



GLOBAL JOURNAL OF MEDICAL RESEARCH: E
GYNECOLOGY AND OBSTETRICS
Volume 16 Issue 3 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Utilization of Institutional Delivery Care Services and Influencing Factors among Women of Child Bearing Age in Assosa District, Benishangul Gumuz Regional State, West Ethiopia

By Muluwas Amentie, Muluemebetabera & Misra abdulahi

Assosa University

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GJMR-E Classification: *NLMC Code: WQ 175*



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Muluwas Amentie^α, Muluemebetabera^σ & Misra abdulahi^ρ

Abstract- Nearly all (99%) of maternal death occur in the developing countries. The major reason for this huge magnitude of the problem is failure to use delivery care services in these countries. Little is known about the utilization and factors influencing the use of delivery care services. The aim of study is to assess utilization of delivery care services and influencing factors among women in Assosa District. A community based cross sectional study was conducted from May 17 – 31, 2012 on randomly selected samples of 536 women who had at least one delivery in the five years prior to the study. Structured questionnaire, FGD and in-depth interview guide were used to collect data. Data were analysed by using SPSS version 16.0. Binary logistic regression was used to determine the association between dependent and independent variables. The result of the study reveals that out of the 525 study subjects 130(24.8%) attended their last delivery in health facility. Factors influencing institutional delivery services were being rural resident [AOR= 0.06, 95%CI: 0.01, 0.33], age at first pregnant \geq 20 years [AOR= 2.15, 95% CI: 1.09, 4.22], ANC follow up [AOR= 7.02, 95%CI: 2.14, 18.98], having information on facility delivery[AOR= 2.49, 95% CI: 1.11, 5.58], occurrence of problems during pregnancy [AOR= 1.95, 95% CI: 1.01, 4.23], being knowledgeable on maternal health services [AOR=5.84, 95% CI: 1.03, 36.42], having favourable attitude towards delivery service[AOR= 9.25, 95% CI: 2.42, 35.33]and consulting others to made decision on place of delivery [AOR=3.9, 95% CI: 1.9,7.99]. Therefore, the study concluded that there is very low utilization of institutional delivery. It is still low as compared to national HSDP IV target. Socio-demographic, obstetric factors, knowledge, attitude and decision making power were identified as factors affecting institutional delivery care service utilization. Providing IEC and house-hold level discussion on the important of institutional delivery service utilization in the district is recommended.

Keywords: delivery care, health service utilization, factors, assosa, benishangulgumuz.

Author α: (MPH/RH), Assosa University, Faculty of Health Sciences, Department of Nursing, Assosa, Ethiopia.
e-mail: muluwas12@gmail.com

Author σ: (Phd), Jimma University, College of Public Health And Medical Sciences, Department of population and family health.
e-mail: muluemebet.abera@ju.edu.et

Author ρ: (MPH/RH), Jimma University, College of Public Health And Medical Sciences, Department of population and family health.
e-mail: misra_ab@yahoo.com

I. INTRODUCTION

The health care that a mother receives during pregnancy, at the time of delivery and soon after delivery is important for the survival and well-being of both the mother and the child. The importance areas to maternal health care service: institutional delivery; problems in accessing health care and awareness and attitudes concerning maternal health care service are also essential for the survival and well-being of both the mother and the child^{1,2,3,4}.

The World Health Organization (WHO) estimates that, every minute of every day, somewhere in the world and most often in a developing country, a woman of reproductive age dies from complications related to pregnancy, childbirth and postpartum period^{6,7}. Around 515,000 women are dying every year and nearly all-maternal deaths (99 percent) occur in the developing world, making maternal mortality health statistic with the largest disparity between developed and developing countries and the highest proportion of these deaths occur in sub-Saharan Africa^{6, 7, 8}. The ratio of maternal mortality in the Sub Saharan African region is one of the highest in the world, reaching levels of 686 per 100,000 live births. Women play a principal role in the rearing of children and the management of family affairs, and their loss from maternity-related causes is a significant social and personal disaster⁸.

