Preference place of delivery, birth attendants and associated factors among women of child bearing age in Jigjiga city, Somali region, Ethiopia

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Abstract

Background: *The presence of skilled birth attendant during childbirth in a hygienic environment with necessary skills and equipment to recognize and manage any emerging complications reduces the likelihood of birth complications, infections or death of either the baby or mother. Despite substantial measures have been undertaken by the Ethiopian government and support organizations institutional delivery is still unacceptably low in the country, place of delivery is critical factor for women and child survival. Therefore, the aim of this study was to assess the preference place of delivery, birth attendants and associated factors among childbearing women in Jigjiga city, Somali, Ethiopia.* ***Methods:*** *A community-based cross-section study design was applied. Only quantitative method was employed to generate relevant evidence. A total of 422 households were drawn from ten randomly selected kebeles by using simple random sampling technique. Bivariate and multivariable analyses were carried out to identify factors associated with preference place of delivery.* ***Results:*** *The study revealed that 32% of mothers prefer to give birth at home. Half of mothers 50% mentioned unpredictability of labour caused to prefer home delivery. Mothers whose age group 35-49 years were more likely to prefer home delivery than younger age [AOR=2.11, 95 % CI: (1.2, 5.12)]. Illiterate mothers were more likely to prefer home delivery compared to others [AOR=3.23 and 95%CI= [1.36, 4.62]. Illiterate husbands were more likely to prefer home than others [AOR=2.68 and 95%CI= [1.23, 6.21]. Mothers who hadn't ANC follow up were more likely to prefer home delivery than their counterpart [AOR=1.34and 95%CI= (1.13-2.51)].* ***Conclusion:*** *The preference of home delivery in the study area was low. Maternal age, maternal education, husband education and attending ANC were factors significantly associated with preference place of delivery. Therefore, women and husband educational status enhancement could help to encourage mothers to deliver at health institutions.*

Key Words: *Delivery Attendant, Women Preference, Somali region, Ethiopia.*

1. Introduction

1.1 Background

Women play a major role in the family and society, hence, their loss from delivery complications is a significant social and personal tragedy [1]. Globally, there were an estimated 287,000 maternal deaths in 2010. Developing countries account for 99% (284,000) of the global maternal deaths, the majority of which are in sub-Saharan Africa (1,621,000) and Southern Asia (83,000) (2). The presence of skilled birth attendant during childbirth in a hygienic environment with necessary skills and equipment to recognize and manage any emerging complications reduces the likelihood of birth complications, infections or death of either the baby or mother (3).

Worldwide, an estimated 529,000 maternal and nearly 4 million neonatal deaths (during the first 4 weeks of life) occur annually, 75% of neonatal death is in the first week of life. Approximately, 99% of these deaths are in low and middle income countries, where 43% of births are attended by TBAs, the proportion generally being higher in rural areas. These home deliveries conducted by TBAs may be responsible for an increased risk of maternal and perinatal mortality as the TBAs have low educational status and sometimes were not trained in preventing or recognizing complications and promptly referring the patient to an appropriate facility for emergency obstetric care and nearly 4 million stillbirths occur annually, and most of them are close to the time of delivery, of the neonatal deaths, nearly 50% occur among children delivered at home (4).

According to findings from levels and trends in the use of maternal health services in developing countries, except for a few countries (Benin, Namibia, Zimbabwe and Vietnam), the use of skilled care for delivery is considerably lower in sub Saharan Africa and South/Southeast Asia than other regions. In 2011, nearly half of all women who have died due to pregnancy-related causes were from sub-Saharan Africa, skilled birth attendance is one of the main interventions to combat such deaths, prompting WHO to advocate universal skilled birth attendance (3, 4).

Ethiopia is one of Sub-Saharan country where maternal mortality is a great public health concern. Maternal mortality is found to be higher in the country even compared to other low income countries. According to the 2016 Ethiopia demographic and health survey, maternal mortality ratio was 412 per 100, 000 live births. Despite a significant maternal mortality reduction has been achieved from 1400 per 100,000 in 1990 to 412 per 100,000 in 2015, the problem is still un acceptably high in the country (6).

