

Prevalence and associated factors of home delivery in Arbaminch Zuria district, southern Ethiopia: Community based cross sectional study

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Abstract: Background: Maternal morbidity and mortality is a global health challenge and developing countries contribute about 99% of maternal death. In Ethiopia about 30% of all women death is related to pregnancy related causes and current maternal mortality ratio is 676 per 100,000 live births. However, a large proportion of these maternal deaths could be prevented through timely and appropriate interventions including the presence of skilled delivery service utilization at each birth. Therefore the aim of this study was to assess prevalence and associated factors of home delivery at Arbaminch zuria district. Method: A community based cross-sectional study design was applied from July 1st to July 30 2012 to collect data from reproductive age women who gave birth in the last 2 years in Arbaminch zuria district who was sampled by systematic random sampling method. A single population proportion formula was used to estimate the sample size by using statistical software EPI info 3.5.4 by considering the assumption that the prevalence of home delivery 81.8%, 95% confidence interval, 5% of absolute precision, design effect 2 then adding non response rate of 5% a total sample size of 481 mother who gave birth in the last two years. The data was entered into EPI info version 3.5.4 and exported into SPSS then analysis was made by using SPSS version 16. Descriptive statistics to describe the study population in relation to relevant variables and multivariate analysis was used to assess the presence and degree of association between home delivery and independent variables. Result: Of the total respondents 157(36%) of the women was age in between 25-29 years, with mean age of 31.4±6.2 years and majority was married and illiterate 396(90.8%) and 234(53.6%) respectively. 346(79.4%) was gave birth at home with unskilled attendants 328(75.2%). Mothers educational status($p < 0.001$), parity of the women($p < 0.001$), and travel time to health facility($p < 0.001$) was statistically significant association with home delivery. Conclusion: As revealed by this study home delivery attended by un trained personnel was high (75.2%) and the predominant factors associated with home delivery identified by this study were educational status of the women, parity of the women and travel time to health institution.

Keywords: Delivery, Travel Time, Home

1. Background

Maternal morbidity and mortality is a global health challenge and developing countries contributed about 99% of maternal death. (1) In Africa three quarter of maternal mortalities are due to direct obstetric causes. Moreover, in those countries institutional delivery is low and home deliveries attended by non -trained individuals and in

unhygienic condition were highly in practice. It is also estimated that 800 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.(1, 2)

In Sub Saharan Africa, child bearing women face a 1 in 39 risk of dying in childbirth. But in Sweden that's 1 in 11400 childbirth.(3)

In Ethiopia about 30% of all women death is related to

pregnancy related causes and current maternal mortality ratio is 676 per 100,000 live births. However, a large proportion of these maternal deaths could be prevented through timely and appropriate interventions including the presence of skilled delivery service utilization at each birth.(4, 5, 6)

Currently home delivery attended by unskilled person was 90% and institutional delivery was only 10%. (4) Place of delivery and hygienic condition is crucial to reduce maternal morbidity and mortality as well as to reduce serious newborn illness but in our country home delivery with unhygienic condition and attended by unskilled person was highly in practice. (4,6)

Many studies disclosed that there are different factors associated with home delivery. Some of the factors were residence, inadequate knowledge on pregnancy related problems, educational status of mother (6,8, 10) parity of the women, ANC (antenatal care) follow up and distance from health facility.(6, 8, 9,10,11)

In Ethiopia, the utilization of health facilities for delivery service still at lower level in spite of a rapid health facility expansion throughout the country. It supposed that there are different factors that espoused at different level determining the utilization of delivery service.(4,6,8)Therefore the aim of this study was to assess prevalence and associated factors of home delivery in Arbaminch zuria district.

2. Method

This study was conducted in Arbaminch zuria woreda (district) which is one of the 15 woredas in Gamo Goffa zone of SNNPR region, Ethiopia. A community based cross-sectional study design was applied from July 1st to July 30 2012. The study participants were reproductive age women who gave birth in the last 2 years in Arbaminch zuria district who was sampled by systematic random sampling technique.

A single population proportion formula was used to estimate the sample size by using statistical software EPI info 3.5.4 by considering the assumption that the prevalence of home delivery 81.8%(6),95% confidence interval, 5% of absolute precision, design effect 2 then adding non response rate of 5% a total sample size of 481 mother who gave birth in the last two years was sampled and involved in this study.

