

# Factors Determining Health Institutional Delivery Among Pregnant Women Living in Agarfa Town of Bale Zone, Oromia, South East Ethiopia

Tomas Benti Tefera<sup>1</sup>, Kemal Ahmed Kuti<sup>2</sup>

<sup>1</sup>Department of Nursing, Madawalabu University, College of Medicine and Health Sciences, Southeast Ethiopia

<sup>2</sup>Department of Public Health, Madawalabu University, College of Medicine and Health Sciences, Southeast Ethiopia

## Email address:

thomas\_benti@yahoo.com (T. B. Tefera), kemal.ahmed5@gmail.com (K. A. Kuti)

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**Abstract:** Background: About 800 women die from pregnancy- or childbirth-related complications around the world every day. In 2013, 289 000 women died during and following pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings. According to the latest estimate maternal mortality ratio in Ethiopia was 420/100,000 live births in 2013 which is still high. Severe bleeding, infection, high blood pressure during pregnancy and complication from delivery, accounts for nearly 75% of these deaths. Even though ANC follows up, Institutional delivery and skilled birth attendance is one of the key and proven interventions to reduce maternal death most deliveries, in Ethiopia, skilled birth attendance and birth in a health facility is very low. So this study aimed to assess Factors determining Health institutional delivery among pregnant women living in Agarfa woreda of Bale Zone, Southeast Ethiopia. Methods: Community based cross sectional study was conducted in Agarfa Town from January -March, 2012 on one hundred fifty six pregnant women in the town. Systematic sampling was used to get the respondents after sampling frame including lists of households having pregnant women was prepared. Data were analyzed using SPSS version 15.0. Binary and multivariable logistic regression analyses were carried out to identify factors associated with institutional delivery service. Statistical significance was considered at  $p < 0.05$ . Results: The response rate was 98.7% ( $n=156$ ). The proportion of pregnant women who had given birth at health institution were 49(31.4%), of 118 who had followed ANC for recent pregnancy, only 27(22.9%) were gave birth at health institution. Factors associated with health institution delivery were the number of pregnancies (three and above) and difficulty labour. However, difficulty labour/prolonged was remained a significant predictor of institutional delivery. Conclusions: Despite the high level of ANC attendance among the pregnant women in the study area, the study has revealed that mothers were not considerably utilizing institutional delivery and skilled birth attendants and majority of them still choose Home delivery. Pregnant women wait till they experience difficult labour to seek health institutional delivery.

**Keywords:** Maternal Health, Child Health, Delivery, Birth Attendants, Pregnant Women, Home Delivery, Health Institution Delivery

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## 1. Background

Maternal mortality is unacceptably high. About 800 women die from pregnancy- or childbirth-related complications around the world every day. In 2013, 289 000 women died during and following pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings, and most could have been prevented [1].

In sub-Saharan Africa, a number of countries have halved their levels of maternal mortality since 1990. In other regions,

including Asia and North Africa, even greater headway has been made. However, between 1990 and 2013, the global maternal mortality ratio declined by only 2.6% per year. This is far from the annual decline of 5.5% required to achieve MDG5 [1].

The maternal mortality ratio in developing countries in 2013 is 230 per 100 000 live births. In Ethiopia, According to the latest estimate maternal mortality ratio has declined from 676/100,000 live births in 2011 to 420/100,000 live births in 2013. However, still far to achieve the target for 2015 that is

267 /100,000 live births [1].

Over 30 million women in the developing world suffer from serious diseases and disabilities which include uterine prolapsed, fistula, incontinence, and pain during sexual intercourse as a result of inadequate or inappropriate care during delivery or the first critical hours after birth [2].

The major complications that account for nearly 75% of all maternal deaths are includes severe bleeding (mostly bleeding after childbirth), infections (usually after childbirth), high blood pressure during pregnancy (pre-eclampsia and eclampsia), complications from delivery and unsafe abortion[3].

Antenatal care from a trained provider is important to monitor the pregnancy and reduce these high morbidity and mortality risks for the mother and child during pregnancy and delivery and It presents an important opportunity for identifying threats to the mother and unborn baby's health, as well as for counseling on nutrition, birth preparedness, delivery care and family planning options after the birth [4].