Delivery service by a skilled assistant is a crucial issue in reducing the risk of complications and infections that can cause death or serious illness to mothers

and the newborns. Despite substantial measures have been undertaken by the Ethiopian government and support organizations institutional delivery is still unacceptably low in the country, place of delivery is critical factor for women and child survival (10). Therefore, this study seeks to assess the preference place of delivery and associated factors among childbearing women in Jigjiga city, Somali, Ethiopia.

2. Methods

2.1 Study Area

The study was carried out in Jigjig city administration. It is a capital city of Somali regional state, Ethiopia. It is located at a distance of 636 km away from Addis-Ababa, eastern part of Ethiopia. It consists of twenty kebeles. The health service coverage of Jigjig city is estimated to be 85% and existing health facilities are one referral hospital, one regional hospital, two health centers, and 27 private clinics. According to the census result of 2007, the population of the Somali region was 4,439,147 of which 621,210 (13.9%) were urban dwellers and 3,817,937 (86.1%) were living in rural area, and also with respect to sex composition, of the total regional population 2,970,363 (55.6%) were males and 1,970,363 (44.4%) were female. Whereas the residents of Jigjiga administration were 276,816 of which 125,584(45.37%) reside in urban, while 151,232 (54.63%) were rural residents; and of urban resident 66,940 (53.3%) were male and 58,644 (46.7%) were female, of rural resident 81,922 (54.2%) were male and 69,310 (45.8%) were female (5).

2.2 Study Design and period

A community based cross-sectional study design was conduct among women of reproductive age groups at Jigjiga town from February to August 2016.

2.3 Source of population and Study population

All women of reproductive age groups living in Jigjiga city were the source of population and women of reproductive age living in Jigjiga city who gave birth in the last one year were study population.

2.3.1 Inclusion Criteria- All women of reproductive age group living in Jigjiga city who gave birth in the last one year and/or have under one year child was included in the study.

2.3.2 Exclusion Criteria- All women of reproductive age group, critically sick, mentally ill, and unable to speak and visitors or guests in the households was excluded from the paper.

2.4 Sampling Techniques

The sample size was determined by using a single population proportion

formula and calculated by Epi info.

$$N=\frac{(Z\alpha/2)^2 p(1-p)}{d^2}$$

Assumption: In order to obtain adequate sample size
P = institution delivery prevalence of Somali regional state 50 %
Z $\alpha/_2$=1.96 of significance and d= the margin of error of 5%
Non-response rate of 10% was added

Finally, a total sample of 422 households was calculated.

2.5 Sampling procedures

A total of 422 households was selected out of 12, 863 households in the city by using Simple random sampling technique ten kebeles selected randomly. The total sample size was distributed to the pre-selected kebeles proportional to their total households and the required households were drawn by using systematic sampling technique. If there was more than one candidate woman in the household only one person was selected randomly. If the selected woman was not found in the household at that time three repeated visit was made, then the nearest household was replaced.

2.6 Data collection procedure

Data was collected by trained female local data collectors who completed grade 10 and had previous experience in data collection using face to face interview administered questionnaire which was developed from reviewing others studies and modified according to context of the study then translated into local language (Af-Somali). Training was given for data collectors and supervisor on collection technique and objective of the study, Questionnaire, sampling methods and securing informed verbal consent from the study participants for three days.

2.7 Data quality management

Before embarking upon data collection, pre-test was conducted in nearest rural kebeles to ensure the validity of the survey tools & to standardize the questionnaire. Supervisors & the principal investigator were made frequent checks on the data collection.

