happy with the services provided at your health institution?	1. Yes 2. No	1→215
214	If no, what things made you unhappy with the services provided at your facilities?	1.No drugs and supplies 2. Bad behavior of health workers 3.Lack of privacy 4. Long waiting time at health institution 5. Un availability of health care workers 97. Other specify	4→215
215	On average, how long did you wait between the time you arrived at facility and the time you got a	-----	

	provider for the consultation?					
216	Who decided your previous place of delivery	1. Self 2. Husband 3. Relatives 4. Religious leader 97. Other, specify				
217	Who decided place for your last birth?	1. Self 2. Husband 3. Relatives 4. Religious leader 97. Other, specify				
218	Now I am going to ask you some questions about the services you have received during your last delivery in past 12 months. I would like to have your honest opinion about the things that we will talk about. This information will help improve services in general.					
		Very dissatisfied	dissatisfied	neutral	satisfied	very y satisfied
01	Time you waited to see a provider	1	2	3	4	5
02	Comfort of delivery rooms at health institution	1	2	3	4	5
03	System of payments at health institution	1	2	3	4	5
04	Privacy from having others see the examination	1	2	3	4	5
05	Referral service efficiency at health institution	1	2	3	4	5
06	Availability of drugs at health institution	1	2	3	4	5
07	Opening and closing hours of service at health institution	1	2	3	4	5
08	Relationship with health provider	1	2	3	4	5
09	The cleanliness of the health institution	1	2	3	4	5
10	Being treated with respect	1	2	3	4	5
11	Experience of health provider	1	2	3	4	5
12	Attitude of health provider	1	2	3	4	5
219	Is there any traditional issue in the community that prevents women to deliver in health institutions?	-----				
Part three: Respondents Norms , Perception, Practice, Knowledge and Attitudes Factors						

a. Knowledge questions on danger sign of P&L and pregnancy risk			
301	Are you aware of any health risks a woman might experience during pregnancy?	1. Yes 2. No	2→303
302	If yes what are the risks?	1. Pregnancy related disease 2. Maternal death 3. Fetal death 97. Other specify	
303	Do you know any danger signs of pregnancy?	1. Yes 2. No	2→305
304	If yes, what are the danger signs? More than one answer is possible.	-----	
305	Do you know any danger signs of labour?	1. Yes 2. No	2→307
306	If yes, what are the danger signs do you know? Multiple responses are possible. More than one answer is possible.	-----	
307	Do you know most labor complications are preventable?	1. Yes 2. No	
308	Do you know most complications of Labour are treatable?	1. Yes 2. No	
309	Do you think giving birth at home has risks?	1. Yes 2. No	2→311
310	If yes, what risks do you know?	1. Maternal exhaustion 2. Fetal distress 3. Maternal deaths 4. Fetal/neonatal death 5. Disease transmission from attendants 6. Exposure to HTPs 7. Higher post partum Morbidity 97. other specify	
311	Do you know any benefits of giving birth at HFs?	1. Yes	

		2. No	2→313			
312	If yes, what benefits do you know?	1. Early detection of problems 2. Timely RX of problems 3. Lower maternal exhaustion 4. Better new born care 5. HTPS can be avoided 6. Lower maternal postpartum morbidity 97. Other specify				
b. Attitude /perception questions on pregnancy risk and attitude on health institution						
313		Strongly disagree	Disagree	Indifferent	Agree	Strongly agree
01	Delivery complications can be severe to my well being	1	2	3	4	5
02	Delivery complications can be hazardous to my well being	1	2	3	4	5
03	Delivery complications can be severe to the newborn.	1	2	3	4	5
04	Delivery complications can be hazardous to the newborn.	1	2	3	4	5
05	Being attended by a skilled delivery attendant is beneficial to my well being.	1	2	3	4	5
06	Being attended by a skilled delivery attendant is beneficial to the newborn's well being.	1	2	3	4	5
07	Health professionals at HFs are skilled enough to detect delivery complications.	1	2	3	4	5
08	Health professionals at HFs are skilled enough to treat or refer delivery complications.	1	2	3	4	5
09	Health institutions in nearby are adequately equipped to provide delivery service.	1	2	3	4	5
10	Health institutions in nearby are staffed with skilled professionals to provide delivery service.	1	2	3	4	5
Part Four: Respondents Medical and obstetric Factors						
401	What was the mode of your recent delivery?	1.Spontaneous vaginal delivery 2. Instrumental delivery 3. Cesarean section				

