

**DETERMINATES OF CHOICE OF PLACE OF DELIVERY AMONG MOTHERS WHO FOLLOW ANTINATAL CARE SERVICE IN KALU WOREDA, SOUTH WOLLO ZONE, AMHARA RIGIONAL STATE, OCTOBER - 2015.**

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**Abstract:**

**Introduction:** Ethiopia has high maternal mortality with poor maternal health services utilization. EDHS-2011 report shows that 42% of women who gave birth were following ANC (Ante Natal Care) in health institution and only 12% of births are delivered in health facility. Many women did not deliver in hygienic place and contributing to high maternal mortality and acute and long term complications. **Objective:** To identify determinant factors for choice of place of delivery among ANC follower mothers in the last one year period. **Methods:** Community based unmatched case control study design triangulated with qualitative component. Sample size of 573 (191 cases and 382 controls) determined using Epi Info 7. Study subjects were selected using systematic sampling method by determines K1 and K2 for cases and controls respectively. Purposive sampling to select key informants for qualitative part. Data collected with structured questionnaire. **Result:** Being not formally educated (OR=2.578, 95%CI; (1.583-4.196), not satisfied the care received during ANC follow up (OR=5.36, 95%CI ;( 2.618-10.594) and having only one ANC visit (OR=3.28, 95%CI ;( 1.546-6.696) were positively associated with choosing of home as place of delivery. In contrast, being rural residence (OR= 0.450, 95%CI; (.256-.789) and family decision on place of delivery (OR=0.294, 95%CI; (0.186-0.457) were negatively associated with choosing home as place of delivery. The most common reasons for not choosing institutions/facility as place of delivery were previous safe home delivery (41.4%), absence of health problem (19.9%) and an unfamiliar/not costumed by the society (17.3%). **Conclusion:** Comprehensive/holistic services at ANC clinic and community factors like education were determinant factors for choice of place of delivery. So, health offices should consider such factors to enhance institutional delivery by training health personnel, advising and counseling of mothers regarding the dangers of home delivery at the communit,level

**Key words:** Antenatal care, maternal health, Place of delivery

## **Introduction:**

### **Statement of the problem:**

Annually worldwide 536,000 maternal deaths occur and of which Africa contribute the highest; specifically 95% burden occurs in sub-Saharan Africa and Asia (1).

Proper utilization of health services during pregnancy, delivery and postnatal period is important to reduce high burden of maternal and neonatal mortality and acute and long term complication (2, 3, 4). Concerned to Africa, such as studies done in Nigeria and Malawi shows that about 60.3% of the respondents used antenatal services at least once during their most recent pregnancy and 43.4% and 58% institutional delivery respectively (5,6).

In Ethiopia, 2011 EDHS report shows that 42.5% of women who gave birth were following ANC services in health institution at least once. However, only 12.1% mothers undergone institutional delivery and 13.2% assisted by health professional during delivery (7).

There is a close relationship between ANC follow up and place of delivery, since those mothers who come to health institution have better health information, however in Ethiopia there is a great discrepancy between ANC follow up and place of delivery. EDHS 2011 report shows among mothers who came to ANC at least once(42.5%), more than 90% deliver at home(3,8).

A study done in Samre Saharti District, Tigray, shows that only 4% of mothers gave birth for their recent child in the health facility(2). In Dodota district, Oromia regional state study shows that only 18.2% of the mothers gave birth to their last baby in health facilities among who attended ANC services(9) and in Munisa district, South East Ethiopia, 12.3% gave birth in health institutions (10).

Specifically in Amhara region only 11.5% deliveries were assisted by health

professional (8). Recent study in North West amhara region also shows that only 31.6% institutional deliveries among ANC followers. 11). Kalu district annual report 2014 indicates that 79% mother follow ANC at least once and 26.5 mothers' undergone institutional delivery.

As a result of not utilizing institutional delivery services leads to high maternal and infant mortality Many mothers suffer from serious diseases and disabilities like uterine prolapse, pelvic inflammatory disease, fistula, incontinence, infertility, and pain during sexual intercourse because of inadequate or inappropriate care during pregnancy, delivery or the first critical hours after birth (1, 12).

So, this research project answers the question of why ANC followed (at least once) mothers delivered at home rather than health institution.

