

Use of previous maternal health services has a limited role in reattendance for skilled institutional delivery: cross-sectional survey in Northwest Ethiopia

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Background: Maternal mortality rates are unacceptably high in Ethiopia. Institutional delivery with skilled care of the mother is one of the interventions proven to reduce the risk of complications that can cause maternal and neonatal mortality. Quality of service given during antenatal visits and childbirth are important measures. The purpose of this study was to investigate the use of skilled institutional delivery and its repeat use during a subsequent pregnancy and to identify any reasons why women avoid institutional delivery.

Methods: A community-based cross-sectional study was conducted from March to June 2012 in Chilga Woreda, Northwest Ethiopia. Data were collected from women who gave birth during the year preceding the survey. Information was entered and cleaned using the Statistical Package for Social Sciences. Multivariate and binary logistic regression was used to identify the relative effect of each explanatory variable on the outcome.

Results: A total of 402 (84.2%) women gave birth at home. Previous experience of skilled institutional delivery had a limited role in subsequent acceptance or use of institutional delivery. Most mothers who had previously had institutional delivery gave birth at home. Although 111 (40.8%) women visited the health facility during their pregnancy only because of illness, 184 (38.8%) did not know when to visit for antenatal care. In multivariate analysis, lower maternal education, being a rural resident, previous use of institutional delivery, remoteness of the health facility, and multiparity were factors significantly associated with less likelihood of institutional delivery. Number of months pregnant at the time of the first antenatal visit had no role in increasing the likelihood of institutional delivery.

Conclusion: The quality of the obstetric services presently available for women living in Ethiopia needs review.

Keywords: quality, antenatal care, institutional delivery, maternal, health facility, Ethiopia

Background

Globally, it is estimated that half a million women die each year during pregnancy and childbirth, with over half of these deaths occurring in Africa.¹ In Ethiopia, maternal mortality was still unacceptably high at 1.14 maternal deaths per 1000 woman-years in 2011.² There was no significant reduction in the maternal mortality rate between 2005 and 2011 (673/100,000 and 676/100,000 live births, respectively), according to the Ethiopian Demographic and Health Surveys.^{2,3} Most of this mortality is attributed to poor care at delivery.⁴ Therefore, there is an urgent need to leverage the available options and opportunities to be able to achieve a meaningful reduction in maternal mortality.²

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The Ethiopian government is committed to achieving millennium development goal 5, ie, to improve maternal health, with a target of reducing the maternal mortality rate by 75% from 1990 to 2015.^{1,2} Accordingly, the Federal Ministry of Health has used a multipronged approach to reducing maternal morbidity and mortality, which includes improving access to and strengthening facility-based maternal and newborn services, which is also a strategic objective of the health sector development plan.²

Skilled institutional delivery for mothers, one of the interventional options proven to reduce the risk of complications and infection that can cause maternal and neonatal morbidity and mortality, is one of the millennium development goal indicators to track national efforts towards safe motherhood,^{5,6} and service delivery should attract clients, coupled with full professional ethics.

Quality of service during antenatal visits, in obstetrics, and during delivery is an important measure. The quality of antenatal care, for example, can be measured by the qualifications of the provider, the number and frequency of antenatal care visits, the services received, and the type of information given to women during their visits.² These services raise awareness on the part of mothers about timely booking of antenatal care and understanding of delivery at a health facility, as well as improving the health care-seeking behavior of mothers and preparing them for birth. The quality of care and the effectiveness and accessibility of the health system can be also measured by the proportion of births attended by skilled providers.⁷

In general, health care is said to be of high quality if it is effective, safe, patient-focused, and provided in a timely fashion.⁸ Although quality of care is multifaceted, the two main dimensions of quality of service are that the service should meet accepted standards or norms and that it should be acceptable to clients. The technical dimension is dominant in medical and health services, and particularly in the emergency setting. However, if services are lacking in the human dimension, clients may avoid them altogether, and resort to home remedies or less effective services.⁹ Other measurements of quality include effective communication between client and service provider, and client satisfaction regarding their interaction with the health care provider.⁷

