Research Article

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Prevalence and associated factors of home delivery among women at Jimma town, Jimma Zone, Southwest Ethiopia

Abstract

Background: Maternal and child mortality and morbidity are higher during childbirth in developing countries compared to developed countries. Institutional delivery service utilization is indispensable to improve maternal and child health.However, the proportion of women utilizing institutional delivery service in Ethiopia is very low. In addition, little is known about factors contributing to home delivery.

Objectives: To assess the prevalence of home delivery and associated risk factors at Jimma Town, Southwest Ethiopia.

Methods: A community-based cross-sectional study was employed on 423 study participants. Data were collected by semi-structured questionnaire through face to face interview. A systematic sampling technique was used to select study participants. After cleaning and checking completeness of collected data, data was entered into Epi data version 3.3.1 software and exported to Statistical Package for the Social Science (SPSS) version 21.0 for analysis. Logistic regression was used to find out the association between explanatory and response variables. Explanatory variables which fulfill the assumption of logistic regression and had a P-value less than 0.25 from bi-variable logistic regression were considered for the multivariable logistic regression model. The strength of association was evaluated using odds ratio at 95% confidence interval (CI) and P-value < 0.05 was considered to declare significant associations.

Results: The prevalence of home delivery in this study was 36.64% (n=155/423 and it had significant association with illiteracy AOR=2.7 [(95%CI); (1.37-5.43)], multi-gravida AOR=2.12 [(95%CI); (1.09-4.10)], history of antenatal care (ANC) follow up AOR=4.15 [(95%CI); (2.57-6.70)] and husband educational status AOR=13.5 [(95%CI); (2.86-63.62)].

Conclusion: The prevalence of home delivery in this study was high compared to world health organizational recommendation. Educational status of the mother, gravida, antenatal care follow up and husband educational status were factors that had a significant association. Women empowerment through educational opportunities, increase antenatal care follow up and male involvement in maternal health service are recommended.

Keywords: home delivery, associated factors, Jimma town

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Introduction

Maternal morbidity and mortality is a global health problem. Most of the maternal death occurs in developing country.[1] Maternal mortality defined as "death of women while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and sites of the pregnancy, from any cause related to or aggravated by pregnancy and its management but not from accidental cases.[2] Different factors can contribute to maternal and neonatal death. However, the majority of maternal mortality and morbidity are due to preventable causes which can be detected and treated early during antenatal care (ANC) and intra-partum period.[3] Giving birth at home is among the factors which associated with maternal and neonatal mortality and morbidity. Studies showed that, the majority of home deliveries in developing countries are unplanned, accidental and supported by unskilled health professionals. When a women give birth at home, it may have adverse neonatal and maternal outcomes[4]like, increases the risk of infection, postpartum hemorrhage (PPH), and transmission of HIV/AIDS to relatives or traditional birth attendants, who conduct deliveries without protective equipments.[5] The presence of skilled delivery service utilization at each birth can significantly reduce maternal morbidity and mortality.[6,7]

During the past fifteen years, the Federal Ministry of Health (FMoH) of Ethiopia has built an impressive framework for improving health for all, including maternal and neonatal health. There are strategies for free maternal and child health services. Activities include deploying Health Officers with MSc training in Integrated Emergency Obstetrics and Surgery (IEOS), increasing the number of BSc and MSc midwife professionals, improving the availability of safe blood and pharmaceutical supplies and a strong referral system, providing short term training like basic emergency obstetric& newborn care (BEMONC) and Comprehensive Emergency Obstetric and Newborn Care (EMONC).[8] In addition to these activities, Tigray region has undertaken different activities to increase institutional delivery,[9] including establishing a new structure at the community level known as "Women Development Army" which enables women to talk about pregnancy and delivery, making health facilities more women friendly,

opening of maternity waiting area at health institutions, increasing the number of ambulance services and availing of traditional ambulances for early referrals in case of emergencies.[9] Despite these efforts, the rate of home delivery is still high.

Despite the declining pattern of maternal mortality in Ethiopia, maternal mortality ratio remains high, ranging from 266–1667 per 100,000 Live Births (LB).[10] The study site and Jimma zone is part of a region where such a high maternal mortality rate has been reported although it has a declining pattern. There is no sample data on home delivery and associated risk factors in the study area. To this effect, this study is aimed at establishing the proportion of home deliveries and assessing factors associated with home deliveries in Jimma town, Southwest Ethiopia.

