

# Home Delivery and Associated Factors among Reproductive Age Women in Shashemene Town, Ethiopia

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## Abstract

**Introduction:** Institutional delivery service utilization is essential to improve maternal and child health. According to Ethiopian Demographic and Health Survey 2005 and 2011, the proportion of women utilizing institutional delivery service in the country is very low. In Oromia Region about 60.5% of the eligible mothers didn't received Antenatal Care service and 91.5% of the mothers gave birth at home in the region. The aim of the study was to assess the home delivery and associated factors among reproductive age group women in Shashemene town, Ethiopia.

**Patients and methods:** Community based cross sectional study design was utilized. The study was conducted from March 01 to March 31<sup>st</sup>. House to house census was conducted to identify the eligible mothers and a sampling frame was developed. Using simple random sampling technique 285 mothers were selected. Descriptive statistics was employed to describe each variables and logistic regression to determine the association between predictor variables and outcome variable. With 95% confidence interval p value less than 0.05 was considered as a significant variables.

**Results:** 224 (81%) of the respondents gave birth in the health facility of which 36 (16.1%) of them were at health center, 165 (73.7%) at hospital and the remaining 23 (10.2%) at health post. From those mothers who gave birth at home, 53 (19%), 26 (49.1%) was delivered by their mothers, 20 (37.7%) by neighbors and, 7 (13.2%) was health extension workers. The main reason mentioned for home delivery by 40 (75.5%) was no labor pain and 3 (5.7%) mentioned lack of receiving adequate delivery services from health professionals and 8 (15.1%) was due to lack of knowledge about the importance to delivering in health institution. Antenatal care, educational status, husband educational status, marital status and receiving health education on maternal health showed an association with place of delivery.

**Conclusion:** The study showed that home delivery was lower in women who were educated, utilized antenatal care, and received health education on maternal health. Therefore, improving maternal educational status, providing adequate information about maternal health through media and encourage to take antenatal care is essential to reduce the prevalence of home delivery.

**Keywords:** Cross-sectional; Home delivery; Place of delivery; Associated factors; Shashemene

## Introduction

For optimum safety, every woman, without exception, needs professional skilled care when giving birth, in an appropriate environment that is close to where they live and respects their birthing culture. The service should be responsive, accessible in all ways, and that a skilled birth attendant should be there to provide it competently to all mothers [1].

Despite the greatest health benefit, skilled attendant assisted institutional delivery has been underutilized in many countries [2]. In sub-Saharan Africa only 23 per cent of births are attended by skilled health personnel, in comparison to an average of 65 per cent globally [3].

In Ethiopia, the proportions of births attended by skilled personnel are very much lower than sub-Saharan African countries. As per Ethiopia Demographic and Health Survey (EDHS) 2011 report, only 10% of births were delivered in health facilities which have showed only 4% increment in the last six years. Twenty eight percent of mothers delivered by Traditional birth attendant and 57% births were attended by a relative or some other person. Institutional delivery service utilization in Oromia region is 8.5%, which is lower than the national level [4].

Lack of access to quality health facilities and qualified health professionals is the major cause of maternal deaths, particularly for

developing countries [5]. According to WHO, UNICEF, UNFPA and World Bank 2010 estimate, globally there were 287, 000 maternal deaths each year, yielding 210 maternal deaths per 100, 000 live births (decreased from 543, 000 in 1990 to 287, 000 in 2010). Developing countries account for 99% (284, 000) of the global maternal deaths, the majority of which are in sub-Saharan Africa (162, 000) and Southern Asia (83, 000).

Maternal mortality ratio (MMR) in developing regions (240/100,000 live births) was 15 times higher than in developed regions (16/100,000live births). Sub-Saharan Africa had the highest MMR at 500 maternal deaths per 100,000 live births while Northern Africa had MMR of 78 maternal deaths per 100,000 live births. In Africa only Chad and Somalia had extremely high MMRs at 1100 and 1000, respectively [6].

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According to EDHS 2011 report, maternal mortality ratio was 676 per 100,000 live births for the seven year period preceding the survey which is not significantly different from EDHS 2005 report (673 per 100,000 live births) [4].

Globally, at least 160 million women become pregnant annually. Of these, 15% develop serious complications. Each year, Over 30 million women in the developing world including Ethiopia, suffer from serious diseases and disabilities which include uterine prolapse, pelvic inflammatory disease, fistula, incontinence, infertility, and pain during sexual intercourse as a result of inadequate or inappropriate care during pregnancy, delivery or the first few critical hours after birth [1].

