ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
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Assessments of the Magnitude and Determinant factors of Institutional Delivery among Mothers who Utilized antenatal care in the Case of SodoWoreda, Gurage Zone, SNNPR

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List of Abbreviations and Acronym

ANC ---------- Antenatal Care

AOR ---------- Adjusted Odds Ratio

CI ----------Confidence Interval

CSA ----------Central Statistics Agency

DHS ----------Demographic and Health Survey

HF---------- Health Facility

HI ----------Health Institution

GOV'T ----------Government

MCHS ----------Maternal and Child Health Services

MCS ----------Maternity Care Services

MMR ----------Maternal Mortality Ratio

OR ----------Odds Ratio

PNC ----------Postnatal Care

SD ----------Standard Deviation

SNNPR ----------Southern Nations Nationalities and Peoples Region

SPSS ----------Statistical Package for Social Sciences

SSA ----------Sub-Saharan Africa

TBA ----------Traditional Birth Attendant

UNICEF ----------United Nations Children's Fund

WHO ----------World Health Organization

Abstract

Background: -Maternal death from preventable causes related to pregnancy and child birth is unacceptably high. Institutional delivery plays an important role to avert maternal death from such causes. Only16% of women delivered at health facility by 2014 in Ethiopia. Therefore, themainaim of this study is toassess the magnitude and determinantsof utilization of institutional delivery among mothers who utilized antenatal carein SodoWoredaGurage Zone, Southern Ethiopia.

Methods: A community based cross-sectional study was conducted in selected kebele of SodoworedaGurage zone. By using systematic sampling technique, a total of 559 eligible mothers were included in the study. The data were collected using interviewer administered structured questionnaire. Data were entered into EPI data 7.0 computer programs and analyzed using SPSS version 21. Crude and adjusted odds ratios were calculated through simple and binominal multiple logistic regressions model.

Result: Out of the 559 respondents, only 366 (65.5%) gave birth to their last child at health facility.Maternal educational status[AOR =5.52;95% CI; 1.45, 20.94,time travel on foot from the nearbyhealth center [AOR = 3.57; 95% CI; 1.57, 8.19],number of ANC visits at last pregnancy [AOR = 4.54; 95% CI; 2.00, 10.31], autonomy to decide their place of delivery lonely or jointly with their husband [AOR = 7.58; 95%CI; 4.10, 14.08], and accessibility of transportation service [AOR =2.65;95% CI; 1.67, 4.20] were found to be significantly associated with the institutional delivery service utilization.

Conclusion: The institutional delivery rate in this study was higher than the national and regional report by 2014 but less compare to ANC usersto this study area. The major factors that were significantly associated with this low utilization of institutional delivery were maternal level of education , time taken to reach the nearby by health facility, maternal autonomy on deciding place of delivery, accessibility of transportation and the frequency of ANC

Information, education, communication, and empowering mothers is essential, and 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.And expansion of facility delivery & transport service to address the need of mothers.

1. Introduction

1.1 Background

A skilled attendant is defined as an accredited health professional - such as a midwife, doctor or nurse - who has been educated and trained in the skills needed to manage normal pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns (1)

There is global consensus on what must be done to improve maternal health. The importance of skilled care during pregnancy, childbirth and the immediate postnatal period has been recognized as crucial for the birth outcome (2). Birth can take place in a range of appropriate places, from home to a range of health facilities, depending on availability and need.

The World Health Organization does not recommend any particular setting and state that home delivery may be appropriate for normal delivery, provided that the woman is assisted by a person who is suitably trained and equipped and that referral to a higher level of care is an option(2).

1.2Statement of the problem

“Multi-agency report on trends of maternal mortality estimated maternal deaths as low as160,000 and as high as 290,000for the period 1999-2013. The same report estimated global life time risk of maternal mortality (probability of a 15- year- old woman dying from maternal cause) to be 1 in 190. The problem is much serious in sub-Saharan Africa where risk of maternal death estimated at 1out of 38. The same report documented that Ethiopia is one of the countries with high maternal death, with an estimated life time risk of 1woman out of 52 dyingin connection to pregnancy, delivery and postpartum(3).”

Despite its vital importance on prevention or reduction of maternal mortality and newborn the proportions of birth attended by skilled health provider differ across the sub region of the world which is evidenced by: - Nearly all births in developed countries, 61.9% in less developed countries, 35.3% in the least developed countries and 33.7% births in eastern Africa were attended by skilled health personnel. Utilization of skilled birth attendant service at national level is also very low as evidence from 2014 EMDHS which revealed it as only 16% and the same is in southern nation nationality people region which was less than 16% (14.9%) (5).

Looking at the policies on institutional delivery, there is national and international effort on reduction of maternal mortality in developing countries which have focused primarily on training and developing skilled birth attendants and upgrading emergency obstetric care facilities (8). There are also different initiatives at national and international level like Safe Motherhood Initiative that focused on the reduction of pregnancy and childbirth related maternal mortality through enhancing institutional delivery. But maternal mortality during pregnancy and delivery is still recognized as the major public health problem of Ethiopia and SNNPR too.

Looking at the determinants; maternal education, household wealth, birth order, and exposure to mass media, distance, maternal age, parity, and marital status and place of the residence, ANC utilization and other service related factors were identified as factor that have positive and negative association with utilization of institutional delivery. But what we observed in our country in 2014 (EMDHS), the magnitude of antenatal care utilization is 41% but the magnitude of institutional delivery is 16 % (14.9% in the case of SNNPR) (5). Hence these data raise the

question of why the magnitude of mother who utilized institutional delivery is very low despite their high utilization of ANC. This research, therefore, aimed to explore factor affecting utilization of institutional delivery among mothers who utilized ANC.

1.3Rationale of the study

Even if mothers are the backbone of child and country development, they are dying of delivery associated complication due to lack of skilled birth attendant service utilization which cannot be solved if we aren't aware of the determinant factor upon it. Nationally the magnitude of antenatal care utilization is 34% but the magnitude of institutional delivery is 16% (14.9%) in the case of SNNPR(5). These data raise the question of why the magnitude of mother who utilized institutional delivery is very low despite their high utilization of ANC. Hence, to explore the barriers for institutional/ skilled birth attendant service utilization in mothers who have ANC follow up is one of the justifications to this research.

1.4 Significance of the study

Knowing the magnitude and determinants on utilization of institutional delivery service at the local level is very crucial for policy makers, planners and other collaborators to design a series of well timed interventions. Therefore this study can serve as an input for policy makers and planners. There is no muchstudy conducted on hindrance factor to institutional delivery among ANC follower across the country and in Sodoworeda too. Hence, there is a need to carry out a research to fill this gap. Furthermore, this study can be used as a base line data for further study.

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2. Literature review

A skilled birth attendant is defined as an accredited health professional - such as a midwife, doctor or nurse - who has been educated and trained in the skills needed to manage normal pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns (1). The importance of skilled care during pregnancy, childbirth and the immediate postnatal period has been recognized as crucial for healthy birth outcome (2).

Birth can take place in a range of appropriate places, from home to a range of health facilities, depending on availability and need. The World Health Organization does not recommend any particular setting and state that home delivery may be appropriate for normal delivery, provided that the woman is assisted by a person who is suitably trained and equipped and that referral to a higher level of care is an option (2)

Although there are argument on the safety and women's right of choice on home delivery, institutional delivery/ skilled birth attendant continues in the developed countries, an adverse outcome ofhome delivery, such as high maternal and perinatal mortality, was documented in developing countries (13, 14). Home deliveries in developed countries are assisted by a skilled professional most of the time, and referral to a higher level of care is a realistic option in most cases. The majority of deliveries in developing nations are conducted at home without the assistance of a physician, nurse, or a midwife, and referral to higher level of care is often difficult or impossible. (2)

Multi-agency report on trends of maternal mortality estimated maternal deaths as low as 160,000 and as high as 290,000 for the period 1999-2013. The same report estimated global life time risk of maternal mortality (probability of a 15- year- old woman dying from maternal cause) to be 1 in 190. The problem is much serious in sub-Saharan Africa where risk of maternal death estimated at 1out of 38. The same report documented that Ethiopia is one of the countries with high maternal death, with an estimated life time risk of 1woman out of 52 dying in connection to pregnancy, delivery and postpartum (1-3).

