

Choice of childbirth place among childbearing age women, western Ethiopia, 2018

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Abstract

Background : Maternal death is the most extreme consequence of poor maternal health. More than 30 million women in developing regions suffer from serious diseases and disabilities resulted from maternal causes. Access to proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that may lead to death of the mother, baby, or both. In Ethiopia, the high maternal mortality rate with delivery by unskilled birth attendants shows low utilization of maternal health services.

Objective : This study was aimed to assess choice of childbirth place and its associated factors among women of childbearing age.

Method A cross-sectional study design was conducted in Jimma Arjo district, western Ethiopia, from March 20 to April 20, 2018. Multistage sampling technique was used to select 506 participants. Collected data was entered into Epi-Info, checked for its completeness, cleaned and finally exported to SPSS software version 20 for analysis. Bivariate and Multivariable data analysis was used to examine the association between dependent and independent variables.

Result : The study investigated that home delivery was found to be 200(39.5%) whereas institutional delivery was 306(60.5%) in the study area. Factors found to be statistically associated with choice of institutional delivery at $p<0.05$ were; history of obstetric difficulties ($AOR=6$, 95% CI= [2.08, 17.60]), women educational status ($AOR = 4.4$, 95% CI= [1.47, 13.42]), husband educational status ($AOR=4$, 95% CI= [1.43, 11.60]), having 2-3 ANC Visits ($AOR=4$, 95%CI= [1.95, 8.52]), and accessing vehicle transportation ($AOR = 2.8$, 95% CI= [1.23, 6.46]).

Conclusion: Preference of institutional delivery in this study seems relatively better compared to other studies. It's shown that attending secondary and more educational level in both mothers' and their husbands', history of obstetric difficulties, ANC attendance, and accessing vehicle for transportation have influenced mothers to prefer health institution as childbirth place. Therefore, any programs aimed at increasing choice of institutional delivery should first work on education, ANC follow up and transportation facilities in the study area.

Background

Globally, there were an estimated 289,000 maternal deaths in 2013, yielding a maternal mortality rate (MMR) of 210 maternal deaths per 100,000 live births. Developing countries account for 99% of the global maternal death [1]. Maternal mortality is the highest by far in sub-Saharan Africa, where the lifetime risk of death from pregnancy-related conditions is 1 in 16, compared with 1 in 2800 in rich countries [2,3]. In Ethiopia, according to EDHS 2011 and 2016, there are 676 and 412 maternal deaths for every 100,000 live birth respectively, and the infant mortality rate was 39 and 37 per 1, 000 live births respectively (4).

Maternal death is the most extreme consequence of poor maternal health. However, due to inadequate care during pregnancy and delivery or the first critical hours after birth, more than 30 million women in developing regions suffer from serious diseases and disabilities. These diseases and disabilities include uterine prolapse, pelvic inflammatory disease, fistula, incontinence, infertility, and pain during sexual intercourse. The majority of these deaths and complications could be avoided by access to basic maternity care and improved delivery care, which is supported by adequate medical and surgical cares (5).

Access to proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that may lead to death or serious illness for the mother, baby, or both. In Ethiopia, the high maternal mortality rate with delivery by unskilled birth attendants shows low utilization of maternal health services which could be explained by low institutional delivery ranged from as low as 3.7% in Amhara to as high as 79% in the Capital city Addis, showing greater disparity existing within the country [6]. The percentage of live births delivered by a skilled provider remained virtually unchanged for a period of 5 years after 2000, but increased substantially after 2005; from 6% in the 2000 and 2005 EDHS to 10% in 2011 EDHS, and reached 28% in 2016 EDHS [3, 4, 7].

As many studies conducted in the country indicated, factors including maternal age, parity, education and marital status, household factors including family size, household wealth, and community factors including socioeconomic status, community health infrastructure, residence, available health facilities, distance to health facilities, poor referral system and shortage of skilled attendants determine place of delivery and these factors interact in diverse ways in each context to determine the place of delivery [8–14].

Maternal death has a large impact on the baby the mother is carrying, the health and wellbeing of the family, the community, and on the society in general. Each year, more than one million children lose their mothers due to maternal mortality. Evidence shows that children up to 10 years of age whose mothers died have a 3 to 10 time higher risk of dying within two years than children who live with their mothers [8]. The WHO estimates that each year US \$15.5 billion is lost in potential productivity due to maternal and child death (9).

To reduce the burden of maternal mortality, many intervention strategies were developed by WHO and other organizations. Similarly, to reduce the high maternal mortality level, there have been different interventions in Ethiopia like focused antenatal care, skilled attendants during delivery, family planning, and expansion and upgrade of comprehensive emergency obstetric care. In addition to these interventions, the government of Ethiopia introduced health extension program to reach the community level and improve maternal health problems [15, 16].

