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# Place of delivery after antenatal care: the case of Fogera district, Amhara region, North West, Ethiopia; 2013

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**Abstract:** Back ground: Increasing the proportion of institutional deliveries with a skilled attendant is a key intervention for reducing maternal morbidity and mortality. However remarkable difference is observed between the proportion of antenatal care clients and facility delivery utilisation. In Ethiopia, little is known about the factors that affect women's place of delivery after utilization of antenatal care service. Objective: To identified women's place of delivery and associated factors after antenatal care (ANC) service in Fogera district, North West Ethiopia. Method: Community based cross sectional study was conducted from January to March, 2013 on randomly selected sample of 399 women who had antenatal care visit and delivered one year before the survey. Pre-tested and structured interviewer administered questioner was used to collect the data. The data were analysed using SPSS version 16 and multiple logistic regression was used. Results: A total of 399 women who had at least one antenatal care (ANC) follow up and delivered one year prior to the survey was interviewed. Only 126(31.6%) of mothers gave birth in the health facilities. Multivariate analysis showed that residence AOR= 4.6, 95%CI; (1.3, 15.9), privacy during antenatal care (ANC) AOR =4.6, 95%CI :( 2.2,9.2), respect during ANC AOR =2.9, 95%CI:( 1.5,5.9) and quality of antenatal care counseling were important predictors of place of delivery after antenatal care (ANC). Conclusion: Institutional delivery after ANC utilization was low. Maternal education, absence of privacy and low quality of antenatal care counseling during ANC visit were important predictors. Women friendly care and quality of counseling during ANC visit have a great role on facility delivery.

**Keywords:** Antenatal Care, Delivery, Labour, Fogera

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## 1. Introduction

Three core health sector strategies for reducing maternal and early neonatal deaths include comprehensive reproductive health care; skilled care for all pregnant women, especially during delivery; and emergency obstetric care for all women and infants with life threatening complications [1].

Maternal mortality remains high in the developing world, comparison of the lifetime risk of maternal death in industrialized countries (1 in 8000) versus in Sub-Saharan Africa (1 in 22) and Asia (1 in 59) presents a particularly stark picture of persisting global disparities in maternal health [2]. The lifetime risk of death due to pregnancy-related complications is 250 fold higher among women in developing than in developed countries [3].

Globally about 585,000 women die each year due to conditions related to pregnancy and child birth; 99% of

which occur in developing countries. Over three quarter of global maternal deaths are due to causes directly related to pregnancy and childbirth [4]. WHO estimated that 34% of the mothers deliver with no skilled attendant; this means there are 45 million births occurring at home without skilled health personnel each year [5].

These deaths could be avoided if preventive measures were taken and adequate cares available particularly during pregnancy, childbirth and postpartum period. More than 60% of maternal deaths occur immediately following delivery, with more than half occurring within a day of delivery, it could be prevented if the delivery attended by skilled provider [4-6].

Global experiences show that ANC use is higher than delivery by a professional in the large majorities of countries in the developing world. While an estimate of 97% of the pregnant women in developed countries receive ANC and 99% use skilled obstetric service at delivery, 65% and

53% of women in developing countries use ANC and skilled obstetric care respectively [7].

Antenatal care (ANC) visits constitute one of the few times women in many resource-poor settings seek care for their own health [8], and, represent an important opportunity to help women best prepare for birth, as well as inform them about pregnancy-related complications, and the advantages of skilled delivery care [9,10]. While the importances of antenatal care for maternal and child health continues to be debated, several researchers have documented its impact on intermediate variables affecting survival such as birth weight. But the effect of antenatal care on women's decision to seek skilled birth attendance has received less attention by researchers [11]. Nevertheless, at least 20% of all women who attend ANC four times or more in sub-Saharan African and in Asian countries do not seek skilled delivery attendance [12].

In Ethiopia, institutional delivery is very low as compared other countries, only ten percent of women give birth at health facilities while 34% of women attend antenatal care [13]. Over 90% of the deliveries take place at home and mostly without the assistance of medically trained personnel [14]. Even though under utilization of the existing institutional delivery service was a major problem [15-18], study on the predictors of institutional delivery after antenatal care utilization was scarce.