The objectives of the study

I.   To assess the prevalence of home delivery among women at Jimma town, Jimma zone, Southwest Ethiopia

II. To determine factors associated with home delivery practice among women at Jimma town, Southwest Ethiopia

Methodology

Study design and population

Community based cross sectional study design was conducted in Jimma town, Jimma zone, Oromia region, Southwest Ethiopia from June to October 2019. It is located 355km far from Addis Ababa, the capital city of Ethiopia. Geographically, the study site is found at latitude and longitude of 7°40′N 36°50′E / 7.667°N 36.833°E / 7.667; 36.833 and altitude of 1780meter above sea level. The annual temperature of the study area is generally characterized by warm climate with a mean annual maximum temperature of 30°C and a mean annual minimum temperature of 14°C ranging between 26-38°C. The town is divided into 13 kebele's districts with a total population of 130,254.[4] In the town, there are two hospitals (one referral and the other general), and four public health centers. Majority of the residents of the study area are merchants and government employers occupationally. Women living in the selected area and gave birth within the last two years were eligible to participate in the study and women who are critically ill were excluded from the study.

Sample size and sampling techniques

Sample size of the study was calculated following a single population sample size calculation formula. Considering 50% prevalence of home delivery, ±5 precision, and 5% sampling error, a total of 384 samples were enrolled in the study. The formula was;

$$n = Z^2 \alpha/_2 PQd^2$$

Where: n, sample size;Z, critical value of 95% CI (1.96); α, level of significance (α=0.05);P, proportion of population (0.5);Q, 1-P; P,0.5; Q, 0.5; d, margin of error (0.05)

$$n = \frac{(1.96)^2 * 0.5 * 0.5}{(0.05)^2} = 384$$

Considering a contingency of 10%, 39 more women were added and a total of 423 women were enrolled in the study. Jimma town has 13 kebeles and from those kebeles, 4 kebeles were randomly selected. Proportional allocation was employed for each kebele and a systematic sampling technique was used to select study participants.

Data collection methods and tools

Data collection methods

Data were collected by face to face interview through semi-structured and pretested questionnaire. The questionnaire has two parts, the first assessing socio-demographic characteristics and the second part assessing obstetric history of mothers. The tool was first prepared in English and then translated to local language (Afan Oromo). Three data collectors and two supervisors were selected and one-day training was given about the methodology and questionnaire by the investigator.

Data quality control mechanism

Data quality control was maintained before, during and after data collection. Before data collection, the questionnaire was translated into local language and pretest was done on 5% (21) of sample size at Mandera kochi and necessary modifications including wordings were made on the questionnaire before it was applied to the study population. One day training was given for data collectors and supervisors on the objectives, methodology and on the data collection technique. During data collection, close follow up was made by supervisors. After data collection, data were cleaned and checked for its completeness and the data were entered in Epi data version 3.1.1 to point out errors made during data collection automatically then transferred to SPSS version 21.0 (Figure 1).
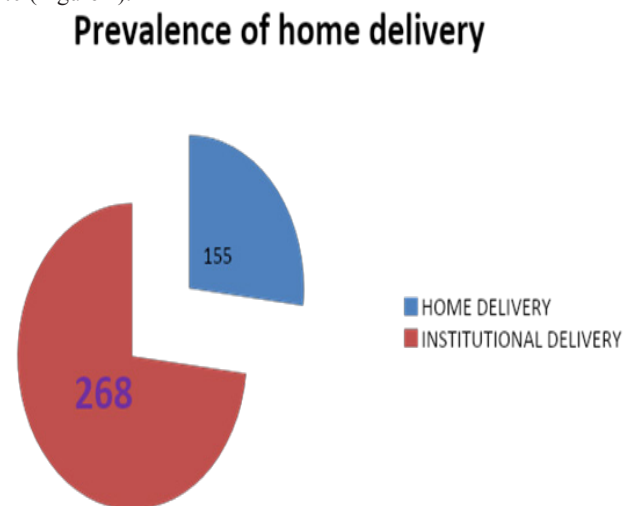

Figure 1 prevalence of home delivery at Jimma Town, Southwest Ethiopia, 2018/19.