		4. I did not remember 97. Other, specify	
402	Who assisted your recent child birth?	1. Physician 2. Health officer 3. Nurse 4. Health extension workers 5. TBA 97. Other (specify)	
403	Was your recent pregnancy intended?	1. Yes 2. No	
404	Have you ever attended ANC in your recent pregnancy?	1. Yes 2. No	2→407
405	If yes, how many times did you attend for your recent pregnancy?	-----	
406	Whom did you see during your ANC visit?	1. Physician 2. Health officer 3. Nurse 4. HEW 97. other (specify)-	
407	If no, why did not you attend ANC for your recent pregnancy?	1. I didn't see any importance of antenatal clinic 2. Long distance to health institution from home 3. Bad behavior of health workers 97. Other, specify	
408	How many times you have been pregnant in your life? (Probe for abortions, still births and current conception)	-----	
409	How old were you at your recent pregnancy?	-----	
410	What were the outcomes of the pregnancies? (Ask for each item and put numbers on the space provided.)	1. Live birth 2. Abortion 3. IUFD 4. Still birth 5. Early neonatal death 6. Late neonatal death 7. Post neonatal death	

		97. Other specify	
411	What was the birth order of your recent child?	1. First 2. Second 3. Fourth 4. Fifth and above	
412	Did you encounter any health problems during labor of your recent delivery?	1. Yes 2. No 98. I don't remember	2 0r 98→414
413	If yes, what were the problems? More than one answer is possible.	-----	
414	Did you encounter any health problems during delivery of your recent delivery?	1. Yes 2. No 98. I don't remember	2 0r 98→416
415	If yes, what were the problems? More than one answer is possible.	-----	
416	Did you encounter any health problems immediately after birth during your recent delivery?	1. Yes 2. No 98. I don't remember	2 0r 98→418
417	If yes, what were the problems? More than one answer is possible.	-----	
418	What measures were taken to alleviate the problem?	1. Taken to health institution 2. Took traditional medicine 3. Consulted TBA 4. No action taken 97. Other, specify	
419	If you were taken to HF, were you referred further?	1. Yes 2. No	1→421
420	Have you ever given birth at HF's before your recent birth?	1. Yes 2. No 98. I don't remember	
421	If yes, in how many births?	-----	

Annex B: Afan Oromo version questionnaires.

Walii galtee

Nagaa: bultanii/ooltanii?

Seensa;

Maqaan koo _____ yoo ta’u qorannoo barataa **digrii 2ffaa** kan ta’e obbo **Eda’oo Sinbaa Yuunivarsiitii Jimmaa** wajjiin ta’uun gaggeessuf akka raga fuunanaa ta’e hojjacha jira. Kaayyoon qorannoo kanaa hawaasa horsiise bulaa keessatti haadhonii **ji’a 12** dura dahaniif **Iddoo Daa’umsaa Fi dhimmoota murteessa isaa ta’an** qorachuu/ addaan baasuuf dha. Amma gaaffillee muraasa kan milkaa’inna kaayyoo qorannoo kanaaf baayeee murteessa ta’an isin gaafachuuf deema. Maqaan keessan guca kana irrattii hin-barreeffamu, akkasumas gonkumaa ragaa naa kennitan walin qabsifamees itti hin-fayyadamamu. Gaaffiin isin deebisuu hin-barbaadne yoo jiraate dhiisuun mirga keessan ta’ee yeroo barbaaddanis gaaffii fi deebii gaggeessinu dhaabuu ni-dandeessu. Raga isiniif kenname sirritti erga hubattanii booda qorannoo kanaaf hirmaannaan keessaan kan fedhii keessan irratti hunda’e dha. Qorannoo kana iraatti hirmaachuun faayidaa ta’e miidha adda hin qabaatu. Haa ta’u malee, gaaffilee hundaaf deebiin sirrii ta’e kaayyoo qorannaa kanaaf baay’ee barbaachisa dha. Gaaffii fi deebii kana keessatti qorannoo kanaaf deebii haqaa /sirrii kennuun hirmaachuu keessan baayee dinqisiifanna. Gaaffii fi deebii kana xumuruuf daqiiqaa _____ nutti fudhata. Yoo rakkoo ykn gaaffii qorannoo kana iraatti qabaatte bilbila **0912008000** kanaan bilbiluu ni dandeessu.