### **Justification of the study:**

For all women of reproductive age group, especially for pregnant women, utilization of health care services is a key proximate determinant of maternal and infant outcomes, including maternal and infant mortality as well as morbidity. So this study helps to tackle challenges in achieving MDG specifically MDG 4 and 5 by identifying determinant factors for not utilizing maternal health services in health institution. Institutional delivery can provide an entry into the health system, for newborn baby and means of prevention of post partum complications and maternal morbidity and mortality.

This study also allows investigating the quality of ANC services and its contents including health education.

As far as our knowledge is concerned, there is no research conducted in the study area so far and there is a great discrepancy between ANC followers' mothers (79%) and deliver at health institution (28.5%).

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Therefore, this study was proposed to identify determinant factors for choice of place of delivery. This information help decision makers, health care planners, health workers and other concerned stake holders to design and practice appropriate interventions that decrease the maternal and newborn baby mortality and morbidity through identification of key factors which are responsible for low utilization of health institutions for delivery services.

#### **General objective**

To assess determinant factors for choice of place of delivery among mothers who give birth in the last one year period, had at least one ANC follow up in kalu District, South Wollo zone, Amhara regional state, Ethiopia 2015.

#### **Specific objective**

To identify determinant factors for choice of place of delivery after ANC follow up among mothers who give birth in the last one year period.

#### **Methods:**

##### **Study design and period:**

Community based unmatched case control study design triangulated with phenomenology qualitative component was conducted from October 2014-June 2015.

##### **Study area:**

The study was conducted in Kalu district which is located in South Wollo Administrative zone, Amhara regional state, North East of Ethiopia. It is located 498 km from Bahir Dar (Regional State capital and 376 km from Addis Ababa (Country's Capital). Kalu district has 34 village units, eight health centers and two health extension workers work in each village units. According to south Wollo zone annual report from September 2013-august 2014, 88.9% pregnant mothers had at least one ANC service and 36.6% had undergone institutional delivery. In the same year kalu district had 6883 mothers were pregnant, 79% had undergone at least one ANC follow

visit and 28.5% mothers undergone institutional delivery.

**The source populations:** All mothers who attended ANC service for the last birth.

**Study population:** All mothers who have given birth in the last one year period and attended at least one ANC service in kalu district south Wollo zone.

**Cases:** Mothers who had at least one ANC visit and **gave birth at health institution** in last one year.

**Controls:** Mothers who had at least one ANC visit and **gave birth at home** in last one year.

**Inclusion criteria:** All mothers who gave birth in the last one year period and followed at least one ANC service during pregnancy.

**Exclusion criteria:** Mothers who cannot respond due to the mental problem or serious disease.

##### **Sample size determination:**

The required sample size was determined using EPI INFO soft ware package, by taking 1:2 case to control ratio, 90% power of study, 5% type one error and 9.5 % proportion urban women deliver at Home and OR: 3.18 were taken from previous study (11). So the final sample size is 573 (of which 191 cases (home delivery) and 382 control (facility delivery)

##### **Sampling procedure:**

Using systematic sampling method cases and controls were selected. For case and control k1 and K2 was determine by using  $N1/n1$  and  $N2/n2$  respectively. The random state determines by using lottery for cases and controls and applies accordingly.

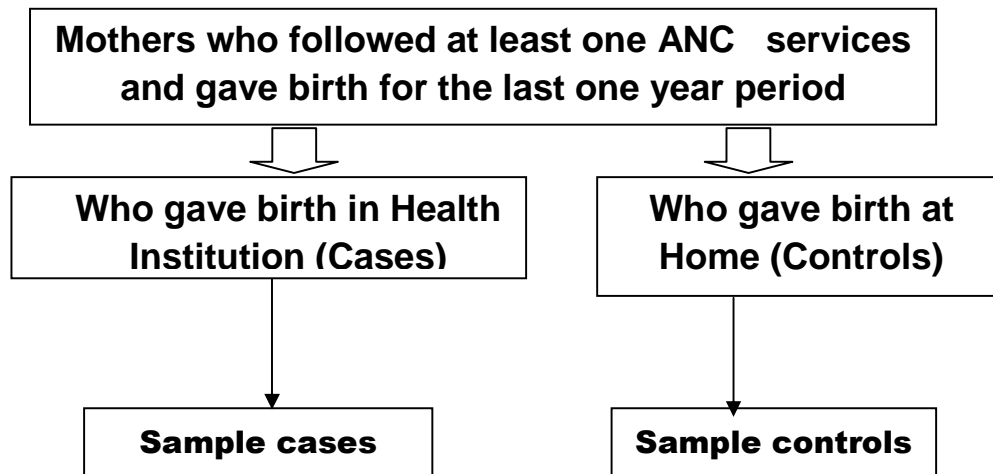
Separate sampling frame was made by compiling list of mothers who gave birth in the last one year period and had at least one ANC visit with the help of health extension workers who work at the community level in study area. Then sample was taken in every K1 and K2 for cases and controls respectively.