Addressing maternal health is a complex issue, as challenges lie on both the supply and demand sides of healthcare. This is particularly true in Africa, where a large proportion of the population live in rural areas and cultural barriers continue to pose a challenge to healthcare delivery. Underutilization of institutional delivery and increasing maternal mortality can be largely attributed to three delays in the childbearing process: delay in the decision to seek care; delay in reaching care; and delay in receiving care. The first delay seeking care occurs on the demand (mother's) side, while the other two delays are more supply-related. On the supply side the availability, quality, and cost of services clearly impact maternal mortality outcomes. On the demand side the cost of services, the quality (both actual and perceived) of care, trust in health staff, and cultural barriers deter many women from seeking care, even when health services are available [2].

To address the above problems and their consequences, Ethiopian leadership together with domestic and foreign development organization has been investing heavily in maternal health at regional and national levels implementing key internationally accepted initiatives/strategies [2]. The Federal ministry of health of Ethiopia has showed strong commitment in promoting human resource development and bringing maternal health care service closer to women with the slogan, "No Woman should Die while Giving Life" [7].

Despite strong leadership commitment of the government and few health gains in other health sectors, serious gaps yet remain in terms of maternal health care utilization and maternal mortality reduction in Ethiopia [4]. Therefore, this study tried to identify the factors which affects home delivery.

## Material and Methods

### Study area

The study was conducted in Shashemene town, Oromia regional state. The town is located in central part of Oromia region, 130 km from Adama, the capital city of the region and 248 km from Addis Ababa, the capital city of Ethiopia. The town was established in 1903 e.c. The town has a total population of 218335 where, about 48.9% of them are females and 51.1% are males. It consists of peoples with different languages, more than 18 ethnic groups and foreigners like Ras Teferian community. The health institutions in the town reached to 74 in number from one health center in 1996. Among this there are two hospitals which serves at district and referral levels.

### Study design and period

A community based cross-sectional study design that used quantitative data collection methods to assess home delivery practice and associated factors among mothers who gave birth in the last 2 years from 1<sup>st</sup> February 2015- 28<sup>th</sup> February 2015.

## Population

All mothers who are permanent residents of the town and gave birth in the last two years prior to the survey were the source population. All mothers living in the selected kebeles who gave birth in the last two years prior to the survey on which the actual study is to be conducted were the study population. Women who were seriously ill were excluded from the study.

## Sample size and sampling techniques

The required sample size is determined using a formula for estimation of single population proportion ( $n = (Z\alpha/2)^2 (PQ)/d^2$ ) with the assumption of 95% confidence level, margin of error of 5% and expected population proportion of mothers who gave birth in health institutions in Oromia regional state is assumed to be 8.5% (47). To compensate the non-response rate, 10% of the determined sample was considered and 1.5 design effect. The final sample size was 285.

Using two stage sampling technique four kebeles were selected randomly. House to house registration of mothers who gave birth in the last two years was conducted. There were a total of 836 women and using simple random sampling techniques 285 mothers were selected.

## Data collection and analysis

A structured questionnaire was used on mothers who gave birth in the last two years, and data were collected by two nurses and supervised by the principal investigators. The questionnaire includes sociodemographic characteristics and the reproductive health history of the study participants. The data collectors were trained for 1 day. The collected data were entered and analyzed using SPSS Version 20. Descriptive statistics and binary logistics regression was carried out to describe the variables and to determine their relationship with the outcome variable. Odds ratio with 95% CI (confidence interval) at  $P < 0.05$  was used to determine the significant level of association between predictors and outcome variable

## Ethical consideration

The study was approved by the ethical review committee of the College of Medicine and Health Science, Arba Minch University. Oral consent was obtained from the study participants after detailed explanation about the objective of the study was explained in advance. Mothers were interviewed in private place, and all the information collected from the respondents was kept confidential.

## Results

### Socio-demographic characteristics of the study participants

A total of 277 reproductive age group women who gave birth in the last two years were participated in the study with a response rate of 97.2%. Most of the participants (95.7) were married and 78 (28.2%) were primary education attended. One hundred twenty eight (46.4%) were Orthodox religion followers and 202 (73%) were received health education about maternal health (Table 1).

### Obstetrics characteristics of the participants

Most of the study participants (87.4%) were haven't had history of abortion and only 7 (2.5%) had history of still birth. Majority of the participants (70.4%) had a history of antenatal care follow up among them one hundred fifty six (80%) had three or more visit. Forty (48.8%) study participants mentioned their reason for not attending antenatal care was lack of knowledge. Majority (81%) of the participants gave birth at health institution and among who gave birth at home 47 (88.7%) were assisted by their family members (Table 2).