Therefore, the objective of this study was to assess the place of delivery and associated factors of place of delivery after antenatal care utilization in Fogera district north-west, Ethiopia. Information on why mothers choose to deliver at home after ANC is very vital for health planners, managers and relevant stake holders in order to rationally design the appropriate delivery service utilization, planning and implementation of interventions

## 2. Materials and Methods

Cross-sectional community based study was conducted from February 15 to April 15 2013 in Fogera Amhara region, North-West Ethiopia.

According to the Fogera District Finance and economic development office report of 2012, it has 27 rural and 1 urban kebeles. It has an estimated population of 206, 730 with 49% females. Majority of the populations are farmers and Christian. And the report made by the district health office showed that, women of reproductive age constitute approximate 43, 227 (21%) of the population. The report also estimated that annual delivery to be 5685 (2.75%) births. Each kebele (small administration unit) has its own health post with two HEWs. There is one HC in Woreta

town which functions as referral center.

Randomly selected women in a child bearing age who had at least one ANC follow up and gave birth one year prior to the survey were participated in the study. The sample size was determined using single population proportion formula,  $\{n = [(Z \alpha/2)^2 P(1-P)]/d^2\}$ , where P=proportion of home delivery (86.5 %) taken from a study in north Gonder Zone [15]. Z  $\alpha/2$  at 95% CI (1.96) and d= 5% margin of error (0.05) by considering 15% non response rate and 2 as a design effect, the final sample size was 412. Out of 9 health centre 3 (one urban and two rural) were selected by simple random sampling in the district. Document review in the ANC clinics in each health centers were carried out to identify eligible participants, and it was cross-checked by the health extension worker wither it is in the catchment areas of health centers or not. Sample size was allocated proportional to the size of eligible respondents in urban and rural. Finally simple random sampling was applied to identify the required respondents.

Data were collected using interviewer administered structured Amharic questioners. One day training was given for data collectors and supervisors. The completeness of questioners was checked every day by the supervisors and principal investigators. Pre test was done before the questioner was administered. Data were entered and analyzed using SPSS statistical package version 16.0. Descriptive statistics were used to summarize the data. Logistic regression model was done to identify factors associated with place of birth. Adjusted odds ratio with 95 %CI was calculated for each of independent variables using backward stepwise binary logistic regression model to control confounding variables

The study was conducted after getting ethical clearance from Bahir Dar University Ethical

Review Committee. Permission was obtained from respective Zonal and Woreda Health Offices. Informed verbal consent was taken from the study participants after telling the objective of the study. Confidentiality and privacy were insured for collected information from the study participants

## 3. Results

A total of 399 women who had at least one ANC visit for their last pregnancy were interviewed and response rate was 96.6%. Majority 280(70%) were from rural and age range of 25-29 years (41.4%). Many of them were farmers (68.2% rural and 6.3% urban), married (rural 68.4% and 25.3 urban) and illiterate. (Table1).

**Table 1.** Socio demographic characteristics of respondents by residential area Fogera district, North west Ethiopia, March 2013.

Variables	Residence		Total n=399 No. (%)
	Rural n=280	Urban n=119	
<b>Age of respondents</b>			
≤ 29	169(42.4)	78(19.6)	247(62)
≥ 30	111(27.8)	41(10.2)	152(38.1)
<b>Educational status</b>			

Variables	Residence		Total n=399 No (%)
	Rural n=280	Urban n=119	
illiterate	232(58.1)	73(18.3)	305(76.5)
Primary school	30(7.5)	27(6.8)	57(14.3)
Secondary and above	18(4.5)	19(4.8)	37(9.3)
<b>Occupation</b>			
farmer	272(68.2)	25(6.3)	297(74.4)
government employee	1(0.3)	13(3.3)	14(3.5)
daily laborer	7(1.8)	81(20.3)	88(22.1)
<b>Marital status</b>			
married	273(68.4)	101(25.3)	374(93.7)
divorced	7(1.8)	18(4.6)	25(6.3)
<b>Monthly income</b>			
≤1000 birr	36(9.1)	54(13.5)	90(22.6)
≥1001 birr	244(61.7)	65(16.4)	309(77.4)