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For qualitative component, using purposive sampling key informants were selected.

Those include health professionals’, TBA and mothers.

**Figure 1: Schematic presentation of sampling procedure:**



**Variables of the study:**

**Dependent Variable:**

Site/place of delivery (Home or institutional delivery)

**Independent variables**

**Socio-demographic and economic characteristics:**

Ethnicity, Age, Religion, Marital status, Educational status, Occupation, Family size Monthly income, Number of parity, educational status of best relatives and distance from health facility

**Reproductive health related variables:**

Previous history of prolonged labour, previous history of obstructed labour, previous history of abortion, Number of ANC visits, Gestational age at first ANC visit.

**Service related variables:** Service satisfaction while ANC follow up, Keeping privacy, Confidentiality, Being informed the expected problems during delivery and labour

**Operational definitions:**

**Institutional delivery:**

If the mother gives birth in any government or nongovernmental health facility.

**Home delivery:**

If the mother gives birth other than any health facility, be it home, while traveling or other place.

**Husband encouragement:**

Husband’s encouragement to seek maternal health care to mother.

**Abortion:**

Mother had a history of abortion.

**ANC service utilization:**

Mother visits health institution for pregnancy reason at least once.

**Data collection procedure and data quality control:**

Data collected by using structured questionnaire with informed consent from study subjects. The questionnaire first prepared in English and translated into Amharic (local language) and retranslated back to English to check for consistency.

The data was collected by 9 diploma nurses who work outside the study area and didn’t know mothers status in advance. To insure the quality of the data, one day training had given to data collectors on the objective of the study, the questionnaire and extent of explanations and the way of keeping the

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privacy and confidentiality of the study subjects.

Pre-testing of questionnaire was conducted other than the sampled village unit in order to assess clarity and consistence of the questionnaire and adjustment was made accordingly. Inspection for completeness of questions carried out by principal investigators. For qualitative part, in-depth interview was carried out with key informants (mothers, TBA, health worker)

#### **Data processing and analysis:**

The data entered to SPSS version 20 for analysis, cleaned and checked for its completeness and errors. To explain the study population in relation to relevant variables, descriptive statistics like frequency distribution table, and summery measures were computed.

To identify statistical significant variable for the choice of place of delivery, bivariate analysis made for each independent variable to outcome variable separately. And those variables p value < 0.3 in bivarte imported to multiple logistic regressions. In multiple logistic regressions those variables P value  $\leq 0.05$  were considers as statistical significant variable for the choice of place of delivery and presented with 95%CI and OR.

**Qualitative data** categorized in to concepts; description and interpretation was made.

#### **Ethical consideration:**

Ethical clearance was obtained from CMHS, Research Ethical Review Board of Wollo University. The purpose, benefits, confidentiality, discomforts (spent time for interview) and right of withdrawal or stop interview was described to participants. Only those who were willing to take part in the study and gave written consent were interviewed in private room.

#### **Results:**

##### **Socio-demographic characteristics of respondents:**

573 mothers who had at least one ANC visit for the last pregnancy, 191 were cases and 382 were controls. The mean age at the time of delivery and size of family are 27.5 years and 5 respectively. About 80% of respondents were rural residents and all were Amhara ethnicity. Regarding educational status, 375(65.4%) respondents could not read and write and only 12(2.1%) respondents were above secondary school. Of the total respondents 185(32.3%) were house wives. Concerning marital status, 522(91.1%) respondents were married and others not.