Place of delivery is an important aspect of reproductive health care and often determines the quality of care received by the mother and infant. Since 13%–33% of maternal deaths could be averted by the presence of a skilled birth attendant the presence of a trained health-care worker during delivery is crucial in reducing maternal deaths (11). Globally, the proportion of delivery by skilled birth attendant is increased from 58% to 68% from 1990 to 2008 but remained at only about 50 percent Africa (7).

One of the targets of Ethiopian Reproductive Health Strategy is to increase the proportion of births attended by skilled health personnel either at home or in a facility to 60% by 2015 (12). But the proportion of institutional delivery is very low in Ethiopia compared to countries in sub-Saharan Africa. In 2014 EMDHS revealed that only 16% of births were delivered by the assistance of a skilled attendant at national level and 14.9 at SNNPR (5).

2.1 Factor affecting the utilization of skilled birth attendant

2.1.1 Socio-demographic characteristic and distance

Most study revealed that socio-demographic and distance factors have a significant association with utilization of institutional delivery/delivery with skilled birth attendant. Bolam et al. (1998) have reported that multiparty and lower maternal education is associated with home delivery (15).

In rural Nigeria; maternal education, occupation, religion and occupation of the husband were found to be most consistently associated with the use of health institutions for delivery but maternal age; parity, marital status and place of the residence have not significant association (16).

The distance to the maternity hospital has been reported to be more important in maternity care than other general curative health services (17). A cross-sectional Study done in Nepal revealed that the long physical distance of more than one hour to the maternity hospital acted as a barriers to hospital delivery but cultural characteristics like ethnicity, size of the family, or who is head of household or obstetric history have little influence or are not risk indicators for the place of delivery (18). Hence, they conclude that distance to the facility may be overcome depending on the perceived severity of the reason for referral (18).

Secondary data analysis done by AsmeretMoges identified that several significant factors that determine utilization of skilled birth attendant. These include maternal education, household wealth index, birth order, and exposure to mass media (20). Similar cross-sectional studies also re strengthens low level of education and Place of residence as an important predicator of place of delivery (20-24).

2.1.2 Service relatedfactor and utilization of skilled birth attendant

Comparable study in different part of the world showed that provider attitude and low technical quality of care explain the heterogeneity in utilization of skilled birth attendant in an area where facilities are closer to rural households. Women consider that shortages of qualified staff, problems with staff motivation, inconsistent supply of drugs and equipment are problematic in obstetric care (20-25). Secondary data analysis done by AsmeretMoges identified that Antenatal service utilization have a significant effect on utilization of institutional delivery care (21).

A study in India showed that women with a relatively high level of antenatal care had almost four times higher odds of using trained assistance at delivery than women with a low level of care(28).To criticize on reviewed epidemiological studies, none of them examine the determinants of low utilization of institutional delivery among ANC follower.

3. Conceptual framework

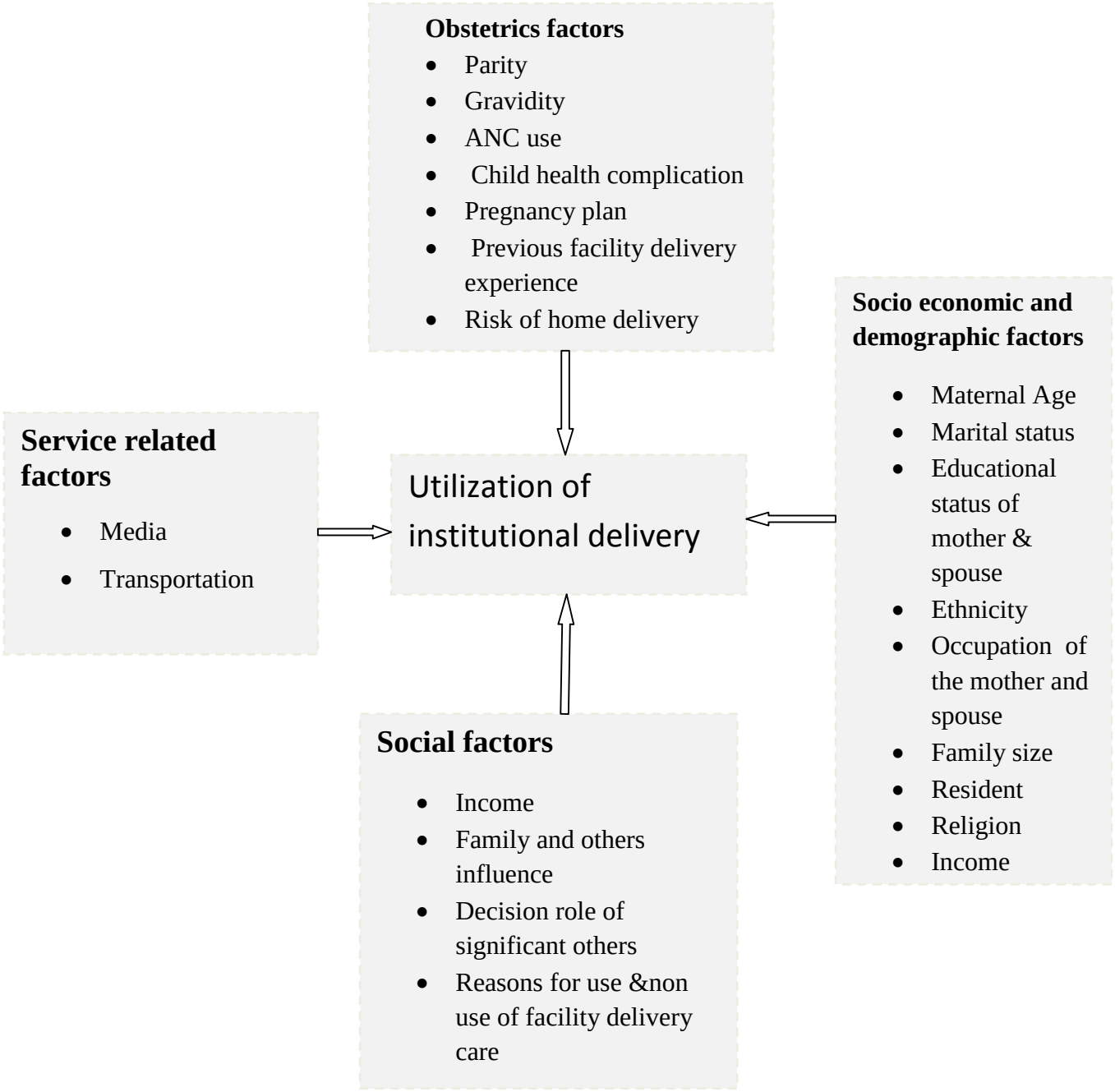

Figure 1 conceptual frame work

4. Objective

4.1 General objective

- To assess the magnitude of institutional delivery and its associated factors among mothers who had ANC in SodoWoreda, Gurage Zone, and SNNPR, 2014.

4.2 Specific objective

- To determines the magnitude of institutional deliveryutilization among mothers who got ANC in SodoWoreda, 2014.
- To identifies factors affecting utilization of institutional delivery among mothers who got ANC and gave birth to a child in SodoWoreda, 2014

5. Methods

5.1 Study area and period

The study was conducted in Sodo district of Gurage zone in Southern Nation Nationalities and Peoples Region. The area is located 105 km south of Addis Ababa. The area of the district is 88,553.3 hectare and it constitutes 58 kebele. According to unpublished district health bureau 2014 report the total estimated population of the district was 176,106 and from which 149,690 (85%) were residing in rural areas and the rest 26416 (15%) were residing in urban areas. The vast majority of the district population follows the Christian religion (Orthodox). Agriculture is the main means of livelihood for the rural population of Sodo district.