Hirmaachuuf fedhii qabduu? 1. Eeyyee _____ 2. Lakkii _____

Yoo lakii ta’e, galatooma jedhi asumatti dhaabi. Yoo eeyyee ta’e, gaaffii itti aanuun itti fuufi

001. Lakkoofsa waraqaa gaaffii _____

002. Maqaa nama gaafatuu _____

003. Guyyaa gaaffii fi deebii _____

004. Firii: 1. Hundi guutame 2. Walakkaa guutame 97. Kan biraa (Ibsi) _____

Kutaa Tokkoffaa: Gaaffilee dhimmoota Hawaasummaa Fi Dinagdee			
No.	Gaaffiwwan	Deebii	Irra utaali/ce’i
101	Umrii kee (waggaan)	-----	
102	Sadarkaa barnoota kee	1. Hin baranee 2. Dubbisuu fi barreessu qofa 3. sadarkaa 1ffaa(1-8) 4. sadarkaa 2ffaaa(9-12) 5. Dipiloomaa 6. Digrii fi isaa oli 97. kan biro, ibsi, _____	
103	Amantaa	1. Ortodoksii 2. Musliima	

		fkk)	1. Eeyye 2. Lakki	
		10. Mana magalaa	1. Eeyye 2. Lakki	
Kutaa 2ffaa : Gaaffillee Dhimmoota Tajaajila Fayyaa				
201	Naannawwa keessan kanatti fageenya km 5 irratti dhaabbani fayya ni argamaa?	1. Eeyyee 2. Lakkii		2→203
202	Yoo eeyyee ykn lakki ta'e, tilmaaman hangam isin irraa fagaata?	1. ___kiloomeetiraan 2. ___deemsaa sa'aan		
203	Gosti dhaabbata Fayyaa maal?	1. Keella Fayyaa 2. Buufata Fayaa 3. Hospital 4. Kilinika dhuunfaa 97. Kan biro, ibsi		
204	Daa'ima kee kan quxxiso/dhumaa kana eessatti deesse??	1. Mana kootti 2. Mana fira kootti 3. Keella fayyaa 4. Hospitaala 5. Buufata fayyaa 6. Kilinika dhuunfaa 97. Kan biro, ibsi		1 or 2 →205 3 or 4 or 5 or 6 →215
205	Iddoo kun bakka ati itti dahuuf niyyatte/ yaaddee?	1. Eeyyee 2. Lakkii		1→207
206	Yoo lakkii ta'e, eessatti dahuuf niyyatte /yaaddee turte?	1. Mana kootti 2. Manafira kootti 3. Keella fayyaa 4. Hospitaala 5. Buufata fayyaa 6. Kilinika dhuunfaa 97. Kan biro, ibsi		1 or 2 →207 3 or 4 or 5 or 6→208
207	Yoo deebii kee 1 ykn 2 ta'e, Maaliif manatti dahuu filattee? Deebii tokko oli ni danda'ama	-----		
208	Yoo deebiin kee 3 ykn 4 ykn 5 ykn 6 ta'e, Maaliif dhaabbata fayyaatti dahuu filattee? Deebii tokko oli ni danda'ama	-----		
209	Sababni akka karaa irratti deessu si godhe maal ture? (waroota karaa irratti dahan qofa gaafadhu	1. Geejjibni dhaabbata fayya geessu waan hin jirreef 2. karaan dhaabbata Fayyaa geessuu dheera waan ta'eef 3. Ciniinsuun waan tasa jalqabeef 97. Kan biro, ibsi		
210	Yeroo haadhooliin ulfa gara hospitaalaa aanotaatti oli ergaman gosa geejjiba akkam fayyadamtu? Haadhoolii gara hospitaalaatti oli ergamanii turan gaafadhu	1. Algaan baadhatamnee 2. Lukaan 3. Fardaan/Gaangeen 4. Konkolaatan 97. Kan biro, ibsi		1 or 2 or 3→213
211	Yeroo haadhooliin ulfaa gara dhaabbata fayyaa birootti ergaman baasii geejjiba dandeessanii kafaltu ture? Haadhoolii ulfaa gara hospitaala oli ergaman gosa geejjiba konkolaataa fayyadamanii turan gaafadhu	1. Eeyyee 2. Lakki		2→213
212	Yoo eeyye ta'e, Qarshii dhaabbata fayya itti oli ergamtan gahuuf isin barbaachisu karaa akkamiittin argachu dandeessu?	1. Ollaa/ hiriya irra liqeeffachuun 2. Qabeenya qabnu gurguruun 3. Lafaa qabnu irra xiqqoo gurguruun		