2.8 Data Analysis

The data was entered, cleaned and analyzed by using SPSS version 20 package. The data was coded on pre-arranged, coding sheet by the principal investigators, after all the necessary data collected and checked

their completeness. Descriptive statistics was used to calculate the mean and standard deviation for continuous variables and frequency for categorical variables. Multivariate logistic regressions were performed to assess the effect of independents variables on dependent variables while controlling effect of other factors. For multivariable analysis, statistical significance was considered when P-value was, 0.05 and 95% C.I with Adjusted odds ratios to interpret and reported.

2.9 Variables

2.9.1 Dependent variables

- Preference of Place of delivery

2.9.2 Independent variables

- Socio demographic factors (age, religion, marital status, education, occupations, monthly income, husband education & occupation)
- Obstetric history (ANC follow up, number of children, complications and mode of delivery)

2.10 Operational Definitions

- **Birth attendant preference**: Pregnant women, who had attended maternity clinics or not during the time of ANC, birth and choose of either sex or different types of attendants (health care workers or TTBAs) based on their preferences /interest.
- **Skilled attendants**: Refers exclusively to people with midwifery skills (for example midwives, doctors and nurses) who have been trained to proficiency in the skills necessary to manage normal deliveries and diagnose, manage or refer obstetric complication
- **Traditional birth attendants**: A birth attendant who initially acquired the ability by delivering babies herself or through apprenticeship to other TTBAs
- **TTBAs**: A birth attendants who have undergone subsequent training and are integrated in the formal healthcare system
- **Place of delivery**: preferred either home or health facility based on women's choice for delivery.

2.11 Ethical consideration

Ethical clearance was obtained from the ethnical clearance committees of Jigjiga University, college of medicine and health science, department of public health. An official letter was written to administrative body of Jigjiga city Administration and others concerned bodies of the kebeles. The objective and importance of the study was explained & informed consent was obtained from

each participant. Privacy and confidentiality was maintained at all levels of the study. Participants who are not willing to participate in the study & those who went to quit from the study at any juncture was informed do so without any restriction.

3. Result

A total of 422 households were planned to visit but 401 households were successfully interviewed with an overall response rate of 95%.

3.1 Socio-demographic characteristics

Majority of mothers belong to age group of 24-34 years 276 (68.8%) with mean age of 27.9±4.7years. Half 221(55.1) % of the respondents attended primary education while 113(28.2%) were illiterate. Regarding the marital status, most of respondents 334(83.3%) were married. Three hundred thirty two (82.2%) of mothers were Muslim, 380(94.8%) of mothers were Somali. Most of mothers 305(76.1%) were housewives and 141 (29.5%). About husband education level, 158(39.4%) of husbands were diploma level followed by 152(37.9%) were degree and above. Half of husbands were government employee. Concerning family income 269(67.1%) had earned 2500-5000 Ethiopian Birr (Table 1).

3.2 Obstetric history and Complications

From 286 (71.3%) of mothers had ANC follow up, 196(68.5%) of mothers had visited ANC one up to two times. Two hundred seventy nine (69.6%) of mothers gave birth at health institution while 122(30.4%) gave birth at home for their last child and three hundred thirteen (78.1%) of childbirth assisted by health professionals, 330(82.3%) of mothers reported normal (vagina) mode of delivery. Three hundred seven (76.6%) of mothers had One up to four children with average of 3.2±1.8 children. Regarding obstetric complications of their last pregnancy, from 324(81.5%) had experienced problems and 49(66.2%) developed heavy bleeding. One hundred ninety one (47.6%) of mothers decided their preferred place of delivery while 153(38.2%) reported both mothers and husband decided their place of delivery. Three hundred thirty four (83.3%) of mothers had transportation access while 67(16.7%) of mothers had transportation access problems (Table 2).

3.3 Preference place of delivery and birth attendants

Majority of mothers 271(67.1%) preferred to give birth at health institutions by doctors 181(66.8%), followed by midwife 70(25.8%) and nurse 20(7.4%). About 130(32.4%) and 101(77.6%) of mothers preferred to give birth at home and TTBA delivery while the rest 29(22.3%) by health professionals (fig1). Regarding about reason for preferring home delivery, half of mothers 65(50%) mentioned labour is unpredictable, 40(30.7%) sex similarity and transportation problems 25(19.3%).