In Ethiopia, about six in every ten women (57%) were found not to have received any antenatal care prior to their last birth, and only 10% of births were delivered by a skilled attendant at a health care facility.² No substantial reduction in home or unskilled deliveries was observed, especially in the rural community of Ethiopia. A study from Addis Ababa¹⁰

has also reported that past experience of antenatal care is not a predictor of subsequent timely booking for antenatal care, and that women who received advice regarding antenatal visits were more likely to book them in a timely fashion for their first pregnancy than for subsequent pregnancies. Further, another recent study from Ethiopia⁴ showed that overall satisfaction with maternity hospital delivery services was suboptimal, with only 57.5% of women being willing to recommend delivery in hospital to family and friends.

Alternative methods of addressing the problem of low uptake of maternity hospital delivery services are needed. The community-based safe motherhood intervention in Tanzania, for example, has significantly increased the use of skilled delivery.¹¹ However, one Ethiopian study¹² has reported that the health extension program has not yet demonstrated any impact on improving attendance rates for the skilled obstetric care that is critical to achieve the goal of maternal mortality reduction, and the strategies used in this program did not result in more deliveries attended by skilled health professionals. Further, in a population-based discrete choice experiment in Gilgel Gibe, Southwest Ethiopia,¹³ 93.8% of the women surveyed had delivered their last child at home.

This study investigated the maternal use of skilled institutional delivery services and repeat use during subsequent pregnancies, and sought to identify reasons why women avoid institutional delivery.

Materials and methods

A community-based cross-sectional survey was conducted between March and June 2012 in Chilga, Northwest Ethiopia. Based on the 2007 national census conducted by the Central Statistical Agency of Ethiopia, this *woreda* (district) has a total population of 221,462, of whom 109,408 are female (with 81,288 being women aged 15–49 years) and 20,745 (9.37%) being urban dwellers. Women who gave birth at least once during the year preceding the survey comprised the study population. Sample size was determined using the formula for single population proportion, with a 95% confidence interval and 3% margin of error. A total of 475 women were recruited for the study. The study areas within the district (*kebele*) were selected initially using a simple random sampling technique. All women who had given birth in the year preceding the survey in each household from the selected *kebele* participated in the study. All women in each household were included. None of the women refused to participate in the study. However, women who were resident in the selected study areas for less than one year and not present during the study period were excluded. To interview women

who were absent during the initial data collection visit, the households were revisited at least twice.

The data were gathered by health officers using a semi-structured questionnaire with direct face-to-face interview with the mothers. The data collection questionnaire was pretested and rechecked for content and completeness. The main questions included in the questionnaire were maternal sociodemographic characteristics, previous obstetric/delivery history, and questions related to the current delivery, including preference for place of delivery, reasons for not accepting institutional delivery, and why women did not return to hospital for their subsequent delivery. Data collection was overseen by a supervisor who checked the data collection process and ensured its completeness.

The data collected were entered, validated, and cleaned using the Statistical Package for the Social Sciences version 20.0 (SPSS Inc, Chicago, IL, USA). Multivariate and bivariate analysis was performed to identify factors associated with the outcome variable (institutional delivery) by computing of logistic regression. Confidence intervals (CIs) are presented for the odds ratios (OR), and *P* values are also shown. The relationship between covariates and the outcome variables was considered to be statistically significant when the *P* value was below 0.05. The study was approved by the ethical review board of the University of Gondar. The data collected were anonymized and personal information was kept confidential.

Results

A total of 475 women were involved in the study, of whom 361 (76.0%) were rural residents and 412 (86.7%) were housewives. Overall, 270 (56.8%) of the women were aged 21–30 years (Table 1). Two hundred and seventy-two women (57.3%) had visited a health facility for antenatal care at least once. The mean gestational age at the first antenatal care visit was 22 ± 10 weeks, and 35.7% of the women had visited a health facility for antenatal care after 6 months of gestation. Of all women with a history of giving birth, 177 (44.6%) had a lifetime history of skilled delivery in an institution at least once.

