



Delivery place preferences and its predictors among mothers who gave birth Last six months: A community based cross sectional study

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Abstract

Background: Institutional delivery is a child birth at recommended safe and clean place where health care professionals attend the delivery but home delivery is childbirth in non- clinical setting that takes place in residence than in health institutions and attended by unskilled traditional birth attendants.

Objective: this study was to assess delivery place preferences and its predictors.

Methods: A community based cross sectional study was employed. Nine kebeles and study participants were selected using simple random sampling. A total sample of 276 was used. Data were analyzed using SPS version 20. Binary and multivariable logistic regression model was used. Adjusted odds ratio with 95% CI was also used to quantify association.

Result: 136(50.7%) of the mothers delivered at health institution.

Partners occupation being Government worker was AOR= 3.1,(95% CI: 1.64, 21.22), place of previous institutional delivery AOR=2, (95%CI: 1.69, 8.26), counseled to deliver at health institution AOR=2.5, (95%CI: 1.13, 4.98) showed significant positive association with delivery place preference.

Conclusion: Generally, institutional delivery preference in the study area was low than recommended by MoH. Factors found to be associated with institutional delivery preferences were husband occupation, Place of previous delivery, receiving Counseling service to deliver at health institution during pregnancy.

Key words: delivery place, preferences, predictors



Introduction

Institutional delivery is a child birth at recommended safe and clean place where health care professionals attend the delivery but Home delivery is childbirth in non- clinical setting that takes place in residence than in Hospitals and attended by unskilled birth attendants(1).

There are many factors that affect place of delivery in developing countries including Ethiopia. Some of the major ones are lack of information and adequate knowledge about danger signs during pregnancy and labor; cultural/ traditional practices, quality of services, site service utilized and previous experience (2).

In per natal period there is highest number of maternal deaths especially on the first day after delivery showing the critical need for good quality care during delivery (3).

Delivery service to pregnant women is the most important component of reproductive health care, to handle high risk deliveries. In spite of the national and global efforts for reducing maternal morbidity and mortality, there is no significant reduction in maternal morbidity and mortality in developing countries (4-5). The United Nations Children's Fund (UNICEF) estimates that yearly about 515,000 women die of pregnancy and childbirth complications. It is also estimated that 1600 women across the world die each day as a result of pregnancy and childbirth related problems and the greater proportion of these deaths occur in developing countries (6). In Ethiopia, maternal mortality and morbidity levels are among the highest in the world. One explanation for this poor health outcome among women is low use of the available modern health services by women in Ethiopia though it is given with affordable cost (7).

Methods and materials

The study was conducted in Anlemo District which is one of the 10 rural Districts in Hadiya zone, south Ethiopia. The District shares boundaries with Lemo woreda in Southwest and, Shashogo



Woreda in Southeast and silte zone in North direction. In 2016/17, according to 2007 Ethiopia census projection, the District has estimated total population of 87,290 of which 42,772(49%) males, 44,518(51%) females and 2,270 expected delivery in the year and 1,135 in half year. The District has 27 rural and only one urban kebeles. Regarding to health infrastructure there are 27 health posts and 5 health centers in the woreda. All health centers provide delivery service free of charge.

A Community based cross sectional Epidemiological study design was used to assess place of delivery. All mothers who delivered in Anlemo District within past six months and mothers who lived at least for one year in the District included in the study.

All Mothers who cannot give full information due to illness were excluded from the study.

One population proportion was used by considering the following assumptions; confidence level of 95%, $Z_{\alpha/2}=1.96$, $d=5\%$, $p=38.1\%$ (institutional delivery in Bench Maji zone, the converse of home delivery which is 61.9% (8).

$$n = (Z_{\alpha/2})^2 * p * q / d^2$$

$$n = (1.96)^2 * 0.381 * 0.619 / (0.05)^2 = 364$$

Finite population correction formula was used since in Anlemo District has expected delivery was 1135 (expected delivery in six months), which is less than 10,000 and $n/N > 5\%$, $n/1+n/N = 276$

Sampling technique

To select study participants, first 9 kebeles were selected using simple random sampling technique (Lottery method). Then, in selected kebeles from health post family folder frame study participants were selected by simple random sampling (Lottery method).

Data collection procedure

Data were collected using structured and semi-structured questionnaires adapted from different literature. Questionnaires were prepared in English then translated to Amharic and Hadiyisa by independent translators who know local languages well.



Variables and measurements

Dependent variables

Institutional delivery

Independent variables

Socio-demographic characteristics: age, mother education, partner educational status, average monthly income, religion, Ethnicity, mother occupation, partner occupation.