In Ethiopia, the levels of maternal and infant mortality and morbidity are among the highest in the world. Studies have indicated that about 17,000 women of reproductive age die from complications associated with pregnancy and childbirth^{2, 3, 4, 5}. According to 2011 Ethiopian DHS the maternal mortality rate was 676 deaths per 100,000 live births, and neonatal mortality rate, post-neonatal, infant mortality rate, child mortality and under five mortality rate were 37, 22, 59, 31 and 88 deaths per 1000 live births respectively are of the magnitude observed in Europe about a century ago and they are at least fifty times higher than the present rates in developed countries^{2, 3, 4, 5}. One explanation for poor health outcomes among women and children is the non-use of maternal health care services by a sizable

proportion of women in Ethiopia. Previous studies have clearly demonstrated that the utilization of available institutional delivery care services is very low in the country. Several studies in the 1990s have shown that about less than 10 percentages Ethiopian women received professionally assisted delivery care^{2,9,10,11}.

According to Ethiopia Demographic Health Survey 2011 in BenishangulGumuz regional state indicated that about 8.9percentof women received assisted delivery care by skilled providers⁵.Regardless of the fact that institutional delivery care services utilization is essential for further improvement of maternal and child health little is known about the current magnitude of use of maternal health care services and factors influencing the use of these services in the study area.

The purpose of this study is to assess the current status of utilization of institutional delivery services in Assosa district and identify the various factors influencing the use of these services in the study area.

II. METHODS AND MATERIALS

Community based cross sectional study was conducted employing both quantitative and qualitative methods of data collections to assess the status of delivery care services utilization and influencing factors among women in child bearing age in Assosa District, Assosa Zone, BenishangulGumuz Regional state, North-west Ethiopia. The source population were all women living in Assosa District and had at least one delivery in the five years period preceding the survey. For quantitative method: the study population were women selected from source population. For qualitative methods: the study population was the part of community members in the study area especially study kebeles site such as women in child bearing age group, community leaders, religious leader, husbands, health workers and health extension workers. Inclusion criteria were women who had at least one delivery in five years preceding the survey; if more than one delivery were there, the most recent one was selected; permanent residents of the kebeles were selected. However, exclusion criteria: women who had hearing or other disabilities hindering communication; women who were pregnant during the time of the survey even if they had at least one previous delivery and women who were in postnatal period even if they had at least one previous delivery. Sample size was calculated using two population proportion formula. Therefore, the sample size was calculated for each factors and magnitude of institutional delivery care services utilization and the optimum sample size was taken. The sample size was calculated using EPI table of EPI 6 computer software which uses the following formula. So that study conducted in Metekel Zone, BenishangulGumuz region

was taken so as to get the sample size on factors influencing utilization of maternal health care service in Assosa district¹⁶. Therefore, among those factors place of residence is a major factor to determine utilization of delivery care assisted by skilled health personnel in the region. To determine the sample size the following assumptions were made: P_1 =Proportion of urban women attended delivery care by skilled health personnel, 20.8% were taken from study conducted in Metekel Zone; P_2 =Proportion of women in rural who attended delivery care by skilled personnel, 6.8% were taken from study conducted in Metekel Zone¹⁶. Therefore, the sample sizes was **134** for urban and **402** for rural women to be selected considering a design effect of two for the variation due to clustering and non-response rate of 10%. The total calculated sample size was **536** women. For qualitative data, the sample size was purposively determined which result 29 key informative for in-depth interview and 10 FGD were selected to supplement the quantitative data. Sampling technique for the quantitative data, multi-stage sampling technique was employed. First, the four urban and seventy four rural kebeles were listed from which a total of ten kebeles (1 urban and 9 rural) were selected using simple random sampling technique. Secondly, the numbers of households living in the area were recorded; the probability of being included in the sample was proportional to the total number of household residing in each kebele. Out of the one sampled urban kebeles, a total of 134 households were selected. Also from the nine sampled rural kebeles, a total of 402households were selected using simple random sampling techniques. For households that had more than one eligible woman, interview was done by selecting one of them using lottery method. Revisit of three times was made in case where eligible respondents were not available at the time of the survey before considering as non-respondent. Regarding a woman having two and more under five children the most recent birth was taken. For qualitative data, focus group discussions were conducted after selecting FGD participant purposively. A total of ten FGDs were conducted at each selected kebele (one FGD having 8 –12 individuals) and: 3FGD for women in child bearing age, 2FGD for husbands, 3FGD for religious and community leaders, and 2FGD for health workers. For in-depth interview purposively selected 29 key informants were interviewed from the ten selected kebeles. Ten health workers(one from each kebele), 9 HEWs(one from each of the ruralkebeles having HEW) and 10 community leaders (one from each kebele) were interviewed. In order to minimize bias, those who participated in FGDs and in-depth interviews were excluded from participating in quantitative study. Data collection instruments for quantitative method: structured questionnaire was prepared in English and translated to Amharic language and then back translated to English by different people