Regarding maternal health service utilization 50(12.0%) of urban and 145(36.3%) of rural had ANC visit between 2 and 3 months of their last pregnancy. Around 232 (58.1%) of the respondents received first ANC in their second

trimester of pregnancy. Among those women who attended ANC, 150(37.6%) have made four and more visits (Table 2).

Table 2. Obstetric history of respondents by resident, Fogera district, North West, Ethiopia, March 2013.

Reproductive variables	Residence		Total
	Rural	Urban	
<b>Gestational age at first ANC</b>			
1 <sup>st</sup> trimester	72(18.0)	56(14.0)	128(32.1)
2 <sup>nd</sup> trimester	171(42.9)	61(15.3)	232(58.1)
3 <sup>rd</sup> trimester	37(9.3)	2(0.5)	39(9.8)
<b>No of ANC</b>			
Only 1	73(18.3)	28(7.0)	101(25.3)
2-3	145(36.3)	50(12.5)	195(48.9)
≥4	62(15.5)	41(10.3)	103(25.8)
<b>Parity</b>			
2-4	126(31.6)	67(16.8)	193(48.4)
5 and above	154(38.6)	52(13.0)	206(51.6)
<b>Ever had abortion</b>			
Yes	64(16.1)	18(4.5)	82(20.7)
No	215(54.2)	100(25.2)	315(79.3)
<b>pregnancy</b>			
planned	187(46.9)	96(24.1)	283(70.9)
Un planned	93(23.3)	23(5.8)	116(29.1)
<b>Total</b>	<b>280(70.2)</b>	<b>119(29.2)</b>	<b>399(100)</b>

Fifty-two (13.0%) of urban and 154(38.6%) of rural women had five and more children. Twenty-three (5.8%) of urban and 93(23.3%) of rural women reported that their last pregnancy was unplanned.

Only 126(31.6%) of mothers gave birth in the health facilities for their recent child, the majority of births 273 (68.4%) took place at home of this 38(31.9%) urban and 235 (83.9%) rural women delivered at home their recent child. From those who delivered at health institutions, 22.6% were at the health center, 4.8% at hospital and the remaining 3.5% and 0.7 % were at the health posts and private health clinics respectively.

Of the total home deliveries, 6% were assisted by their relatives, 62.4% were attended by traditional birth attendants (TBAs) while the rest 31.6% were assisted by health extension workers. Regarding reasons for preferring home delivery, 207(51.9%) of the respondents reported that absence of health problems during labour, 89(22.3%) said due to poor health services at health facilities and 9.3% were successful previous birth at home (Fig 1).

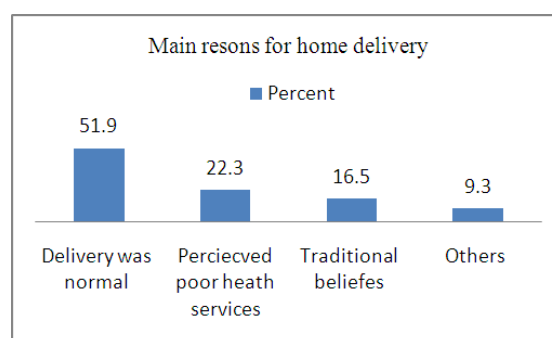


Figure 1. Reasons for home delivery among respondents, Fogera district North West Ethiopia, March, 2013.

### 3.1. Reported Quality of ANC Mothers' Received

One hundred fifty eight (39.6%) women reported that they did not receive an explanation about their health status, and 187(46.9%) felt that they were not listened by the health providers. Similarly, 147(36.8%) of women reported

that they were not treated with respectful and 158(39.6%) women were not given privacy during antenatal care examination in their last pregnancy.