The district had 8 health centers with 54 satellite health posts. Referral of patients may be made to Butajira Hospital (zonal hospital) andHospitals at the region of Addis Ababa. Maternal health services provided in the district includes Antenatal, delivery & postnatal care and family planning.At the same physical year, ANC (1st&4th), delivery (facility & home), postnatal and family planning coverage of the district was (80 & 60 %), (30 &35%) 78% & 76% respectively. Government's facility in the district also staffed with 9 health officers,75 nurses of whole category,103 health extension workers,14 environmental health workers, 7 pharmacy technician and 6 laboratory technicians This study was conducted from April 20, May 20, 2015.

5.2 Source population

All mothers who had ANC service and had a child younger than one year and live in SodoWoreda.

5.3 Study population

All mothers in a selected kebelewho had ANC service and gave birth in the last one year.

Inclusion criteria

- ✓ Mothers who got ANC service and have a child younger than or equal to one year of age
- ✓ Mother who have been Living in Sodoworeda for at least six month

Exclusion criteria

- ✓ Mothers unable to speak, severely and mentally ill was excluded

5.4Study design

Community based cross sectional study design was used to assess the magnitude and determinant factors of institutional delivery.

5.5 Sample size determination

For objective one the required total sample size was calculated by using single population proportion formula in EPI INFO 7.0. The following assumptions were considered to come up with the final sample size for single population.

- 95% confidence level
- Expected frequency =10%(EDHS 2011)
- Margin of error(confidence limit)=3.5%
- Design effect =1.5
- Based on the above assumptions, with additional 10% for non response rate,thetotalsample size required was equal to 446

Sample size for the second objective was calculated through statistical program of epi- info Version 7.0 by taking account the major variable to be investigatedSince, the total sample size calculated for two population proportion was greater than the one which calculated for single population proportion, it taken as a final sample size which was equal to 571.

Table 1: Tabular presentation of sample size for the second objective (ref 28)

Major variable to be studied	Assumption taken to calculate their respective sample size					Total sample size with10 % non respon se
	Two sided Confidence level	Pow er	Odd ratio	Proportion of outcome among unexposed	Ratio of unexposed to exposed	
Lack of maternal education	95%	80%	2.23	14.1	1	571
Living in rural residence	95%	80%	2.23	14.2	1	446

5.6 Sampling techniques and procedures

There are 58 kebeles (54 rural and 4 urban) in Sodo district. Out of the 58 kebeles, one urban and 13 rural kebeles) which account 24% of the total kebeles were randomly selected by using lottery method. Pre-census was done before the actual day of data collection to knoweligible mothers in the selected kebeles. Sample selection was taken by allocation of the calculated total sample size (571) to the respective selected kebelesproportionally. Sampling frame was formed. Study participant in each kebele was selected by systematic sampling technique. The first study participant was selected by lottery method and the second participant was selected in k^{th}interval.

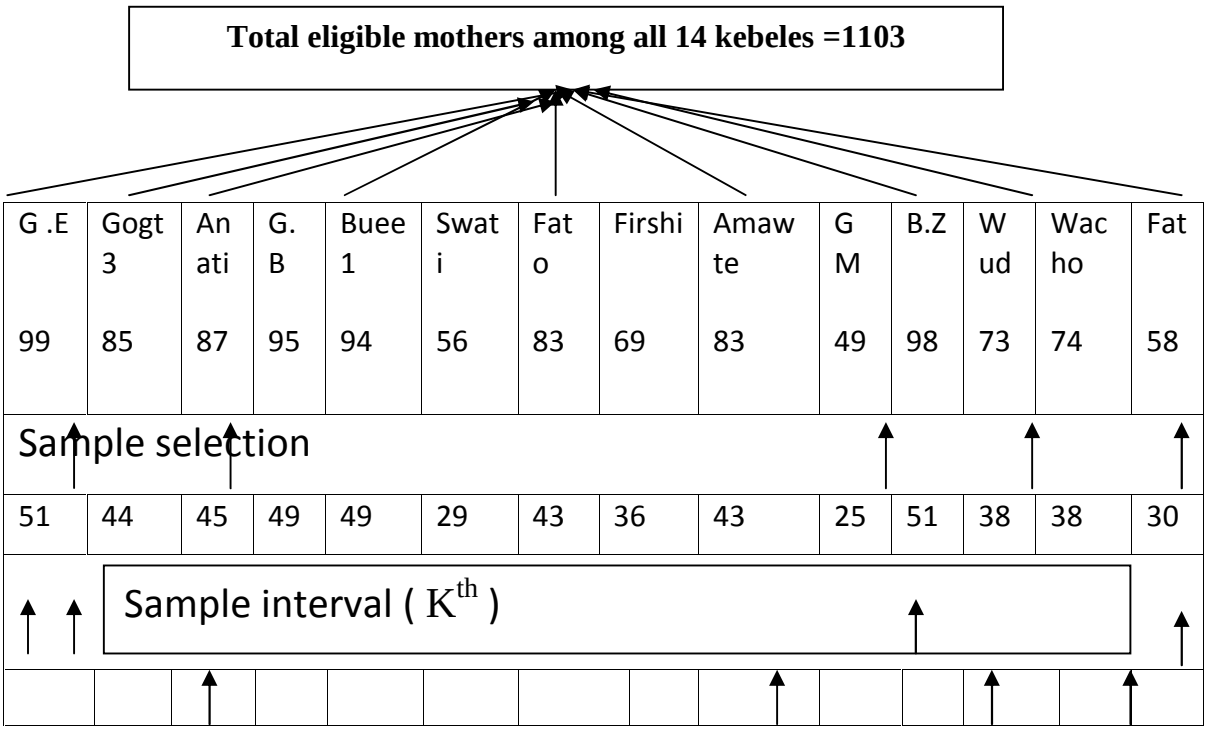

Figure 2: sampling technique and procedure

N.B. G.E= Gerenoenesetekil, Gog3=Gogeti3,GB=Gerenobetwenz , GM= Genete Mariam BZ= Bui zuria, wud=wudgenet, Fat = Fato

5.7Data collection procedure

5.7.1 Data collection instrument

Structured interviewer administered questionnaire was adapted from literature. The questionnaire consisted of questions that measure ANC utilization, socio-economic and demographic factor, obstetric characteristics and health service factors. Since it was written in an English version it was translated in to Amharic version for common understanding. Finally, reviewed and pretested Amharic version was used for data collection. By depending on previous experience on data collection activity, supervision and local language speaking seven diploma nurses who completed grade 12(preparatory) and two BSc (male and female) nurses were recruited from Sodo district of Gurage Zone.

5.8 Data quality management

To ensure the quality of data two days training was given for both the data collectors and Supervisors on the objective of the study, methods of data collection, and data coding. The questionnaire was pre tested on 10% of the sample size out of study area population with similar characteristics to check its functionality. Both the supervisors and data collectors were involved in the pre test. An amendment on unclear questionnaires and the sequences of questionnaire were made accordingly. The data collectors were closely supervised. Incomplete questionnaires were checked and refilled.

5.9 Study variables

Dependent variable **Independent variables**

Utilization of institutional delivery

Religion

Marital status

Residence

Ethnicity

Maternal age

Maternal occupation

Maternal level of education

Paternal level of education

Having health information source

Family size

Transportation service access

Family influence

Decision maker upon place of delivery

Time travel on foot

Parity

History of still birth

Frequency of ANC

Having pregnancy plan

Age at marriage

Age at first pregnancy

Age at last pregnancy

5.10Operational definitions

ANC utilization: - Having at least one visit for ANC.

Institutional delivery: - Giving birth in public or private health institution like clinic, health center and hospital

Traveling time: - the time to reach health facility from home on foot.