		4. Gara dhaabbata Fayyaa birootti oli ergamuu diduun 97. kan biro, ibsi				
213	Taajajila dhaabbatni Fayyaa keessan kenna turetti gammaddee turte? Haadholii ulfaa tajaajila argatanii turan gaafadhu	1. Eeyye 2. Lakki	1→215			
214	Yoo lakki ta'e, Taajajila dhaabbatni Fayyaa keessan kenna turetti maaltu akka hin gammanne si godhe?	1. qorichaa fi raabsi qorichaa waan hin jirreef 2. Ogeeyyin fayya amala gaarii waan hin qabneef 3. Iccitiin waan hin eegamneef 4. Dhaabbata fayyaatti yeroo dheera waan turaniif 5. Ogeessi Fayyaa waan hin argamneef 97. Kan biroo, ibsi	4→225			
215	Tilmaaman, Sa'aan ergaa dhaabbata Fayyaa dhaqabdan kaasee hanga ogeessa tajaajila gorsa kennu argachu jiddutti eeguuf turtan hangam?	-----				
216	Tajaajila dhaabbata fayyaatti kanaan dura fayyadama turte eenyutu murteessa? Haadhooli kanaan dura dhaabbata fayyaatti dahaan gaafadhu.	1. Ofii kooti 2. Abbaa warraa kooti 3. Fira kooti 4. Hooggana amantiiti 97. Kan biroo, ibsi				
217	Iddoo daa'umsa kan daa'ima kee booda kana eenyutu murteesse?	1. Ofii kooti 2. Abbaa warraa kooti 3. Fira kooti 4. Hooggana amantiiti 97. Kan biroo, ibsi				
218	Amma kan si gaafadhu itti quufinsa tajaajila daa'umsa kan daa'ima quxxisoo/dhumaa kanaaf ji'a 12 dura siif godhame irratti qabdu beekuuf ta'a. Wantoota haasaahuuf deemnu kana irratti yaada keessan isa haqa ta'e barbaada. Ragaan isin irra argamu kun tajaajila walii gala fooyyessuuf ni fayyada.					
		Baayee itti hin gamanne	Itti hin gamm	Jiddugaleessa	Itti Gamadeere	Baayee itti gamadeera
01	Sa'aa ogeessa eeguuf turtan	1	2	3	4	5
02	Mijaa'iinsa kutaa da'uumsaa mana yaalicha	1	2	3	4	5
03	Sirna kafalti mana yaalichaa	1	2	3	4	5
04	Yeroo yaalii kennamu iddo dhokata namni hin argine fi iccitii qabutti yaalamuu	1	2	3	4	5
05	Tajaajila rifaraala gaha mana yaalicha	1	2	3	4	5
06	Qorichaa gaha qabaachuu mana yaalicha	1	2	3	4	5
07	Sa'aa baniinsaa fi cuufiinsa irratti kenninsa tajaajila mana yaalicha	1	2	3	4	5
08	Hariiroo ogeessa tajaajila kun wajjiin jiru	1	2	3	4	5
09	Qulqullinna mana yaalicha	1	2	3	4	5
10	Kabajaan yaalamuu	1	2	3	4	5
11	Muuxannoo ogeessa tajaajila kennu	1	2	3	4	5
12	Ilaalcha ogeessa tajaajila kennu	1	2	3	4	5
219	Naannoo kanatti aadaan haadholii akka dhaabbata fayyaatti hin deenne dhoorku ni jira?	-----				
Kutaa 3ffaa: Gaaffillee dhimmoota ilaalcha fi beekumsa						