**Table 1:** Socio-demographic characteristics of the mothers who gave birth in the last one year period, South Wollo zone, kalu district, November - 2015. (n=573)

Variable	Place of delivery		Total
	Home	Facility	
<b>Residence:</b> Rural	148	312	460
Urban	43	70	113
<b>Age:</b> Less than 20yr	25	48	73
20-35 yr	146	309	455
Greater than 35	20	25	45
<b>Religion:</b> Muslim	2	12	14
Orthodox	189	370	559
<b>Marital status:</b> Married	165	357	522
Divorce	10	16	26
Single	10	5	15
Widowed	6	4	10

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<b>Educational status:</b>			
Not formally educated	151	224	375
Primary school(grade 1-8)	39	147	186
Secondary school and above	1	11	12
<b>Occupation status:</b>			
House wife	190	362	552
Government employee	0	11	11
Merchant	1	9	10
<b>Family size:</b>			
Less than equal to 5 family member	172	338	510
Greater than 5 family member	19	44	63
<b>Membership of health army force:</b>			
yes	189	373	562
No	2	9	11
<b>Distance from health facility:</b>			
≤ 10km	152	312	471
>10Km	39	63	102

### Reproductive health history

Of the total interviewed mothers, 460(80.27%) mothers had been planned the last pregnancy. Of these mothers, 306(66.52%) of them gave birth in health facility. Regarding gestational age at first ANC visit, about 384 pregnant mothers came at second trimester. Of these 253 mothers gave birth at health institution.

About 469 pregnant mothers did not encounter a problem during the last pregnancy whereas 126 mothers faced prolonged labor. Regarding decision for place of delivery, 264 mothers decided where to deliver by themselves. Of total interviewed mothers, 9.25% had only undergone one ANC follow up.

**Table 2:** Reproductive health history of mothers who gave birth in the last one year period, South Wollo zone, kalu woreda, November - 2015. (n=573)

Variable	Place of delivery		Total
	Home	Facility	
Was the last pregnancy planned?			
yes	154	306	460
no	37	76	113
Gestational age at first ANC visit:			
First trimester	22	103	125
Second trimester	131	253	384
Third trimester	38	26	64
Total Number of ANC visit :			
one(1x)	35	18	53
>1x	156	364	520
Any problem encountered during the last pregnancy?			
yes	27	117	144
no	164	265	469

Was the last labor prolonged(>12hrs):	yes	22	104	126
	no	169	278	447
Was encountered abortion so far?	yes	14	45	59
	no	177	337	514
Was encountered still birth so far?	yes	12	25	37
	no	179	357	536
Was encountered infant death so far?	yes	19	47	66
	no	172	335	507
Who decide site/place of deliver?	family	63	246	309
	self	128	136	264
Have undergone HIV test while ANC follow up:	yes	186	378	564
	no	5	4	9

### Service related factors

Concerning service, 520(90.75%) pregnant mothers were satisfied by the care given during ANC follow up and of which 374(71.9%) gave birth in health facility. Of the total interviewed mothers, 550(95.9%) and 508(88.6%) mothers have got explanation about their case and about expected problems during labour by a health

professional respectively. Only 29(5%) respondents reported that health professionals have not listened their concern and questions. About 543(94.7%) respondents have been showed respect by health professionals and 560(97.7%) mothers replied that health professionals keep confidentiality.

**Table 3:** Service related history of mothers who gave birth in the last one year period, (n=573)

Service related variables		Place of delivery		Total
		Home	Facility	
Did you satisfy with services/care given in ANC follow up?	Yes	146	360	520
	no	45	22	53
Did health personnel's explain your case in understandable langue?	Yes	177	373	550
	no	14	9	23
Did health professionals explain the expected problems during labour?	Yes	150	358	508
	no	41	24	65
Did health professionals listen your concern and questions during ANC?	Yes	171	373	544
	no	20	9	29

Did health professionals inform about institutional delivery?	Yes no	185 6	381 1	566 7
Did health professionals keep privacy?	Yes no	168 23	375 7	543 30
Did health professionals keep confidentiality?	yes no	180 11	380 2	560 13