Autonomy to have decision making power: - A women is said to have decision making power on the place of delivery if she alone or with her husband decide the place of birth.

Autonomy to not have decision making power: - A women is said not to have decision making power on the place of delivery if her husband or family decide the place of birth

5.11 Data analysis

The collected raw data was entered in EPI data version7.0 and then cleaned, recoded, categorized and sorted in Statistical Package for Social Sciences (SPSS) version 21.

- Descriptive statistics were employed. Frequency, proportion and summery statics used to describe the study population in relation to relevant variables.
- Univariate&Biviariateanalysis were used to assess the unadjusted effects of independent variables which were estimated without controlled for other variables.
- Furthermore variables shown statistical significance in bivariate analysis included in multivariate logistic regression model to predict the adjusted effect of independent variables by controlling of possible confounding effects. Odds ratio with 95% confidence interval was employed to assess statistical significance and degree of association between independent and dependent variables.
- The Biviariate and multivariate analysis conducted with institutional delivery as dichotomous dependent variables against independent variables from Socio demographic back ground, obstetric history back ground, women status in decision making of place of delivery and health service related factors were included in the analysis.

5.12 Ethical considerations

- Ethical clearance was obtained from research ethics committee of Addis Ababa University, school of public health.Then a written letter from School of public health was obtained and submitted to Gurage Zone health Department. Finally, official permission was obtained from Gurage Zone health Department. The purposes and the importance of the study were explained to each study participant and informed verbal consent was obtained from individual participants. Confidentiality of the information was assured by using data coding and maximum effort is made to maintain privacy of the respondents during the interview.

5.13 Dissemination of the results

- The finding from thisstudywill bedisseminated (after getting permission from AAU) to the concerned body in the form of presentation, hard copy and publication. The hard copy of the whole research paper will besubmitted to School of public health of AAU and Gurage zone health bureau and Sodoworeda too.At last this study results will bepublished in national or international journals

6. Results

A total of 571 mothers were designed to be studied in the project but only 559 agreed for participation, this gives the overall response rate of 98%.

Socio-demographic Characteristics

The mean age of the respondents was 30.61 years ± 6.31 SD. Three hundred ninety five (70.7 %) of the respondents were in the range 18-35years. The minimum and maximum ages of them were 18 and 46 years. Of those mothers who were included in the analysis, 402 (71.9%), 119 (21.3%) and 38 (6.8%) were Orthodox, Muslim and Protestant respectively. More than ninety percent of the respondent were married (91.6%) and 85%. haveGurage ethnicity. Among the respondents, 399 (71.4%) of the mothers were housewives in occupation and the rest 28.6% were employed, merchant, or daily laborers. Of the total respondents, 133 (23.8%) had no formal education & the rest 341 (61.0%) and 85 (15.2%) had primary and secondary or above level of education, respectively. Regarding spousal's education, 135 (24.2%) of the husbands had no any formal education, 370 (66.2%) had primary education and the rest 54 (9.7%) had secondary and above level of education. As to the husband's occupational status, the majority 362 (64.8%) were farmers. The rest 35.9% were employed, merchant, or daily laborers. Three hundred twenty nine (58.9%) mothers had family size of 1-5 and 230 (41.1%) had more than five individuals within the household. Out of 559respondent, 136 (24.3%) of them reported that they had family influence ondetermination of place of delivery. Almost 82 percent of the respondent had the autonomy to decide their place of delivery by themselves or jointly where as the rest 98 (17.5%) of the mother had no the autonomy to decide on place of delivery [Table 2].

Table 2: Socio-demographic characteristics of mothers (N = 559) in Sodo district, Southern Ethiopia, April, 2015.

Variable	Category	Institutional delivery utilized	
		Frequency	Percentage
Maternal age	1-18	11	2
	18-35	395	70.7
	>35	153	27.4
Ethnicity	Gurage	475	85
	Oromo	84	15
Marital status	Single	22	3.9
	Married	512	91.6
	Divorced	25	4.5
Religion	Orthodox	402	71.9
	Muslim	119	21.3
	Protestant	38	6.8
Maternal	Had not formal education	133	23.8
Education	Primary education	341	61
	Secondary & above education	85	15.2
Paternal	Had not formal education	135	24.2
Education	Had not formal education	370	66.2
	Secondary & above	54	9.7
Paternal	Farmer	362	11.3
Occupation	Employed	63	64.8
	Merchant	45	8.1
	Daily laborer	89	15.9
Maternal	house wife	399	71.4
Occupation	Employed	35	6.3
	Merchant	92	16.5
	Daily laborer	33	5.9
Family size	1_5	329	58.9
in number	>5	230	41.1
Family influence	Yes	136	24.3
	No	423	75.7
Decision maker up on delivery place	Mother only/with her husband	461	82.5
	Husband/relatives only	98	17.5
Residence	Rural	518	91
	Urban	41	7.2

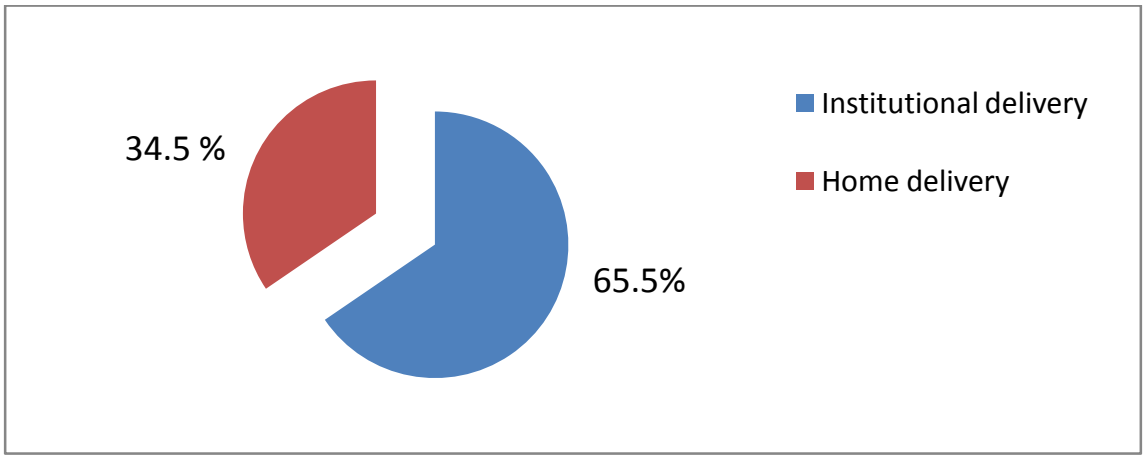
34.5 %
65.5%
Institutional delivery
Home delivery

Table 3: The magnitude and obstetric characteristics of mothers (N = 559) in Sodo District, Southern Ethiopia, April, 2015.

Variable	Category	Institutional delivery utilized	
		Frequency	Percentage
Age at first	1-18 year	192	34.3
Marriage	18-35 year	294	52.6
	>35 year	73	13.1
Age at first	1-18 year	130	23.3
Pregnancy	18-35 year	361	64.6
	>35 year	68	12.2
Age at last pregnancy	1-18 year	83	14.8
	18-35 year	337	60.3
	>35 year	139	24.9
Parity	One	99	17.7
	two_ Three	351	62.81
	> Three	109	19.5
History of still birth	Yes	18	3.2
	No	541	96.8
Number of ANC visit	1 time	79	14.1
	2 times	194	34.7
	3 times	170	30.4
	4+ times	116	20.8
Planning of the last pregnancy	Planned	464	83
	Unplanned	95	17

6.2 Availability& accessibility of health services

Concerning the time taken to reach the nearby health facility on foot, 333 (59.7%) of the respondent responded that they traveled for less than one hour, 180 (32.2%) for one to two hours and 45 (8.1%) for more than two hours. Concerning access to maternal and child health care information 406 (75.6 %) of the respondents got information from radio/TV/friends on the issue where as there rest 131 (24.4%) didn't have. Looking at accessto transportation service**,**263 (47.2%) of the respondents had access transportation service to travel the nearby health facility, 294 (52.8%) had no access to transportation service [Table 4].

