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ADIGRAT UNIVERSITY COLLAGE OF MEDICINE AND HEALTH SCIENCES DEPARTMENT OF PUBLIC HEALTH PREVALENCE AND ASSOCIATED FACTORS OF HOME DELIVERY IN THE RURAL KEBELES OF BIZET CATCHMET, EASTERN TIGRAY, NORTHERN ETHIOPIA

Mr. Kahsay Amare* and G/hiwot G/Mariam

Department of Public Health, College of Medicine and Health Science Adigrat University, Adigrat, Ethiopia.

***Corresponding Author: Mr. Kahsay Amare**

Department of Public Health, College of Medicine and Health Science Adigrat University, Adigrat, Ethiopia.a

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ABSTRACT

Introduction: Maternal mortality is a global health concern. Every year, an estimated 287000 women die worldwide from pregnancy related causes. Nearly 3.4 million of the 8 million infant deaths each year occur within the first week of life and are often due to a lack of or inappropriate care during pregnancy, delivery and the post-partum period. Every year, 40 million women give birth at home without the help of a skilled birth attendant. In 2011, 287,000 women died during pregnancy or childbirth, and 6.9 million children died before reaching their fifth birthday. Almost all these deaths occur in developing countries where mothers and children lack access to basic health care. Annually worldwide 536,000 maternal deaths occur and of which Africa contribute the highest; specifically 95% burden occurs in sub-Saharan Africa and Asia..Therefore the aim of this study was to assess prevalence and associated factors of home delivery at Bizet catchment area. **Method:** A community based descriptive cross sectional study design was used to assess prevalence and factors associated home based delivery among mothers who delivered in the last five year in rural kebeles of Bizet catchment. The study was conducted from March 1 to June 3, 2017.Two stage sampling technique was used; using lottery method two kebeles were selected. The total sample size allocated proportionally for the two study kebeles. Then using simple random sampling technique the data was collected from 251 mothers and the collected data was cleaned and Coded and entered to SPSS 16.0.The analysis was made with descriptive and binary logistic regression to see the significant relation of selected independent variables with dependent variable. **Result:** Majority of the respondents were age between 31-49, married, farmers and illiterate which is 163(63.3%), 205(81.7%), 153(61%) and 112(44.6%) respectively and all of them are Tigri in ethnicity and orthodox religion. The total prevalence of home delivery in the rural kebeles of Bizet is 21(8.4%). From those mother deliver at home 14(66.7%) are delivered their child at home 4-5 years back, while the other 7(33.3%) of them delivered at home within 3 years. According to the study, distance of the house from the health institution ($p<0.05$), absence of road for ambulance service ($p<0.05$), age of the mother ($p<0.05$), multiparty ($p<0.05$) and ANC follow up($p<0.05$) were Significantly associated with home delivery at p value of < 0.05. **Conclusion:** As the study revealed that home delivery is very low. But still there are factors that affect home delivery. Travel time to health institution, age of the mother, history of ANC follow up, parity of the mother absence of road for ambulance predictors of home delivery. **Recommendation:** Even though home delivery is low in the current study in order to make the prevalence zero the government should make a road in the rural kebeles for the ambulance to enter, preparing waiting rooms for those mothers who are far from the health center, and health extension workers should increase their effort in initiating those mother who has no ANC follow up to start follow up.

KEYWORDS: Maternal mortality is a global health concern.

INTRODUCTION

Home deliveries are bound to be un-hygienic, unsupervised and when intervention is required it usually late[1,2]

A substantial reduction in maternal deaths has previously been noted from 543 000 deaths in 1990 to an estimated 287 000 by 2010, with a global rate of decline in the maternal mortality ratio of 3.1% per annum over the same period. Nevertheless, this rate of decline would now need to double in order to achieve. the MDG target of reducing the maternal mortality ratio by three quarters between 1990 and 2015.[3]

Each year, still at the end of Millennium development goals (MDG), hundreds of thousands of women are dying due to complications of pregnancy and/or childbirth. In 2015, about 99% of the estimated global maternal deaths occurred in developing with Sub - Saharan Africa alone accounting for roughly 66% of deaths[4]

