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Factors Affecting Choice of Delivery Place among Women in Haramaya Woreda, Oromia Regional State, Eastern Ethiopia

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Back ground: Majority of the maternal deaths that occur especially in developing countries are avoidable or preventable. Choice and preference for child birth location are shaped and modified by the tempering socio-economic effects of the contextual environment. This study was aimed to assess factors affecting women's choice of delivery place.

Method: A community based cross-sectional study was employed from October, 2010 - May, 2011. About 458 women of age 15-49 were participated. Multistage sampling technique was utilized to select the study subjects. Data were collected by structured questionnaire. Data were entered using Epi Info version 3.5.1 and was analyzed using SPSS Version 16.0. Descriptive statistics and logistic regression were used for statistical analysis. Association was determined by using adjusted odds ratio at 95% CI and p value<0.05.

Results: more than half (58.7%) of women were choice home for delivery place and 41.3% choice health facilities. Age, education of women, education of husband, occupation of husband, attending antenatal care, having health information, traditional remedies during child birth at home and provider approach toward laboring women were found significant predictors on the choice of delivery place.

Conclusion: Sociodemographic factors, antenatal care, information on the benefit of health institution delivery, tradition belief, and distance and provider approach were significant predictors for the choice of women delivery place. Make efforts to increase community based health education to create awareness for better access to information about maternal health care.

Keyword: Delivery, choice, women, Factors, Haramaya, Ethiopia.

1. Introduction

The World Health Organization estimates about 536,000 women of reproductive age die each year from pregnancy related complications. Nearly all of these deaths (99%) occur in the developing region and less than 1% in the more developed regions of the world. Maternal mortality rate also

shows the same disparity among regions^[1]. Despite several decades of global health initiatives focused on maternal health and maternal mortality ratio has remained essentially unchanged over the past 15 years. However, MDGs required to meet 75% reduction by 2015 ^[2].

There is now widespread consensus that a principal effective intervention for reducing maternal mortality is the universal use of skilled birth attendants based in functioning health care facilities^[3]. Attended child birth is a key component of most developing countries' primary care strategies and a core part of the essential package of health services^[4]. Developing countries that have managed to reduce maternal mortality through high-level, sustained political commitment by professionalizing delivery care, and by improving health system infrastructure to respond to obstetric complications^[5]. In Ethiopia's maternal mortality ratio of 673 per 100,000 live births and remains among the highest in the world and has fallen little since 2001. Maternal mortality in Ethiopia is likely linked both to extremely low utilization of skilled birth attendants, low facility delivery and to even lower use of emergency obstetric care^[6, 7]. Choice and preference for childbirth location are not merely a matter of women's unrestricted ability to specify preference, but are shaped and modified by the tempering socio-economic effects of the contextual environment in which they arise^[8].

The place of delivery and its determinants have been on the research agenda for a long time. Birth is an event of great importance in family life^[9]. Majority of the maternal deaths that occur are avoidable or preventable if deliveries are managed by skill attendants. Maternal deaths are strongly associated with inadequate medical care at the time of delivery, lack of skilled personnel, geographical inaccessibility and poor quality of care, financial constraints and preference for home delivery^[10, 11]. Ethiopia is well placed as a potential candidate for the MDG and commitment for achieving the goals launched ambition and acceleration development program with special emphasis for human resources for health^[12, 13]. A problem solve approach 'bottom-up' start with the consumer to identify deficiencies in the system as it stands from women's perspective should demonstrate in maternity care provision^[14]. Place of delivery often determines important aspect reproductive health care quality of care received by the mother and infant mortality.

Women give birth in a comprehensive essential obstetric care facility with the help of professional^[15].

The safety and women's right of choice to home delivery verses hospital delivery is continuously debated in the developed countries but undesirable outcome of home delivery. In Netherlands women's of high socio-economic status delivered at home irrespective of other factors^[16]. In Tanzania, although health facilities are closer to rural households than in many African countries, more than half of children are delivered at home despite a high coverage (94%) of antenatal care^[17]. Although maternal health care utilization is essential for further improvement of maternal and child health little is known about the current magnitude of use and factors influencing the use of these services in Ghana^[18]. In Ethiopia, only 18.4% of the deliveries are attended by health professionals. The rest 81.6% deliveries took place at home. Pregnancy and child birth related complications were among the causes of maternal deaths^[6, 19].