Maternal characteristics: ANC follow up, place of previous delivery.

Health Facility related factors: distance to the nearest health facility, Road access to Ambulance.

Health workers related factors: counseling to deliver at health institution, perceived quality of service.

Data quality control

The questionnaire was pretested before data collection in 5% of the participants within the district but out of study kebeles. During data collection day to day on site supervision was carried out. Completeness and consistency of the questionnaires was checked on daily basis.

Operational definition

Institutional delivery refers to delivery that Takes place at health center or a hospital.

Antenatal follow up: visiting health institution during pregnancy at least once.

Data processing and analysis

Data were entered into SPSS version 20 for analysis. Then data were coded in non-overlapping code. Descriptive statistics like percentages were carried out.

Chi-square test was conducted to check adequacy of cells. Variable fail to fulfill chi-square test assumption, were re-categorized into other possible category and rechecked. Variables with p-value <0.25 were candidate variables and entered into final logistic regression model. Then binary logistic Regression model was used (forward). Hosmer and Lemshow's goodness of fit test was used to test model fitness, the model was fit with p- value ≥ 0.05 . Odds ratio with corresponding 95% CI was used to quantify association between dependent variable and independent variables. Variables with p-value



<0.05 were taken as statistically significant and considered predictors of institutional delivery preferences. Final result was presented using text, tables, graphs and percentages.

Ethical consideration

To assure ethical issue, Letter of cooperation was written from Wachemo University to Anlemo District. Then Letter of cooperation also obtained from district health office to Kebeles and study participants. Finally, oral consent was asked from the participants.

Result

268 mothers with response rate of 97.1% enrolled in this study.

Socio-demographic characteristics

From the total participants, 113(42.9%) were in the age category of 25-29 years, 123(45.9%) of the mothers were at elementary educational level, about half of the partners were also elementary school Educational level, about half of the mothers’ average monthly income was less than 500 Birr.

Majority of the participants (72%) were Hadiya, nearly half of the participants (48.5%) were Muslim religion followers. Regarding occupation, 92.5% of the mothers were house wife and 68.7% partners were farmers. (Table 1 below)

Table 1: Sociodemographic characteristics of study participants, Anlemo district, SNNPR , 2017

s. no	Variables	Category	Frequency(n)	Percent (%)
1	Mother age	≤24	58	21.6
		25-29	113	42.9
		30-34	64	23.9
		≥35	33	12.3
2	Mother educational status	Illiterate	117	43.7
		Elementary	123	45.9
		High school and above	28	10.4
3	partner educational status	Illiterate	49	18.3
		Elementary	141	52.6
		High school	59	22



		College & above	19	7.1
4	Average monthly income of the family	<500	150	56
		500-999	95	35.4
		1000-1499	13	4.9
		≥1500	10	3.7
5	Religion	Protestant	116	43.3
		Muslim	130	48.5
		Orthodox	22	8.2
6	Ethnicity	Hadiya	193	72
		Silte	39	14.6
		Gurage	18	6.7
		Amhara	14	5.2
		Others	4	1.5
7	Mother occupation	House wife	248	92.5
		Gov't worker	2	0.7
		Merchant	16	6
		Others	2	0.7
8	Partner occupation	Farmer	184	68.7
		Gov't worker	26	9.7
		Merchant	41	15.3
		Others	17	6.3

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ing mothers related factors, all mothers visited ANC at least once in pregnancy of this delivery. Among mothers who visited ANC more than half of them completed recommended number of ANC follow up. Majority of the mothers delivered their previous child at home. (Table 2)



Table 2: Maternal characteristics Anlemo district, SNNPR , 2017

s. no	Variables	Category	Frequency(n)	Percent (%)
1	Antenatal follow up during current pregnancy	Yes	268	100
		No	0	0
2	Antenatal care follow up (268)	Incomplete ANC	114	42.5
		Complete ANC	154	57.5
3	Place of previous delivery(234)	Home	170	72.6
		Health institution	64	27.4

Health facility related factors

More than half of the mothers (58.6%) were from far distance from the nearest health facility, Giving delivery service and likewise more than half (62.7%) of the mothers’ residence was not road access to ambulance. (Table 3 below).