Appropriate delivery care is crucial for both maternal and prenatal health and increasing skilled attendance at birth is a central goal of the safe motherhood and child survival movements. Skilled attendance at delivery is an important indicator in monitoring progress towards Millennium Development Goal 5 to reduce the maternal mortality ratio by three quarters between 1990 and 2015.[5]

Nearly 3.4 million of the 8 million infant deaths each year occur within the first week of life and are often due to a lack of or inappropriate care during pregnancy, delivery and the post-partum period.[6]

Every year, 40 million women give birth at home without the help of a skilled birth attendant. In 2011, 287,000 women died during pregnancy or childbirth, and 6.9 million children died before reaching their fifth birthday. Almost all these deaths occur in developing countries where mothers and children lack access to basic health care.[7]

Annually worldwide 536,000 maternal deaths occur and of which Africa contribute the highest; specifically 95% burden occurs in sub-Saharan Africa and Asia.[8]

Globally, one third of births take place at home without the assistance of skilled attendants.[9]

Another study done in Ethiopia shows, 16% of deliveries were assisted by health professionals, while a significant majority (78%) was attended by traditional birth attendants. The most important reasons for not seeking institutional delivery were the belief that it is not necessary (42%) and not customary (36%), followed by high cost (22%) and distance or lack of transportation (8%).[10]

Studies conducted in Zambia and in Malawi in 2011 showed that institutional delivery was 42.5% and 58% respectively.[11,12]

Study conducted in Kenya, mothers, 103 (26 %) reported to have delivered at home during their last pregnancy.[13]
In 2013, about 800 women died daily due to complications of pregnancy and child birth. Almost all of these deaths occurred in low resource settings, and most could have been prevented.[14]

In Africa, less than 50% of births are attended by skilled health workers.[15,16,17]

Studies conducted in different parts of Ethiopia showed that the institutional delivery was 18.2% and 12.1% respectively.[18,19]

Study in Gozamine district shows the percentage of home delivery after ante natal care follows up was 75.3%. This study also revealed that cultural and traditional believes more home delivery history and easy birth were main reasons for home delivery.[20]

According to EDHS 2016, the proportion of institutional delivery in Ethiopia in general and in region in particular was 28% and 59% respectively.[21]

Study conducted somewhere regarding to place of delivery were 80.2% at health institution, the rest 19.8% home delivery.[22]

Maternal mortality is a global health concern. Every year, an estimated 287000 women die worldwide from pregnancy related causes, and 99% of these deaths occur in developing countries.[23]

OBJECTIVE

General Objective

To assess the prevalence and factor associated with home based delivery among mothers whose age 15-49 years old in Bizet catchment, 2017

Specific Objectives

To determine the prevalence of home delivery.
To identify factors associated for home based delivery.

METHOD AND MATERIALS

Study area

The study was conducted in the rural kebeles of Bizet. Bizet is located in the eastern zone of Tigray region that shares a border with Ahzera 6km in the North West, Bet Mariam 5km in the south and Menatu 5km in the northwest and mikmat mekonen 5km in the south east. Totally the rular kebeles of Bizet are Adikinay, Simiret, Kitagedeb, Wuhdet and Maywayni. Town Bizet is located at about 953km from Addis Ababa, and150km from Mekelle, the capital city of Tigray. The total populations of the rular kebeles of Bizet are33,339. There is one health centers in Bizet town which gives services for these five kebeles and town Bizet. Simiret located 6km west of Bizet town and has 5112 people. Most of the populations are farmer. While Wuhdet is located 8km in southwest of Bizet and has 6664 people. Most of the populationis farmer and merchant. Adikinay located 5km of east of Bizet and has 3349 people. Majority inhabitants of Adikinay are farmer and merchant. While Kitagedeb is located 6km northwest of Bizet and have 3030 people. Majority inhabitants are farmer and some are merchants. Maywayni located 8 km in north east direction to Bizet town and has 5184 people.

Study design and period

A community based cross sectional study was used to carry out for the assessment of prevalence and factor associated to home based delivery among mothers who give birth in the last five years from 1st March, 2017 to 3rd June, 2017.