Use of institutional delivery

Four hundred and two women (84.6%) reported having given birth at home. Of the women who had attended for skilled institutional delivery at least once in the past, 14.1% had attended for their current delivery. Further, the women reported that home delivery was preferable to delivery in a health facility for the immediate family and for the privacy

Table 1 Sociodemographic and previous obstetric characteristics of the women

Characteristics	Response	n	%
Age	<20 years	41	8.6
	21–30 years	270	56.8
	>30 years	164	34.5
Residence	Urban	114	24.0
	Rural	361	76.0
Religion	Orthodox	444	93.5
	Muslim	31	6.5
Maternal educational status	No education	363	76.4
	Primary education (1–8)	56	11.8
	Secondary education (9–12)	39	8.2
	Tertiary and above	17	3.6
Occupation	Housewife	412	86.7
	Government employee	21	4.4
	Merchant	14	2.9
	Daily laborer	28	5.9
Marital status	Married	414	87.2
	Divorced	44	9.3
	Widowed	17	3.6
Pregnancy planning	Planned	377	79.4
	Unplanned	98	20.6
Parity	One	78	16.4
	2–3	161	33.9
	4–6	153	32.2
	>6	83	17.5
Average household monthly income (in Ethiopian birr)	<500	236	54.3
	501–1000	195	44.8
	Above 1000	4	0.9
Distance from health facility by foot	<15 minutes	95	20.0
	16–30 minutes	132	27.8
	31–60 minutes	136	28.6
	>60 minutes	112	23.6
Antenatal attendance	Yes	272	57.3
	No	203	42.7
Antenatal visit (n)	Once	85	31.2
	2–3	106	39.0
	≥ 4	81	29.8
Gestational age at first antenatal visit	<3 months	78	28.6
	4–6 months	97	35.7
	>6 months	97	35.7
Place of delivery for last pregnancy	Home	402	84.6
	Health institution	73	15.4

of the mother. Some of the women were unaware of the benefits of giving birth in a health facility (Figure 1). Of the women who had delivered at a health care institution, 36.5% reported that they had attended because of severe illness. The rate of institutional delivery was markedly higher in women educated beyond secondary level than in less well educated women (45.2% versus 11.0%, respectively). Most deliveries (58.5%) were attended by reportedly “trained” birth attendants and family members or neighbors (34.5%). There was substantial disparity in use of skilled institutional delivery services between urban and rural dwellers (Table 3).