Two hundred fifty four (63.7%) of the respondents reported that they received information about the need to deliver at health facilities and 219(54.9%) of women were not informed where to go in case of complications (Table 3). Regarding decision making power for place of delivery

104(27.8%) of mothers decided by themselves, 168(44.9%) jointly with their husbands, 73(19.5%) husbands only and the rest 29(7.8%) other families. Percentage of currently married women, who usually make decisions on eight specific issues in the household, 223(59.6%) of respondents were decision makers of more than 50% of the eight specific issues in the household.

**Table 3.** counseling and communication with health providers during ANC, Fogera district, North West Ethiopia, March, 2013

Variables	Frequency (N=399)	Percent (%)
<b>The providers explained your health condition with terms that were understandable</b>		
yes	241	60.4
no	158	39.6
<b>The providers explained what to expect during labour and delivery</b>		
yes	231	57.9
no	168	42.1
<b>The health providers listened to your questions or concerns</b>		
yes	212	53.1
no	187	46.9
<b>The health provider informed you about the need to delivery health facilities</b>		
yes	254	63.7
no	145	36.3
<b>providers respect you.</b>		
yes	252	63.2
no	147	36.8
<b>privacy during the examinations</b>		
yes	241	60.4
no	158	39.6

### 3.2. Determinants of Place of Delivery

Utilization of home delivery among the study participants, showed that women who live in rural areas were three times more likely to use home delivery than their counter parts OR=3.2, 95%CI; (1.1, 9.3). Women's occupation has a significant association with home delivery those women who were farmers were around five times more likely to utilize home delivery than those who had no work OR= 4.6,95%CI; (1.3,16.0).

Women whose educational status was secondary and above were more likely to use institutional delivery by 69% than women who were illiterate OR=0.3, 95%CI:(0.1,0.8). Age at first pregnancy showed statistical association with place of delivery. Those women who were pregnant before the age of 20 years were more likely to give birth at health facilities by 56% than those who were pregnant after the age of 20years OR=0.4, 95%CI:( 0.2,0.9).

Women who have had at least four antenatal

consultations were 0.26 times less likely to deliver at home than women who had one antenatal visit OR=0.26, 95%CI:( 0.12,0.60). Quality of antenatal care counseling has also showed a statistical association with the utilization of home delivery. Those women who had received better quality of antenatal care counseling were 0.3 times less likely to utilize home delivery compared with women who had not received quality antenatal care counseling OR=0.3, 95%CI :( 0.2, 0.7).

Privacy during antenatal care visit has also a significant association with utilization of home delivery those women who were not given privacy during ANC examinations were four times more likely to deliver home than women who were given privacy OR=4.6, 95%CI:( 2.2,9.2). Mothers who were not respected during ANC visit had two times more likely to deliver at home than those were respected OR=2.9, 95% CI:( 1.5,5.9) (table 4).

**Table 4.** Predictors of a home delivery Fogera district North West Ethiopia, 2013.

Variables	Place of delivery		Crude OR (95% CI)	Adjusted OR(95%CI)
	Home	Facility		
<b>Residence</b>				
Urban	38(9.5)	81(20.3)	1.00	1.00
Rural	235(58.9)	45(11.3)	11(6.75, 18.36)	3.18(1.09,9.24) *
<b>Education</b>				
illiterate	218(54.6)	62(15.5)	1.00	1.00
read and write	18(4.5)	7(1.8)	0.73(0.29, 1.83)	0.59(0.17,1.99)
primary	25(6.3)	32(8.0)	0.22(0.12,0.4)	0.37(0.15,0.92)
Secondary and above	12(3.0)	25(6.3)	0.14(.07, 0.29)	0.31(0.11,0.84)*
<b>No of ANC visit</b>				
1	77(19.3)	24(6.0)	1.00	1.00

