

INSTITUTIONAL DELIVERY SERVICE UTILIZATION AND ASSOCIATED FACTORS AMONG MOTHERS IN AFAMBO DISTRICT, AFAR, ETHIOPIA - 2016. COMMUNITY-BASED CROSS SECTIONAL STUDY.

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Abstract

Introduction: Institutional delivery service utilization is very low, even among the community who has access to the health institutions including Ethiopia, especially, in Afar Region. Since there is no recent study done in the area, this study aimed at searching useful information that prevent women to give birth in health institutions.

Objective: To assess the level of institutional delivery service utilization and associated factors among women who gave birth in the past two years in Afambo District, Afar Region, Ethiopia-2016

Methods: Community based cross-sectional study was conducted with 519 mothers who delivered in the past two years by using Simple random sampling with structured questionnaire. Numerous predictors were investigated for their associations with the outcome variable using bivariate and multivariate logistic regression analysis, to identify the factors affecting institutional delivery service utilization

Conclusions: Institutional delivery service utilization was very low (22.4%) in the study area. Educational level of mothers, wealth status of mothers, Ante-Natal Care (ANC) utilization status of mothers including satisfaction of mothers on the services were significantly associated statistically and identified as determinant factors for institutional delivery service utilization, which needs to be addressed through properly designed interventions.

Key words: Institutional delivery, Afambo District, Afar, Ethiopia.

Introduction

Globally, maternal mortality remains as a major challenge and approximately 287,000 women died from causes related to pregnancy and child birth in 2010. Of these, 162,000 were in Sub-Saharan Africa and 83,000 were in South Asia. Maternal mortality ratio ranges from 16 in the

developed countries to 220 in South Asia and 500 in Sub-Saharan Africa. It was estimated to be 342,900 maternal deaths worldwide in 2008, decreasing from 526,300 in 1980 in which 50% of all maternal deaths were only from India, Nigeria, Pakistan, Afghanistan, Ethiopia, and the Democratic Republic of Congo(1).

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Ethiopian maternal mortality(673/100000 live births) is one of the highest in the world(2,3). The risk of death from complications relating to pregnancy and childbirth over the course of a woman’s lifetime in developing country is one in 76, compared with one in 8000 in the industrialized world(4). The complications that cause the death and disabilities of mothers also affect the unborn child and these deaths could be avoided if timely preventive measures were taken and if adequate cares were available especially, at the time of pregnancy, child birth and post partum period in the obstetric care service. Above 60% of mothers die immediately following delivery, of which, more than half occurring in the first day of delivery(5).

Globally, about 80% of maternal deaths are due to direct causes like hemorrhage, infections, obstructed labor, unsafe abortion and high blood pressure. The most feared complication that occurs usually after the mother has given birth is severe bleeding(6). About 74% of maternal deaths can be avoided, if all women could access the interventions that can address complications of pregnancy and child birth, basically emergency obstetric care. Similar studies conducted on maternal mortality and morbidity in developing countries have usually recommended the importance of antenatal care and availability of skilled personnel to attend women during labor and delivery, but occupation of mothers and their husbands, education of husbands, history of difficult labor, and so forth were found to be significant predictors of institutional delivery(7).

Women are encouraged to deliver in health institutions as a strategy to improve maternal health outcomes(8). In Ethiopia, the utilization of institutional delivery service is very low even among the community who has access to the health institutions. ANC follow up, being knowledgeable on delivery service, consulting others on decision making and

possession of radio were positively associated with institutional delivery service utilization and absence of health problem during delivery was identified as the major reason for home delivery in some researches done so fare like in Metekel zone, North west of Ethiopia(9).

In Ethiopia, 85% women delivered at home, where the pregnancy complication could not be managed and the environment is not hygienic. According to EDHS 2014, the percentage of births delivered in a health facility is 50 percent higher from 10 percent reported in 2011. But, the percentage of births delivered in the health institutions ranges from 6 percent in Afar to 87 percent in Addis Ababa, indicating that, institutional delivery service utilization is significantly lower in Afar Regional State. 45% of births did not take place in a health institution because, mothers did not think it was necessary, and for 33% of births, mothers stated that it was not customary. Women said that the health institution was either too far or that they did not have transportation in 22% of births. Rural woman were more likely than urban women to report that health facility deliveries are not customary (34% versus 24%), or that health facilities were too far or they had no transportation (22% versus 14%) (10).