Women's family in Bangladesh and Sri Lanka were reluctant to spend money on something that was perceived to be a natural event that can be practices at home at negligible expense, and more likely give birth at home without skilled attendants^[20, 21]. Approximately half of women in Uganda delivered at home^[23]. In Indonesia where preference to home delivery among pregnant women was high was found due to poor quality of care which was main contributor to excessive maternal mortality in many countries^[30]. In India maternal and paternal education were the predisposing factors that determined the choice of private facilities, public and home deliveries^[31]. Therefore, the aim of this study was to determine women's choice for place of delivery and associated factors in Haramaya woreda, eastern Ethiopia.

2. Methods and materials

2.1. Study area

The study was conducted in Haramaya woreda which is located in Oromia regional state of East Hararghe zone, across the high way from Addis Ababa to Harar 508 km from Addis and 19km

ahead to reach Harar. According to CSA, 2007, East Hararghe zone has around 2,739,390 population, of this 2,518,363(87.3%) residence in rural and 221,027(12.7%) in urban. Male population is about 1,391,017(50.8%) and female population is 1, 348, 373, (49.2%). Regarding health service distribution 2 district hospitals, 20 health centers and 402 health posts found in the region. The total population of Haramaya woreda is 271, 394 of whom 138,376(51%) is male and 133,018(49%) is female. There are four health centers, twenty seven health posts and four private drug stores and clinics. The woreda contains 4 urban Kebeles and 33 rural Kebeles.

2.2. Study design

A community based cross sectional study was employed from October, 2010-May, 2011. All women of child bearing age (15-49 year) in Haramaya woreda who had experience in pregnancy and delivery in selected kebeles were included in the study. But women who had not physically and mentally capable to be interviewed were excluded from the study.

2.3. Sample size determination and Sampling procedure

The sample size was determined using single population proportion formula by using proportion of deliveries attended by skilled birth personnel of Oromia region is 16.3% (Health and health indicators, 2009), 95% confidence level, marginal error of 5% and 10% non response compensation and also multiple the result by 2 for design effect. The final sample was 462 women. Multistage sampling was used in this study. The Kebeles were selected randomly. one Keble from 4 urban Kebeles and three Kebeles from 33 rural Kebeles were selected for time and logistic reason. The sample size was proportion to size allocation. Households were selected by using systematic sampling procedure an interval of every 14th households.

2.4. Method of data collection

The questionnaire were developed by using variables were age, maternal education, husband education, women's autonomy mother's

occupation and husband's occupation, ethnicity and religions, income, traditional beliefs, distance to facility, information availability, health service factors like access, availability of the service, cost and provider attitude towards laboring mother. Personal factors like women's perception towards pregnancy and child birth, satisfaction by the care given at health institution, women's previous experience and past obstetrical profile of the mother, gravidity, parity were incorporated in the data collection tool. The survey questionnaire was first prepared in English language and then translated to affan Oromo. Data were collected by using interviewed face-to-face using structured and pretested questionnaires. Data collectors and supervisors were trained on objective of the study, method of data collection.

2.5. Data processing and analysis methods

The data were checked edited, coded for incompleteness and inconsistency, and entered to Epi Info version 3.5.1 computer packages. Then data were exported to SPSS version 16.0 for analysis. Descriptive analysis was used to compute frequencies and percentage. Binary and multiple logistic regressions were used to determine the existence of associations between explanatory and outcome variables. Finally significant statistical association was declared by using adjusted odds ratio, 95% confidence intervals and p-value<0.05.

2.6 Ethical Considerations

Ethical approval and clearance was obtained from Addis Ababa University Medical Faculty Centralized School of Nursing Institutional Review Board Committee. Permission was also obtained from the administration of the East Hararghe Zone Health offices and woreda health offices. Informed verbal consent was obtained from participants. Confidentiality of all data was kept through anonymously.