Variables	Response options	Frequency	Percent
Age	15-19	27	9.7
	20-24	49	17.69
	25-29	140	50.54
	30-34	47	16.9
	35-39	5	1.8
	40-44	7	2.5
Marital status	45-49	2	0.72
	Married	265	95.7
	Divorced	7	2.5
Religion	Widowed	5	1.8
	Muslim	84	30.2
	Orthodox	128	46.4
Educational status	Protestant	65	23.4
	Illiterate	75	27.1
	Primary education	78	28.2
	Secondary education	63	22.7
Husbands education	Tertiary education	61	22
	Illiterate	57	20.7
	Primary education	88	31.7
	Secondary education	93	33.5
Received health education on maternal health	Tertiary education	39	14.1
	Yes	202	73
	No	75	27

**Table 1:** Socio-demographic characteristic of the mothers who gave birth in the last two years in Shashemene town, 2105.

Variables	Response options	Frequency	Percent
History of abortion	Yes	35	12.6
	No	242	87.4
History of still birth	Yes	7	2.5
	No	270	97.5
ANC visit	Yes	195	70.4
	No	82	29.6
Number of ANC visit	One	14	7.2
	Two	25	12.8
	Three or more	156	80
Reason of ANC visit	Regular check up	140	72
	Due to illness	55	28
Advice during ANC about place of delivery	Yes	170	87
	No	25	13
Reason for not having ANC follow up	No illness with pregnancy	13	15.8
	Busy work schedule	24	29.3
	Lack of knowledge	40	48.8
	Distant health facility	5	6.1
Place of delivery	Home	53	19
	Health institution	224	81
Delivery assistant	Family members	47	88.7
	Neighbors	6	11.3
Gravida	1	65	23.5
	2-4	175	63.2
	5 or more	37	13.3

**Table 2:** Obstetrics characteristic of the mothers who gave birth in the last two years in Shashemene town, 2105.

### Factors associated with Home delivery

ANC visit, education, husband education, marital status, receiving health education on maternal health, knowledge and attitude about institutional delivery has an association with selection of place of delivery.

Divorced women were more likely (AOR= 2.36, 95% CI: 2.14-36.72) to give birth at home than widowed women. Those women who had history of antenatal care were less likely (AOR= 0.63, 95% CI: 0.49-0.86) to give birth at home than their counterparts. Women who received health education about maternal health were less likely (AOR= 0.54, 95% CI: 0.38-0.91) to give birth at home than those who have no exposure for health education. Women who is illiterate are more likely (AOR= 5.23, 95% CI: 3.78-24.85) to give birth at home than those who are educated. This is the same that women who had illiterate husband were more likely to give birth at home than their counterparts. Women who have good knowledge are less likely (AOR= 0.74, 95% CI: 0.45-0.94) to give birth at home than their counterparts (Table 3).

### Discussion

This study showed that 81% of mothers gave birth at health facility for their recent birth. This is higher than study finding in urban area of Dodota district Oromiya region which was 62.4% [8]. The possible reason for the variation might be that the currently the government and other supporting organizations are working strongly to increase institutional delivery service utilization.