Understanding factors that affect institutional delivery service utilization is important in order to improve health services delivered to pregnant mothers to reduce maternal morbidity, mortality that are related to pregnancy and child birth. Since institutional delivery service utilization is very low in Afar Region compared to other Regions in Ethiopia, the Region needs to find out factors that have to be considered to improve institutional delivery service utilization.

Since there is no recent study done in the area, the study aimed at searching information that prevent women to give birth in health institutions. The information obtained is useful for the community and

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decision makers at the District and Regional level in planning and implementing various interventions that could improve institutional delivery service utilization.

Conceptual frame work;

This framework considers person related factors as well as health facility factors. The person related factors include the

mother’s socio-demographic characteristics as well as socio – economic factors. It also considers how community attitudes and Knowledge influence on the decision to seek the institutional delivery service. The health facility factors are related to availability accessibility as well as the quality of care. (Reuben K. Esena, Mary-Margaret Sappor, 2013) (Figure 1)

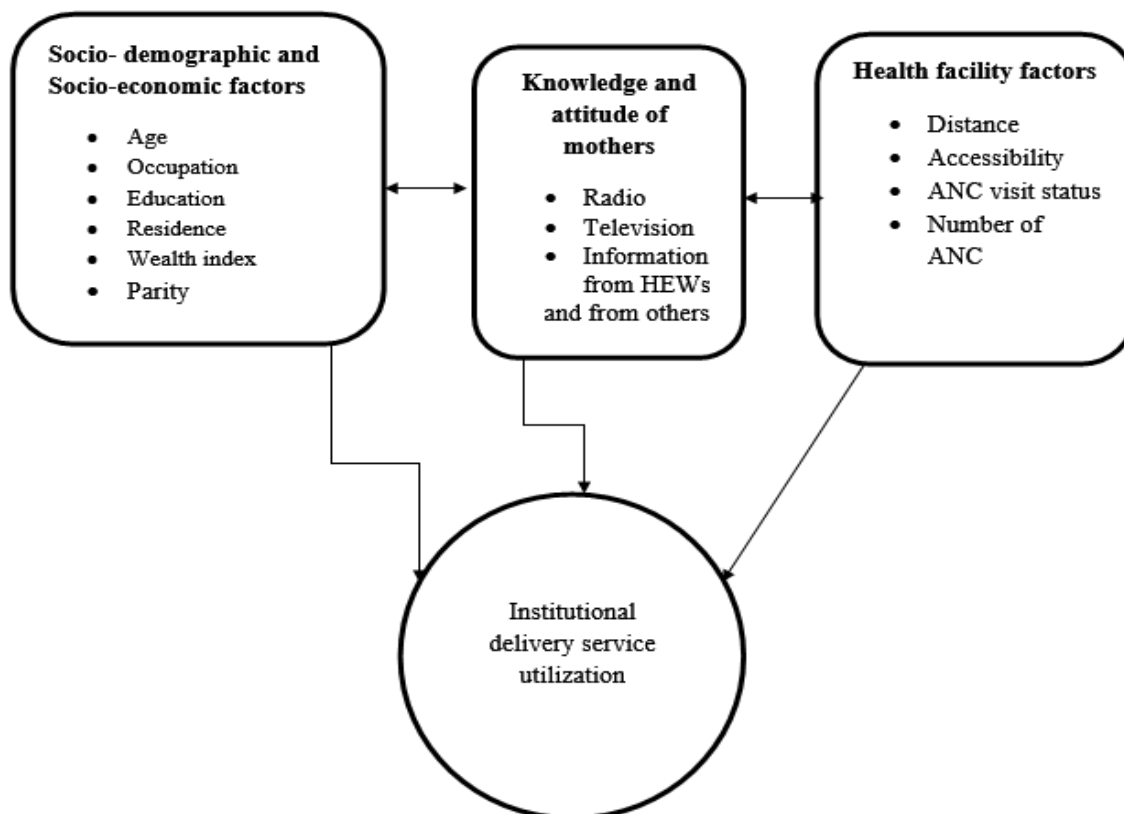


Figure 1: Conceptual frame work of institutional service utilization in Afambo Woreda, Afar Region, Ethiopia, 2016.