Table 3: Health facility related factors Anlemo district, SNNPR, 2017

S. no	Variables	Category	Frequency(n)	Percent (%)
1	Distance to nearest health institution	Near	111	41.4
		Far	157	58.6
2	Road access to ambulance	Accessible	168	62.7
		Not accessible	100	37

Health worker related factor

Majority of the mothers (72.4%) received counseling from health workers to deliver at health Institution and more than half of the mothers (62.7%) perceived as good quality delivery service given at nearest health institution. (Table 4 below)



Table 3: Health facility related factors Anlemo district, SNNPR, 2017

S. No	Variables	Category	Frequency(n)	Percent (%)
1	Receiving Counseling service to deliver at health institution	Yes	194	72.4
		No	74	27.6
2	Perceived quality of service of the nearest HI	Good	168	62.7
		Neutral	73	27.2
		Bad	27	10.1

Delivery place preferences

From the total of 268 interviewed mothers who delivered within six months, 136 (50.7%) Mothers preferred Health institution to deliver to home.

Bivariate logistic regression analysis

Among the Variables entered into bivariate logistic regression, Mother educational status, Partner educational status, Average monthly income of the family, Partner occupation, Antenatal care follow up, Place of previous delivery, Road access to ambulance, Perceived quality of service of the nearest HI, Receiving Counseling service to deliver at health institution are candidate variables for multivariable logistic regression at $p\text{-value} < 0.25$.

Factors associated with Home delivery (logistic regression model)

Mothers whose partners occupation being government employees were 3.1 times more likely to Prefer institution to give birth (AOR= 3.1, 95% CI: 1.64, 21.22) when compared to mothers whose partners were farmers (AOR=11.2, 95% CI: 2.37, 52.91).



Mothers who delivered previous child at health institution were 2 times more likely to deliver the current child health institution when compared to mothers who delivered previous child at home (AOR=2, 95%CI: 1.69, 8.26).

Mothers who has been counseled during pregnancy to deliver at health institution were 2.5 more likely to deliver at health institution when compared to their counterparts (AOR=2.5, 95%CI: 1.13, 4.98). (Table 5 below)

Table 5: Independent predictors of delivery place preferences

s. no	Variables	Category	Crude odds ratio(COR)	Adjusted odds ratio(AOR)	p-value
1	Partner occupation	Farmer	1	1	
		Government worker	5.74(1.90,17.32)	3.1 (1.64, 21.22)	0.07*
		Merchant	7.03(2.05,24.07)	11.2(0.37, 52.91)	0.06
		Others	10.08(2.35,43.31)	4.14(0.67, 25.36)	0.124
2	Place of previous delivery	Home	1	1	
		Health institution	2.67(1.47,4.85)	2(1.69, 8.26)	0.001*
3	Receiving Counseling service to deliver at health institution	Yes	2.62(1.50,4.60)	2.5(1.13, 4.98)	0.022*
		No	1	1	

Discussion

This study highlighted delivery place preferences and its predictors in Anlemo district, Hadiya zone, South region in 2017.



This study found that the institutional delivery preference among mothers who gave birth with in past six month was 136 (50.7%). This implied that about half of the study participants preferred health institution to deliver their child with the help of skilled birth attendants and in clean area in past six months.

The result of this study is much higher than study in Dodota district of Oromia region (9).

The possible Explanation for this difference could be time difference between the two studies.

The study revealed that partner occupation of being government employee was 3.1 times more likely to prefer institutional delivery compared with mothers whose partners were farmers.

This finding is similar with study in Gozamin District, Northwest (10).

Mothers who delivered their previous child at health institution were 2 times more likely to deliver their current child at health institution when compared to mothers who delivered previous child at home. This finding is in line with study in Bench Maji Zone (8).

Mothers who has been counseled during pregnancy to deliver at health institution were 2.5 times more likely to deliver at health institution when compared to their counterparts.

This finding is consistent with study conducted in Shashemene (11). But study in Bahir Dar revealed no supporting evidence of association between counseling and delivery place(12).

The limitation of this study was conducted on the mothers who delivered their child with in past six months, therefore prone to recall bias and due to the nature of study topic also susceptible to social desirable bias.

Conclusion

About half of the mothers preferred to deliver at health institution to home in Anlemo district.

Partner occupation, place of previous delivery, receiving counseling service to deliver at health institution during pregnancy were predictors of delivery place preferences.



Recommendation

Based on the finding of the study the following recommendations forwarded:-

Health workers should create awareness by counseling on institutional delivery and on preparedness to deliver at HI even on sudden onset of labor.

Health worker should give special attention and follow mothers whose partners are farmers and for mothers who delivered at home previously.

Special attention should be given to mothers who delivered at home in last delivery.

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Authors' contributions

SAI- conceived, designed, analyzed and interpreted the study

TBH-advised, analyzed, prepared manuscript and approved for publication

MSJ- prepared research report and prepared manuscript

Abbreviations

UNICEF- United Nations Children's Fund

ANC- Antenatal care

CI -confidence interval



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