Population

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

Sample size determination and sampling techniques

The required sample size was determined using a formula for estimation of single population proportion (n = (Zα/2)2(PQ)/d2) with the assumption of 95% confidence level, margin of error of 5% and expected population proportion of mothers who gave birth in home assumed to be 19%.[29] To compensate the non-response rate, 10% of the determined sample was considered. The final sample size was 251. Using two stage sampling technique two kebeles were selected randomly. House to house registration of mothers who gave birth in the last five years was conducted. There were a total of 578 in Kitagedeb (330) & in Simiret (248) women delivered in the last 5 years. Proportionally 143 for Kitagedeb were used and the rest 108 is for Simiret were used. Then using simple random sampling techniques was used to select the households for each kebeles.

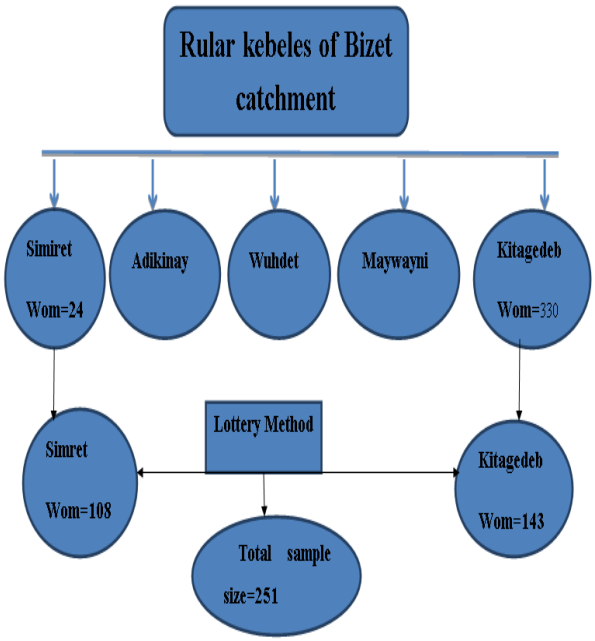

Figure 1: Schematic presentation of sampling procedure.

Eligibility Criteria

Inclusion Criteria

Child bearing women who are eligible for the study group whose age is between 15-49 years old who are delivered once at home within 5 year.

Exclusion Criteria

Whose age is less than 15 years and greater than 49 years old age group Women with no history of delivery and Women are who are seriously ill.

Variables

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 pregnancy, distance/accessibility of health institution ,culture, faith on health professional , quality of health institution, fear of the health service were independent variables.

Data collection and analysis

A structured questionnaire was used on mothers who gave birth in the last five years, and data were collected by five public health officer students and supervised by the principal investigators. Training was given for data collectors on how to collect the data for one day. The collected data was checked or completeness and consistency by supervisors and principal investigators. Then collected data was entered in to SPSS version16,and then analysis was made by using SPSS software version 16. Descriptive statistics such as frequencies and crosstab 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 consideration

The study was approved by the ethical review committee of Adigrat University College of Medicine and Health Science, Adigrat 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.

Dissemination of the result

The study result will be presented to Adigrat University, College of Medicine and Health Science department of public health. The finding of the study will be disseminated to all responsible bodies in the study area. After many efforts the research will be send to reputable journal for publication.

RESULTS

Prevalence of home delivery

According to the current study the prevalence of home delivery in the rural kebeles of Bizet is 8.4%. From those mother delivers at home 66.7% are delivered their child at home 4-5 years back, while the other 33.3% of them delivered at home within 3 years.

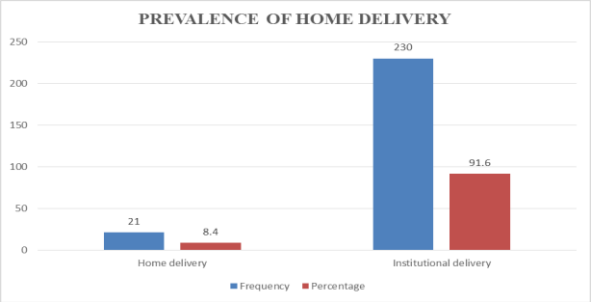

Figure 2: The Prevalence of delivery in rural kebeles of Bizet catchment, June 2017.