General objective

To assess institutional delivery service utilization and associated factors among women who gave birth in the past two years in Afambo District, Afar Regional State, 2016

Specific objectives

1. To determine of institutional delivery service utilization among women who gave birth in the past two years in Afambo District.
2. To identify factors associated with institutional delivery service utilization among women who gave

birth in the past two years in Afambo District.

Methods

The study was conducted in the Afambo district, Afar Regional State from April 15-30, 2016.

Based on the Central Statistics Agency of Ethiopia (CSA) census done in 2007, the total population projection of Afar Region for the year 2014-2017 is 1,678,000, of which, 923,000 are men and 755,00 are women(29). A community based cross-sectional study design was used with

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Sample 535 women who gave birth in the past two years who were selected with simple random sampling method from randomly selected 4 villages' households.

The required sample size was determined using single population proportion formula. In using the single population proportion formula, 3% of margin of error (d), 95% confidence level, health facility delivery (6%) for Afar region and 10% non-response rate assumptions were taken.

With all these, the sample size was calculated as mentioned below.

$$n = \frac{(z_{1/2})^2 p(1-p)}{d^2}, \text{ where } p = \text{the prevalence} = 6\%, d = \text{the margin of error} = 3\%, \text{ and } Z_{1/2} = 1.96 \text{ therefore}$$

$$n = \frac{(1.96)^2 (0.06)(1-0.06)}{(0.03)^2} = 241,$$

multiplying by 2 for design effect it became 482 and expecting 10% non response rate, the final sample size was determined to be 530.

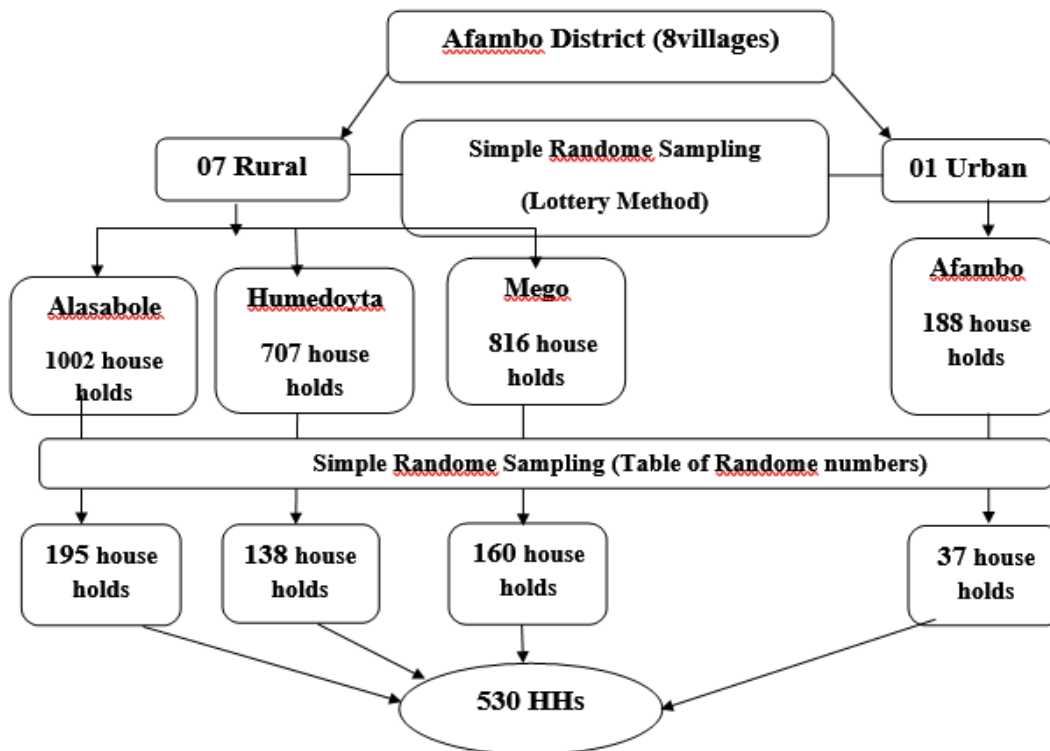


Figure 2: Schematic presentation of sampling procedure on institutional delivery service utilization and associated factors in Afambo District, Afar, Ethiopia, 2016.