3. Result

A Total of 462 were participated in the study and 4 questioners were excluded because of incompleteness and inconsistencies that making response rate 99.1%. Then 458 women age 15-49

years old were included in the statistical analysis. One third of women were age 35 and above, 118(25.8%) were aged between 25-29 years. The mean age of participants was 30.8 years old. Majority of them 368(80.3%) were married, 35(7.6%) were widowed. About 402(87.8%) of respondents were Muslim and 399(87.1%) of them were Oromo. Two hundred forty seven (53.9%) of women were illiterate. About

278(60.7%) of them were house wife 60(13.1%) were merchant. Less than half of women's husband (41.9%) was found illiterate. About 63(13.8%) of the women had monthly income less then 320ETB, 135(29.5%) earn between 320-600 ETB. 351(76.6%) of the women where live above five kilometers from the nearby health institution, 99(21.6%) were live below 2kms [Table 1].

Table 1: Socio-demographic characteristics of respondents in Haramaya woreda, Oromia region, Eastern Ethiopia 2011 (N=458)

Variable		Frequency	Percent
Age	15-19	6	1.3
	20-24	89	19.4
	25-29	118	25.8
	30-34	94	20.5
	35+	151	33
Marital Status	Married	368	80.3
	Divorced	35	7.7
	Separated	23	5
	Widowed	32	7
Religions	Muslim	402	87.8
	Orthodox	48	10.5
	Protestant	7	1.5
	Catholic	1	0.2
Ethnicity	Oromo	399	87.1
	Amhara	37	8.1
	Gurage	18	3.9
	Tigre	2	0.4
	Adare	2	0.4
Respondent occupation	House-wife	278	60.7
	Merchant	60	13.1
	Civil-servant	42	9.2
	Farmer	33	7.2
	Daily-labors	21	4.6
	Student's	24	5.2
Respondent's educational status.	Illiterate	247	53.9
	Read and writes	47	10.3
	Primary-education(1-8)	109	23.8
	Secondary education and above	55	12
Husband occupation Employer	Farmer	248	54.1
	Daily-laborers	56	12.2
	Merchant	85	18.6
	Governmental	68	14.9
Husband educational status and above	Illiterate	192	41.9
	Read and writes	80	17.5
	Primary education (1-8)	86	18.8
	Secondary education	100	21.8
Monthly house hold income	<320	63	13.8
	320-600	135	29.5
	601-1000	127	27.7
	>1000	133	29
Estimated distance from home to the nearby delivery institution	below 2 km	99	21.6
	2-5 km	8	1.7
	>5 km	351	76.6

Two hundred sixty nine (58.7%) of women were report choice home as delivery place and

189(41.3%) choice health institution. Main reason for their choice among those 228(49.8%)

of them replied due to distance from home to the health facility is too far, 224(48.8%) trust on TBA and 164(35.8%) said due to no access of transportation, 99(21.6%) for laboring women. Most frequently reason giving for choice of health institution delivery was that the health

facilities were safe and clean 184(40.2%), for better service 144(31.4%), 97(21.2%) replied due to fear of complication and 86(18.8%) of them said due to having information about health institution delivery [table 2].

Table 2: Women’s reasons for their choice of delivery place in Haramaya woreda, East Hararge Zone, Oromia region, Eastern Ethiopia 2011 (N=458)

Variables	Frequency	Percentage
Reason for choosing home delivery		
Distance of health institution	228	49.8
Trust on TBA	224	48.9
No means of transportation	164	35.5
Not necessary for labor & delivery	99	21.6
I have no money to pay	51	11.1
I dislike the behavior of health workers	28	6.1
I have bad experience delivery in health institution	22	4.8
Reason for choosing health institution delivery		
Safe and clean delivery	184	40.5
Better service	144	31.4
Fear of complication	97	21.2
I was informed to deliver in health unit	86	18.8
close to my home	11	2.4
The approach of health worker is best	3	0.7

*More than one possible answer was use

Concerning decision on place of delivery 155(33.8%) of respondents replied that both husband and wife made decision on place of delivery, 132(28.8%) replied decision was made by their husband, 122(26.6%) decided by themselves and the rest 49(10.7%) of them said decision was made by traditional birth attendant. Among the study participants 291(63.5%) of respondent said the last delivery took place at

home where as 167(36.5%) of them give last birth at health unit. From the total study participants 336(79.9%) of them had information about the benefit of giving birth at health institution from them 207(45.2%) of respondents said that the primary source of information were health workers, 99(21.6%) replied primary source of information were friends or neighbors and 60(13.1%) of them said media [table 3].