Table 4: The magnitude of health services related covariates of institutional delivery (N = 559) in Sodo district, Southern Ethiopia, April, 2015.

Variable	Category	Institutional delivery utilized	
		Frequency	Percentage
Time travel on foot	<1 hour	333	59.6
	1- 2 hour	180	32.2
	>2 hour	46	8.2
Information about delivery place	got information	406	72.6
	Didn't got information	153	27.4
Access transportation service	Had accessibility	263	47
	Hadn't accessibility	296	53

6.3 Institutional delivery service utilization and socio-demographic characteristic

On bivariate analysis,paternal and maternal educational status, maternal autonomy on deciding delivery place, and presence of family influence have shownsignificant association with institutional delivery service utilization[Table 5]. Mothers who attended secondary and above level of education were 5 times more likely to utilize delivery service than with those mothers who didn't attend formal education [COR = 5.52; 95% CI; 2.48, 10.60]**.**Mothers whose husbandhadsecondary and above level of education were 7 times more likely to utilize delivery service than with those mothers who didn't have[COR = 7.00; 95% CI; 2.80, 17.45]. Those mothers who had the autonomy to decide their place of delivery lonely or jointly with their husband were 9.5 times more likely to give birth at health facility [COR = 9.48; 95% CI; 5.67, 15.81]. Those mothers who had no family influence on determination of place of delivery were 1.72 times more likely to give birth at health facility[COR = 1.72; 95% CI; 1.15, 2.55].

Table 5: The result of bivariate analysis by socio demographic explanatory variable of institutional delivery service utilization in Sodo district, Southern Ethiopia, April, 2015

Variable	Category	Institutional delivery utilized		
		Yes # (%)	No # (%)	COR(95 %CI)
Residence	Urban	339(65.4)	179(34.6)	0.98(0.50-1.92)
	Rural	27(65.9)	14(34.1)	1
Religion	Orthodox	237(59.0	165(41.0)	0.51(0.24-1.09)
	Muslim	101(84.9)	18(15.1)	2.00(0.83-4.83)
	Protestant	28(73.7)	10(26.3)	1
Ethnicity	Gurage	305(64.2)	170(35.8)	0.68(0.40-1.13)
	Oromo	61(72.6)	23(27.4)	1
Marital status	Single	13(59.1)	9(40.9)	0.36 (0.09-1.32)
	Married	333(65)	179(35)	0.47 (0.17-1.26)
	Divorced	20(80)	5(20)	1
Maternal education	Had no formal education	73(54.9)	60(45.1)	1
	Primary education	220(64.5)	121(35.5)	1.94 (0.99-2.22)
	Secondary & above education	73(85.9)	12(14.1)	5.52 (2.48-10.10)*
Paternal education	Had no formal education	72(53.3)	63(45.1)	1
	Primary education	246(66.5)	121(35.5)	1.73 (1.16-2.59)*
	Secondary & above education	48(88.9)	12(14.1)	7.00 (2.80-17.45)*
Maternal occupation	House wife	272(68.20)	127(31.8)	1
	Employed	18(51.40)	17(48.6)	1.22 (0.58-2.56)
	Merchant	55(59.8)	37(40.2)	0.61 (0.23-1.60)
	Daily laborer	21(63.6)	12(36.4)	0.85 (0.37-1.93)
Family size	1. 1-5	214(65.0)	115(35.0)	0.96 (0.67-1.36)
	2. Above 5	152(66.1)	78(33.9)	1
Paternal occupation	Farmer	50(79.4)	13(20.6)	1
	Employed	211(58.3)	151(41.7)	1.26 (0.58-2.75)
	Merchant	38(84.4)	7(15.6)	0.46 (0.27-0.78)
	Daily laborer	67(75.3)	22(24.7)	1.78 (0.70-4.56)
Decision maker	mother only/with her husband	343(74.4	118(25.6)	9.48 (5.68-15.81)*
	Husband/relatives only	23(23.5)	75(76.5)	1
Family influence	Yes	76(55.9)	60(44.1)	1
	No	290(68.6)	133(31.4)	1.72 (1.15-2.55)*
Age of the mothers	1-18 year	1(9.1)	10(90.9)	0.06 (0.08-2.45)
	18-35 year	267(67.6)	128(32.4)	1.17 (0.79-1.73)
	>35 year	98(64.1)	55(35.9)	1

Age at first marriage	< 18 year	133(69.3)	59(30.7)	1
	18-35 year	167(56.8)	127(43.2)	0.94 (0.41-1.55)
	> 35 year	66(90.4)	7(9.6)	0.44(0.26-1.31)

6.4The result of bivariate analysis by Obstetrics explanatory variable of Institutional delivery service utilization in Sodo district, Southern Ethiopia, April, 2015

On bivariate analysisonly number of ANCvisits at last pregnancy had shown a significant association with institutional delivery.Whereas, the other variable had not shown a significant association with institutional delivery[Table 6].Those mothers who visited to ANC four and above times were 3.7 times more likely to deliver at health institution compared to those mothers who visited only for one times[COR= 3.74; 95% CI; 1.98, 7.07].

Table 6: The result of bivariate analysis by Obstetrics explanatory variables of Institutional delivery service utilization in Sodo district, Southern Ethiopia, April, 2015.

Variable	Category	Institutional deliveryutilized		
		Yes (%)	No (%)	COR (95%CI)
Number of ANC visit	One time	41 (51.9)	38 (48.1)	1
	Two times	123 (63.4	71 (36.6)	1.61 (0.94-2.72)
	Three times	109 (64.1)	61 (35.9)	1.66 (0.96-2.84
	Four and above times	93 (80.2)	23 (19.8)	3.74 (1.98-7.07)*
Age at first pregnancy	< 18 year	91 (70.0	39 (30.)	1
	18- 35 year	240 (66.5)	121 (33.5)	0.85 (0.55-1.31)
	> 35 year	35 (51.5)	33 (48.5)	0.46 (0.95-2.83)
Age atlast pregnancy	< 18 year	46 (55.4)	37 (44.6)	0.77 (0.44-1.33)
	18-35 year	234 (69.4)	103 (30.6)	1.40 (0.93-2.12)
	> 35 year	86 (61.9)	53 (38.1)	1
Total # of birth	One	56 (56.6)	43 (43.4)	1
	Two-three	237 (67.5)	114 (32.5)	0.64 (0.37-1.13)
	More than three	73 (67.0)	36 (33.0)	1.03 (0.65-1.62)
History of still birth	Yes	15 (83.3)	3 (16.7)	2.71 (0.77-9.47)
	No	351 (64.9	190 (35.1)	1
Pregnancy planning	Yes	308 (66.4)	156 (33.6)	1.26 (0.79-1.99)
	No	58 (61.1)	37 (38.9)	1

The association between Institutional delivery and health service and obstetric factor

On bivariate analysis, time travel from the nearby health center, obtaining information about delivery place, the accessibility of transportation service had shown a significant association with institutional delivery[Table 7]. Those mothers who reached the health facility less than one hours of traveling on foot were 5 times more likely to deliver at health institution as compared to those mothers who reached the maternity health facility after two hours of travelingon foot [COR = 5.01; 95% CI; 2.58, 9.73]. Those mothers who reached the health facility within one two hours of traveling on foot were 3.4 times more likely to deliver at health institution as compared to those mothers who reached the maternity health facility after two and above hours of traveling[COR= 3.37; 95% CI; 1.69, 6.72].. Mothers who accessed transportation service were 3.6 times more likely to deliver in health institution than mother who didn't access transportation service[COR =3.55; 95% CI; 2.43, 5.19]. Mothers who obtaining information about delivery place were 1.8 times more likely to deliver at health institution as compared to those mothers who didn't get information[COR =1.82; 95% CI; 1.21, 2.71]

Table 7: The result of bivariate analysis by health service determinants of institutional delivery service utilization in Sodo district, southern Ethiopia, April, 2015.