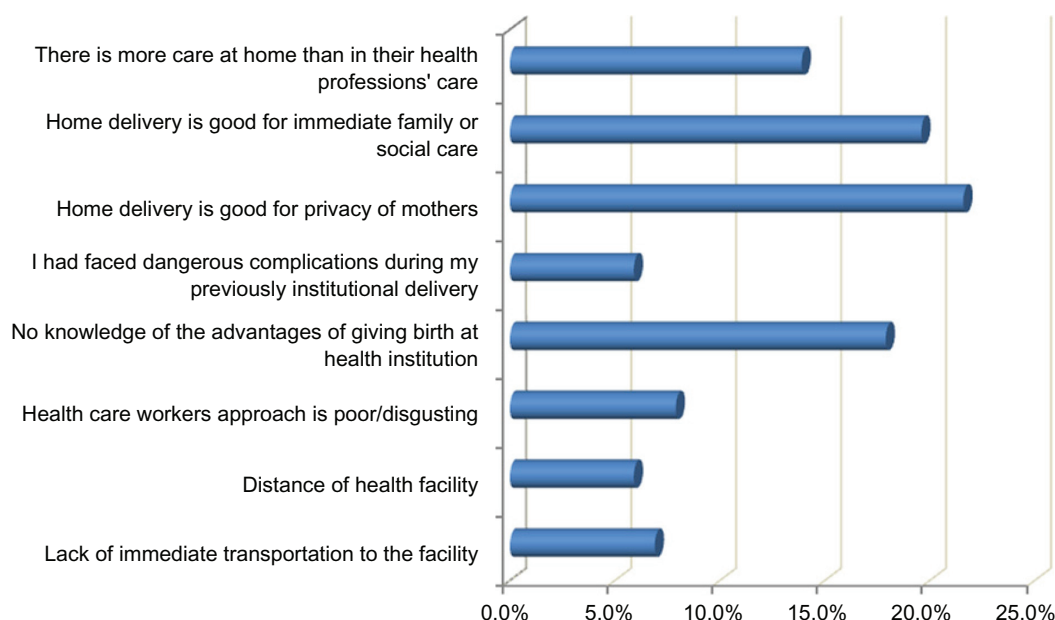


Figure 1 Reasons given by women not attending or reattending institutional skilled delivery services.

The results show that the women had limited awareness of maternal health care services. Mothers whose last delivery was at a health institution reported that they had opted for an institutional delivery only because of illness; 215 (45.3%) of the women had births attended by their mother/family members or traditional birth attendants, and 262 (55.2%) had simply wished to give birth at home. In total, 111 (40.8%) women who visited the health facility for antenatal care reported that they did so only because of illness. Further, 184 women (38.8%), did not know when to attend for their first antenatal visit (Table 2).

Factors associated with use of skilled institutional delivery

Utilization of maternal health care services was affected by a multitude of factors. Bivariate analysis indicated that maternal age, maternal educational status, distance from health facility, parity, having antenatal follow-up, and previous experience of institutional delivery were significantly associated with current attendance for institutional delivery. Multivariate analysis showed that maternal education to secondary level and higher, urban residence, living more than 15 minutes away from a health facility, and primiparity were significantly associated with increased likelihood of attendance for institutional delivery.

Previous use of institutional delivery was independently and significantly associated with a decreased likelihood of reattendance for institutional delivery of 45% (adjusted OR 0.55; 95% CI 0.20–0.76). Primiparous women had a 2.8-fold higher attendance rate for institutional delivery than

multiparous women. Furthermore, women who had given birth 2–3 times were 35% less likely to attend for institutional delivery (adjusted OR 0.65; 95% CI 0.15–0.86, Table 3). Mothers who had received antenatal care during their pregnancy were 1.5 times more likely to give birth at a health facility; however, gestational stage at the time of the first antenatal care visit played no role in increasing the likelihood of attending for institutional delivery.

Table 2 Level of awareness of women about use of the health facility

Questions	Responses	n (%)
Did you go for ANC during your pregnancy?	Yes	272 (57.3%)
	No	203 (42.7%)
Why did you go for ANC?	Because of knowing its advantage	126 (46.3%)
	Because I became sick	111 (40.8%)
	Health professional/ my husband advised me/ encouraged me to go	27 (10.0%)
	Unidentified reason	8 (2.9%)
When do you think is the earliest time you can go for the first ANC visit during pregnancy?	Less than 3 months' gestation	88 (18.5%)
	3–6 months' gestation	87 (18.3%)
	More than 6 months' gestation	116 (24.4%)
	Do not know	184 (38.8%)
Where would you like most to give birth?	Home	262 (55.2%)
	Health institution	213 (44.8%)
In whom are you interested to have as an attendant during delivery?	Traditional birth attendant	150 (31.6%)
	Family member	65 (13.7%)
	Health professionals	260 (54.7%)

Abbreviation: ANC, antenatal care.