and used in the data collection of quantitative survey. For qualitative method: for the qualitative part, discussion guide was prepared in English and discussions were made in local languages. Tape record was used at the same time. Interview guide was prepared in English and used for in-depth interview of key informants. Both discussion guide and interview guide were not translated in to Amharic because they are moderated and collected by principal investigator and experienced nurse. Data collection process for quantitative method; ten female data collectors, who were health extension workers and could, speak local languages. For supervision four nurses having Diploma were selected from Health facility. Both the interviewers and supervisors were given two days training before the actual work about the study. Practical exercise was made through peer interviewer. Pre-test was carried out on 27(5%) of the sample size in two of the kebele in Assosa district which were outside of the selected kebeles that has similar socio-demographics characteristic with the people in both urban and rural kebeles. Then, the data were collected using house-to-house interview questions, which consist of seven parts. During the actual data collection, supervisors were assigned for the data collector. The supervisors checked the activities of each data collectors by walking with them in each kebele and sometimes-random spot-checking of the households were made to ensure reliability of the data collected. Each night the supervisors checked all the filled questionnaires for completion, clarity and proper identification of the respondents. Then, the principal investigator randomly checked 10% of the supervisors' work each day for completeness and relevance. Incomplete and unclear questionnaires were returned back to the interviewers to the next morning to get it corrected. For qualitative method: the principal investigator moderated the discussion of the male groups while the female groups were moderated by an experienced female nurse with diploma holder. Two senior nurses with diploma holder were took a note during the discussion. Each discussion had a tape recorded and finally the conversation was transcribed verbatim after each session and then analyse. Data processing and analysis for quantitative method: the collected data were coded, entered and cleaned and analyzed by using SPSS Window version 16.0. Descriptive statistics was calculated for all variables. In bi-variate analysis crude odds ratio and confidence interval were determined to select candidate variables for multivariate analysis at the level significance ($p < 0.05$). Binary and multivariate logistic regressions were used to determine the adjusted odds ratio and corresponding 95% confidence interval. The strength of association was interpreted using the adjusted odds ratio and 95% CI. The criterion for statistical significance was set at $p < 0.05$. For qualitative method: data of qualitative method were

translated in to English, organized in narrative forms in congruent with the respondents' own words on the same day and analyzed by thematic frame work analysis. Data quality was controlled by designing structured questionnaire. Interviewers were recruited and trained for two days. Pre-test was carried out for both tools. Two day training was given for data collectors, supervisors, and FGD moderators. The collected data was examined for completeness and internal consistency each day by supervisors. Strict supervision and tape recording of FGD process were also additional quality control methods. The study was conducted after approval of the proposal by ethical review committee of Jimma University. The survey was commenced after written consent obtained from BenishangulGumuz Regional State Health Bureau to the respective offices. In turn the Assosa district Administration Office and Assosa Town Administrative Office wrote a letter to study kebeles to get permission and collaboration. Oral consent and written consent were obtained from each interviewee. Interviews were conducted in private place.

III. RESULTS

a) *Socio – Demographic Profiles*

A total 525 women who gave birth within five years before the survey, were interviewed making a response rate of 97.9%. Three-quarter (75.0%) of the respondents were from rural area. Majority 433(82.5%) women were in the age group 20 and 34 years. Regarding ethnicity 303(57.7%) of women were Berta and 388(73.9%) of women were Muslims by religion. Twenty one (16%) of urban women and 264 (67.0%) of rural women were unable to read and write. Regarding marital status, 116 (88.5%) of urban women and 360 (91.4%) rural women were married. Concerning occupational status, more than half 74(56.5%) of urban women and 377(95.7%) of rural women were housewives. Three hundred thirty eight (86.4%) of rural women's husbands were farmers while 66(51.2%) of urban women's husbands were governmental employee (Table – 1).