Study variables

Independent variables

a.   Socio-demographic characteristics: age, religion, marital status, educational status, etc…

b.   Obstetric characteristics including history of abortion, history of stillbirth, ANC visit, Number of ANC visit,Reasons of ANC visit, Advice received during ANC about place of birth, Reasons for not having ANC follow up, Place of delivery, Delivery assistant, and Gravida

c.   Dependent variables

d.   Home delivery

Data analysis

Data were entered into Epi data version 3.3.1 software after coding and checking their completeness and exported to statistical package for social science (SPSS) version 21.0 for analysis. Descriptive analysis (frequencies, percentage, means and standard deviations) was done to explore socio-demographic characteristics and obstetric history of study participants.Binary Logistic regression was used to find out the association between home delivery and explanatory variables. Explanatory variables that had a P-value less than 0.25 and fulfill the assumption of logistic regression from bi-variable logistic regression were considered for the multivariable logistic regression model. The strength of association was evaluated using odds ratio at 95% confidence interval and P-value < 0.05 was considered to declare significant associations.

Results

Socio-demographic characteristics of women

A total of 423 study participants were involved in this study. Majority of study participants were found in the age range between 20 to 34 years. 376 (88.9%) participants were married and 202 (47.8%) were Muslims. The participants stated that majority of them (86.3%) did not receive health education on maternal health (Table 1).

Table 1 Socio-demographic characteristics of the mothers who gave birth in the last two years at Jimma Town, Southwest Ethiopia, 2018/19

Variables		Frequency	Percent
Age	15-19	53	12.5
	20-24	184	43.5
	25-29	129	30.5
	30-34	44	10.4
	35-39	11	2.6
	40 and above	13	3.1
Marital status	Married	376	88.9
	Divorced	30	7.09
	Widowed	16	3.78
Religion	Muslim	202	47.8
	Orthodox	102	24.1
	Protestant	97	22.9
	Others	22	5
Educational Status	Illiterate	74	17.5
	Primary school complete	152	35.9
	High school complete	141	33.3
	Tertiary education	56	13.2
Husband education	Illiterate	33	7.8
	Primary school complete	143	33.8
	High school complete	167	39.5
	Tertiary education	80	18.9
Received health education on maternal health	Yes	58	13.7
	No	365	86.3

Obstetric characteristics of the women

Regarding obstetric characteristics of study participants, majority of them had neither history of abortion (92.43%) nor stillbirth (97.16%). 268 (63.36%) study participants visit ANC during their last pregnancy and 261(97.39) get advice received during ANC about place of birth. For most of the women (86.94%), reasons for visiting ANC were regular checkup. For majority of respondents, reasons they mentioned for not going to ANC were being busy with other work (43.23%), (Tables 2&3).

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Table 2 Obstetric characteristics of the mothers who gave birth in the last two years at, Jimma Town, Southwest Ethiopia, 2018/19

Variables	Response options	Frequency	Percent
History of abortion	Yes	32	7.565
	No	391	92.43
History of stillbirth	Yes	12	2.837
	No	411	97.16
ANC visit	Yes	268	63.36
	No	155	36.64
Number ofANC visit	One	58	21.64
	Two	163	60.82
	Three or more	47	17.54
Reasons for ANC visit	Regular check-up	233	86.94
	Due to illness	35	13.06
Advice received during ANC about place of birth	Yes	261	97.39
	No	7	2.612
Reasons for not having ANC follow up	No illness with pregnancy	41	26.45
	Busy work schedule	67	43.23
	Lack of knowledge	28	18.06
	Distant health facilities	19	12.26
Place of delivery	Home	155	36.4
	Health institution	268	63.6
Delivery assistant at home	Family member	43	27.7
	Traditional birth attendant	112	72.3
Gravida	1	97	22.93
	4-Feb	283	66.9
	5 or more	43	10.17

Table 3 Factors associated with home delivery at Jimma Town, Southwest Ethiopia, 2018/19