In spite of the global and national efforts at reducing maternal morbidity and mortality through the safe motherhood initiative, there is no significant reduction in maternal morbidity and mortality in developing countries including Ethiopia [17, 18]. Moreover, little has been studied about factors determining the choice of delivery place among women's of childbearing age, in Ethiopia in general and in the study area

in particular. Therefore, the aim of this study was to elucidate the factors that determine women's choice of place of childbirth in Jimma Arjo district, Oromia regional state, Ethiopia.

Methods

Community based cross sectional study was conducted among 517 child bearing age mother who gave at least one child in Jimma Arjo district of East wollega zone, Western Ethiopia from March 20-April 20/2018. Jimma Arjo district is located at 379 Km to west of Addis Ababa (the capital city of Ethiopia). According to Jimma Arjo District administration office report, the current (2017) population of Jimma Arjo district was estimated to be 114,175. There are 20 rural kebeles and 2 town administration in the district. There is one district governmental Hospital, four health centers and 20 health posts in the district.

All women of childbearing age (15–49 years) who reside in Jimma Arjo district were the source population and all women of childbearing age who had given at least one childbirth in the randomly selected kebeles of Jimma Arjo district were the study population for the study. Women of child bearing age who gave at least one childbirth within the two years preceding Study period were included into the study. A woman of childbearing age who were severely ill at the time of data collection and who lived less than six months in the study area at the time of data collection were excluded from the study.

To get the study respondets, multistage sampling technique was used. There are a total of twenty rural and two urban kebeles in the district. From those kebeles, six rural were selected using simple random sampling method (lottery method) and two urban kebeles were taken purposively. The calculated sample size was distributed across the two urban and six rural kebeles, proportionally to the size of the households with study respondents in each kebele. Then, systematic sampling method was used to select the study respondents. The initial household to be interviewed was selected randomly and, then, the subsequent households to be included in the study were identified systematically.

Measurements

In this study, choice of childbirth place is defined as, the extent at which mothers who gave at least one childbirth preceding study period preferred delivery place either from institutional or Home delivery due to factors contributing it. Women decision on childbirth placeis defined as women's autonomy or power of women on one's own choice of delivery place. It is measured with a statement "Who decides on a place of your delivery?

Data collection and procedure

A structured questionnaire was adapted in English from different reviewed literature [29, 32, 36]. The questionnaire was translated into local language (Afan Oromo) and retranslated to English by linguistic professionals. A pretest of the questionnaire was conducted among five percent of the total sample size

in the area not included in the study. The data was collected by 6 trained BSc holder data collectors and supervised by two MPH holders supervisors.

Data Quality management

To assure the quality of data one-day training was given for three data collectors and one supervisor by the principal investigator on how to fill data on the prepared questioners. Pre-test of the questionnaires was done on 5% of the sample size and the appropriate correction was made before data collection. All collected data were checked for completeness, accuracy, and consistency by the supervisor every day and onsite close supervision and technical support was given by supervisor and principal investigator.

Data processing and analysis

After data collection was completed, it was entered into epi-info version 3.5.4 and exported to SPSS software version 20. It was checked for its completeness, cleaned and analyzed accordingly. Frequencies and graphs were used to describe some variables. In bivariate analysis p-value < 0.25 was included in the multivariate logistic regression model. Multivariate analysis was done to see the effect of each variable on the outcome variable with their corresponding 95% confidence intervals and p-value of <0.05 were considered to be statistically significant.

Ethics and consent to participate

Ethical clearance was obtained from the Research and ethics review Committee of Wollega University and Official permission was granted from the district health office. Informed verbal consent was obtained from respondents before the data collection after explaining the objective of the study. To get full co-operation, respondents were reassured about the confidentiality of their response and was ensured their voluntarily participation and right to take part or terminate at any time they wanted. All the study participant women were above 18 years old and written informed consent was taken from all of them before involved in the study.

Results

Socio-demographic characteristics of the respondents.

A total of 506 women participated in this study, giving a response rate of 97.8%. Out of 506 respondents 116 (22.9%), were from Urban and 390 (77.1%) from rural kebeles. The age of the Mothers ranged from 21–45 years with mean and standard deviation of 31.6 ± 6.4 (SD) years. Majority of the mothers were between 25–29 years and the least were above the age of 40 years 58(11.5%). Three hundred ninety-five (78.9%) of respondents from the study area were married while 92(18.2%) were divorced. Four hundred

(79.1%) of the respondents are Oromo in ethnicity followed by Amhara 97(19.2%). Among the total study majority of participants about 308 (60.9%) were Protestant, followed by Orthodox 182 (36%).

Concerning the occupational status of the respondents, majority 302(59.7%) of them were Housewives, followed by merchants 75(14.8%) and the least were students 6(1.2%). Regarding educational status, 168 (33.2%) of respondents had able to read and write followed by cannot read and write 151(29.8%), whereas 61(12.1%) of them were diploma and above. Likewise, women whose husband can read and write were 135(26.7%) followed by Secondary education 130 (25.7%) and cannot read and write 85(16.8) (Table 1).