In Ethiopia, antenatal care coverage, at least one visit and four visits was 42.5% and 19.1% respectively [5]. Even though Institutional delivery service utilization skilled birth attendance is one of the keys and proven interventions to reduce maternal death most deliveries in developing countries occur at home without skilled birth attendants [6] still a birth attended by skilled provider was about 10% [7] and Births in a health facility was about 9.9% in Ethiopia [8].

The recent Ethiopian Demographic and Health Survey also revealed that 8% of births were delivered in a health facility in Oromia region respectively [8]. This indicates that still the Magnitudes of Home delivery in Ethiopia are very high. So this study aimed to assess Factors determining Health institutional delivery among pregnant women living in Agarfa woreda of Bale Zone, Southeast Ethiopia.

## 2. Methods

### 2.1. Study Setting and Sample

Community based cross sectional study was conducted in Agarfa Town from January -March, 2012 on pregnant women in the town. Agarfa town is located in the Bale Zone of Oromia region and 465KMs Southeast of Ethiopia.

The Sample size was determined using single population proportion formula taking the prevalence of institutional delivery service at National level (10%) (EDHS,2011) with 95% confidence level, 5% margin of error and 15% for non response was added, the final sample size was 158 women.

Systematic Random sampling was used to get the respondents after sampling frame including lists of households having pregnant women was prepared. In Case of more than one eligible woman in selected household, lottery method was used to select one of the eligible women.

### 2.2. Data Collection Tool and Procedures

Data were collected using structured, interviewer administered Afaan Oromo (local language) Version

questionnaire. Socio-demographic, history of abortion and stillbirth, history of difficulty labour(including history of bleeding, prolonged labour), ANC service Utilization for recent pregnancy, Number of ANC visit, Health education/advice on places of delivery at ANC visit for recent pregnancy, whether the recent pregnancy was planned or not, Place of delivery of recent pregnancy, and numbers of pregnancy were collected. Home delivery was considered when a mother reported birth at home (other than health institution) to her recent pregnancy. Data were collected through face to face interview. Data collectors and supervisors were trained for two days in the data collection methods of the study. To ensure data quality, pre-testing of the research tool and translation of the tool for local language (Afaan Oromo) were done. The filled data were checked for completeness on a daily basis and feedback was given to data collectors in the next morning.

### 2.3. Data Analysis

Data were checked for completeness and inconsistencies, coded, entered, cleaned and analyzed using SPSS version 15.0. Descriptive statistics were computed to determine proportions. Binary and multivariable logistic regression analyses were carried out to identify factors associated with institutional delivery service. The strength of statistical association was assessed by odds ratios (OR) with 95% confidence intervals. Statistical significance was considered at  $p < 0.05$ .

### 2.4. Ethical Clearance

Letter of ethical approval was received from Research and community coordinator of College of Medicine and health sciences, Madawalabu University. The intention of the study, potential risk and benefits and rights of participants were explained. Verbal consent was obtained from the participants. The participants were assured about the confidentiality of the information they provided.

## 3. Results

### 3.1. Socio Demographic Characteristics of Study Subjects

The overall response rate was 98.7%. Of all study subjects included in the study about 88 (56.4%) were Muslim in religion and About 38 (24.4%) of mothers were illiterate. Among the respondents, 26 (16.7%) had illiterate husband. Concerning their occupational status about 75 (48.1%) of the women were house wife.

Of the total study subjects, 107(68.8%) were gave birth at home for their recent delivery while 49(31.4%) were gave birth at health institution. The major reason for home delivery was Easy labour and Unexpected labour 86 (80.4%), followed by cultural influence 9(8.4%). Of 118, who visited antenatal care for their recent pregnancy, 91(77.1%) of them gave delivery at home.

Of total study subjects, 10(6.4%) of study subjects were had history of abortion and 7(4.5%) had history of still birth. Regarding their recent Delivery, about 130(83.3%) was

reported that the pregnancy was planned. They were asked about history of difficulty/prolonged labour for their recent pregnancy, 19(16.1%) had experienced difficulty labour while the other not.