Table 3: Women decision making and source of information on place of delivery in Haramaya woreda, East Hararge Zone, Oromia region, eastern Ethiopia 2011 (N=458)

Variables		Frequency	Percentage
Who decides on place of your delivery	Just me	122	26.6
	My husband	132	28.8
	Both	155	33.8
	TBA	49	10.7
Where did your last delivery take place	Home	291	63.5
	Health unit	176	36.5
Information about the benefit of delivery in health institution	Yes	366	79.9
	No	92	20.1
what is the primary source of information	Health workers	207	45.2
	Friends, neighbors	99	21.6
	Media	60	13.1

Women’s age at their 1st marriage and pregnancy was determined the data showed that majority 358(78.2%) of them married above 18yrs old and 377(82.3%) of them had their pregnancy at the same age. 236(51.6%) of the respondents have 2-5

total pregnancy and 238(52%) of them have 2-5 children. Regarding antenatal attendance 319(69.7%) of them attend antenatal care during their pregnancy from them 217(68%) attend about 2-5 visit.106 (23.1%) of the total

respondent had come across obstetric difficulties during child birth from them 94 (20.5%) of women visit health institution and 9(2%) of them get solution at home by taking traditional treatment [Table 4].

Table 4: Women past obstetrical factors in Haramaya woreda, East Hararghe Zone Oromia region, 2011.(N=458)

Variables		Frequency	Percent
Age at first marriage	<18	100	21.8
	>18	358	78.2
Age at first pregnancy	<18	81	17.7
	>18	377	82.3
Gravidity/total number of pregnancy	1	116	25.3
	2-5	236	51.6
	>5	106	23.1
Parity/total number of births	1	120	26.2
	2-5	238	52
	>5	100	21.8
Did you attend antenatal care for last pregnancy	Yes	319	69.7
	No	139	30.3
How many visits you have for antenatal	1	62	19.4
	1-4	217	68
	>5	40	12.6
Have you come across any obstetric difficulties in previous delivery?	Yes	106	23.1
	No	352	76.9
What specific measures were taken	Nothing	3	0.7
	Visit health institution	94	20.5
	Traditionalmethod (massage, herbs)	9	2

Table 5: Health service factors that affect women choice of delivery place in Haramaya woreda, East Hararge Zone Oromia region, 2011.(N=458)

Variables		Frequency	Percent
Presence of health institution which gives delivery service in your area	Yes	458	100
	No		
Satisfaction with delivery services given at health units?	Yes	340	74.2
	No	118	25.8
If No what is the reason	It kills time	52	11.4
	Unable to perform cultural ceremonies	8	1.7
	Unpleasant approach of health workers	58	12.7
Do you think that there is a difference giving birth at home and health facility	Yes	399	87.1
	No	59	12.9
Which one is the best	Health facility	261	57
	Home	138	30.1
Delivery service Provider attitude toward laboring women.	Very good	28	6.1
	Good	85	18.6
	Satisfactory	248	54.1
	Poor	97	21.2
Payment for delivery service at health facility	<100ETB	422	92.1
	>100ETB	24	5.2
	Free of charge	12	2.6

All the participants responded that the presence of health unit which gives delivery service in their area. 340(74.2%) of them were satisfied with the delivery service given at health unit, 118(25.8%) of them were not satisfied, from them 58(12.7%) found that the reason of un satisfaction were due to unpleasant approach of health worker, 52(11.4%) were said that it kill time. 399(87.1%) of the respondent think that there is a difference between giving birth at home

and health facility. Regarding the attitude of health workers toward laboring mother 248(54.1%) of them replied that it was satisfactory 97(21.25) were said poor. Regarding payment for delivery service given at health facility 422(92.1%) of them replied that the payment is less than 100 ETB and 24(5.2%) of them said greater than 100 ETB the rest said free of charge [Table 5].