Socio demographic characteristics of study participants in rural kebeles of Bizet catchment, June 2017

Out of 251 participants 100%was actively participated in this study. Of the total respondents majority of the women 159(63.3%) was age in between 31-49 years and majority was married 205(81.7%) and the other 27(10.8%) are divorced and the other 19(7.6%) are widowed. Additionally majority of the respondents were illiterate 112(44.6%) and the other 108(43%) are learned grade 1-8 and the other 28(11.2%) are learned 9-12 grade, while the other 3(1.2%) are above grade 12.Majority of the mother are farmer, housewife, merchant, government employee, 153(61%), 52(20.7%), 38(15.1%), 8(3.2%) respectively. And they are 100% orthodox in religion, 100% Tigri in ethnicity. From those mother deliver at home majority of them are age between 31-49 years old, illiterate and married which is 76.1%, 57.1% and 61.9% respectively

Table 1: Socio demographic characteristics of study participants in rural kebeles of Bizet catchment, June 2017.

Variable	Frequency	Percent
Mother age in year		
15-30	88	36.7
31-49	163	63.3
Religion		
Orthodox	251	100
Ethnicity		
Tigri	251	100
Marital status		
married	205	81.7
Divorced	27	10.8
widowed	19	7.6
Educational Status		
illiterate	112	44.6
primary education	108	43.0
secondary education & above	32	12.4
Occupation		
Farmer	153	61.0
Government employee	8	3.2
Merchant	38	15.1
House wife	52	20.7

Communication

The current study revealed that only 40(15.9%) of the mother have telephone. from those mother deliver at home 13(61.9%) of the respondents have no telephone and all of the mothers have no public telephone.

Media

According to the currently study only 9(42.9%) have radio and have the experience of home delivery, 54 (23.5%) have radio with no experience of home delivery. Study participants have cell phone revealed about 40 (17.4%) have no history of home delivery.

Culture

All of the respondents said that there is no culture that prohibits them from delivery to health institution.

Table 2: Cross tabulation of communication and media with home delivery among mothers age between 15-49 years, in the rural kebeles of Bizet catchment, 2017.

Variables	Home delivery	
	Yes (%)	No (%)
Communication		
Cell phone	0.0	17.4
Yes	100.0	84.1
No		
Media		
Radio	42.9	23.5
Yes	57.1	76.5
No		

In the bivariate analysis, the factors that found to have an association with home delivery were age of the mother,

distance to the health facility, road, ANC follow up, number of children and ambulance access with the p-value <0.05. These variables were considered potential predictors home delivery in the multivariate logistic regression model.

In the multivariate analysis, age of the mother, distance to the health facility, road, ANC follow up and number of children had an association with home delivery. About 94% the age 31-49 years old have the experience of home delivery compared to the age of 15-30 years old after controlling for distance to the health facility , road, ANC follow up and number of children (AOR= 0.051,95% CI:0.005,0.542). According distance >10 km and there is no road for ambulance to the health centre were 74% 82% respectively have the history of home delivery compared to < 10 km and road for ambulance to the health facility after controlling for ANC follow up and number of children and age (AOR= 0.26,95% CI: 0.073,0.939 and AOR= 0.18,95% CI: 0.054,0.612). Mothers who have no the history of ANC follow up and more than one child were 95% and 83.3% respectively have the experience of home delivery compared to mothers ANC followers and less than one child after controlling for distance to the health facility , road and age (AOR= 0.05,95% CI: 0.010,0.281 and AOR= 0.167,95% CI: 0.034,0.832)(Table 3)

Table 3: Multivariate Analysis of factors contributing to Home Delivery Among mothers whose age is between 15-49 years in the rural kebeles of Bizet catchment, 2017.