**Table 4:** Reasons to prefer Home delivery :(n=191)

Reason to prefer home delivery	No.	%
Unnecessary	2	1
Unfamiliar/not custom	33	17.3
Distance(far)	16	8.4
Price (high)	1	0.5
Lack of family/husband support	8	4.2
Facility not open	3	1.6
Lack of trust in quality of service	5	2.6
Absence of female health workers	6	3.1
Absence of health problem	38	19.9
previous safe home delivery	79	41.4
<b>Who attended the home delivery?</b>		
Family	149	78
Traditional birth attendant (TBA)	40	20.9
health extension worker	2	1

**Reasons for choosing home as place of delivery**

The reasons why mothers preferred giving birth at home among cases includes previous safe home delivery (41.4%), absence of health problem during pregnancy (19.9%) and unfamiliar or unaccustomed practices were reported as the top reasons. About 148(78%) problem during pregnancy (19.9%) and unfamiliar or unaccustomed practices were reported as the top reasons. About 148(78%) home delivered mothers were attended by family/relatives. Regarding the type of facility where the mother gave birth, about 318(83.2%) mothers delivered at health center, 41(10.7%) at hospital, 21(5.5%) at health post and 2(0.5%) gave birth at private clinic.

**Determinant factors for choice of place of delivery**

Home delivery had been practiced less likely in rural than urban [OR= 0.450, 95%CI; (0.256-0.789)]. Those women who were not formally educated were 2.578 more likely to utilize home as place of delivery as compared to educated women [OR=2.578, 95%CI ;( 1.583-4.196)]. On the other hand, the number of ANC visit had a significant association to home delivery: mothers who visit ANC clinic once were 3.28 times more likely to utilize home as place of delivery compared to those who visit more than once, [OR=3.28, 95%CI;(1.546-6.696)]. Those mothers who had not husband encouragement for institutional delivery were 3.475 times more likely to utilize



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home as compared to mothers who had husband encouragement [OR=3.475, 95% CI; (1.963-6.149)]. Similarly mothers who decided for place of delivery by their family including their husband were less likely to preferred home as a place of delivery compared to mothers decided by themselves [OR= 0.294,95%CI;(0.186-0.457)].

Presence of problem during the last pregnancy is important predictor for choice of place of delivery. Mothers who had not encountered any problem were 2.943 more likely to prefer home delivery as compared to mothers who had encountered a problem [OR = 2.943, 95%CI; (1.53-5.639)]. Those mothers who had not faced prolonged labor(greater than 12hrs) were 2.4 times more likely to deliver at home compared to those mothers who faced prolonged labor, [OR=2.4,95%CI;(1.219-4.727)].

Regarding quality of ANC service, service satisfaction is important predictor for choice of place of delivery. Those mothers who were not satisfied in a care while ANC follow up were 5.36 more likely to deliver at home compared to those who were satisfied in the service given in ANC follow up [OR=5.36, 95%CI(2.618-10.594)]. Similarly those mothers who were not informed the expected problems during labor and delivery were 4.033 more likely to deliver at home compared to those who were informed [OR=4.033,95CI;(2.066-7.875)]. Women who were not kept privacy by health professionals during ANC follow up service were 3.447 times more likely to deliver at home compared to those who were respected [OR=3.447, 95%CI;(1.200-9.896)]

**Table 5:** Bivariate and multiple logistic regression analysis on factors associated with choice of place of delivery after at least one ANC follow up, in Kalu woreda, South Wollo zone, Amhara region, North East Ethiopia, 2015. (n=573)

		<u>Place of delivery</u>		OR (95%CI)	AOR (95% CI)	p-
Variables value	Home	Facility				
<b>Residence</b>						
- Urban	43	70	1	1		<b>0.005</b>
- Rural	148	312	0.772	0.450(.256-.789)		
<b>Educational status</b>						
<b>&lt;0.001*</b>						
- Not educated	151	224	2.663	2.578(1.583-4.196)	1	
- Formally educated	40	158	1	1		
<b>Number of ANC visit</b>						
<b>0.002</b>						
- One ANC visit	35	18	4.537	3.28(1.546-6.696)		
- >1 ANC visit	156	364	1	1		
<b>Husband encouragement for institutional delivery</b>						
<b>&lt;0.001*</b>						
- Yes	125	351	1	1		
- No	66	31	5.978	3.475(1.963-6.149)		