Variable	Category	Institutional delivery utilized		
		Yes # (%)	No # (%)	COR (95 CI)
Time travel on foot	< 1 hour	238(71.5)	95(28.5)	5.01(2.58-9.73)*
	1 -2 hour	113(62.8)	67(37.2)	3.37(1.69-6.72)*
	> 2 hour	15(32.6)	31(67.4)	1
Access transportation service	Had accessibility	210(79.8)	53(20.2)	3.55(2.43-5.19)*
	Hadn't accessibility	155(52.7)	141(47.6)	1
Information about delivery place	Had information	277(68.2)	129(31.8)	1,82(1.21-2.71)*
	Hadn't information	71(46.4)	82(53.6)	1

Results from multivariate analysis

Factor associated with institutional delivery service utilization

On bivariate analysis, paternal and maternal educational status, time travel from the nearby health center, number of ANC visits at last pregnancy, obtaining information about delivery place, the accessibility of transportation service, maternal autonomy on deciding delivery place and presence of family influence shown significant association with institutional delivery service utilization. However, in the multivariable logistic regression analysis only educational status of the mother, time travel from the nearby health center, number of ANC visits at last pregnancy, the accessibility of transportation service, and maternal autonomy on deciding delivery place were found to be significantly associated with the institutional delivery service utilization [Table 8]. Mothers who attended secondary and above level of education were 5.5 times more likely to utilize delivery service than with those mothers who didn't attend formal education [AOR = 5.52; 95% CI; 1.45, 20.94]**.** Those mothers who accessed the health facility less than one hours of traveling were 3.6 times more likely to deliver at health institution as compared to those mothers who accessed the maternity health facility after two hours of traveling [AOR= 3.57; 95% CI; 1.57, 8.19]. Those mother who visited to ANC four and above were 4.5 times more likely to deliver at health institution compared to those mother who visited only for one times [AOR = 4.54; 95% CI; 2.00, 10.31]. Mothers who accessed transportation service were 2.7 times more likely to deliver in health institution than mother who didn't access transportation service [AOR =2.65; 95% CI; 1.67, 4.20]. Those mothers who had the autonomy to decide their place of delivery lonely or jointly with their husband were 7.6 times more likely to give birth at health facility than mothers with husband/relative [AOR = 7.58; 95% CI; 4.10, 14.08].

Table 8: The result of multivariate analysis by explanatory variable of institutional delivery service utilization in Sodo district, Southern Ethiopia, April, 2015

Variable	Category	Institutional delivery utilized	
		COR (95%CI)	AOR (95%CI
Maternal level of education	Had no formal education	1	1
	Primary education	1.94 (0.99-2.22)	1.34 (0.76-2.35)
	Secondary & above education	5.52 (2.48-10.10)	5.52 (1.45-20.94)**
Paternal level of education	Had no formal education	1	1
	Primary education	1.73 (1.16-2-59)	0.40 (0.12-1.31)
	Secondary & above education	7.00 (2.80-17.45)	0.38 (0.13-1.12)
Decision maker up on delivery place	Mother only/with her husband	9.48 (5.68-15.81)	7.58 (4.10-14.08)**
	Husband/relatives only	1	1
Family influence	Yes	1	1
	No	1.72 (1.15-2.55)	0.83 (0.50-1.40
Time travel on foot	< 1 hour	5.01 (2.58-9.73)	3.57 (1.57-8.19)**
	1 - 2 hour	3.37 (1.69-6.72)	2.51 (1.02-5.72)
	> 2 hour	1	1
Number of ANC visit	1 times	1	1
	2 times	1.61 (0.94-2.72)	1.99 (0.99-3.97)
	3 times	1.66 (0.96-284)	1.69 (0.85-3.37)
	4 & above times	3.74 (1.98-7.07)	4.54 (2.00-10.31)**
Access transportation	Had accessibility	3.55 (2.43-5.19)	2.65 (1.67-4.20)**
Service	Hadn't accessibility	1	1
Information about delivery place	Got information	1.82 (1.21-2.71)	1.31 (0.78-2.19)
	Didn't got information	1	1

7. Discussion

By using a community based cross-sectional study design, this study assessed the magnitude and factors associated with institutional delivery service utilization among mother who utilized ANC and had a child younger than one year lived in Sodo district. To this study, the magnitude of institutional service utilization was about sixty five percent (65.5 %) and factors significantly associated with it were maternal level of education, the time taken to go to the health institution on foot, maternal autonomy on deciding place of delivery, access to transportation service and the frequency of ANC.

After adjusting for the potential confounder, maternal level of education had shown a significant association with institutional delivery service utilization. Mothers who attended secondary and above level of education were 5.5 times more likely to utilize delivery service than with those mothers who didn't attend formal education. The effect of education on the use of skilled birth attendance can be explained in various ways. educated women are expected to have knowledge about the risks of home delivery,long-term benefits of the utilization of skilled maternity care services for both mother and babies and more likely to believe the advice that they got during antenatal care visit and hence they were more likely to deliver at health institution as compared with those who had no formal education. The finding was in agreement with other studies done in Northern, Southern and Western part of Ethiopia and with studies done in two different countries called Uganda and Malawi (29 -37, 41, and 43).

Another factor that strongly associated with institutional service utilization is the time taken to reach the nearby health facility on foot. Those mothers who accessed the health facility after one hours of traveling were 3.6 times more likely to deliver at health institution as compared to those mothers who accessed the maternity health facility after two hours of traveling. This may be attributable to women who accessed the maternity health facility within one hours of foot traveling were less liable to high cost of transportation, the travel inconvenience during delivery, difficulty of getting family support including food preparation after delivery within health facility. This finding was consistent with other studies donein north Ethiopia, Dodota district of Oromia regional state and western Ethiopia and other country Nepal (30, 31, 35, 39, and 40).

Antenatal care with a skilled provider is one of the interventions that reduce maternal mortality. Because itallows early detection of obstetric complications and gives an opportunity to influence women`s decision tohave a skilled attendance during child birth through educating the risk of home delivery and benefit of institutional delivery. Given the above fact,ANC visit during last pregnancy was also found to be a strong predictor of institutional delivery service utilization in the study area. Those mother who visited to ANC four and above times were 4.5 times were more likely to deliver at health institution compared to those mother who visited only for one times. The finding was in line with seven studies study done in North West Ethiopia and Dodota district of Oromia regional state and other country (29, 30, 33,and 39- 42).

Maternal autonomy on determining place of delivery found to be one of the major factors which significantly associated with institutional service utilization. Those mothers who had the autonomy to decide their place of delivery lonely or jointly with their husband were 8.9 times more likely to give birth at health facility. The most likely explanation for the difference may be, if women participated in decision process upon place of delivery with their husbands or relatives the more likely to get financial and other social supports to go to health facility which would allow them to have health care assisted delivery. This finding was in agreement with studies done inDodotadistrict of Oromia regional state of Ethiopia, Nepal and Malawi different part of Ethiopia and other country (31, 38, and 42).

Accessibility of transportation service also had shown significant association with institutional delivery service utilization. Mothers who accessed transportation service were 2.5 times more likely to deliver in health institution tan mother who didn't access transportation service. The finding was in agreement with studies done in Tigray, Oromia region of Ethiopia and Nepal different part of Ethiopia and other country (30, 31, 39 and 40).

To this study, maternal occupation, family influence on place of delivery, paternal level of education, paternal occupation didn't have significant association with the institutional delivery. The insignificant result may be the similarity of the study participants by the aforementioned study variables. For example, maternal occupation had no association with the issue. This may be due to; more than 75% of the mothers included in analysis were housewife in occupation.