Dependant Variable: Institutional delivery service utilization

Independent Variables

- Socio-demographic variables like age, religion, educational level, number of children, women occupation, husband’s education level and others.
- Socio-economic factors like wealth index

- Health service factors like distance to the health institution
- Knowledge and attitude of mothers were included as independent variables

Operational definitions

Institutional Delivery: Refers to giving birth of a mother in hospitals, health centers or health Posts.

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Institutional delivery service utilization:

Refers to level of using delivery service in health centers or health Posts.

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’ (WHO).

Accessibility of institutional delivery service: Availability of health facility providing delivery service within 2 hours distance by walk..

Permanent resident: Reefers living of women in the district at least six months

Knowledgeable: Woman would be considered knowledgeable if she scores 0.5 and above for knowledge questions when one is given for correct answer and zero for incorrect answer.

Favorable attitude: Women were considered as having favorable attitude towards institutional delivery service utilization, if she scores 50% and above on attitude questions and unfavorable if otherwise. A total of ten attitude questions, which has got three choices agree, disagree and neutral were selected. For positive statement those who would choose agree were given one point and those who would chose neutral and disagree were given zero. For negative statements those who would choose disagree were given one point, and those who chose, agree and neutral were given zero. The overall attitude would be calculated by summing scores.

Feima: Cultural age based classification and arrangement of Afar Community within ethnic group for social cases management.

The data were collected using structured pre-tested questionnaire which was adopted from different literatures. Data were checked for completeness and entered in to Epi Info 3.5.1. Data were checked for missed values and outliers using SPSS package version 20 after being exported for

analysis. Frequencies and cross tabulation were used for the descriptive analysis of the data. To measure households’ economic status, household wealth index was constructed based on the EDHS approach using principal components analysis. Associations between determinant factors and institutional delivery service utilization were analyzed using bivariate and multivariate logistic regression. 95% confidence intervals were used to check significance of the variables. Odds ratio was calculated to measure strength of association. Ethical clearance was obtained from the concerned authorities.

Results and Discussion

In the survey, 530 mothers who delivered in the past two years were included. Of which, three found to be incomplete and excluded from the analysis and eight did not respond to the interview, making the response rate 98.5%.

Socio-demographic characteristics

Among the 519 mothers interviewed, 482 (92.9%) were rural and 37(7.1%) were urban residents. The mean age of the mothers was 29.4 years (28.26 ± 5.61 SD) years. Majority of the respondents’ age was in the range of 25-34, 189(36.4%) (**Table: 1**).

All 519 (100%) subjects were Muslims and 492 (94.8%) were Afar, 21(4.0%) were Amhara and 6 (1.2%) were Oromo. 370 (71.3%) of them cannot read and write and 10(1.9%) were with educational level of secondary and above (>7). Majority participants’ occupation 412(79.4%) was housewives, 14(2.7%) were Government Employees and only 5(1%) were Merchants. Majority of them 374(72.1%) were married, living with their husband, 49(9.4%) were divorced, 30(5.8%) were widowed and 66(12.7%) were separated living in different areas. 102(19.7%) of them were poor, 109(21%) were in the highest wealth index and the rest 308 (59.3%) were in the lower middle, middle and upper middle wealth index (**Tabel 1**).

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Table: 1 Socio-demographic characteristics among mothers (n = 519) in Afambo district, Afar, Ethiopia -2016

Variable	Frequency	Percentage
Place of residence		
Rural	482	92.9
Urban	37	7.1
Age group		
15-19	10	1.9
20-24	64	12.3
25-29	189	36.4
30-34	194	37.4
> 34	62	11.9
Ethnicity		
Afar	492	94.8
Others	27	5.2
Marital Status		
Married	374	72.1
Divorsed	49	9.4
Widowed	30	5.8
Separated	66	12.7
Educational level		
Cannot read and write	370	71.3
Can read and write	106	20.4
Primary(1-6)	33	6.4
Secondary(7 and above)	10	1.9
Occupation		
Pastoralist	84	16.2
Howswife	412	79.4
Govmn't employee	14	2.7
Private employee	4	0.8
Merchant	5	1.0
Wealth index		
Poorest	102	19.7
Lower Middle	104	20.0
Middle	108	20.8
Upper Middel	96	18.5
Highest	109	21.0