<b>Who decide place of delivery?</b>					
<b>&lt;0.001*</b>					
-	Family	63	246	0.272	0.294(0.186-0.457)
-	Self	128	136	1	1
<b>Problem encounter during last pregnancy</b>					
<b>0.01</b>					
-	Yes	27	117	1	1
-	No	164	265	2.682	2.943(1.53-5.639)
<b>Have you face prolonged labor (&gt;12hr)?</b>					
<b>0.011</b>					
-	Yes	22	104	1	1
-	No	169	278	2.874	2.4(1.219-4.727)
<b>Service satisfaction while ANC follow up</b>					
<b>&lt;0.001*</b>					
-	Yes	146	360	1	1
-	No	45	22	5.044	5.36(2.618-10.594)
<b>Did health professionals inform you the expected</b>					
<b>Problems during labor and delivery while ANC follow up?</b>					
<b>0.001</b>					
-	Yes	150	358	1	1
-	No	41	24	4.077	4.033(2.066-7.875)
<b>Did health workers kept privacy while giving ANC service?</b>					
<b>0.021</b>					
-	Yes	168	375	1	1
-	No	23	7	7.334	3.447(1.200-9.896)

P value <0.001\*-statistically very significant

### Qualitative result

#### A. Why people prefer home as place of delivery?

Choosing home as place of delivery is best for most women since it is convenient and acceptable place by the community to handle once concern that cannot be done in health facility. Besides the above, most mothers didn't know expected date of delivery. So they give birth at home in accidentally without birth preparedness.

#### Key informant (TBA Mother)

A 29 years old woman said that “I have not chosen health facility as place of delivery since there were too many people were watching my neighbor during delivery and her privacy was not kept while she gave birth in health institution previously. So the health facility is not convenient place.”

#### B. What is expected from health professional to enhance facility delivery?

The way health professional handle during ANC follow up had an impact on the choice of place of delivery. The respondents agreed that the service should be satisfactory for women's' need, should keep privacy; assure confidentiality and making health facility to feel as home.

#### Key informant

A 32 years old woman said that “I am afraid to give birth in health institution since the nurse does not keep my privacy when I came for ANC follow up service. He ordered me to takeoff my cloths while the door and windows are still open.”

#### C. Is there any cultural barrier for institutional delivery?

Respondents mentioned that their culture and religion does not allow male health

professionals to attend females during ANC care and delivery in any circumstance whether it is home or health institution, rather females should be attended by female health workers alone.

Labour is normal life test that can be handled by women without assistance of health professional and give strength and readiness for other challenges.

#### **Key informant**

A 21years old woman said that *“giving birth at health institution is considered as a sign of weakness and powerlessness to challenge problems. So most women prefer to give birth at home in order to get societal acceptance and show their strength.”*

#### **Discussion**

Even if most mothers visit health facility during pregnancy for ANC, still institutional delivery is below the expected level. What factors determine the choice of place of delivery for those mother came to health facility at least one times during pregnancy? Maternal educational status is a significant predictor for choosing home as place of delivery. Those women who were not formally educated were 2.578 more likely to utilize home as place of delivery as compared to educated women OR=2.578, 95%CI; (1.583-4.196). This may be due to educated women are more prone to have information access, better understanding of the risk of home delivery. So, they made wise decision. This finding was similar to other studies outside Ethiopia (5, 6, 13-15) and with in Ethiopia (2, 10, 11, 16-19).

Residence is another important predictor for choice of place of delivery. Being rural has 55% less likely to deliver at home compared to urban residence OR= 0.450, 95%CI; (0.256-0.789). This finding is not in line with other studies, which shows being rural less likely to deliver at health facility (6,9-11,13,14,16,18,19). Possible reason for this discrepancy may be due to based on past finding; currently the governments

emphasize the rural sector by allocating health extension workers extensively as compared to urban which make rural women close to health facility. Rural residents are more prone to change and accept health professionals' advice as compared to urban residents.