Table 1: Socio-demographic characteristics of respondents in Assosa District, Assosa Zone, BenishangulGumuz Region, Western- Ethiopia, May 2012

Variables		Place of residence		Total (N=525)
		Urban (n=131)	Rural (n=394)	
		No (%)	No (%)	No (%)
Age	15-19	5(3.8%)	13(3.3%)	18(3.4%)
	20-34	117(89.3%)	316(80.2%)	433(82.5%)
	35-49	9(6.9%)	65(16.5%)	74(14.1%)
Religion	Orthodox	47(35.9%)	73(18.5%)	120(22.9%)
	Muslim	70(53.4%)	318(80.7%)	388(73.9%)
	Others *	14(10.7%)	3(0.8%)	17(3.3%)
Ethnicity	Berta	36(27.5%)	267(67.8%)	303(57.7%)
	Oromo	37(28.2%)	2(0.5%)	39(7.4%)
	Amhara	38(29.0%)	120(30.5%)	158(30.1%)
	Other **	20(15.3%)	5(1.3%)	25(4.7%)
Educational Status	Unable to read & write	21(16%)	264(67.0%)	285(54.3%)
	Able to read & write	16(12.2%)	111(28.2%)	127(24.2%)
	1-6 grade	12(9.2%)	12(3.0%)	24(4.6%)
	7-12 Grade	48(36.6%)	7(1.8%)	55(10.5%)
	College or university	34(26.0%)	0(0.0%)	34(6.5%)
Marital Status	Married	116(88.5%)	360(91.4%)	476(90.7%)
	Divorced	3(2.3%)	4(1.0%)	7(1.3%)
	Widowed	1(0.8%)	1(0.3%)	2(0.4%)
	Single	11(8.4%)	29(7.4%)	40(7.6%)
Occupation	House wife	74(56.5%)	377(95.7%)	451(85.9%)
	Gov't Employed	30(22.9%)	2(0.5%)	32(6.1%)
	Student	16(12.2%)	36(9.1%)	25(4.8%)
	Others***	11(8.4%)	6(1.5%)	17(3.3%)
Occupational status of their husbands ***** (n ₁ =129, n ₂ =391)	Gov't employed	66 (51.2%)	19 (4.9%)	85 (16.3%)
	Private employed	19 (14.7%)	1 (0.3%)	20 (3.8%)
	Self employed	32 (24.8%)	15 (3.8%)	47 (9.0%)
	Farmer	1 (0.8%)	338 (86.4%)	339 (65.2%)
	Others****	11 (8.6%)	18 (4.6%)	20 (3.8%)

*Protestants, catholic

** Shinasha, Tigre, Guragie,

*** Daily labour, farmer, Merchant

**** Student, Daily labor, Carpenter

***** 5 of the respondents have no husband (widowed, divorced or single) at the time last delivery

III. UTILIZATION OF DELIVERY CARE SERVICE

One hundred thirty one (24.8%) women who gave birth within five year preceding the data collection period gave their last birth in the health facility (95(72.5%) for urban and 35(8.9% for rural). Women from urban area are more likely to receive delivery care from health facility than women from rural area.

A 33 years old man of the community leader; "In the ruralkebele ANC, PNC and family planning service were use properly but there is low utilization of institutional delivery service. This is because of lack of knowledge, culturally unacceptable, fear of medical

procedure, lack of confidence to give delivery at the health facility, absence of water supply and the health post was not clean".

In a FGD of community leaders and religious leaders; "There is low utilization of maternal health care service especially delivery service in the ruralkebele because of the lack of water supply, electric power, shortage of equipment, the health facility were not give the services, lack of knowledge, and awareness in the community".

A 46 years old man live in rural area; "ANC service were utilized in the good manner but they were not come for delivery care to the health facility because

of different factors such as lack of awareness and knowledge, lack of equipment for delivery care, cultural influence (women give delivery on the bed/Koch where forbidden which considered as prostituted women in their culture), fear of caesarean section, fear of medical procedure and examination, absence of health problems and considering TTBA as skilful and experience".

Among women who received institutional delivery, their reasons for utilization of the service were: "informed by health worker" 90(69.2%) {72(72%) for urban and 18(50%) for rural}, "previous bad experience from home delivery" 12(9.2%) {10(10%) for urban and 2(5.6%) for rural} and "had faced obstetric problems" 34(2.6%), {18(18%) for urban and 16(44.4%) for rural}.

In FGD of husbands; "The advantage of institutional delivery were to get healthy child, to get clean or safe delivery, to promote health of child and mothers whereas there is no advantage of home delivery but the disadvantage of home delivery were exposed for bleeding, prolonged labour, unclean or unsafe delivery and infection".