Variables	Home delivery		COR (95% CI)	AOR (95% CI)	
	Yes, number (%)	No, number (%)			
Age	<20 years	8 (29.6)	19 (70.4)	1.053 (0.25-4.37)	3.98 (0.32-39.74)
	21-34 years	41 (17)	200 (83)	0.53 (0.15 - 1.75)	1.37 (0.41-16.32)
	>35 years	4 (44.4)	5 (55.6)	1	1
Marital status	Married	49 (18.5)	216 (81.5)	2.94 (0.47-18.86)	1.79 (1.28-26.98)*
	Divorced	2 (28.5)	5 (71.5)	1.76 (0.33-9.31)	2.36 (2.14-36.72)*
	Widowed	2 (40)	3 (60)	1	1
Educational status	Illiterate	41 (54.6)	34 (45.4)	12.4 (9.52-49.8)	5.23 (3.78-24.85)*
	Literate	12 (5.9)	190 (94.1)	1	1
Gravida	1	26 (40)	39 (60)	2.02 (0.84-5.10)	6.23 (0.92-14.63)
	2-4	18 (10.3)	157 (89.7)	0.35 (0.14-0.87)*	0.85 (0.12-1.94)
	>5	9 (24.3)	28 (75.7)	1	1
History of stillbirth	Yes	1 (14.3)	6 (85.7)	0.69 (0.08-5.92)	0.92 (0.76-10.19)
	No	52 (19.3)	218 (80.7)	1	1
ANC follow up	Yes	11 (5.6)	184 (94.4)	0.05 (0.02-0.12)*	0.63 (0.49-0.86)*
	No	42 (51.2)	40 (48.8)	1	1
Receive health education	Yes	13 (6.4)	189 (93.6)	0.06 (0.12-0.29)*	0.54 (0.38-0.91)*
	No	40 (53.3)	35 (46.7)	1	1
Husband educ. status	Illiterate	18 (31.6)	39 (68.4)	4.70 (1.61-13.3)*	8.31 (5.37-16.54)*
	Literate	35 (15.9)	185 (84.1)	1	1
Knowledge	Good	32 (20.8)	122 (79.2)	0.29 (0.13-0.65)*	0.74 (0.45-0.94)*
	Fair	13 (13.9)	80 (86.1)	0.38 (0.16-0.89)*	0.93 (0.25-0.98)*
	Low level	8 (26.6)	22 (73.4)	1	1

Note: \*significant at p less than 0.05; Educ, education; AOR, adjusted odds ratio; COR, crudes odds ratio

**Table 3:** Factors associated with home delivery in Shashemene town, 2105.

This study showed that 55.6% of mothers have good knowledge about institutional delivery service which is relatively similar with the study finding in Sekelea district in North West of Ethiopia which was 56.6% [9].

In this study 79% of the mothers have positive attitude towards institutional delivery.

A study in Saharti Samre Tigray showed that institutional delivery service utilization was very low. In the last five years preceding the study only 4.1% of mothers gave birth in health facility for their recent child. The majority (95.9%) of births takes place at home where as in this study majority (81%) the participants delivered at health institution and only 19% delivered at home [10].

There were factors identified which affects home delivery. Those determinant factors were ANC utilization, marital status, maternal and husband education and receiving health education on maternal health.

The results of this study showed that, institutional delivery service was significantly influenced by the level of education. Women who are literate were more likely to deliver at health facilities than those who were unable to read and write (illiterate). This finding is similar with those of studies conducted in different parts of Ethiopia [10]. These might be due to the fact that educated women had better awareness about the benefits of preventive health care and health services. They might also have higher receptivity to new health related information. Familiarity with modern medical culture, more decision-making power, increased self-worth and self-confidence were also the characteristics of urban women which might have contributions to better utilization of health facility delivery than rural women.

Husbands' educational level was also one of the factors that predicted health institution delivery. Women whose has literate husbands were more likely to deliver in health facilities as compared to those whose husbands were unable to read and write (illiterate). The finding was in line with that of a study done in Saharti Samere Tigray region [10]. The possible explanation for this might be that educated husbands might be more open toward modern medicine and aware of the benefits of giving birth at health facilities.

ANC services can provide opportunities for health workers to promote a specific place of delivery or give women information on the status of their pregnancy which in turn alerts them to decide where to deliver. This study showed that mothers who had ANC visits during the last pregnancy were more likely to deliver at health facilities compared to those who did not have any visits. The result was consistent with other studies done in Sahart Samere Tigray, Munisa and Arsi Zone Ethiopia [10-12].

Receiving health education about maternal health including place of delivery was one of the predictor variables in which mothers who received the health education were more likely to deliver in the health institution than those who didn't. This finding is consistent with the study finding from Woldia Ethiopia [13]. The possible explanation could be health education could help to improve the health seeking behavior of the women.

Knowledge about institutional delivery was a determinant factor

for utilization of institutional delivery service. This is in line with the study finding from Weldia Ethiopia [13]. This could be due to that knowledge is a basis for decision making and influence the choice of place of delivery.

## Conclusion

This study indicates that home delivery is very low. There are several factors that affect home delivery. Those factors are Educational status of the women and their husbands, history of ANC follow up, health education about maternal health and knowledge about institutional delivery. Those women who is illiterate and their husbands educational status is illiterate were more likely to give birth at home. Women who had history of ANC follow up, received health education about maternal health, had good knowledge and positive attitude were less likely to give birth at home.

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## Author Contributions

TG, BW, MK and BB conceived the study, undertook statistical analysis, supervised the study, made the study design, carried out statistical analysis and contributed to the writing of the manuscript. All authors approved the submitted version of the manuscript.

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