Those women who were in the age group 20-24 and 25-29 years old were respectively 2.1 and 1.4 times more likely to choice health facility as delivery place than women who were in the age 35+years old [AOR(95%CI) 2.1(1.2-5.5) and 1.4(1.1-3.1)]. Women who were illiterate were less likely to choice health facility as delivery place compared to women who were secondary and above education [AOR (95%CI) 0.06(0.01-

0.41)] and also women who were able to read and write less likely to choice health facility than women who receive secondary education and above [AOR (95%CI) 0.15(.14-0.19)]. Those women whose husbands illiterate were less likely to choice health facility as delivery place when compared to women whose husbands were receive secondary education and above[AOR (95%CI) 0.23(0.17-0.76)]. Similarly, Women's whose husband occupation were farmer less likely to choice health facility as delivery place compared to women whose husband were governmental employee [AOR(95%CI)0.25(0.52-0.87)] and women whose husband were daily laborers also less likely to choice health facility than husband were governmental employee [AOR (95%CI) .19(0.05-0.77)] [Table 6].

Table 6: Association of selected socio-demographic variables with women choice of delivery place in Haramaya woreda, East Hararge Zone Oromia region, 2011

Variables		Delivery place choice		COR at95%CI	AOR at 95% CI
		Home	Health		
Age	15-19	2(0.4)	4(9)	5.4(.947-30.4)	.23(.15-3.6)
	20-24	29(6.3)	60(13.1)	4.1(2.3-7.2)*	2.1(1.2-5.5)*
	25-29	40(8.7)	78(17.1)	2.6(1.5-4.3)*	1.4(1.1-3.1)*
	30-34	62(13.5)	32(7)	1.39(.793-2.4)	.45(.19-1.08)
	35+	110(24)	41(9)	1.00	
Respondents Education	Illiterate	200(43.7)	47(10.3)	0.14(0.04-0.05)*	0.06(.008-.408)*
	Read and writes	25(5.5)	22(4.8)	0.02(0.01-0.19)*	0.07(0.01-.51)*
	Primary education(1-8)	41(9)	68(14.8)	0.10(0.03-0.33)*	0.16(0.24-1.02)
	Secondary education+	3(7)	52(11.3)	1.00	1.00
Respondent occupation	House wife	192(41.9)	86(18.8)	0.15(0.06-0.39)*	1.1(.302-3.85)
	Civil servant	5(1.1)	37(8.1)	2.5(0.66-9.18)	4.9(0.63-39.4)
	Merchant	29(6.3)	31(6.8)	0.36(.124-1.02)	2.6(0.62-11.15)
	Farmer	28(6.1)	5(1.1)	0.06(0.02-0.22)*	1.3(0.23-7.37)
	Daily labors	9(2)	12(2.6)	0.44(0.13-1.58)	4.09(0.75-22.4)
	Student's	6(1.3)	18(3.9)	1.00	1.00
Husband educational status	Illiterate	161(35.2)	31(6.8)	0.02(0.01-0.04)*	0.23(0.073-0.76)*
	Read and writes	55(12)	25(5.5)	0.05(0.02-0.11)*	0.34(0.12-1.05)
	Primary education(1-8)	44(9.6)	42(9.2)	0.09(0.04-0.21)*	0.33(0.12-.93)
	Secondary education+	9(2)	90(19.7)	1.00	1.00
Husband occupation	Farmer	199(43.4)	49(10.7)	0.15(0.01-.04)*	0.21(0.05-0.87)*
	Daily laborers	34(7.4)	22(4.8)	0.04(.013-.13)*	0.19(0.05-0.77)*
	Merchant	32(7)	53(11.6)	0.1(.034-.31)*	0.32(0.08-1.21)
	Governmental employee	4(9)	65(14.2)	1.00	
Monthly household income	<320	56(12.2)	7(1.5)	.08(.035-0.20)*	0.64(.18-2.36)
	320-600	99(21.6)	36(7.9)	0.24(.14-.40)*	0.65(.27-1.56)
	601-1000	61(13.3)	66(14.4)	0.72(.44-1.17)	0.92(.45-1.87)
	>1000	53(11.6)	80(17.5)	1.00	

*Adjusted for all significant variables p <0.05

The obstetrical factors women with gravida one more likely to choice health facility as delivery place when compared to women with gravida above five [COR (95%CI) 8.7(4.6-16.3)] and

women with gravida 2-5 also more likely to choice health facility than women with gravida above five [COR (95%CI) 3.03(1.7-5.3)]. Women

who had one parity were more likely to choice health facility than women with parity above five [COR (95%CI) 7.4(3.9-13.7)]. Women who had

ANC visit [AOR (95%CI) 3.4(1.43-8.25)] were higher to choice health facility as delivery place than women who did not have ANC visit [table 7].