3.4 Factors associated with preference place of delivery

Among the socio-demographic variables, mother's education, husband occupation, husband education and ANC visit shows association in binary logistic regression. In further analysis, after adjustment for those significantly associated variables using multivariable logistic regression, Mother's age was a strong factor of home delivery as preferred place of delivery. Mothers whose age group 35 -49 years were more likely to prefer home delivery than younger age [AOR=2.11, 95 % CI: (1.2, 5.12)]. Illiterate mothers were more likely to prefer home delivery compared to others [AOR=3.23 and 95%CI= (1.36, 4.62)]. Illiterate husbands were more likely to prefer home delivery than others [AOR=2.68 and 95%CI= (1.23, 6.21)]. Mothers whose hadn't ANC follow up were more likely to prefer home delivery than their counterpart [AOR=1.34 and 95%CI= (1.13-2.51)] (Table 3).

4. Discussion

This community based-cross sectional study has attempted to identify preference place of delivery, birth attendants and associated factors among childbearing women's in jigjiga city, Somali region, Ethiopia. Institutional delivery service utilization is underutilized in Somali Region due to different constraints and obstacles. Hence, understanding the determinants and constraints of institutional delivery service utilization in the pastoral area is very crucial for proper use of the maternal health service. These study findings showed that home delivery was 30.4% in the city. Our finding is inconsistency with a study done in Liben Zone revealed that 69.6% of births took place at home with the assistance of unskilled individuals, while the remaining intended to deliver at health facilities with skilled professionals. The discrepancy might be due to implementation of maternal health care services that promote accessibility of institutional delivery at all levels. (7, 16)

About 71.3% of mothers had ANC follow up. The result is higher than the Ethiopian studies, which were 34% (of which 27.3% in SNNPR), and 66.8% respectively (8, 10). Similarly, it is comparable to the other study conducted in northern Ethiopia, which reported the ANC services as 78.7% and also comparable with studies done in Tanzania, Nigeria and Nepal (9, 12, 15).

The current study showed that husband education was consistently and strongly associated with the preference of place of delivery which is inconsistence with a study done in Oromia region showed that no significant association was observed on husband education towards preference of home as delivery place and TTBAs as delivery attendants (7, 17).

The present study revealed that 50% of mothers claimed labour was unpredictable, 30.7% sex similarity and 19.3% transportation problems was the

reason the they prefer to gave birth at home. This is inconsistence with a study conducted in oromia, Ethiopia, reported some of the reasons was they feel more comfortable being at home 58(30.2%), to gain family care 29%, privacy issues (7, 8)

Maternal age, maternal education, husband education and ANC follow up had significant association with preference place of delivery. The finding coincides with previous studies. According to study from Munisa woreda Oromia regional state, mothers 35 years old were about 6 times more likely to give birth at home than mothers aged 20 years or lower. Our finding is also inconsistency with a study done in Shashemene, Oromia, Ethiopia revealed that low literacy had significant association with home delivery; lack of education is an important factor that contributes to home delivery with TBAs (14, 16). and other study done in liben zone, Somali region showed that women who attend ANC were two times more likely to deliver at HFs than women who did not attend ANC (AOR, 95% CI =2.297, 1.065–4.955) (13, 16). Consistent results were also found by a research conducted in Zambia, Tanzania and Nepal. All of these findings revealed that older women tend to deliver at home compared to younger women (15, 19).

Based on the level of education of mothers, there was a significant difference between educated and uneducated women on place of delivery. According to this finding, the probability of delivering at home was found to be greater for uneducated women than educated. This difference may be due to the fact that educated women are also considered to have improved knowledge and attitude and skilled maternity services are provided for them and they have the benefit in using such services. Consistent result is also found by a research conducted in northern Ethiopia, India, Tanzania and Nepal which reported that the percentage of home delivery is greater for uneducated women than the educated women (11, 15).