Among those women who delivered at health facility, 71(74.7%) of urban women and 27(68.6%) of rural women gave birth by spontaneous vaginal delivery (SVD).

Three quarter (75.2%) of the respondents had their last delivery at home (36(27.5%) for urban and 359 (91.1%) for rural). Regarding subjective reasons for not attending delivery service in health facility, there was a difference between urban and rural area. The main reasons for home delivery in urban area were "absence of health problem during labour and delivery" 24(66.7%), "close attention from family" 9(25%), and "home delivery is more comfortable" 6(16.7%). However the main

reason of home delivery in rural area were "absence of health problem during labour and delivery" 183(50.9%), "close attention from family" 129(35.9%), "home delivery is more comfortable be attended in front of family member" 47(13.1%).

In a FGD women in child bearing age; "Women were not go to the health facility if the progress of labour is normal but if the progress of labour stay long period of time and heaving a problem the women go to the health facility". In the other group discussion; "The primary reason for home delivery were absence of health problems, absence of health centre, shortage of equipment in the health post, absence of transportation and shortage of income. The women give their birth at home were assisted by TTBA because they are accessible and available at the time of delivery".

Out of the study subject 85(16.2%) of the respondents encountered any one of problems during their labour of last delivery. In urban area IUFD 25 (75.8%) and PROM 7(21.2%) were the common problems mentioned by respondents. However, in rural area 40(76.9%) women suffered from IUFD and 4(7.6%) women suffered from PROM.

Nearly two third (65.9%) of the women had their last labour for less than 12 hours (97(74%) for urban and 246(63.2%) for rural) where as 116(22.1%) of the respondents had their last labour between 12 and 24 hours (15(11.5%) for urban and 101 (25.6%) for rural).

Three (0.6%) of the respondents had new born, who was born alive and died immediately which occurred in the rural area. More than three quarter 401 (76.4%) women made decision about place of delivery by themselves 83(63.4%) for urban and 318(80.7%) for the rural). (Table: 2)

Table 2: Place of delivery of respondents in Assosa District, Assosa Zone, BenishangulGumuz Region, Western-Ethiopia, May 2012

Variables	Place of residence		Total (N=525)	
	Urban (n=131)	Rural (n=394)		
	No (%)	No (%)	No (%)	
Place of delivery	Institutional delivery	95(72.5%)	35(8.9%)	130(24.8%)
	Home delivery	36(27.5%)	359(91.1%)	395(75.2%)
Reasons for Institutional delivery (n ₁ =95, n ₂ =35)	Previous bad experience at home delivery	10(10.5%)	2(5.7%)	12(9.2%)
	Informed by health worker	72(75.8%)	18(51.4%)	90(69.2%)
	I have faced obstetric problems	18(18.9%)	16(45.7%)	34(2.6%)
Reasons for home delivery (n ₁ =36, n ₂ =359)	Absence of health problem during labour	24(66.7%)	183(50.9%)	207(52.4%)
	Close attention from family	9(25.0%)	129(35.9%)	138(34.9%)
	Home delivery is more comfortable	6(16.7%)	47(13.1%)	53(13.4%)
	My usual practice	5(13.9%)	70(19.5%)	75(18.9%)
Mode of institutional delivery (n ₁ =95, n ₂ =35)	Others	8(22.2%)	16(4.4%)	24(6.0%)
	Spontaneous Vaginal Delivery	71(74.7%)	27(68.6%)	95(73%)
	Assisted Vaginal Delivery (AVD)	12(12.6%)	6(17.1%)	18(13.9%)
	Caesarean Section (C/S)	12(12.6%)	5(14.3%)	17(13.1%)
Problems faced during last labour	Yes	33(25.2%)	52(13.2%)	85(16.2%)
	No	98(74.8%)	342(86.8%)	440(83.8%)
Health related problems	Intrauterine foetal death	25 (75.8%)	40 (76.9%)	65 (76.5%)