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Obstetric characteristics

378(72.8%) of mothers delivered 4 and less than 4 children and only 26(5%) of them delivered seven and more than seven children. 99(19.1) of them experienced abortion and 17(3.3%) of them experienced still birth. In their last pregnancy, 325 (62.6%) of them attended ANC, of which, 36 (11.08%) attended one time, 219(67.38%) attended two –three times and only 70(21.53%) attended four times.

447 (86.1%) of mothers decided on place of delivery themselves, husbands decided in 31(6%) of them, and relatives/ families decided in 41(7.9%) of mothers. Majority of mothers 403 (77.6%) delivered their last pregnancy at home and, only 116(22.4%) of mothers delivered in the health institution. Most of the home deliveries 312(60.1%) were attended by traditional birth Attendants (TBAs), 61(11.8%) by relatives/families and 30(5.8) % attended by neighbours (**Table 2**).

Table 2: Obstetric characteristics among mothers (n = 519) in Afambo district, Afar, Ethiopia- 2016

Variables	Frequency	Percentage
Numeroe of children		
≤ 4	378	72.8
5-6	115	22.2
≥ 7	26	5
Abortion experiece		
Yes	99	19.1
Still birth		
Yes	17	3.3
ANC status		
Yes	325	62.6
Number of ANC		
One	36	11.1
Two-Three	219	67.4
Four	70	21.5
Decision maker on place of delivery		
My self	447	86.1
My husband	31	6.0
Relatives/Family	41	7.9
Delivery place of last pregnancy		
Health Institution	116	22.4
Home	403	77.6
Attendants of home delivery		
TBA	312	60.1
Relatives/Family	61	11.8
Neiobours	30	5.8

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Among mothers who delivered at home , 38.9% of mothers mentioned that they want to be with the relatives and TBA during delivery as a reason for home delivery and sudden labour and previous normal delivery experiences were mentioned as reasons in 25% & 24.5% of mothers (Figure 3). Mothers who delivered in

health institution, only 2(0.5%) mentioned that the health facility is near to them and previous better delivery out come at health facility and need of better service were a mention as a reason for institutional delivery in 76(18.8%) & 65(16.1%) of mothers (Table 3)

Table 3: Reasons for institutional delivery (n = 519) among mothers in Afambo district, Afar, Ethiopia - 2016

Reasons for health institution delivey	Frequency	Percentage
Health Facility is near	2	0.5
Need better service	65	16.1
Better previous delivery outcome at HF	76	18.8
Tolled to deliver at HF	47	11.6
Difficult labor	26	6.5
Bad outcome of Previous home delivery	33	8.2

Health service related characteristics

For the majority 503 (96.9%) of mothers, the health institutions were accessible within in 2 hours walk and for 16(3.1%) of them the distance was more than 2 hours of walk. Health Extension workers were sources for the majority 497(95.8%) of mothers for health related information, the community itself was source of health information for 168(32.4%) of mothers and radio and televisions served as source of health information in 99(19.1%) of

mothers. 117(33.5%) were satisfied for the services given at the health institutions and absence of drugs and medical supplies 224(43.2%) and bad behaviors of professionals 108(20.8%) were mentioned as main reasons for dissatisfaction of mothers for the health services. All of the interviewed mothers were knowledgeable, since they scored above 50% on the knowledge questions and majority of them 372(71.2%) had favorable attitude towards institutional delivery service utilization (Table 4)

Table 4: Health service related characteristics among mothers (n=519) in Afambo district, Afar Regional State, Ethiopia, April, 2016

Variables	Frequency	Percentage
Time to arrive health institution		
<30	100	19.3
31-60	218	42.0
60-120	185	35.6
>120	16	3.1
Source of health information		
Radio	98	18.9