Variables	Categories	Home Delivery		COR(95%,CI)	AOR(95%,CI)
		Yes	No		
Age of respondents	15-30 Years 31-49 Years	1 (4.8%) 20 (95.2%)	87(37.8%) 143 (62.2%)	1.00 0.082(0.011,0.623)*	1.00 0.051(0.005,0.542)*
Distance to the health center	<=10 km >10 km	5(23.8%) 16(76.2%)	135(58.7%) 95(41.3%)	1.00 0.22(0.078,0.621)*	1.00 0.26(0.073,0.939)*
Road for ambulance	Yes No	9(42.9%) 12(57.1%)	179(77.8%) 51(22.2%)	1.00 0.214(0.085,0.535)	1.00 0.18(0.054,0.612)*
ANC follow up	Yes No	12(57.1%) 9(44.9%)	179(95.2%) 11(4.8%)	1.00 0.067(0.023,0.192)	1.00 0.05(0.010,0.281)*
Number of children	Primi para Multi par	2(9.5%) 19(90.5%)	104(45.2%) 126(54.8%	1.00 0.128(0.029,0.560)	1.00 0.167(0.034,0.832)*
Ambulance access	Yes No	11(52.4%) 10(47.6%)	171(74.3%) 59(25.7%)	1.00 0.38(0.153,0.939)*	1.00 0.331(0.102,1.076)

DISCUSSION

This study was designed to assess prevalence of home delivery and associated factors among mothers who gave birth in the last five years in Bizet catchment area. The current study revealed that 21(8.4%) of women gave birth at home and from those women majority (66.7%) was delivered before 4-5 years back, while the rest 33.3% are delivered at home within 3 years, these result is inconsistent to other studies done before like Kenya

which is done in 2015, the prevalence of home delivery was 66%.[24] While arbaminch which is done in 2014, the prevalence of home delivery was 79.4%,[25] and study done in dodota in 2012 wereda oromia region showed that the

prevalence of home delivery was 81.8%,[26] while in Gozamine district in 2015, the prevalence of home birth was 75.3%,[27] while study done in south wollo in 2013 said that the prevalence were 71%,[28] The current study was revealed lower than the study conducted in different areas, this discrepancy may be due to the difference in the study area, the sample size difference, the difference in the study period, the difference in sampling technique; the increase in awareness of people could be reason for the difference in prevalence of home delivery in our study area.

while study done in shashemene in 2016 revealed that the prevalence of home delivery was 19%.[29] these study are somewhat consistent to the prevalence done in the current study, these could be the similarity in study period, the increase in awareness of people as time go forward, the awareness of people increases due to the increase in availability of health institution, the spread of different types of media, the increase in education of mothers could be some of the reason. The current study was high from study conducted home delivery on rural Malawi and Mizan-Aman 5% 5, 7.14% respectively.[30,31] The difference might be due to study period, the increase in awareness of people as time go forward and study area.

The current study similar with the study conducted on some parts of Ethiopia, women with parity one were three times more likely to give birth in health care facility than multiparous women and younger mothers (aged □25 years) were 1.8 times more likely to deliver in health institution than older mothers[32]

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 labor and impossible if labor start at night and means of transport are often not available and they enforced to choose home delivery.

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 pregnancy were more likely to deliver at health facilities compared to those who did not have any visits. This is consistent to study done in Shashemene wereda those women who had history of antenatal care were less likely to give birth at home than their counterparts.[29]

CONCLUSION

This study indicates that home delivery is very low. But still there are factors that affect home delivery. Those factors are Travel distance to health institution, age of the mother, history of ANC follow up, parity of the mother absence of road for ambulance. Those women whose age is above 30 years old, multiparous, greater than 10km travel time to health institution, those who have no road for ambulance and those who have no ANC visits were more likely to deliver at home than health institution.

RECOMMENDATION

Even though home delivery is low in the current study in order to make the prevalence zero the government should make a road to each kebeles so the ambulance can enter, the health extension worker should increase their effort in initiating mothers for ANC follow up, and educating the rest mother who deliver at home about the risk associated with home delivery on the mother as well as on the fetus, while the health centers should prepare waiting room for those mother who are far from the health center to follow them in the last time of pregnancy.

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