during labour (n ₁ =33, n ₂ =52)	Excessive bleeding during labour	1 (3.0%)	3 (5.7%)	4 (4.7%)
	Elevated blood pressure	0 (0.0%)	2 (3.8%)	2 (2.4%)
	Preterm labour	0 (0.0%)	3 (5.7%)	3 (3.6%)
	Premature rupture of membrane	7 (21.2%)	4 (7.6%)	11 (12.9%)
Duration of labour of last delivery	<12 hours	97(74%)	249(63.2%)	346(65.9%)
	12-24 hours	15(11.5%)	101(25.6%)	116(22.1%)
	>24 hours	19(14.5%)	44(11.2%)	63(12%)
Condition of new-born	Born alive	131(100%)	391(99.2%)	522(99.4%)
	Born alive but died immediately	0(0.0%)	3(0.8%)	3(0.6%)
Health problems after delivery	Yes	7(5.3%)	12(3%)	19(3.6%)
	No	124(94.7%)	382(97%)	506(96.4%)
Final decision maker on place of delivery	Just me	83(63.4%)	318(80.7%)	401(76.4%)
	My husband	21(16%)	42(10.7%)	73(12%)
	Me and my husband	10(7.6%)	0(0.0%)	10(1.9%)
	My relatives	9(6.9%)	19(4.8%)	28(5.3%)
	Health workers	5(3.8%)	6(1.5%)	11(2.3%)
	Others**	3(2.3%)	9(2.3%)	12(2.3%)

** by God(Alah), by chance, other people

IV. FACTORS INFLUENCING UTILIZATION OF DELIVERY SERVICES

Bi-variate analyses involving all variables were performed to identify candidate variables for multivariate analysis with the utilization delivery services. Consequently, place of residence, religion, ethnicity, educational status, occupational status, age at first pregnancy, ANC follow up, information on facility delivery, problem during pregnancy, knowledge on (ANC, family planning and maternal health care service), attitude towards (delivery and maternal health care service), decision maker on delivery service and availability transportation service showed significant association ($p < 0.05$) with the utilization of delivery service.

A multivariate analysis was performed for identified candidate variables on utilization of delivery service in bi-variate analysis which showed significant association. Accordingly women who live in rural area were 94 percentages less likely to utilize delivery service than women living in urban area [AOR = 0.06, 95% CI: 0.01, 0.33]. Women who were Oromo by ethnicity were 10.87 times more likely to utilize delivery service in the health institution than women who were Berta by ethnicity [AOR = 10.87, 95% CI: 2.6, 45.2] where as women who were Amhara by ethnicity 3.4 times more likely to utilize delivery service in the health institution than women who were Berta by ethnicity [AOR = 3.4, 95% CI: 1.34, 8.47]. Women who attended 1st – 6th grade were 86 percentages less likely to utilize delivery service than women who were illiterate [AOR = 0.14, 95% CI: 0.03, 0.74]. Women whose first pregnancy was at age greater than or equal to 20 years old were 2.15 times more likely to utilize delivery services than women whose first pregnancy age below 20 years old [AOR = 2.15, 95% CI: 1.09, 4.22]. Women who had health

problems during pregnancy were 1.95 times more likely to utilize institutional delivery service than women who had not health problems during pregnancy (AOR=1.95, 95% CI: 1.01, 4.23). Women who had information on delivery service were 2.49 times more likely to utilized institutional delivery service than women had not information on facility delivery [AOR= 2.49, 95%CI: 1.11, 5.58]. The odds of utilizing institutional delivery among women who attend ANC service at least once was 7.02 times more than women who did not attend ANC service [AOR = 7.02, 95% CI: 2.15, 18.98]. Women who had favourable attitude towards delivery service were 9.25 times more likely to utilize institutional delivery service than women had unfavourable attitude towards delivery service [AOR= 9.25, 95% CI: 2.42, 35.33]. Women who were knowledgeable on maternal health care service were 5.84 times more likely to utilize institutional delivery service than their counter parts (AOR=5.84, 95% CI: 1.03, 36.42) and women who were consulting others for decision making on delivery service were 3.9 times more likely to utilize institutional delivery service than women who were deciding by themselves (AOR= 3.9, 95%CI: 1.9, 7.99). Women who were knowledgeable on postnatal care service were 89 percentages less likely to utilize institutional delivery service than women who were not knowledgeable (OR=0.11, 95%CI: 0.02, 0.51). (Table - 3)

Table 3: Factors influencing actual utilization of institutional delivery service in Assosa District, Assosa Zone, BenishangulGumuz Region, Western-Ethiopia, May 2012