Table 7: Association of past obstetrical factors with women choice of delivery place in Haramaya woreda, East Hararge Zone Oromia region, 2011

Variables		Delivery place choice		AOR at 95%CI
		Home n%	Health unit n%	
Gravid/total number of pregnancy	1	40(8.7)	76(16.6)	8.7(4.6-16.3)*
	2-5	142(31)	94(20.5)	3.03(1.7-5.3)*
	>5	87(19)	19(4.1)	1.00
Parity/total number of births	1	40(8.7)	76(16.6)	7.4(3.9-13.7)*
	2-5	142(31)	94(20.5)	2.8(1.6-4.89)*
	>5	87(19)	19(4.1)	1.00
Did you attend antenatal care	Yes	175(38.2)	144(31.4)	10.8(5.9-19.7)*
	No	125(27.3)	14(3.1)	1.00
How many visits you have for antenatal?	1	39(12.2)	23(7.2)	.45(0.194-0.98)*
	1-4	129(40.4)	88(27.6)	1.08(.55-2.15)
	>5	17(5.3)	23(7.2)	1.00
Having health information on the benefit of institutional	Yes	182(39.7%)	184(40.2%)	366(79.9%)
	No	87(19%)	5(1.1%)	92(20.1%)

*Adjusted for all significant variables p <0.05

The women who get health information about the benefit of institutional deliveries increase the probability of choosing health institution 3.6 times higher than those who did not get the information [AOR at 95% CI 3.6 (1.017-12.7)]. Presence of traditional remedies were less likely to choice health facility delivery compared to women those responded for the absence of remedies [AOR (95%CI) 0.3(0.06-0.76)]. Geographical accessibility of health unit was one factor on choice of delivery place. Women who

were live <2kms to the nearby health institution were more likely to choice health facilities as delivery place than women who live > 5km [COR (95%CI) 4.3(2.6-6.9)]. Women who get good service choosing health facility were more likely than women who had no satisfaction [COR (95%CI) 2.3(1.5-3.6)]. Women who said the approach of service providers were poor less likely to choice health facility compared to those women who replied the approach were very good [AOR (95%CI) .154(.026-.917)] [table 8].

Table 8: predictors of women choice of delivery place in Haramaya woreda, East Hararge Zone Oromia region, 2011

Variables			Choice of delivery place		COR at 95%CI	AOR at 95%CI
			Home n%	Health n%		
Satisfaction with delivery services given at health units	Yes		183(40)	157(34.3)	2.3(1.5-3.6)*	0.91(0.43-1.94)
	No		86(18.7)	32(7)		
Delivery service Provider attitude toward laboring women.	Very good		7(1.5)	21(4.6)	1.00.	0.35(0.08-1.49)
	Good		37(8.1)	48(10.5)		
	Satisfactory		148(32.3)	100(21.8)		
	Poor		77(16.8)	20(4.4)		
Do you think there is difference giving birth at home or health facility	Yes		251(46.9)	184(40.2)	9.2(3.6-23.6)*	2.9(.94-9.07)
	No		54(11.8)	5(1.1)		
traditional remedies given to the mother during child birth at home	Yes		41(9)	6(1.3)	0.19(0.08-0.44)*	0.3(0.1-0.8)*
	No		228(49.7)	183(40)		
Distance from home to health facility	<2km		31(6.8)	68(14.8)	4.3(2.6-6.9)*	0.1(0.5-2.3)
	2-5km		6(1.3)	2(.4)		
	>5km		232(50.7)	119(26)		