Past obstetric characteristics of the repondents

Three hundred six (60.5%) of the study subjects were between parity 2 and 4, followed by parity greater than four 88(17.4) and the least 112 (22.1%) were parity one. Three hundred sixty-two (71.5%) of mothers had ANC follow up at health institution while 144 (28.5%) of mothers had no ANC followup. Likewise, mothers who have information about the benefit of delivery in health institution were 477(94.3%). Furthermore, 313(61.9%) of respondents had a primary source of information from health workers, 82(16.2%) from friends and neighbors and also 82(16.2%) from TV/Radio. Regarding the Obstetric difficulties, 85(16.8%) of mothers were prone to obstetric difficulties (Table 2)

Women's choice of delivery place

Of the total number of respondents, 200(39.5%) chose home whereas the rest respondents 306(60.5%) chose health institution as a delivery place.

Concerning reasons for choosing institutional delivery, 161(54.5%) of them mentioned due to fear of complications, followed by informed to deliver in health institution 81(34%) while the least, (8.2%) reported that health institution were close their home. Despite this, the reasons stated for choice of home delivery were, disliking behavior of health workers 74(34.6%), no money to pay for transportation and health service 68(16%), and the least were having trust on TBA 58(15.4%) (Figure 4).

Respondents who delivered their last child at health institution were assisted by midwives 182(59.7%) and followed by health officer and Nurses 72(23.6%) and 36(11.8%) respectively. Concerning mothers practiced home delivery during last childbirth, 95(47.3%) of them were assisted by women from a neighbor, 73(36.3%) of them were assisted by mother in low, 26(12.9%) of them were assisted by mother (Table 3).

Pertaining to a decision on place of childbirth 177(35%) of respondents replied that both husband and wife made a decision on place of childbirth, followed by 165(32.6%) and 100(19.8%) replied decision was made by their husband and themselves respectively. Regarding the time to reach health institution from home 438(86.6%) of the respondents respond that it takes 1–2 hours to reach health institution and

68(13.4%) of the respondents respond that it takes <1hrs to reach health institution. Whereas concerning the distance of mothers home and health institution, majority 221(43.7 %) of the study participants were >5 km far from health institution followed by 199(39.3%) of the respondents were 2–5 km far from health institution and 86(17%) below 2kms. Likewise, majority 251(49.6%) of the respondents went on foot to reach at health institution followed by traditional transportation by mule/horse/karezza and vehicle, 91(18%) and 164(32.4%) respectively (Table 4).

Factors affecting choice of delivery place

In Bivariate logistic regression analysis, variables with p-value <0.25 which were added in the final model were; age of respondents, residence, educational status, husband education, monthly household income, information of delivery in a health institution, ANC visits, obstetric difficulties, distance to the nearby health institution, means of transportation and time expert to reach health institution.

A multivariate logistic regression analysis result showed that mothers who completed secondary education were 4.4 times more likely to choose health institution as delivery place compared to those who cannot read and write ($AOR = 4.4$, 95% CI [1.47, 13.42]). Similarly, women whose husband completed secondary education, were 4 times more likely to choose health institution as delivery place compared to husband who cannot read and write, ($AOR = 4$, 95% CI: [1.43–11.60]). Likewise, women whose husband completed diploma and above were 4 times more likely to choose health institution as delivery place compared to those cannot read and write ($AOR = 4$, 95% CI [1.17–13.38]).

Compared to mothers who had first ANC visit, those mothers who had 2–3 times ANC follow up were 4 times more likely to choose health institution as a delivery place ($AOR = 4$, 95% CI: [1.95, 8.52]). It was also found that the women who have ever encountered obstetric difficulties and who had access to vehicles to reach health institutions more likely choose institutional delivery with Adjusted odds ration of ($AOR = 6$, 95% CI = [2.08, 17.60]) and ($AOR = 2.8$, 95% CI = [1.23, 6.46]) respectively (Table 5).

Discussion

This study revealed that 200 (39.5%) of the total respondents, chose home delivery whereas the rest 60.5% chose institutional delivery. This finding is slightly different from the study done in Jimma Zone, South West Ethiopia in which 35.38% of the mothers chose home delivery [19]. The discrepancy is wide when compared with what has been found in the study conducted in Kenya, Nyandarua, South District, and EDHS 2016 where home delivery accounts 51.8% and 81.2% respectively [4]. The possible explanation for this difference may be the difference in the study period, socio-economic characteristic and educational level variation which influences positively selection of place of delivery.