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Television	01	0.2
HEWs	497	95.8
Community(Dagu)	168	32.4
Satisfaction on service at health institution		
Satisfied	174	33.5
Not Satisfied	345	66.5
Reasons for dissatisfaction		
No drugs and supplies		
Yes	224	43.2
Bad behavior of professionals		
Yes	108	20.8
Lack of privacy		
Yes	33	6.4
Presence of male professional		
Yes	27	5.2
Knowledge status on institutional delivery		
Knowledgeable	519	100
Not Knowledgeable	0	0
Attitude towards institutional delivery		
Favorable	372	71.7
Not favorable	147	28.3

Bivariate analysis for institutional delivery service utilization

The bivariate analysis indicate that, age of mothers (COR=2.50, 95% CI=1.14-5.51), educational level of mothers(COR=3.55, 95% CI= 1.64-7.67), wealth status of mothers (COR=3.68, 95% CI= 1.21-11.22), ANC utilization status of mothers(AOR=11.74, 95% CI = 5.12-26.94), satisfaction of mothers on the services (COR=15.96, 95% CI=5.33-47.78), unavailability of drugs and supplies(COR=14.03, 95% CI=8.48-23.23), bad behavior of professionals as a reason for dissatisfaction (COR=0.85, 95% CI=0.09-0.26) and attitude towards institutional delivery service utilization (COR=2.49, 95% CI=1.62-3.82) were statistically significantly associated factors

with institutional delivery service utilization.

The remaining variables: place of residence, number of children delivered, number of ANC visits and decision makers on place of delivery were not statistically significantly associated to the outcome variable.

Multivariate analysis for institutional delivery service utilization

In the multivariate logistic regression model, the following factors were found statistically significantly associated with the outcome variable: educational level of mothers, wealth status of mothers, ANC utilization status of mothers and satisfaction of mothers on the services were found to be significantly associated factors with institutional delivery service utilization(**Table: 5**).

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As compared to mothers who cannot read and write, mothers who can read and write were 4 times, (AOR=3.55, 95% CI=1.64-7.67) more likely to deliver in the health institution. Compared to poor mothers in the wealth index, mothers with wealth index of middle were 4 times (AOR=3.68, 95% CI= 1.21-11.22), mothers with upper middle wealth status 6 times (AOR=6.09, 95%CI=1.92-19.24) and mothers with highest wealth index 5 times (AOR=5.19, 95% CI=1.59-16.98) more likely to deliver in the health institution.

Mothers who visited health institution in their last pregnancy were, 11 times (AOR=11.74, 95% CI = 5.12-26.94) more likely to deliver in the health institution, as compared to mothers who did not visit the health institution for ANC. Mothers who satisfied on the services given at the health institution were 15 times (AOR=15.96, 95% CI=5.33-47.78) more likely to deliver in the health institution as compared to mothers who were dissatisfied on the services given at the health institution.

Table 5: Bivariate and multivariate logistic regression analysis to identify factors affecting institutional delivery service utilization in Afambo district, Afar Regional State, Ethiopia, April, 2016

Variables	Delivered at HF		COR (95% CI)	AOR (95% CI)
	Yes N(%)	No N(%)		
Place of residence				
Urban	6(16.2)	31(83.8)	0.66(0.27-1.61)	1.06 (0.31-3.68)
Rural	110(22.8)	372(77.2)	1	1
Age group				
>30	46(25.7)	133(74.3)	2.85 (1.27-6.39)*	2.86 (0.58-13.98)
25-30	62(23.3)	204(76.7)	2.50 (1.14-5.51)*	1.68 (0.42-6.71)
16-24	8(10.8)	66(89.2)	1	1
Educational level				
Secondary(7 and above)	2(20.0)	8(80.0)	1 (0.21-4.80)	1.14 (0.15-8.87)
Primary(1-6)	3(9.1)	30(90.9)	0.4 (0.12-1.35)	0.39 (0.12-3.27)
Can read and write	37(34.9)	69(65.1)	2.15(1.34-3.45)	3.55 (1.64-7.67)*
Cannot read and write	74(20.0)	296(80.0)	1	1
Wealth Index				
Highest	23(21.1)	86(78.9)	3.63 (1.48-8.88)**	5.19 (1.59-16.98)*
Uper Middle	29(30.2)	67(69.8)	5.87 (2.43-14.19)**	6.09 (1.92-19.24)*
Middle	34(31.5)	74(68.5)	6.24	3.68