In this study majority of the women who prefer to deliver at home with health professional and few were of them prefer by TBA. Comparable with a study done in Kenya showed that majority of the women who delivered at home were assisted by untrained birth attendants like their mother-in-laws or their biological mothers, very few were attended by TBA or skilled birth attendants (kenya) (10). Similarly, other study conducted in Oromia, Ethiopia, revealed that mothers planned to deliver at home, 26 % delivered at home. This is despite the fact that 87% of all the interviewed mothers acknowledged knowing the difference between delivering at home and in a health facility and that delivering at home was dangerous. Although, 17% of mothers who delivered at home reported to have been attended by the traditional birth attendant (TBA), 21 % of all the mothers reported TBA services to be good (7,13).

Limitation of the study

The study was not supported by qualitative methods. Furthermore, women might experience recall bias, particularly on the services they had got during their previous obstetrics such as during ANC visit.

5. Conclusion

The study showed that preference of home delivery in the study area was low. Maternal age, maternal education, husband education and attending ANC were factors significantly associated with preference place of delivery. Therefore, enhancing educational status of both maternal and husband will be helpful to encourage mothers to deliver at health institutions and awareness creation provision on the importance of institutional delivery and ANC follow-up at the community level could improve institutional delivery service utilization and also transport access improvement shall be emphasized to improve institutional delivery.

Abbreviations

ANC: Antenatal Care

HFs: Health Facilities

TBAs: Traditional Birth Attendants

TTBAs: Trained Traditional Birth Attendants

Ethical disclosure

The protocol of the study was reviewed and approved by College of Medicine and Health Sciences, Jigjiga University. Informed consent was obtained from each participant after explaining the purpose of the study and before starting the interview.

Author contributions

Mohamed Mohamud designed, analyzed data, interpreted findings and drafted the manuscripts and submitted to the journal.

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Conflict of interest

No competing interests.

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Table 1: Socio-demographic characteristics among women of childbearing age in Jigjiga city, Feb-Aug, 2016

Characteristics	**Frequency**	**Percent**
Age group		
15-24years	90	22.4
25-34years	276	68.8
35-49years	35	8.7
Religion		
Muslim	332	82.8
Orthodox	39	9.7
Protestant	30	7.5
Ethnicity		
Somali	380	94.8
Amhara	15	3.7
Oromo	6	1.5
Marital status		
Married	334	83.3
Divorced	42	10.5
Widowed	25	6.2
Education status		
Informal	113	28.2
Primary	221	55.1
Secondary	64	16
Diploma	3	0.7
Occupation status		

Housewife	305	76.1
Daily labor	7	1.7
Merchant	45	11.2
Government employee	41	10.2
NGO worker	3	0.7
Husband education		
Informal	23	5.7
Primary	17	4.2
Secondary	51	12.7
Diploma	158	39.4
Degree and above	152	37.9
Husband occupation		
Daily labor	94	23.4
Government employee	212	52.9
Merchant	71	17.2
NGO worker	24	6
Family income Monthly		
<2500ETB	57	14.2
2500-5000ETB	269	67.1
>5000ETB	75	18.7

Table 2: Obstetric history and complications among women of childbearing age in Jigjiga city, Feb-Aug, 2016

Characteristics	**Frequency**	**Percent**
ANC follow up		
Yes	286	71.3
No	115	28.7
Number of ANC follow up (286)		
1-2 times	196	68.5
3-4times	90	31.5
Number of children		
1-4	307	76.6
5-10	94	23.4
Last delivery place		
Home	122	30.4
Health institution	279	69.6
Mode of delivery		
Normal	330	82.3
CS	71	17.7

Assisted attendant		
TBA	12	3
TTBA	76	19
Health professional	313	78.1
Experienced complication		
Yes	74	18.5
No	324	81.5
Type of complications(74)		
Retained placenta	12	16.2
Heavy bleeding	49	66.2
Shock	13	17.5
Transportation		
Yes	334	83.3
No	67	16.7
Decision on place of delivery		
Herself	191	47.6
Husband	57	14.2
Both	153	38.2