The reasons mentioned for preferring home delivery were, smooth and short labor (32.7%), uncomfortable behavior of health workers (34.6%), no means of transportation (17.8%) and no money to pay for transport and health service (16%). Though the magnitude differs, similar reasons were also mentioned in

the study conducted in Dega Damot woreda which were no money to pay for transport and health service 113(50.7%), no means of transportation 134(60.1%), and labor was smooth and short 106(47.5%) [20]. This might have been resulted from possible differences in socio-economic and study area.

Regarding factors affected choice of delivery place, in this study, it was found that both mothers with educational status secondary education and whose husbands with educational status of diploma and above were more than 4 times more likely to choose institutional delivery compared to those who cannot read and write. This is similar with the study done in Dega Damot district of Amhara and Ahferom district of Tigray, Ethiopia [20–21]. This could be resulted from the reason that educated husband is expected to have knowledge and awareness about the advantages of institutional deliveries and seeking modern health care than those who are not.

It was also found that mothers who had 2–3 ANC visits during last pregnancy accounted 4 times more likely to choose health institution compared to women who had a single ANC visit. This finding is consistent with study finding of Sekela district in which mothers who have ever ANC visits during pregnancy were 4 times more likely to deliver in health facilities than those who did not have ANC visit during last pregnancy [22]. This indicates that the greater the number of ANC visits, the greater the opportunity to reinforce health messages which could result in better understanding and compliance by the women.

Concerning Obstetric difficulties, those mothers who faced difficulties were 6 times more likely to choose health institution compared to women who have not. This is inconsistent with the study done in Dega Damot woreda, West Gojjam zone could be due to variation in socio-demographic characteristics [20]. Moreover, participants who had access to vehicles to reach health institutions were 2.8 times more likely to choose delivery at health institution than women who go on foot ($AOR = 2.8$, 95% CI: 1.23, 6.46]) which is consistent with other studies [20,23] which revealed that poor transportation system pushes mothers towards home deliveries.

Limitation of the Study

The possibility of *recall bias* related to maternal age, a person assisting at health institution and obstetrical difficulties.

Conclusion

Preference of institutional delivery in this study seems relatively better compared to other studies. However, significant proportion of mothers are still delivering their babies at home. This study has shown that attending secondary and more educational level in both mothers' and their husbands', history of obstetric difficulties, history of ANC attendance, having 2–3 ANC visits, and accessing vehicle for transportation have influenced mothers to prefer health institution as childbirth place.

Abbreviations/acronyms

ANC: Antenatal Care

AOR: Adjusted Odds Ratio

CSA: Central Statistical Agency

EDHS: Ethiopian Demographic and Health Survey

MDG: Millennium Development Goals

MMR: Maternal Mortality Ratio

MCH: Maternal and Child Health

SBA: Skilled Birth Attendant

SDG: Sustainable Development Goals

SPSS: Statistical Product and Service Solution

TBA: Traditional Birth Attendant

UNICEF: United Nations Children's Fund

WHO: World Health Organization

Recommendation

The woreda education office should work on improving girl's education beyond the primary school level which will have a positive impact on preference of institutional delivery in the long run. Woreda health office in collaboration with regional health bureau should look for ways of improving access to transportation in all kebeles particularly for delivery. All pregnant mothers should be encouraged to have antenatal care attendance in nearby public health facilities using different means of information dissemination.

Declarations

Ethics approval and consent to participate

Ethical clearance was obtained from the Research and ethics review Committee of Wollega University and Official permission was granted from the district health office. Informed verbal consent was obtained from respondents before the data collection after explaining the objective of the study. To get full co-operation, respondents were reassured about the confidentiality of their response and was ensured their

voluntarily participation and right to take part or terminate at any time they wanted. All the study participant women were above 18 years old and written informed consent was taken from all of them before involved in the study

Consent for publication

Not applicable.

Availability of data and material

Data will be available on request of the corresponding author.

Competing interests

There is no competing of interest

Funding

Not applicable

Authors' contributions

BF has participated in proposal writing, data collection process, data analysis, and interpretation, and report writing. In addition, TT, MG, GK, and HB participated in data analysis, interpretation and preparing a draft of the manuscript. All authors have read, reviewed, and approved the final version of the manuscript.

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All the authors are from Wollega University Institute of health sciences, while BF is currently is Senior Nurse at Nekemte Specialized Hospital.

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Tables

Table 1: Socio-demographic characteristics of respondents in Jimma Arjo district, Oromia, Ethiopia, 2018.