Data was collected by going home to home by using interviewer administered standard questionnaire. Data collectors and supervisors were 10/12 complete students and diploma holders respectively who were trained on the procedures of data collection. The questionnaire was first prepared in English and it was translated to the local language (Amharic) and back to English again in order to maintain the reliability of the instrument. The questionnaire was pretested one week before the actual data collection to ensure its clarity and understandability. Home delivery was considered as the outcome or dependent variable, while socio demographic variables (age, religion, ethnicity, income, occupation, and education level of women and husband), parity of the women, ANC visit during last pregnancy, distance/accessibility of health institution were independent

variables. The collected data was checked for completeness and consistency by supervisors and principal investigators. Then data was entered into EPI info version 3.5.4 and exported into SPSS version 16 then analysis was made by using SPSS software version 16. Descriptive statistics such as frequencies and proportion was used to describe the study population in relation to relevant variables. Multivariate analysis was used to assess the presence and degree of association between home delivery and independent variables. $P < 0.05$ was considered as cut off point for level of significance.

Ethical clearance was obtained from ethical review board of Arba-Minch University and permission to conduct the study in the district was secured from the respective health office in Gamo-Gofa zone. Verbal informed consent from each study participants was obtained after clear explanation about the purpose of the study during home to home visit.

3. Results

Table 1. Socio-demographic characteristics of reproductive age women who gave birth in the last two years in Arbaminch zuria district, Gamogofa zone south Ethiopia, 2012.

variable	frequency	percent
Mother age in year		
15-19	24	5.5
20-24	129	29.6
25-29	157	36.0
30-34	92	21.1
>or=35	34	7.8
Mother Marital status		
single	24	5.5
married	396	90.8
Divorced/widowed	16	3.6
Mother educational Status		
illiterate	234	53.7
primary education	164	37.6
secondary education and above	38	8.7
Mothers occupation		
House wife	393	90.1
Merchant	25	5.7
Other***	18	4.1
Father Education Status		
illiterate	114	26.1
Primary education	188	43.1
Secondary & above	134	30.7
Mother Ethnic Group		
Gamo	354	81.2
Zeise	19	4.4
Wolita	11	2.3
Others*	52	11.9
Mother religion		
Orthodox	103	23.6
Protestant	312	71.6
Other**	21	4.8

***: government employee, daily laborer, nongovernmental employee **: catholic & Muslim

*: Goffa, Amhara, Gurage, Oromo, Silitea, ...

Out of 481 participants 436 was actively participated in this study and this makes the response rate of 90.6%. Of the total respondents majority of the women 157(36%) was age

in between 25-29 years with mean age of 31.4 ± 6.2 years and majority was married 396(90.8%). Additionally majority of the respondents were illiterate, housewife, protestant in religion, Gamo in ethnicity and married, 234 (53.6%), 393 (90.1%), 312 (71.5%), 354 (81.4%), and 396 (90.8%) respectively.

4. Home Delivery and Antenatal Care (ANC)

From the total respondents 388(89%) women had ANC follow up but from those women follow 4 times follow up as

WHO focused approach were only 107(27.6%). From the respondents 346 (79.4%) gave birth at home and out of those majority attended by unskilled attendants 328(75.2%) and only 84 (19.2%) of home deliveries were attended by health professionals. From all those births 428(98.2%) were single and 8 (1.8%) were twines. Majority of the respondents had grand multipara (equal to or more than five children) and multiparous (more than one children) women 179 (41.1%) and 207 (47.5%) respectively.

5. Factors Associated with Home Delivery

Table 2. Factors Associated with Home Delivery in Arbaminch zuria district, Gamogofa zone south Ethiopia, 2012.