Hence the similarity in exposure status in both mothers who utilized institutional delivery and didn't utilized may nullify the actual effect of the exposure.

8.Limitation and strength of the study

This study had some strength. Because the finding of this study was based on a community based a crossectional study, it could give more strong evidence on magnitude of institutional delivery in compared to other descriptive and analytical study. Being community based study can make the finding of this study more generalizable to the target population compared to other facility based study. For minimizing information bias, the questionnaire was prepared in the form of closed ended question; intensive training focused on enhancing response from respondent was given for the data collectors and supervisor; pretest was done for assuring applicability of the questionnaire in the study area. For further minimizing information and selection bias strict supervision was also there.Limitation, it is a cross-sectional study; it is difficult to establish temporal relationship.

9. Conclusion

The institutional delivery rate in this study was higher than the national and regional report by 2014 but less compare to ANC users, to this study the magnitude of institutional delivery among mothers who utilized antenatal care in Sodoworeda were 65.5%. The major factors that were significantly associated with this low utilization of institutional delivery were maternal level of education , time taken to reach the nearby by health facility, maternal autonomy on deciding place of delivery, accessibility of transportation and the frequency of ANC.

10. Recommendations

Policy and strategy implications

“Information, education, communication, and empowering mothers is essential, and 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."

Expansion of facility delivery service by staffing and equipping primary health care units & expansion of transport service to address the need of mothers.

Implication to the health system

“Informationon the complications of pregnancy and delivery and on the importance of using the institutional delivery service and home delivery risk at every childbirth should be given to every mother who came to health facility in general and at ANC visits in particular.”

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Annexes

Annex I:Coṇsent form

Informed consent form (English version) prepared to do an interview for to assess the Magnitude and Determinant factors of Institutional Delivery among mothers who utilized antenatal care in the Case of SodoWoreda, Gurage Zone, and SNNPR

Information sheet

Hello! Mom! My name is _____and am a master's student of Addis Ababa University and now I am conducting my thesis work on the magnitude of institutional delivery and its associated factor in this sodoworeda. The purpose of this study is to assess magnitude and determinant factors of institutional delivery among mothers who utilized antenatal care service in this set up and then giving valid evidence to health programmer to set evidence based intervention. I would very much appreciate your participation in this study. If you are agreeing to participate in study, I will do 10-15 minute interview. Participation has no any harm and a direct financial or other benefit for you but your information help us to assess the actual determinant of malnutrition especially in this particular set up. Whatever information you provide it will be kept confidentially by using only code number and will not be shared with anyone other. Participation is purely voluntary, and if I come up with any question that you don't want to answer, just let me know and I will go on to the next question; or you can stop the interview at any time. I hope you will participate in this study since your information is very important. At this time, do you want to ask me anything about the study?

May I begin the interview now? If she said 'yes' proceed the next interview ,if said 'no' ,say thank you and go to the next participant.

For further information, clarification or questions it is possible to contact principal investigator at any time by the following address

- Name TefferiGizaw
- Phone number: +251 911 76 44 39
- Email: mtefferigizaw@yahoo.com

AnnexesII: Verbal informed consent form

I have been briefly informed about the study and I clearly understood the objectives, the risk and benefit associated with it. Since it doesn't affect my personnel life in any way, I here verbally approve my consent to voluntarily participate in the study as an interviewee.

Name of interviewer _____

Signature: _____

Interviewee Name _____

Signature: _____

Annexes III: English Version Questionnaires

Quantitative questionnaireprepared to assess the magnitude and determinants factor of institutional delivery among mother who had ANC follow up living in SodoWoreda, Gurage Zone, SNNPR.

1. Questionnaire code____ 2. Place of residence (1- rural 2-Urban) 3. Kebele 4. House No___

Part : Respondents Socio Demographic Factors				
No	Questions	Alternative of responses	Code	Skip
101	Age in completed years at interview time	----------(years)		
102	Marital status	1. Single 2. Married 3. Divorced 4. Widowed 5. Separated		
103	Religion	1.Orthodox 2.Muslim 3.Protestant 4.Other, specify----		
104	Educational status of the mother	1. Illiterate 2. Only read & write 3. Elementary (1-8) 4. high school(9-12) 5. 12+		
105	To which ethnic group do you belong?	1. Gurage 2. Oromo 3. Amhara 4. Others__		
106	Occupation of the mother.	1. House wife 2. Farmer 3. Employed (gov't / private) 4. Merchant 5.Daily Labore		
107	Family size (in number)	_____		
108	Husband's Educational Status	1. Illiterate 2. Only read & write 3. Elementary (1-8) 4. high school(9-12) 5. 12+		

109	Husband's Occupational status	1. Farmer 2. Employed(government or private) 3. Merchant 4. Daily laborer 5. 5.Other, specify----		

Part II: Respondents Obstetric history				
201	How old were you in your first marriage	---------years		
202	How old were you at your 1st pregnancy in completed years?	---------years		
203	How old were you at your last pregnancy?	---------years		
204	Was the last pregnancy planned?	1. Yes 2.No		
205	Have you had still birth in your life so far?	1. Yes 2. No		
206	What were the total No. of births you have had (parity)? (in number)	----------		
207	Have you ever visited health facilities during pregnancy?	1, Yes 2., No		
208	If yes, how many times?	1,one 2, two 3, three 4,four 5, >four times		
209	Where did you deliver your last baby in the past 1years?	1. Hom 2. Health facility 3. Other, specify------		
Part V: Availability & accessibility of health services				
301	How long does it take to travel from your home to the nearest health facility?(in time)	1.Less than 1 hour 2.1-2 hours 3.More than 2 hours		
302	Is there transportation service to travel to the nearby health facility	1.yes 2.No		
303	Do you have access to Maternity and child health care information (Radio/TV/ Friends or others?	1.yes 2.No		
Part VI. Preference of the respondents, their husbands, family members &the community about place and attendant of delivery during their last pregnancy				
401	Was there any family influence on determination of place of delivery? (eg. home delivery)	1.yes 2.No		

402	Who was the ultimate decision maker about your place of delivery?	1Both I & my husband 2. Only I3. Only my husband4 relatives		

Annexes IV:Amharic Version questionnaires

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<u>የተሣተፊዎችመረጃቅፅ</u>

የተሳታፊውመለያቁጥር----------

እኔ----------

እባላለው፡፡አዲስአበባዩኒቨርስቲህክምናጤናሣይንስኮሌጅየድህረምረቃትምህረቴንበመመከታተልላይየ ሚገኘውተፈሪግዛውበሚሠራውጥናትመረጃሰብሳቢነኝእርስዎለቃለመጠይቅለምንእንደተመረጡእን ድገልፅልዎትሃሣብዎትንሰብስብአድርጋውእንዲከታተሉኝበትህትናእጠይቅዎታለው፡፡

የጥናቱርዕስ፡-

ከእርግዝናክትትልእናበጤናተቋምየወሊድአገልግሎትአጠቃቀምያለውንሁኔታለማጥናትነው፡፡

የጥናቱዓላማ፡-

በጥናቱውጤትለጉራጌዞንጤናመምሪያለቡኢወረዳእናበእናቶችእናሕፃናትዙሪያለሚሰሩድርጅቶችእቅ ድለማውጣትለማስፈፀምእናለማሻሻልይጠቅማል፡፡ከዚህበተጨማሪይህጥናትለተመራማሪውበሕበረ ተሠብጤናሣይንስየሁለተኛድግሪውንለማግኘትይጠቅመዋል፡፡

አካሄዱእናየሚውስደውጊዜ፡-

እኔበመጠይቅበመታገዝስጠይቅዎትትክክለኛመረጃቢሰጡኝለጥናቱጠቃሚነው፡፡በአጠቃላይቃልምል ልሱከ1015ደቂቃይወስዳልስለዚህይህንጊዜዎትንለቃለምልልሱመስዋትእንዲያደርጉልኝበትህትናእጠ ይቅዎታለው፡፡