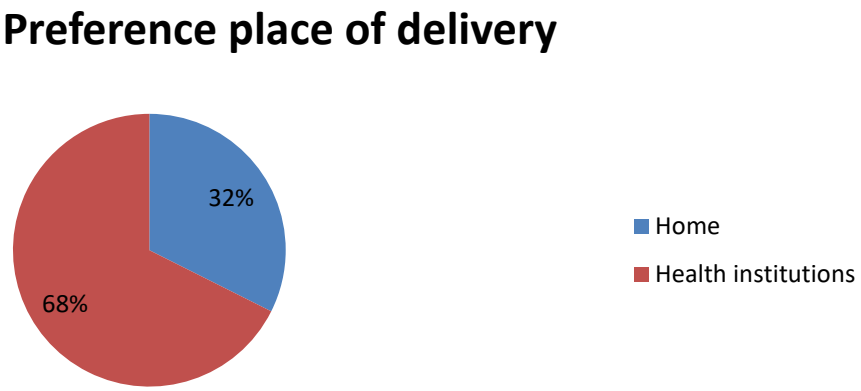

Figure 1: Preference place of delivery among women of childbearing age in Jigjiga city, Feb-Aug, 2016

Table 3: Factors associated with prevalence place of delivery among women of childbearing age in Jigjiga city, Feb-Aug, 2016

Variables	Preference place of delivery		COR (95%C.I)	AOR(95%C.I)
	Home	Health institutions		
Age group				
15-24years	29	61	1	1
25-34years	89	187	2.3(0.92-4.12)	1.1(0.15-3.23)
35-49years	12	23	4.1(0.12-7.5)	2.11(1.2-5.21)**
Religion				
Muslim	102	230	1	1
Orthodox	14	25	2.3(0.97-4.32)	3.15(2.35-6.12)
Protestant	14	16	1.2(0.12-2.41)	0.71(0.32-1.2)
Ethnicity				
Somali	124	256	2.9(1.33-6.7)	1.71(0.61-4.37)
Amhara	4	11	2.7(1.32-8.71)	2.3(1.11-7.23)
Oromo	2	4	1	1
Marital status				
Married	105	229	1.82(0.68-4.81)	0.37(0.17-3.21)
Divorced	14	28	3.71(1.35-7.32)	0.87(0.31-3.23)
Widowed	11	14	1	1
Education status				
Illiterate	17	85	3.21(1.32-4.35)**	3.23(1.36-4.62)**
Primary	78	119	1.2(0.12-2.13)	0.73(0.22-1.91)
Secondary	26	52	1.35(0.32-3.45)	0.91(0.48-4.12)
Diploma	8	15	1	1
Occupation status				
Housewife	92	213	1.31(0.37-3.71)	0.44(0.15-1.03)
Daily labor	15	26	1.73(0.23-4.31)	0.83(0.37-1.87)
Merchant	18	27	1.53(0.96-6.32)	0.97(0.21-6.12)
Government employee	3	4	1	1
Husband education				
Illiterate	10	13	2.7(1.31-6.21)**	2.68(1.23-6.21)**
Primary	8	9	2.61(1.23-6.21)	1.74(1.12-4.45)
Secondary	14	37	2.1(1.23-4.35)	1.84(1.21-3.12)
Diploma	52	106	2.9(1.33-6.71)	1.71(0.62-4.33)
Degree and above	46	96	1	1

Husband occupation				
Daily labor	27	678	0.36(0.42-0.95)	1.21(0.32-3.87)
Government employee	75	137	0.79(0.43-1.42)**	1.43(0.65-5.62)
Merchant	19	52	0.98(0.51-2.41)	3.1(2.12-10.12)
NGO worker	9	15	1	1
ANC visit				
Yes	85	201	1	1
No	45	70	1.35(1.12-2.63)**	1.34(1.13-2.51)**

** Significant at p-value less than 0.05