Variables	Place of delivery		Crude OR(95%CI)	Adjusted OR(95%CI)	P-value
	Home	H.I			
Educational status					P<0.0001
Illiterate	213	21	7.377(3.366-16.167)	5.167(2.184-12.224)	
primary	111	53	1.523(0.740-3.137)	1.000(0.455-2.197)	
High school and above	22	16	1	1	
No of live birth					P<0.0001
One	57	41	1	1	
2-4	161	33	3.509(2.027-6.076)	3.680(2.096-6.983)	
>or=5	128	16	5.754(2.984-11.096)	3.825(1.795-7.544)	
Travel time to HI					P<0.0001
(> one hour)	208	12	13.722(5.941-31.695)	12.625(4.868-32.748)	
(30-60min)	64	21	2.413(1.108-5.252)	3.204(1.328-7.726)	
(15-30min)	50	38	1.042(0.500-2.172)	1.016(0.453-2.276)	
(<15min)	24	19	1	1	

Mothers educational status ($p<0.001$), parity of the women ($p<0.001$) and travel time to health institution ($p<0.001$) were significantly associated with home delivery. But mother's religion, mother's age, mother's ethnic group, family size and ANC follow up was no statistically significant association.

6. Discussion

This study was designed to assess prevalence of home delivery and associated factors among mothers who gave birth in the last two years. This study revealed that 346(79.4%) of women gave birth at home and from those women majority (75.2%) was attended by un skilled attendants this was consistent with the study conducted in Oromia region in Dodota district in which 81.8% of women gave birth at home. (6)

Moreover, the study identified various predictors for home delivery those are socio-demographic factors like educational status of the women, geographical accessibility to health institution like travel time to health institution and obstetric related factors like parity of the women. Educational status was the main factor; those illiterate mothers was 5.2times (AOR 5.167 95% C.I(2.184-12.224) more likely to deliver at home when we compare with mothers educational status of secondary school and above this was in line with study conducted indifferent parts of the country; Bahir dar and Oromia and other developing countries like Tanzania, Trincomalee (Sri Lanka) Uttarakhand (india), (6,8,10,12)

There are several explanations that elaborate as to why education is a key determinant of skilled delivery care demand. For example education is likely to enhance female empowerment so that mothers develop decision making power regarding their own as well as their children health. Additionally it is more likely that educated women demand higher quality service and be aware of difficulties/complications during pregnancy as well as child birth and as a result, they are more likely to use maternal health care services. (6)

In addition parity of the women was important predictor for home delivery. Women who have more than one live birth or multiparous women was statistically significant association with home delivery when compared to primiparous women (AOR 3.895% C.I (1.795-7.544) this was in line with study conducted in Trincomalee Sri Lanka and Nepal(12,14). There are numerous explanations for this predictor. Women with one child or few no of children had motivated and interested to utilize maternal health service than those mothers with more than five children because of social as well as economic factors. (14)

Furthermore, travel time to health institution was also strong predictor those mothers travel more than one hour was 12 times more likely to deliver at home when we compare with women travel less than 15 minutes to travel to health institution(AOR(12.625 with 95% C.I of 4.868-32.748) this was similar with the study conducted in Manipur India. In which distance to health facility was strongly associated with

low institutional delivery (OR=1.26 (P=0.04). (13) Distance/travel time to health institution was strong effect on institutional delivery service utilization. It is used as a discouragement to seeking care in the first place and as an actual obstacle to utilize the service. Many pregnant women do not even attempt to reach a facility for delivery since walking many kilometers is difficult in labour and impossible if labour start at night and means of transport are often not available and they enforced to choose home delivery. ()

Cross-sectional studies are not able to establish temporal relationship. So it is difficult to establish causal relationship in this specific study. A non-response rate of 9.4% may affect estimate of a parameter and power of a test. Selection bias may be not the challenge since it is community based study and all women who fulfill inclusion criteria were equal chance to be selected and being studied.

7. Conclusion

As this study revealed that home delivery attended by untrained personnel was high (79.4%) and the predominant factors associated with home delivery identified by this study were educational status of the women, parity of the women and travel time to health institution. Therefore to reduce home delivery or to increase institutional delivery female education and making health institution accessible for the population are vital.

Recommendation

Strengthen female education, make health facilities accessible for the consumers and strengthen family planning service are important issues for utilization of institution delivery.

Authors' Contributions

GA has initiated the research, coordinated the study, involved in data collection & data entry, and conducted statistical analysis and development of the manuscript. MT, WA, BM and WT were participated in the design, coordination of the study, statistical analysis and development of the draft manuscript. All authors read and approved the final manuscript.

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