Nnumber of ANCs visits had a negative association with home delivery, mothers who visit ANC once were 3.28 times more likely to utilize home as place of delivery compared to those who visit more than once, OR=3.28, 95%CI;(1.546-6.696). This finding was similar to other studies done in Rwanda, Ethiopia, Nepal and Ghana (14, 20, 23, and 25). This association justifies that women who come to ANC visit repeatedly have better chance to be educated and counseled by different health professionals.

Women who had no husband encouragement for institutional delivery were more likely to deliver at home OR=3.475, 95%CI;(1.963-6.149) which is in line to another done in northern Ethiopia (2).The possible justification may be those mothers lacking husband support fail to come to health facility and prefer home as place of delivery since they may face a problem in getting financial and psychological support.

A controversial result of this study shows that those women who decide the place of delivery by family including husband were 71.6% less likely to deliver at home OR=0.294, 95%CI;(0.186-0.457). It is supported by the qualitative finding which shows most women prefer to deliver at home because if the women delivers at home, she will considered as strong and have societal acceptance.

Women who had not encountered any problems during the last pregnancy and mothers who had not faced prolonged labor (greater than 12hrs) were positively associated with home delivery, OR = 2.943, 95%CI ;( 1.53-5.639) and OR=2.4,

95%CI;(1.219-4.727) respectively. This is comparable to other studies done in different areas (2, 9, 19). This is supported by qualitative finding which shows most women prefer home as place of delivery since they describe home as easiest and safest place for giving birth and they did not believe that any pregnant women is at risk and they believe she can give birth safely at home. Descriptive statistics also shows that the reasons why a woman chooses home as place of delivery, previous safe delivery was mentioned as the top reason.

Besides the maternal aspects, qualitative and quantitative findings revealed that service satisfaction and keeping privacy while ANC follow up were also a significant determinant factor for choice of place of delivery. Mothers who were not satisfied in the care given during ANC follow up and not kept privacy were positively associated with home delivery, OR=5.36, 95%CI;(2.618-10.594) and OR=4.033, 95%CI;(2.066-7.875) respectively. This finding is in line with Ethiopian and Nigerian studies (11, 29). This association justifies quality of ANC services whether the mothers come or not for next visit and it indicates the need of women friendly care of ANC services. Those mothers who were discouraged during ANC follow up, will prefer home as place of delivery.

Communicating expected problem during labour and delivery in ANC follow up has a significant association to choice of place of delivery. Women who were not informed regarding expected problems with labor and delivery has positive association with home delivery, OR=4.033,95%CI;(2.066-7.875) which was comparable to Rwandan study(14). This finding suggests that ANC follow up services give better chance to educate mothers regarding pregnancy danger signs, expected problems and consequences of home delivery.

### **Conclusion**

- Being rural resident and family decision on place of delivery were negatively associated with choosing home as place of delivery.

- Being not educated, not getting husband's encouragement for institutional delivery and unsatisfied ANC follow up were positively associated with choosing home as place of delivery.

- Having only one ANC visit, not having a history of obstetric problem, not kept privacy and fail to be informed and counseled the expected problems during labor and delivery while ANC follow up by health care providers were positively associated with home delivery.

- The most common reasons for not choosing institutions/facility as place of delivery include previous safe home delivery, absence of health problems and unfamiliar/not costumed by the society.

### **Recommendations:**

#### **Work to be done at clinic setup**

- Health care providers who are assigned at ANC clinic should provide consistently comprehensive/holistic care. Besides treating of existing problems, they should inform and counsel the risk of home delivery and expected problems during labour.

- Health care providers who are assigned at ANC clinic should satisfy and respect women need by providing friendly services to increase the chance of next visit.

#### **Work to be done outside health facility**

- Zonal or district health office should create ANC and delivery follow-up mechanism, so that the number of ANC followers can be increased by tracing defaulters.

- Zonal or district health office or concerned body should give continuous training for health professionals to improve the quality of care and service satisfaction.

“Determinates of choice of place of delivery among mothers who follow antenatal care service in Kalu Woreda, South wollo zone, Amhara regional state, October - 2015.”

- Health extension workers should follow up pregnant mothers from first ANC visit till the delivery by developing follow up charts.

- Zonal or district health office is expected to ensure equity in health extension worker distribution between urban and rural.

- At the community level, influential individuals like religious leaders should be educated the importance of family encouragement in deciding and choosing facility as a place of delivery.

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