Table 3 Determinants of institutional skilled delivery usage from the bivariate and multivariate analysis

Factors	Institutional delivery attendance	Odds ratio (OR) (95% CI)		P value
		Crude OR	Adjusted OR	
Maternal age				0.001
Age below 20 years	7 (9.5%)	1.90 [0.65–5.43]		
21 to 30 years	50 (68.5%)	2.10 [1.15–4.03]*		
Above 30 years	16 (22.0%)	1.0		
Educational status of women				<0.001
Uneducated	18 (24.6%)	1.0	1.0	
Primary education (1–8)	15 (20.5%)	7.0 [3.83–15.80]	2.24 [0.85–6.38]	
Secondary education (9–12)	30 (41.3%)	63.8 [24.50–171.50]	25.8 [13.0–106.5]*	
Above secondary education	10 (13.6%)	27.3 [8.30–92.20]	15.21 [3.4–48.5]*	
Residence				<0.001
Urban	48 (65.7%)	9.5 [5.46–17.25]	4.55 [2.55–9.16]*	
Rural	25 (34.73%)	1.0	1.0	
Distance of health facility				<0.001
Below or equal to 15 minutes	42 (57.5%)	9.93 [5.93–25.15]	5.08 [2.72–13.60]*	
16 to 30 minutes	19 (26.1%)	3.61 [1.92–11.45]	1.95 [1.12–7.35]*	
31 minutes to one hour	7 (9.6%)	1.16 [0.32–4.36]	0.63 [0.15–2.47]	
Above one hour	5 (6.8%)	1.0	1.0	
Parity				0.01
One	33 (45.3%)	4.80 [2.25–11.24]	2.85 [1.82–6.73]*	
Two to three	20 (27.4%)	0.92 [0.42–2.04]	0.65 [0.15–0.86]*	
Four to six	9 (12.3%)	0.45 [0.16–1.03]	0.41 [0.06–0.75]*	
Seven and above	11 (15.0%)	1.0	1.0	
Previous birth at health facility				<0.001
No	48 (65.8%)	1.0	1.0	
Yes	25 (34.2%)	0.59 [0.33–1.02]	0.55 [0.20–0.76]*	
Antenatal care follow-up				0.02
Yes	54 (73.9%)	2.34 [1.33–4.20]	1.5 [1.15–3.70]*	
No	19 (26.1%)	1.0	1.0	

Note: *Significant.

Abbreviation: CI, confidence interval.

Discussion

Because of its significant role in reducing maternal obstetric complications as well as maternal and neonatal mortality, it is necessary to improve acceptance by women of institution-based delivery. Women's utilization of maternal health care services is an important consideration with regard to the survival of both mother and baby. The present study reports on the acceptance of maternal health services and reattendance rates for institutional delivery in Ethiopia.

The findings of this study point to factors determining attendance for institutional delivery, and highlight three poor quality indicators in the maternal health care services, ie, poor maternal awareness, a poor services approach, and poor access to services. Quality of health care is determined by the balance between customer satisfaction in terms of their wants and needs, and maintenance of the necessary technical standards.⁹

Poor maternal awareness and limited health education should be addressed by health care providers and community health agents by raising the level of awareness, improving health education, and reducing the complex barriers to effective health care in the community. Our study showed that

mothers whose last delivery was at a health care facility were likely to reattend for institutional delivery only if they were ill and that a significant number of women were delivered by their mother/family members or traditional birth attendants. Most mothers wished to give birth at home. Upon questioning, the women reported that they considered their delivery a safe delivery if they had given birth at their home. In other words, attending a health care facility to give birth was considered worthwhile only if there was a problem associated with giving birth at home. In addition, some mothers who had visited a health facility for antenatal care reported that they did so only because of illness. Consistent with this, the data show that rates of early antenatal care (<3 months) were higher in primiparous women than in multiparous women, potentially because primiparous women are more likely to suffer from hyperemesis than multiparous women. Similarly, multiparous women are less likely to attend for delivery at a health facility than primiparous women. This could be due to greater confidence in multiparous women and their cumulative experience of giving birth, or may simply reflect greater responsibilities within the household and child care commitments.