Variables	Place of delivery		Crude OR (95% CI)	Adjusted OR(95%CI)
	Home	Facility		
2-3	154(38.6)	41(10.3)	1.17(0.66,2.08)	1.35(0.60,3.05)
≥4	42(10.5)	61(15.3)	0.22(0.12,0.39)	0.26(0.12,0.60)**
<b>Privacy during ANC</b>				
Yes	149(37.3)	103(25.8)	1.00	1.00
No	124(31.1)	23(5.8)	3.43(1.86,6.34)	4.60(2.18,9.21)**
<b>Providers were respect you</b>				
Yes	137(34.3)	104(26.1)	1.00	1.00
No	136(34.1)	22(5.5)	3.73(2.22,6.21)	2.97(1.47,5.99)*
<b>Quality of counselling during ANC</b>				
Low	212(53.1)	57(14.3)	1.00	1.00
High	61(15.3)	69(17.3)	0.24(0.15,0.37)	0.33(0.17,0.66)**

## 4. Discussion

The study demonstrated that institutional delivery service utilization after antenatal care utilization was very low (31.6 %). Only 16.1% of women in the rural areas delivered at health institutions. This indicates that still the majority (68.4%), prefer home delivery.

This finding is consistent with other studies conducted in Ethiopia, all of these studies reported that large number of women delivering at home and cared by untrained traditional birth attendants and relatives (16-18). As observed in North Gonder, about three fourth of home deliveries in this study were attended by relatives or traditional birth attendants [15].

The main reason given for home delivery was absence of health problem during labour (51.9%), poor health services at health facilities (22.3%), traditional belief (16.5%) which is consistence with other studies conducted in Metekel and North Gonder Zones. In Metekel Zone, study showed that 75.5% respondents reported that no need of health workers if the labour has no any health problems [18, 19].

This study identified factors that influence the utilization of institutional delivery services among the women. The findings showed that rural women are more likely to use home delivery than urban women. This might be due to the fact that rural women have less access to the health facilities and lack of awareness and information, which was in line with the Ethiopian Demographic Health Survey of report and other studies conducted in other areas of the country [16, 18, 19].

Moreover women having higher educational level were less likely to give birth at home than illiterates which are in agreement with DHS reports and studies conducted elsewhere [11, 15, 20-23]. These may be because education likely enhances the status of women and enable them to develop greater confidence and capacity to make decision about their own health.

Quality of antenatal care counseling has also showed a statistical association with the utilization of facility delivery. Those women who had received quality antenatal care counseling were less likely to utilize home delivery as compared to women who had not received quality ANC counseling. As other studies carried out in various countries have demonstrated, women are still not being given

adequate information during antenatal visits on women's decision to seek skilled birth attendance [11, 24, 25,].

Number of antenatal care visit has shown significant association with home delivery utilization. Women who have had at least four antenatal consultations were less likely to deliver at home as compared with women who had only one antenatal care visit. This may be because better number of contact with skilled provider during pregnancies gives chance for the women to know more about the importance of skilled attendant during childbirth. This finding is in line with the findings of other studies [11, 14].

The other factors found to encourage home delivery was absence of privacy and respectation during ANC visit. Women who were not given privacy and respected during antenatal care visit were more likely to deliver at home than women who were given privacy and respected in line with the findings of other studies [11, 24 ,25]

In a study done in Pakistan among women who delivered at home, 21% reported that they did so because of rudeness of the health workers [24, 21]. In this study about 6% of those women who delivered at home gave the same reasons [23, 25]. This shows how health facility related factors could contribute to under utilization of available services as unless they face a life treating complication they don't like to go health facilities for delivery or they may not return for the second time.

## 5. Conclusion

In conclusion, institutional delivery service utilization and delivery assisted by health professionals after antenatal care was very low. The study also identified factors such as residence, occupation, mother's educational status, privacy and respect during antenatal care examination, number of antenatal care visit and quality of antenatal care counselling were significantly associated with place of delivery.

## 6. Recommendations

- Health professionals should take the opportunity to encourage mothers to attend delivery services during ANC follow up.
- Privacy during ANC and delivery care should be considered by the health providers to improve institutional delivery.

- Training in Client/patient-provider communication (women friendly care) and counseling skill should be given for health professionals

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