Variables	Frequency (n=506)	Percent
Age		
20-24	172	34
25-29	123	24.3
30-34	88	17.4
35-39	65	12.8
>=40	58	11.5
Marital status		
Married	399	78.8
Single	8	1.6
Divorced	92	18.2
Widowed	7	1.4
Residence		
Rural	390	77.1
Urban	116	22.9
Religion		
protestant	308	60.8
Orthodox	182	36
Muslim	16	3.2
Ethnicity		
Oromo	400	79.1
Amhara	97	19.1
Gurage	5	1.0
Tigre	4	0.8
Occupation		
House wife	302	59.7
Governmental worker	58	11.5
Mare chant	75	14.8
Farmer	50	9.9
Daily labor	15	3.0
Student	6	1.2
Husband Occupation		
Farmer	233	46
Daily labor	48	9.5
Merchant	164	32.4
Governmental worker	61	12.1

Education		
Cannot read and write	151	29.8
Read and write	168	33.2
Primarily education (1-8)	36	7.1
Secondary education	90	17.8
Diploma and above	61	12.1
Total	506	100
Husband Education		
Cannot read and write	85	16.8
Read and write	135	26.7
Primary education (1-8)	63	12.5
Secondary education	130	25.7
Diploma and above	93	18.4
Total	506	100

Table:2 Past obstetric characteristics of the respondents in Jimma Arjo district, Oromia, Ethiopia, 2018.

Variables	Frequency (n=506)	Percent
Gravidity		
1	92	18.1
2-4	316	62.5
>4	98	19.4
Total	506	100
Parity		
0-1	112	22.1
2-4	306	60.5
>4	88	17.4
Total	506	100
Information about the benefit of delivery in health institution		
Yes	477	94.3
No	29	5.7
Total	506	100
Source of information		
Health workers	313	61.9
Friends neighbors who get similar serves	82	16.2
Media like TV / Radio	82	16.2
Total	477	94.3
ANC		
No	144	28.5
Yes	362	71.5
Total	506	100
No of visit of ANC		
1	138	27.3
2-3	184	36.4
>=4	40	7.9
Total	362	71.5
Obstetric difficulties		
Yes	85	16.8
No	421	83.2
Total	506	100
Measure taken for Obstetric difficulties		
Nothing	24	28.2
Visited health institution	53	62.4
Massage, herbs, taking soft drinks	8	9.4
Total	85	100

Table 3: Women last delivery place of the respondent in Jimma Arjo district, Oromia, Ethiopia, 2018.

Variables	Frequency (n=506)	Percent
Assistant at home delivery		
Mother	26	12.9
Mother- in-low	73	36.3
Women from my neighbor	95	47.3
TBA	7	3.5
Assistant at HI delivery		
Mid wife	182	59.7
Nurse	36	11.8
Health officer	72	23.6
Doctor	15	4.9
Next delivery place		
Health institution	326	64.4
Home	180	35.6
Husband's choice of place of delivery		
Health institution	298	58.9
Home	208	41.1

Table 4: Women decision making power and geographical accessibility of health care with women choice of delivery place in Jimma Arjo district, Oromia, Ethiopia, 2018.

Variables	Frequency (n=506)	Percent
Decision maker on place of delivery		
Women	100	19.8
My husband	165	32.6
Both my husband and Wife	177	35.0
mother and mother in low	64	12.6
Estimated distance to the nearby health institution		
<2km	86	17
2-5km	199	39.3
>5km	221	43.7
Means of transport to reach the health facility		
On foot	251	49.6
Traditional transportation /by mule/horse and traditional ambulance/kareza	91	18
VEHICLE	164	32.4
Time expend to reach HI		
<1hr	68	13.4
1-2hrs	438	86.6

Table 5: Multivariate analysis of selected variables with women choice of delivery place in Jimma Arjo district, Oromia Regional State, Ethiopia, 2018.

Variables	Choice of birth place (n=506)			COR, 95%CI	AOR, 95%CI
	Home, n	HI n (%)			
Age					
20-24	18(16.1)	94(83.9)	0.6 (0.31, 1.01)	0.3(0.09, 0.76)	
25-29	56(43.1)	74(56.9)	0.7(0.38, 1.42)	0.4 (0.13,1.18)	
30-34	42(40.4)	62(59.6)	1(0.57, 2.37)	1(0.32, 3.57)	
35-39	50(57.5)	37(42.5)	0.6(0.31-1.34)	1(0.42,4.32)	
>=40	34(46.6)	39(53.4)	1	1	
Residence					
Rural	189(48.5)	201(51.5)	1	1	
Urban	11(9.5)	105(90.5)	9(4.68, 17.23)	2(0.46, 7.99)	
Educational status of the mother					
Cannot read and write	75(49.7)	76(50.3)	1	1	
Read and write	87(50.9)	84(49.1)	0.9(0.58,1.40)	0.8(0.36,1.86)	
Primary education (1-8)	7(20.6)	27(79.4)	3(1.31,6.72)	1.8(0.57, 5.93)	
Secondary education	22(24.7)	67(75.3)	3(1.71,5.43)	4.4(1.47, 13.42)	
Diploma and above	9(14.8)	52(85.2)	9(3.67-22.27)	3.8(0.92, 16.05)	
Husband Education					
Cannot read and write	60(58.8)	42(41.2)	1	1	
Read and write	76(53.1)	67(46.9)	1.6(0.91-2.76)	2(0.77, 5.50)	
Primary education (1-8)	27(42.2)	37(57.8)	2.5(1.29-4.91)	1.8(0.57, 5.60)	
Secondary education	25(24)	79(76)	3.47(1.96, 6.15)	4(1.43, 11.60)	
diploma and above	12(12.9)	81(87.1)	12(5.73, 26.59)	4(1.17, 13.38)	