### 3.2. Awareness about ANC Services and its Utilization

All women were heard about Antenatal care services. The major source of information were Health institution and Mass Media, 74(51.0%) 62(42.7%) respectively. One hundred Eighteen were visited health institution for their recent pregnancy. Regarding the frequency of visit about 43(36.4%) were visited at least once while about 12(10.2%) were visited four and above. During their visit about 80(67.8%) were given advice on place of delivery while the rest n

## 4. Discussion

In Ethiopia, the levels of maternal mortality are decreased to 420/100,000LB in 2013 [1]. It was well known that majority of maternal deaths is due to direct obstetrical complications which could be prevented by Antenatalcare follow up and Health Institution Delivery by skilled Health Professionals. However still a number of women still prefer to deliver at home than to deliver in the health facilities[8].

However, this study found that 68.6% of the pregnant women had their last delivery at home. Finding from rural area of Zambia revealed that home delivery was about 57%, In Ilesha, Nigeria, about 44.2% of delivery was non-institutional delivery and Russia village of Jos North, Nigeria also showed that about 56 (40%) had their last delivery a home. Despite the figure difference these findings are consistent with our finding agreeing with the fact that a number of women in the developing countries prefer to deliver at home instead of the hospital [10,11].

Despite the high number of pregnant women who attended ANC in this study, about 77.1% were chose home delivery for their recent pregnancy. This finding is in line with finding in Zaria, Nigeria which also found that adequate ANC attendance during pregnancy did not significantly influence hospital delivery[12].

Despite advances in the health system, rates of skilled attendance at birth remain very low at 10%. The five known direct causes of maternal mortality were postpartum hemorrhage, sepsis, eclampsia, obstructed labour, and unsafe abortion. Several reasons are cited for the low uptake of maternal health services, particularly in facilities, including distance, lack of transportation, cost, poor quality of care, and women's lack of decision-making power [13].

This study also found that the reason for home delivery were easy and unexpected labour, no transportation, poor service delivery and cultural influences. whatsoever, All women need access to skilled care during childbirth, and care and support in the weeks after childbirth[14]. This is only achieved if all when pregnant women gave birth at health institution and no way home delivery.

Despite less institutional delivery, Ethiopia is comprehensively working on escalating institutional delivery

by focusing on making pregnancy safer by providing free maternal and child health services to its population, improving health infrastructure throughout the country, and enhancing the training of its primary health care workforce[15].

Some studies in developing countries have shown that the decision to deliver at home is related to socio-demographic and economic factors such as income, educational status and marital status [16,17]. However, in this particular study, Experiencing difficulty labour and the number of pregnancies (three and above) were a significant predictor of institutional delivery on binary logistic regression. However, experience of difficulty labour was remain a significant predictor of institution delivery on multivariable logistic regression and those women who had experienced difficulty labour were more likely to give birth at the health institution compared to those who hadn't. This finding is consistent with finding from Samre Saharti District, Tigray, Ethiopia, which revealed that women who had a history of obstructed labor were more likely to select Health facility for delivery service than women who had not that experience [18].

## 5. Conclusions and Recommendations

In general, Despite the high level of ANC attendance among the pregnant women in the study area, the study has revealed that mothers were not considerably utilizing institutional delivery and skilled birth attendants and majority of them still choose Home delivery. Pregnant women wait till they experience difficult labour to seek health institutional delivery. So, Emphasis should also be given for capacity building for skilled birth attendants and HEWs currently working in the study area to effectively work in increasing institutional delivery by collaborating with different sectors in the town through the provision of regular health education on the danger of Home delivering as a way of increasing the institution delivery and reducing maternal mortality in the country.

**Table 1.** Distribution of socio-demographic characteristics of the study participants in Agarfa Town, Southeast Ethiopia, January - March, 2012 (n=156).

Variables	Categories	Frequency	Percentage
Age	15-24	68	43.6
	25-34	72	46.2
	35-49	16	10.3
Religion	Muslim	88	56.4
	Christian	68	43.6
	Oromo	121	77.6
Ethnicity	Amhara	31	19.2
	Tigre	5	1.9
	Illiterate	26	16.7
Husband Education	Primary(1-8)	68	43.6
	Secondary(9-12)	31	19.9
	Tertiary(College& Above)	31	19.9
Women's Education	Illiterate	38	24.4
	Primary(1-8)	76	48.7
	Secondary(9-12)	30	19.2
	Tertiary(College & Above)	12	7.7

Variables	Categories	Frequency	Percentage
Women Occupation	Farmers	37	23.7
	Housewife	75	48.1
	Merchant	17	10.9
	Governmental employee	15	9.6
	Day laborer	12	7.7

**Table 2.** Distribution of study subjects by place of Recent delivery of their last child at Agarfa Town, Southeast Ethiopia January - March, 2012(n=156).