Similar research from Addis Ababa¹⁴ has shown that primiparous women are consistently more likely to deliver with the assistance of a health care professional than any other parity group, and high parity women are the least likely to seek maternity care services.^{5,14}

The women in this study also believed that visiting a health facility for antenatal care and delivery is not necessary unless there is a tangible illness, and some did not know the correct time for the first antenatal care visit, despite the current expansion of health postings in the rural community of Ethiopia. This could be indicative of limited effort on the part of health care providers in raising women's awareness and knowledge about the benefits of using a health facility and when to attend. This finding is in agreement with that of other researchers in Ethiopia.¹⁵

Further, mothers with secondary and higher education are more likely to attend for institutional delivery. The issue of women's education has been discussed frequently in the context of health care-seeking behavior and use of maternal services. A study from Africa describes education as a "medication against fatalism". In addition, educated women may also be less likely to expose themselves to dangerous practices aimed at alleviating complications in pregnancy.¹⁶

The pattern of maternal health care-seeking behavior and low awareness of facility-based delivery could be changed, but every effort is needed from providers, especially when dealing with rural and uneducated women.¹⁴ The strong influence of maternal education on utilization of health care services is consistent with findings from other studies.¹⁷

The poor quality of service delivery and client-provider interaction was the other main indicator identified. Of the women who had opted for institutional delivery during their previous pregnancy, only one quarter reattended during their current pregnancy, which conceivably reflects low satisfaction with their previous experience of institutional delivery. However, this could be multifactorial. A similar study from Addis Ababa¹⁰ has also documented that past experience with antenatal care services did not come out as a predictor of timely booking of antenatal care associated with the provider's ill advice or missing the opportunity. Mothers also reported that the treatment approach when they had visited the health facility was poor or repugnant to them. A recent similar study in the same region indicated that, overall, women's satisfaction with hospital delivery services was suboptimal.⁴ Similarly, a qualitative study from Uttar Pradesh indicated that poor quality of client-provider interaction was the main shortcoming perceived by women.¹⁸

Assessment of the components of antenatal care is essential for assessing the quality of antenatal services which is an important gateway for attendance for institutional delivery. Our results show that month of pregnancy at the time of the first antenatal visit had no role in increasing the likelihood of an institutional delivery. This indicates that the women did not benefit from antenatal care as a pathway to institutional delivery.

Poor access to obstetric services remains a significant challenge. Distance is the best measure of access, but does not reflect other physical barriers, which will vary. Most mothers in our study reported being reluctant to attend for an institutional delivery because of lack of transport, considering that labor could be at night and short in duration. Similar studies have also identified long travel times, lack of transport, and cost of health care to be significant impediments to women receiving antenatal care and delivery.^{16,18} Urban women are more likely to attend a health facility than their rural counterparts, and this could reflect better access to health facilities in urban areas than in the rural regions where, in most cases, facilities are either not available or are too far away.

The main limitation of this study is its cross-sectional design, so a cause and effect relationship cannot be identified. However, its results can be used as a baseline to inform future research endeavors.

Conclusion and recommendations

Previous attendance has a limited role in subsequent acceptance or use of institutional delivery. In this study, most mothers who had previously attended for institutional delivery subsequently gave birth at home. This could be because of unappealing obstetric care given earlier at the health facility. However, the reasons could be multifactorial. In the light of these findings, a focus on increasing demand for existing services through improving quality of services seems the most rational approach. A comprehensive effort has to be made to increase awareness of the benefits of attending for institutional delivery using a boosted and integrated education system. Health professionals should be evaluated as to their competency in providing antenatal and delivery services, and educated to include all components of the health care package for these women. The obstetric and delivery services approach of health professionals should be evaluated up front according to the standard of care and against the culture and needs of consumers. The role of rural health extension workers in raising awareness and improving maternal education needs to be evaluated.

Although the government is making every effort to expand access to the appropriate facilities, there still needs to be more effort made to expedite its implementation. Finally, the authors recommend further research be undertaken on quality of services using qualitative methods coupled with longitudinal data.

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