*Traditional transportation includes:mule/horse and traditional ambulance/kareza

Number of ANC Visits (362)				
1	73(52.9)	65(47.1)	1	1
2-3	31(16.8)	153(83.2)	5.5(3.33-9.24)	4(1.95, 8.52)
>=4	16(40)	24(60)	1.7(0.82-3.45)	1.2(0.45, 3.27)
Obstetric difficulties (like prolonged labor, hemorrhage)				
Yes	6(7.1)	79(92.9)	11(4.80-26.38)	6(2.08, 17.60)
No	194(46.1)	227(53.9)	1	1
Means of transport				
On foot	113(32.9)	230(67.1)	1	1
Traditional transportation*	39(43.3)	51(56.7)	1.5(0.90, 2.34)	1.3(0.62, 3.09)
Vehicle	48(65.8)	25(34.2)	3(1.92, 5.26)	2.8(1.23, 6.46)

Figures

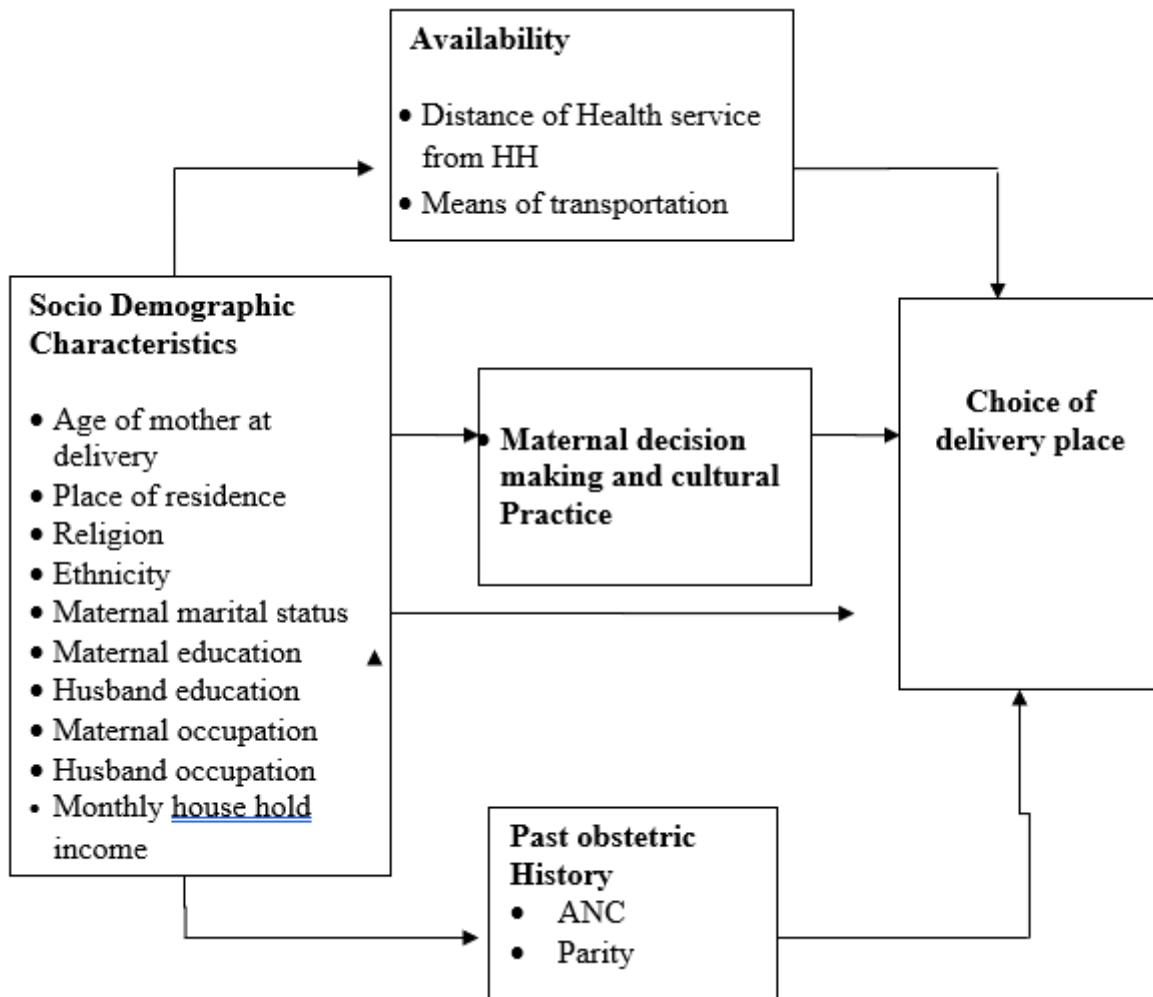
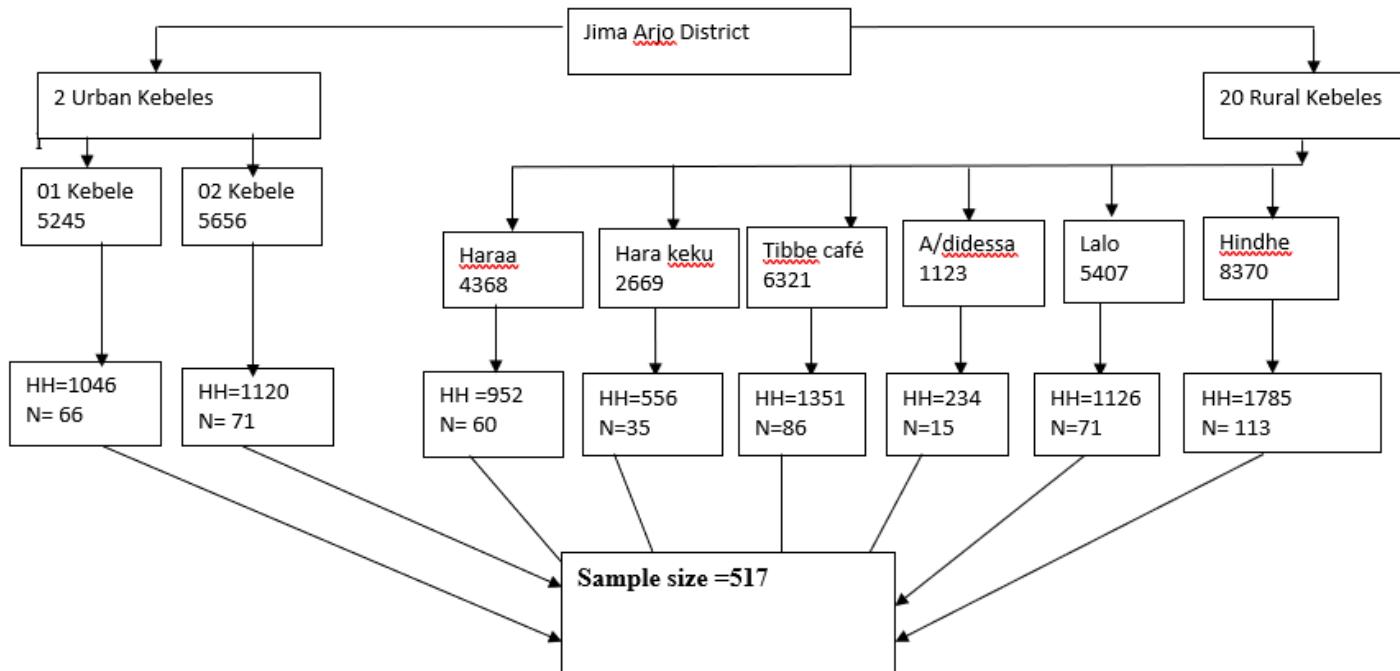