ጉዳትእናጥቅም፡-በዚህጥናትመሣተፍከ10-

15ደቂቃከጊዜዎከመውሰድውጪጉዳትየለውም፡፡በጥናቱሲሳተፉምንምአይነትክፍያባይኖረውምጥናቱ ለዞኑጤናመምሪያ(ለወረዳውጤንፅ/ቤት)እናበአካባቢውለሚገኙየጤናአጋርድርጅቶችጠቃሚመረጃለ ያስገኝይችላል፡፡

ሚስጥራዊነት፡-

እርስዎየሚሰጡትመረጃበሚስጥርየሚያዝነው፡፡የዚህጥናትውጤትእርስዎንየሚያመለክትምንምአይ ነትመረጃአይኖርም ፤ መጠይቆቹየመለያቁጥርስለሚሰጣቸውስምዎትንአያሳይም፡፡እርስዎንናእናጥና ቱየሚያገናኝየቃልወይምየፅሁፍመረጃአይወሠድም፡፡

መብት፡-

በዚህጥናትመሳተፍበፍላጎትላይየተመሰረተነው፡፡እርስዎምየማይፈልጉትንጥያቄያለመመለስእናበፈለ ጉትጊዜየማቋረጥመብትአልዎት፡፡

የአቤቱታአድራሻ፡-

ስለጥናቱወይምስለአካሄድማንኛውንምጥያቄካልዎትበሚመለከተውአድራሻያድርሱን፡፡

ዋናውተመርማሪ፡- ተፈሪግዛውማሩስልክ. ቁ.09 11 76 44 39

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በፍቃደኝነትየተመሰረተየስምምነትማረጋገጫቅፅ

የተሣታፊዎችመረጃቅጽተነበልኛል (አንብቤዋለሁ)

የጥናትዓላማ፤አካሄድእናየሚወስደውንጊዜ፤ጉዳትእናጥቅም፤ሚስጥራዊነት፤ያለኝንመብትእንዲሁ ምየአቤቱታአደራሻዎችበመግለፅተረድቼዋለው፡፡ግልፅያልሆኑነገሮችእንድጠይቅእድልተሠጥቶኛልየ ማልፈልገውንጥያቄያለመመለስእናበፈለኩትጊዜያማቋረጥመብትእንደለኝተነግሮኛልስለዚህለመሳተ ፍበፍቃደኝነትመስማማቴንበፊርማዬአረጋግጣለው፡፡

የተሣታፊፊርማ ----------የመረጃሰብሳቢፊርማ----------

<u>ማሳሰቢያ</u>

ይህቅፅመረጃሰብሳቢውባለበትየሚፈረምነው፡፡እባክዎትንየተፈረመበትንአንድኮፒለተሳታፊይስጡ፡፡

ቃለመጠይቅበአማርኛ

1. የጥያቄኮድ--------- 2.የመኖሪያአድራሻ , 1. ገጠር------ 2. ከተማ
2. 3.ቀበሌ ----------4. የቤትቁጥር

1. ክፍል I:ማህበራዊናዲሞግራፊክበተመለከተየሚጠየቅ				
ተ.ቁ	ጥያቄ	አማረጭመልሶች	ኮድ	ዝለል(ይ)
101	የተጠያቂው/ዋ ዕድሜ	------(ዓመት)		
102	የጋብቻሁኔታ	1.ያላገባች 2 ባለትዳር 3 የፈታች 4.ባሏ የሞተባት	☐	
103	ሃይማኖት	1.ኦርቶዶክስ 2.ሙስሊም 3.ሌላ,ይጠቀስ----------	☐	
104	የእናትዋየትምህርት /ደረጃ	1.ያልተማረች 2. መፃፍናማንበብ 3. የመጀመሪያደረጃ (1-8) 4. ሁለተኛደረጃ (9-12) 5. ከ 12ኛ በላይ	☐	
105	የእናትዋብሔር	1. ጉራጌ 2. ኦሮሞ 3. አማራ 4. ሌላ,ይጠቀስ---------	☐	
106	የእናትየውስራሁኔታ	1. የቤትእመቤት 2. ገበሬና 3. የምንግስትሰራተኛ/ ተቀጣሪ 4. ነጋዴ 5. የቀንሰራተኛ		
107	የቤተሰብብዛት	----------		
108	የባለቤትሽየትምህርትደረጃ	1.ያልተማረ 2. መፃፍናማንበብ 3. የመጀመሪያደረጃ (1-8) 4. ሁለተኛደረጃ (9-12) 5. ከ 12ኛ በላይ	☐	
109	የባለቤትሽየስራሁኔታ	1.ገበሬ 2. የመንግስትሰራተኛ 3.ነጋዴ 4. የቀንሰራተኛ 5. ሌላ,ይጠቀስ----------	☐	

ክፍልሁለት፣ከእናቶችስነ- ተዋልዶጋርየተያያዙጥያቄ				
201	በመጀመሪያጋብቻሽዕድሚሽስንትነበር ?	----------		
202	በመጀመሪያእርግዝናሽወቅትዕድሚሽስንትነበረ ?			
203	የመጨረሻእርግዝናሽዕድሚሽስንትነበር ?	----------		
204	የመጨረሻውእርግዝናሽበእቅድየተረገዘነው ?	1.አዎ 2. አይደለም	☐	
205	ሲወለድበህይወትያለነበረልጅአለ ?	1.አዎ 2. የለም	☐	
206	አጠቃላይስንትግዜአርግዘሻል ?	----------	☐	
207	ቅድመወሊድምርመራታደርጊነበር?			
208	አዎከወነ, ምንያሕልግዜ	1.አንድ ግዜ 2. ሁለትግዜ3. ሶስትግዜ4.አራትግዜ . 5.ከአራትግዜ በላይ		
209	የመጨረሻልጅሽንየትወለደሽ ?	1.ቤት 2. ጤናድርጅት 3. ሌላ,ይጠቀስ----------	☐	
ክፍልሶስት: የወለሊድበአገልግሎትመኖርእናተደራሽነትየሚመለከት				
301	አቅራቢያሽወዳለውጤናተቋምለመሄድስንትሰዓት/ደቂቃይፈጅብሻል ?	1. ከአንድሰሀትበታች 2. ከአንድእስከሁለት 3. ከሁለትሰሀትበላይ	☐	
302	ወደጤናተቋምለመሄድየትራንስፖርትአገልግሎትአለ ?	1. 1.አዎ2. የለም		
303	ስለእናቶችናህጻናትየጤናአገልግሎትመረጃየምታገኚበትመንገድ(ራዲዮ/ቴለቪዥን/ከጉአደኛከሌላም)አለ ?	1.አዎ 2.አይ/የለም		
	ክፍልአራት :የባለቤት, የቤተሰብ, እናየአካባቢማህበረሰብበወሊድአገልግሎትቦታእናየባለሙያክትትልዝንባሌተመልክቶ			
401	ስለወለድሽበትቦታምርጫየቤተሰብተጽኖ/ጫናነበር ? ምሳሌ - እቤትእንድትወልጂ	1.አዎ 2.አይ/የለም	☐	
402	ስለወለድሽበትቦታመምረጥወሳኙማንነበር ?	1.እኔና ባለቤቴ,2እኔ ብቻ 3.ባለቤቴ ብቻ 4.ዘመድ(ቤተሰብ) 5.ሌላ ይጥቀሱ----------	☐	

11. Declaration

The undersigned agrees to accept responsibility for the scientific ethical and technical Conduct of the research project and for provision of required progress reports as Per terms and conditions of the Research Publications Office in effect at the time of Grant is forwarded as the result of this application.

Name of the student: **TefferiGizaw**

Date of submission ----------

Signature: ----------

Approval of the Primary Advisor

Name of the primary advisor:

NegussieDeyessa(PHD, MD)

Date: ----------

Signature: ----------