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			(2.62-14.86)**	(1.21-11.22)*
Lower Middle	23(22.1)	81(77.9)	3.85(1.57-9.45)	2.04 (0.64-6.49)
Poor	7(93.1)	95(6.9)	1	1
Number of children delivered				
≥ 7	6(23.1)	20(76.9)	1.12(0.43-2.88)	1.32 (0.36-4.85)
5-6	30(26.1)	85(73.9)	1.32(0.81-2.13)	1.43 (0.69-2.96)
<4	80(21.1)	298(78.9)	1	1
ANC status				
Yes	100(30.8)	225(69.2)	4.94(2.82-8.68)**	11.74 (5.12-26.94) *
No	16(8.2)	178(91.8)	1	1
Number of ANC				
2-4	113(23.1)	376(76.9)	2.71(0.81-9.08)	0.68 (0.06-1.59)
1	3(10)	27(90)	1	1
Decision maker on delivery place				
My self	104(23.3)	343(76.7)	1.51 (0.79-2.93)	1.90 (0.74-4.92)
My husband/Family and relatives	12(16.7)	60(83.3)	1	1
Satisfaction on service at health institution				
Satisfied	91(52.3)	83(47.7)	14.03(8.48-23.23)**	15.96 (5.33-47.78)**
Dissatisfied	25(7.2)	320(92.8)	1	1
Reasons for dissatisfaction				
No drugs and supplies				
Yes	16(7.1)	208(92.9)	0.15(0.09-0.26)**	0.41 (0.19-1.76)
No	100(33.9)	195(66.1)	1	1
Bad behavior of Professionals				
Yes	8(7.4)	100(92.6)	0.22(0.11-0.48)**	0.33 (0.20-2.17)
No	108(26.2)	303(73.8)	1	1

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Attitude towards institutional delivery				
Favorable	74(30.7)	167(69.3)	1	1
Not favorable	42(15.1)	236(84.9)	2.49(1.62-3.82) **	2.28 (0.95-5.49)

*P<0.05 **P<0.001

This community based survey was conducted to identify the level of institutional delivery service utilization and associated factors affecting institutional delivery service utilization among mothers who delivered in the past two years in Afambo district, Afar, Ethiopia.

Level of institutional delivery service utilization:

Only 22.4% of mothers delivered in the health institution, indicating that, most of the mothers delivered their babies at home in study area. Compared to other studies conducted in other countries like India, Naila in Jaipur district of Rajasthan(99.56%) (11) , in Guena (52%)(13) and in the study conducted in Biharamulo District, Tanzania(56%)(14), the finding was very low. This might be due to the socio-economic and cultural difference. But, compared to some of the studies conducted in many parts of Ethiopia like in Sekela district, Amhara region (12.1%)(15), in SNNP in the pastoralist community (4.3%) (2), in Sahari Samre district Saharti, Tigray Region (6%) (3), in Banja district, Amhara Region (15.7%)(30), in Munisa district Arsi zone, Oromia Region(12.3%)(8), the finding was relatively better. This might be due to time, since the community mobilization and awareness creation ways towards the institutional delivery service utilization were becoming improved in many parts of the country, including Afambo district in the past two years. The finding was comparable with another study conducted in Oromia Region, Kombolcha district, East hararge Zone, where 25.3% of respondents gave birth at health institution (7).

Our study area finding is better than the EDHS 2014 data of Afar where the institutional delivery service utilization was only 6 %. This might be due to the district’s special awareness creation coordination way using ‘fiema’and strong community mobilization activities. But, still, the level of institutional delivery service utilization is low compared to another study conducted in Afar Region, Asayta and Dupiti towns where, delivery service utilization rate was 54.2% (15), and the difference might be due to the urban setting of Assayta and Dubti, where the socio-economic status and awareness of mothers could be better.