Figure 1

Conceptual framework for analyzing the determinants of maternal choice of birth place [Adapted from Sayih A, 2014]

Sampling Procedure



HH= House hold, N= Numb of sample size

Figure 2

Sampling technique for assessing the determinants of maternal choice of delivery place among child bearing age of Jimma Arjo district, Oromia, Ethiopia, 2018

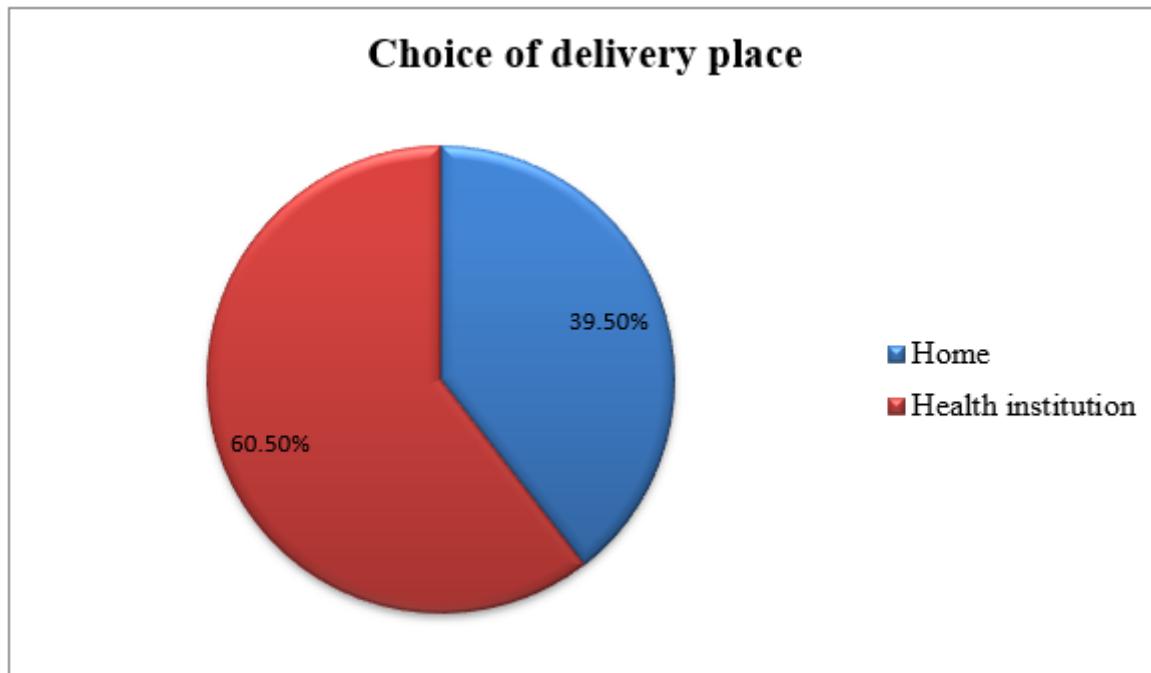
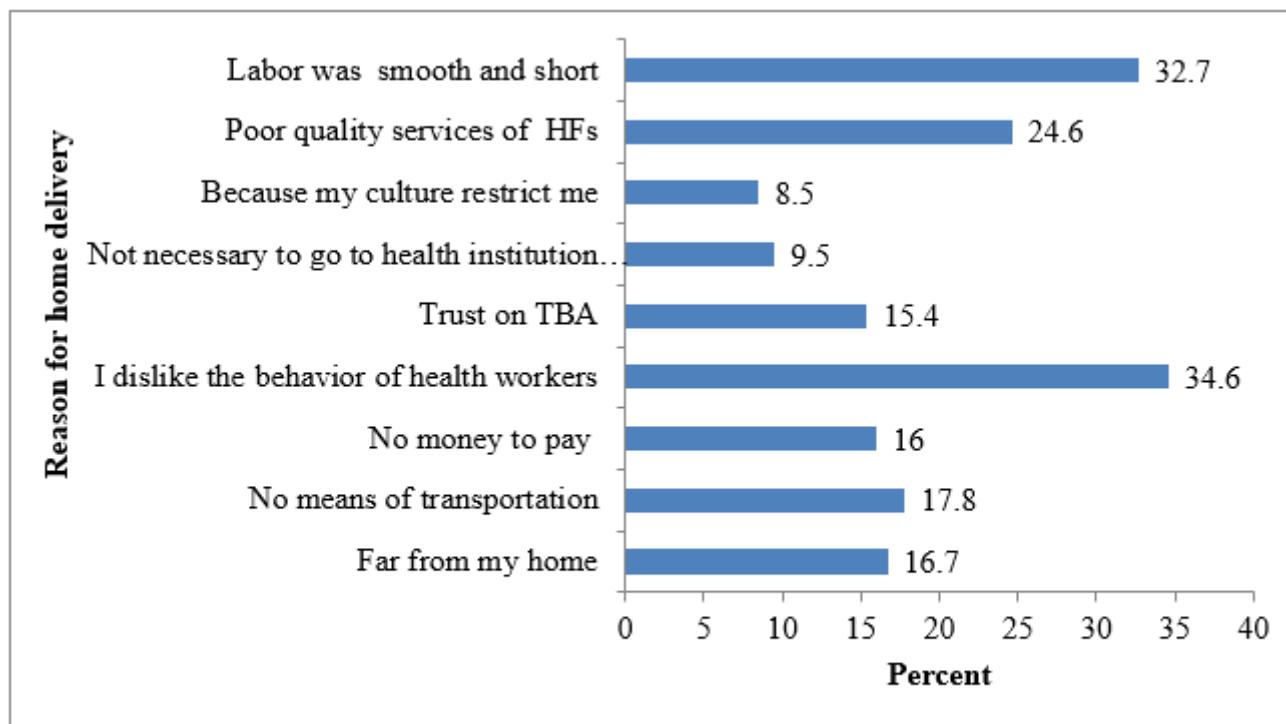


Figure 3

Maternal choice of delivery place (n=506) in Jimma Arjo district, Oromia, Ethiopia, 2018



*More than one possible answer was used

Figure 4

Reasons for the choice of home delivery(n=200) in Jimma Arjo district, Oromia, Ethiopia, 2018