a. Gaaffilee beekumsa waa'ee mallatto dhibee cima yeroo ulfaa fi ciniinsuu akkasumas rakkoo daa'umsa						
301	Rakkoolee Fayyaa yeroo ulfaa haadholi mudachuu danda'an hubannoo ni qabda?	1. Eeyyee 2. Lakkii				2→303
302	Yoo eeyyee ta'e rakkooleen kuniin eenyuu fa'a?	1. Dhibee ulfaan wal qabatan 2. Du'a haadholii 3. Du'a fiitasii 97. Kan biroo ibsi				
303	Mallattoolee dhibee cimaa yeroo ulfaa ni beekta?	1. Eeyyee 2. Lakki				2→305
304	Yoo eeyye ta'e, Mallattooleen dhibee cimaa ati beektu kuniin eenyu fa'a? Deebii tokko oli ni danda'ama.	-----				
305	Mallattoolee dhibee cimaa yeroo ciniinsu ni beekta?	1. Eeyyee 2. Lakki				2→307
306	Yoo eeyye ta'e, Mallattooleen dhibee cimaa ati beektu kuniin eenyu fa'a? Deebii tokko oli ni danda'ama	-----				
307	Dhibee hamaata/walxaxaa ciniinsu ittisunn ni danda'ama?	1. Eeyye 2. Lakki				
308	Irra caalaan Dhibee hamaata/ walxaxaa ciniinsu akka yaalamu danda'an ni beekta?	1. Eeyye 2. Lakki				
309	Manatti dahuun rakkoo qaba jette ni amantaa/yaada?	1. Eeyye 2. Lakki				1→309 2→310
310	Yoo eeyye ta'e, rakkoon at beektu maal fa'a?	1. laafuu/ dadhabu Haadha 2.Ukkamamu Daa'ima 3. Du'a haadha 4. Du'a Fiitasii 5.Dhukkuba deessistu aadaa irra darbu danda'uu 6. Aadaa duubatti hafa miidhaa geessissuf Saaxilamu 7.Dhukkubbi olaana daa'umsa booda 97. Kan biroo, ibsi				
311	Faayida mana yaalatti dahuun argamu ni beektu?	1. Eeyyee 2. Lakki				2→315
312	Yoo eeyye ta'e, faayida akkam fa'a beekta?					
b. Gaaffilee ilaalchaa rakkoo daa'umsaa fi dhaabbilee Fayyaa irratti						
313		Gonkuma hin amanu	Hamma tokko hin amanu	Yaada homa hin qabu	Hamma tokko ni amana	Sirritti ni amana
01	Dhibeen daa'umsa walxaxaa /hamaata fayya kootiif hamaa ta'u ni danda'a	1	2	3	4	5
02	Dhibeen daa'umsa walxaxaa /hamaata fayya kootiif balaa ta'u ni danda'a	1	2	3	4	5
03	Dhibeen daa'umsa walxaxaan /hamaatan fayya daa'imaa kootiif hamaa ta'u ni danda'a	1	2	3	4	5
04	Dhibeen daa'umsa walxaxaan /hamaatan fayya daa'imaa kootiif	1	2	3	4	5