Variables		Home delivery Yes	No	COR	P. value	AOR (95%CI)	P. value
Age(Years)	<30	141	255	1			
	>30	14	13	0.51(0.23-1.12)	0.95	1.74(0.71-4.27)	0.22
Marital status	Married	142	235	1			
	Single	13	33	0.65(0.33-1.28)	0.214	0.72(0.32-1.61)	0.042
Maternal educational status	Illiterate	51	23	5.22(3.03-8.99)	0	2.73(1.37-5.43)	0.04*
	Literate	104	245	1			
Gravida	Primi- gravida	18	82	1			
	Multi-gravida	137	186	3.35(1.92-5.85)	0	2.12(1.09-4.10)	0.02*
ANC follow-up	Yes	94	61	1			
	No	61	207	5.22(3.40-8.04)	0	4.15(2.57-6.70)	0.00*
Husband education status	Illiterate	26	7	7.52 (3.17-17.77)	0	13.5(2.86-63.62)	0.001*
	Literate	155	268	1	1		

Prevalence of home delivery

Among women involved in the study, 36.64% (n=155/423) had a practice of home delivery.

Factors associated with home delivery

In this study, educational status of the mother was significantly associated with home delivery. Mothers with illiterate educational status were 2.7 times more likely to give birth at home than mothers with literate in educational status AOR=2.7 [(95%CI); (1.37-5.43)]. Another explanatory variable that had an association with home delivery was gravida. Multigravida mothers were 2.12 times more prone to home delivery than primi-gravida AOR=2.12 [(95%CI); (1.09-4.10)]. Study participants who had no history of ANC follow up were 4.15 times more likely to give birth at home than mothers who had ANC follow up AOR=4.15 [(95%CI); (2.57-6.70)]. On the other hand, study participants whose husbands are illiterate were 13.5 times more prone to give birth at home than mother with literate husband AOR=13.5 [(95%CI); (2.86-63.62)].

Discussion

The prevalence of home delivery in this study was 36.64%. This study is almost similar to a study done in Mizan-Aman Town, Southwest Ethiopia (33.5%)[11] and Delanta district (35.2%).[12] However, the prevalence of this study was lower than research done from western Nepal 41.9%,[13] in Zala Woreda (77%),[14] Ayssaita, Afar, Ethiopia-2016 (71%),[15] in Gozamin District, Northwest Ethiopia (75.3%)[16] and Nigeria(69.5%).[17] This variation may be due to differences in socio-demographic status, sample size and study period. On the contrary, the prevalence of home delivery in this study was higher than the study done in Brazilian (11.7%).[18] The difference may be due to socio-demographic and methodological variation.

In this study, educational status of mothers was significantly associated with home delivery. Mothers with illiterate educational status were 2.7 times more likely to give birth at home than mothers with literate in educational status AOR=2.7 [(95%CI); (1.37-5.43)]. This study is supported by a study done in Delanta district,[12] Gozamen district,[16] Ayssaita, Afar, Ethiopia-2016,[15] in Zala Woreda[14] and Nepal.[15] This may be due to non-educated women might not have decision-making power on seeking health services, or have the ability to travel outside the home; they are more exposed to family pressure and cultural influences.Another explanatory variable that had association with home delivery was gravida. Mothers with a history of multigravida were 2.12 times more prone to home delivery than primigravida AOR=2.12 [(95%CI); (1.09-4.10)]. This study is in line with a study done in Nepal.[13] This may be due to multi-gravida mothers may consider themselves as experienced for labour and less risk for complication.

Study participants who had no history of ANC follow up were 4.15 times more likely to give birth at home than mothers who had ANC follow up AOR=4.15 [(95% CI); (2.57-6.70)]. Which is consistent to study done in Delanta district,[12] in Zala Woreda,[14] and Nigeria.This is may be due to mothers who had ANC visits had a chance to know the importance of institutional delivery.On the other hand, study participants with whose husbands are illiterate were 13.5 times more prone to give birth at home than mothers whose husbands are literate in educational status AOR=13.5 [(95% CI); (2.86-63.62)]. This study is supported by the study done in Nigeria[17] and Nepal.[13] This may be due

to educated husbands may recognize the importance of institutional delivery and involve in the use of maternal health services.

Conclusion

The prevalence of home delivery in this study was high compared with world health organization recommendation. Educational status of mother, gravida, ANC follow up and husband educational status were factors that had a significant association. Women empowerment through educational opportunities, increase antenatal care follow up and male involvement in maternal health service are recommended.

Conflicts of interest

Author declare that there is no conflict of interest.

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