Association between place of delivery and education of mother:

Compared to mothers who cannot read and write, mothers who can read and write were 4 times, (AOR=3.55, 95% CI= 1.64-7.67) more likely to deliver in the health institution. This finding is consistent with the data from Demographic and Health Surveys conducted in Bangladesh, India, Pakistan, Kenya, Nigeria, and Tanzania and with the study conducted in Afar, Zone three (12, 21). But in this study, mothers’ education secondary and above level was not significantly associated with institutional delivery service utilization. This finding is not consistent with the study conducted in Metekel Zone, North West of Ethiopia, in Chilga district, North West of Ethiopia, in North Gonder Zone and in many other studies, where mothers education secondary and above was statistically significantly associated (9, 19, 20). That might be due to those mothers’ awareness on low quality services of the health institutions’ delivery service in

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Afambo district. In this study, no difference was observed between mothers who were unable to read and write and who were in primary education level in utilizing instructional delivery service and the result was consistent with the study conducted in Arsi Zone(8).

When compared to poor mothers in the wealth index, mothers with wealth index of middle are 4 times (AOR=3.68, 95% CI= 1.21-11.22), mothers with upper middle wealth status are 6 times (AOR=6.09, 95% CI= 1.92-19.24) and mothers with highest wealth index are 5 times (AOR=5.19, 95% CI= 1.59-16.98) more likely to deliver in the health institution. This finding was consistent with the data from the Demographic and Health Surveys conducted in Bangladesh, India, Pakistan, Kenya, Nigeria, and Tanzania(12) and Afghanistan, where women from the poorest quintile were 4 times (OR=4.19) more likely to have non-institutional delivery compared to those women from the richest quintiles(17).

Mothers who visited health institution for ANC in their last pregnancy were, 11 times (AOR=11.74, 95% CI = 5.12-26.94) more likely to deliver in the health institution, compared to mothers who did not do so. This finding is consistent with the study conducted in Sekela district, North West of Ethiopia and Bahir Dar city(15, 25). Mothers who satisfied with the services given at the health institution were, 15 times (AOR=15.96, 95% CI=5.33-47.78) more likely to deliver in the health institution as compared to mothers who were dissatisfied. The finding was consistent with the study conducted in Dubti district of Afar (31). But in this finding, decision maker on place of delivery was not statistically significantly associated factor. The finding is consistent with the data form Demographic and Health Surveys conducted in Bangladesh, India, Pakistan, Kenya, Nigeria, and Tanzania (12). Surprisingly, in this study place of residence was not statistically

significantly associated factor with institutional delivery service utilization. The finding was inconsistent with the study conducted in Malawi, Metekel Zone, North West of Ethiopia, Chilga district, North West of Ethiopia and North Gonder(9, 18-20). This might be due to the fact that no difference is usually observed in the life style and socio-economic status between urban and rural residents of the district.

Number of ANC visits of mothers was not statistically significantly associated with institutional delivery service utilization. The result is inconsistent with the study conducted in Afghanistan(17). This might be due to poor quality of ANC services at the health institutions. In this study, age group of mothers was not statistically significantly associated with institutional delivery service utilization. The result is inconsistent with the study conducted in Metekel Zone, North West of Ethiopia and Debremarkose (9, 16). Again in this study, the attitude of mothers was not statistically significantly associated with institutional delivery service utilization. The result is inconsistent with the study conducted in Metekel Zone, South West Ethiopia and in the study conducted in Arsi Zone, South West Ethiopia (8, 9). This might be due to the institutional delivery service utilization was affected most importantly by the satisfaction of mothers given at the health institution.

Limitation of the study

Independent sources of information, such as facility records were not used to validate respondents' self-reports of institutional deliver service utilization. The result might be also affected due to recall bias; since the study is on institutional delivery service utilization in the past two years. However, efforts were exerted to overcome the challenges during the study.

Conclusion

In the study area, institutional delivery service utilization was very low i.e. 22.4% more than 75% of mothers delivered at their home. Educational level of mothers,

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wealth status of mothers, ANC utilization status of mothers including satisfaction of mothers on the services were identified as positively associated determinant factors for institutional delivery service utilization. Based on the findings it is recommended that the Regional Health Bureau and Health District Office to develop strategy to improve the satisfaction of mothers on the services and promote ANC utilization needs. The study findings can be utilized by NGOs and other relevant bodies to start their planning from interventions that could improve the mothers empowerment addressing their social conditions like education and wealth status. There is a need for further study on the effects of providers on institutional delivery service utilization: like quality of services, providers' type and attitude of staffs.

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