*Adjusted for all significant variables p <0.05

4. Discussion

This study finding showed that women who were in the earlier age were more likely to choose health facilities as delivery place as compared to women who were at and above thirty five years of age. The finding appeared to be inconsistent with other study done in Bhutan^[29]. The difference may be due to different socio demographic and socio cultural characteristics of the study participant. Women who were illiterate were less likely to choose health facility as delivery place compared to women who were secondary and above education. Other studies have shown comparable results with this finding. Study conducted in Syrian women^[22] indicated that the demographic variables like woman's education were statistically related to preference of delivery place. Literate women preferred a hospital delivery compared with illiterate women which was similar with a study done in Tigray (Ethiopia) and Nigeria^[1, 27]. Educated women were more likely to seek modern health care than those who are not. Education is likely to improve the general status of women and help them to build up confidence to make decisions about their own health. Educated women could have better access to information through reading and following media about maternal health care and they could have better knowledge about the advantages of maternal health care and pregnancy related complications.

Husband educational status was found as one of significant predictors on choice of delivery place. Those women whose husbands illiterate were less likely to choose health facility as delivery place when compared to women whose husbands were receive secondary education and above. This finding was comparable with other study conducted in Syrian^[22]. Educated husbands may be more open toward modern medicine, aware of the benefits of health facility delivery and more able to communicate with health workers and demand appropriate care. Women's whose husband occupation were farmer less likely to choose health facility as delivery place compared to women whose husband were governmental employee this finding was comparable with the

study conducted in Nigeria^[27]. High status occupations are associated with greater wealth, making it easier for the family to pay costs and better understanding about the delivery care is associated with choice of delivery place.

Women who whose residence where below 2km from the nearby health institution were more likely to choose health facilities as delivery place than women who live greater than five kilometers. Finding of this study is similar with a study done in Malawi^[34]. Women who attended antenatal follow up for the recent pregnancy have 3.4 times higher chances of choosing health institution as place of delivery. This was similar with other study conducted in Tigray Ethiopia^[1]. In this study women who get health information about the benefit of institutional deliveries increase the probability of choosing health institution 3.6 times higher than those who did not get the information. The finding appeared to be similar with other study done in Debre Markos^[35]. Presences of traditional remedies or cultural ceremonies done during child birth at home decrease the probability of selecting health institution.

Decision making power had a key influence on the choice of delivery place. Majority of women requests permission from their husbands and relatives to go to the health facilities. In any case the husband seems to be the most key person in the decision-making process. The participant also stated that unless labour is complicated and decided by TBA, their husband would not allow her to go health facilities. This finding has also been described in many studies like study conducted in Tanzania and in Malawi^[33, 34].

The approach of delivery service provider to ward laboring women at health unit was found an important predictor on choice of delivery place. Women who said the approach of service providers were poor less likely to choose health facility compared to those women who replied the approach were very good. This finding is comparable with similar study done in South Africa and in Ghana^[26, 24]. Transport in rural areas is extremely hard for different factors: most villages are far from the main road, to get public

transport they go >3km on foot this finding is consistent with other study done in Northern Nigeria^[25, 29]. And this was consistency with other study done in Pakistan^[32]. This study has its own limitation of the study which was recall bias may be a problem for women to memorize events in responding for questions like age and obstetrical difficulties.

5. Conclusions

In general, women educational status, husband educational status, husband occupation, attending ANC, has information on the benefit of health institution delivery, reliance on tradition, distance and provider approach toward laboring women were significant predictors for women choice of delivery place. Decision-makers were also found to be an important obstacle for choice of delivery place. There is persistent cultural beliefs regarding child birth which influence the women health seeking behavior. Beliefs in normality of labour and child delivery at home cause women to arrive at health institution with complication. Policy makers and health planners need to recognize the determinants choice of delivery place since it is a part of maternal health care. Maternity health service should available at the recommended distance and access to transport. Community based health education for awareness creation to prevent traditional beliefs which were negatively influence community's choice of delivery place.

6. Competing interest

All authors read and approved the final manuscript

7. Author's contribution

HM had made substantial contribution to conception, design or acquisition of data, analysis and interpretation of findings. The coauthors BD and AG had revised the paper critically for important intellectual content.

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