	balaa ta'u ni danda'a					
05	Ogeessa ogumma deessisu qabu harkaati dahuun fayya kootiif faayida olaana qaba	1	2	3	4	5
06	Ogeessa ogumma deessisu qabu harkaati dahuun fayya daa'ima kootiif faayida olaana qaba	1	2	3	4	5
07	Ogeeyyin Fayyaa mana yaalicha ogummaa gahaa rakkoo walxaxa/hamaata daa'umsaa addaan baasuu dandeessisu kan qabanii dha.	1	2	3	4	5
08	Ogeeyyin Fayyaa mana yaalicha ogummaa gahaa rakkoo walxaxa/hamaata daa'umsaa yaaluu ykn gara oli aanu ergu dandeessisu kan qabanii dha.	1	2	3	4	5
09	Dhaabileen Fayyaa naannawa keessanitti argaman tajaajila daa'umsa gaha kennuuf sirritti kan guutamanii dha	1	2	3	4	5
10	Dhaabileen Fayyaa naannawa keessanitti argaman taajajila daa'umsa kennuuf ogeeyyii gahuumsa ogummaa daa'umsaa gonfataniin kan guutamanii dha.	1	2	3	4	5
Kutaa 4ffaa: Gaafillee dhimmoota Yaalaa fi yaala gadaameessa						
401	Haalli daa'umsa kee inni booda kana akkamiin ture?	1.Uumamaan meeshaa deeggarsa daa'umsa malee 2. Meeshaa deeggarsa daa'umsaatiin 3. Opiraasoonii 4. Hin yaadadhu 97. Kan biroo, ibsi				
402	Daa'ima kee isa booda kana eenyu tu deessise?	1. Doktora 2. Qondaala fayyaa 3. Narsii 4. Hojjattu exteenashiin fayyaa 5. Deessistu aadaa 97. Kan biroo, ibsi				
403	Ulfi kee kan booda kun itti yaadamee/ niyyaan ture?	1.Eeyye 2. Lakki				
404	Ulfa kee kan booda kanaaf tajaajila daa'umsa dura hordofte turte?	1. Eeyye 2.Lakki				2→407
405	Yoo eeyye ta'e, si'a hangam hordofte?	-----				
406	Hordoffi daa'umsa dura kee irratti eenyu tu si laale ture?	1. Doktora 2. Qondaala Fayyaa 3. Narsii 4. Ogeetti exteenashiin Fayyaa 97. Kan biroo, ibsi				
407	Yoo lakki ta'e,maaliif hordofuu dhiiste? Deebii tokko oli ni danda'a	-----				
408	Jalqaba hanga ammaatti si'a meeqa ulfoofte? (Ulfa amma, kan garaa bahee fi kan dhaltee du'e qabatee)	-----				
409	Ulfa kee isa booda kana irratti umriin kee meeqa ture	----- waggaa dhaan				
410	Xumurri ulfa keeti maal ture? (Jecha tokko tokkoon gaafadhu lakkofsa bakka duwwa irratti kaayi	1. lubbuun ni jira 2. Garaa bahe 3. Gadameessa keessatti du'e 4. Osoo hin dhalate torbee 28ffaa irratti du'e 5. dhalatee guyya 7 jiddutti du'e				

		6. dhalatee guyya 7 fi 28 jiddutti du'e 7. Dhalatee guyyaa 28 fi waagga tokko jiddutti du'e 97. Kan biroo, ibsi	
411	Daa'imni booda deesse kun daa'umsa kee meeqaffa?	1. tokkoffaa 2. lamaffaa 4. Sadaffaa 3. Araffaa 4. Shanaffaa fi isa oli	
412	Rakkoon Fayyaa kamiyyuu daa'umasa kee kan booda irratti yeroo ciniinsu si mudate ture jira?	1.Eeyye 2. Lakkii 98. Hin yaadadhu	2 0r 98 →414
413	Yoo eeyyee ta'e, rakkoon ture maal? Deebii tokko oli ni danda'ama	-----	
414	Rakkoon Fayyaa kamiyyuu daa'umasa kee kan booda irratti yeroo daa'umsaa si mudate ture jira?	1.Eeyye 2. Lakkii 98. Hin yaadadhu	2 0r 98 →416
415	Yoo eeyyee ta'e, rakkoon ture maal? Deebii tokko oli ni danda'ama	-----	
416	Rakkoon Fayyaa kamiyyuu daa'umasa kee kan booda irratti erga deesse booda battalumatti si mudate ture jira?	1.Eeyye 2. Lakkii 98. Hin yaadadhu	2 0r 98 →418
417	Yoo eeyyee ta'e, rakkoon ture maal? Deebii tokko oli ni danda'ama	-----	
418	Rakkoo kana furuuf tarkaaniif akkam fudhatte? Deebii tokko oli ni d	-----	
419	Yoo mana yaalaatti geeffamte, akka yaala caala argattu gara mana yaala oli aanu ergamte turte?	1. Eeyye 2. Lakki	1→421
420	Daa'umsa kee isa booda kana dura dhaabbata fayyaatti deesse beekta?	1. Eeyye 2. Lakki 98. Hin yaadadhu	
421	Yoo eeyye ta'e, Daa'umsa meeqa mana yaalatti deesse?	-----	

GALATOOMA!!