Variables	Number	Percentage
Place of the recent birth		
Home	107	68.6
Health institution*	49	31.4
Reason for home delivery		
Easy and Unexpected labour	86	80.4
No transportation	8	7.5
Poor service Delivery	2	1.8
Cultural influence	9	8.4
HEW is always available	2	1.8

\*Health institution includes birth at Private clinic, Health post/centers and Hospital

**Table 3.** Distribution of Obstetric factors among study subjects at Agarfa Town, Southeast Ethiopia, January - March, 2012(n=156).

Variables	Number	Percentages
Number of pregnancy		
1-4	134	85.9
5 & Above	22	14.1
Child ever born		
One	51	32.5
2-5	63	40.4
>5	4	2.6
History of abortion		
Yes	10	6.4
No	146	93.6
History of still birth		
Yes	7	4.5

Variables	Number	Percentages
No Pregnancy Planned	149	95.5
Yes	130	83.3
No	26	16.7
History of difficulty labour		
Yes	19	16.1
No	99	83.9

**Table 4.** Distribution of study subjects according to their awareness about ANC and its utilization at Agarfa Town, Southeast Ethiopia, January - March, 2012(n=156).

Variables	Number	Percentage
Heard About ANC		
Yes	156	100
No	0	0.0
Source of information		
Health institution	74	47.4
mass media	73	46.8
Relatives/friends	9	5.8
Visit for recent pregnancy		
Yes	118	75.6
No	38	24.4
Frequency of visit for recent pregnancy		
At least once	43	36.4
2-3 times	63	53.4
4 and above	12	10.2
Advice on place of delivery at ANC Visits on recent pregnancy		
Yes	80	67.8
No	38	32.8

**Table 5.** Predictors of Institutional delivery among study subjects at Agarfa Town, Southeast Ethiopia, January - March, 2012(n=156).

Variables	COR	P	95.0% CI	p	AOR	95.0% CI
Age group						
15-24	1					
25-34	0.58	0.14	0.28-1.18	.912	.938	.298 2.951
35+	0.54		0.157-1.85	.985	.984	.179 5.394
Quality of services						
Poor	0.82	0.72	0.27-2.45	.094	.138	.014 1.401
Good	1					
Husband educational status						
Literate	2.1	0.15	0.76-6.08	.092	6.080	.745 49.615
Not literate	1					
Women educational status						
Literate	1.65	0.24	.714-3.83	.234	.397	.087 1.816
Illiterate	1					
Number of pregnancy						
Three and above	0.30	0.001	0.15-0.63	.201	.450	.132 1.529
Two and below	1					
Religion						
Muslim	0.65	0.21	0.33-1.27	.407	.627	.208 1.889
Christian	1					
Difficulty labour						
Yes	4.0	0.008	1.44-11.40	.037	4.133	1.087 15.716
No	1					
Advice on plc of del						
Yes	0.6	0.82	0.25-1.49	.383	.570	.161 2.017
No	1					

Variables	COR	P	95.0% CI	p	AOR	95.0% CI
Status of pregnancy planned	1.03	0.94	0.42-2.58	.355	1.994	.462 8.599
Not planned	1					
Trans facility						
No	0.51	0.25	0.16-1.60	.570	.611	.112 3.342
Yes	1					
History of abortion						
Yes	0.53	0.43	0.11-2.57	.802	1.280	.187 8.763
No	1					
History of Still Birth						
Yes	0.87	0.87	0.16-4.64	.797	.763	.097 5.986
No	1					
Frequency of ANC visit						
Three & above	1.4	0.55	0.49-3.72	.784	1.189	.346 4.088
Two & below	1					

COR=Crude Odd ratio, P=p value, CI=confidence interval, AOR=Adjusted Odd Ratio

## Authors' Contributions

KA and TB conceived the idea, designed the study; TB involved in statistical analysis and drafted the manuscript. All authors participated in the write up; read and approved the final manuscript.

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