Variables		Place of Delivery		Crude OR (95% CI)	Adjusted OR (95% CI) *
		Home delivery	Institutional delivery		
Place of residence	Urban	41(30.1%)	95(69.9%)	1	
	Rural	359(91.1%)	35(8.9%)	0.037(0.02-0.06)	0.06(0.01-0.33)
Religion	Orthodox	74(61.1%)	46(38.3%)	1	
	Muslim	315(81.2%)	73(18.8%)	0.37(0.24-0.58)	0.82(0.32-2.08)
	Others	6(35.3%)	11(64.7%)	2.95(1.02-8.52)	0.98(0.15-6.59)
Ethnicity	Berta	266(87.8%)	37(12.2%)	1	
	Amhara	111(70.3%)	47(29.7%)	3.04(1.87-4.94)	3.4(1.34-8.47)
	Oromo	8(20.5%)	31(79.5%)	27.85(11.9-65.2)	10.87(2.6-45.2)
	Others	10(40%)	15(60%)	10.78(4.51-25.7)	2.02(0.43-9.47)
Educational status	Illiterate	252(88.4%)	33(11.6%)	1	
	Able to read and write	103(81.1%)	24(18.9%)	1.78(1.3-3.16)	1.18(0.52-2.63)
	1 – 6 th Grade	18(75%)	6(25%)	2.54(0.94-6.87)	0.14(0.03-0.74)
	> =7 th Grade	22(24.7%)	67(75.3%)	23.26(12.72-42.1)	1.32(0.39-4.37)
Occupation	House wife	367(81.4%)	84(18.6%)	1	
	Others	28(37.8%)	46(62.2%)	7.18(4.24-12.15)	1.6(0.63-4.23)
Age at first pregnancy	< 20	271(81.4%)	62(18.6%)	1	
	> = 20	124(64.6%)	68(35.4%)	2.39(1.6-3.59)	2.15(1.09-4.22)
ANC follow up	No	90(94.7%)	5(5.3%)	1	
	Yes	305(70.9%)	125(29.1%)	7.38(2.93-18.5)	7.02(2.15-18.98)
Information on facility delivery	No	107(87%)	16(13%)	1	
	Yes	198(64.5%)	109(24.5%)	3.68(2.07-6.54)	2.49(1.11-5.58)
Problems during pregnancy	No	321(75.5%)	104(24.5%)	1	
	Yes	74(74%)	26(26%)	1.08(0.65-1.78)	1.95(1.01-4.23)
Knowledge on ANC service	Not-Knowledgeable	217(79.5%)	56(20.5%)	1	
	Knowledgeable	178(70.6)	74(29.4%)	1.6(1.1-2.4)	1.24(0.12-2.2.5)
Knowledge on family planning	Not-Knowledgeable	365(78.8%)	98(21.2%)	1	
	Knowledgeable	30(48.4%)	32(51.6%)	3.97(2.3-6.86)	1.44(0.37-5.54)
Knowledge on maternal health	Not-Knowledgeable	342(77.9%)	97 (22.1%)	1	
	Knowledgeable	53(61.6%)	33(38.4%)	2.19(1.34-3.58)	5.84(1.03-36.42)
Attitude towards delivery service	Unfavourable attitude	120(92.3%)	10(7.7%)	1	
	Favourable attitude	275(69.6%)	120(30.4%)	5.24(2.65-10.33)	9.25(2.42-35.33)
Attitude towards maternal health	Unfavourable attitude	78(84.8%)	14(15.2%)	1	
	Favourable attitude	317(73.2%)	116(26.8%)	2.0(1.11-3.74)	0.33(0.09-1.24)
Decision maker on delivery care	Self	324(80.8%)	77(19.2%)	1	
	Others	71(57.3%)	53(42.7%)	3.14(2.03-4.85)	3.9(1.9-7.99)
Transportation service	No	337(88.5%)	44(11.5%)	1	
	Yes	58(40.3%)	86(59.7%)	11.35(7.18-17.9)	0.64(0.13-3.02)

* Adjusted for socio-demographic variable, obstetric characteristic, knowledge, attitude, availability of service, transportation service, and information and decision maker on delivery service.

Bold indicates Statistical significant at $p.v = 0.05$.

V. DISCUSSION

Delivery care service is an important component in the effort to reduce the health risks of mothers and

children is to increase the proportion of babies delivered in a safe and clean environment and under the supervision of health professionals.

The results of this study revealed that there is low utilization of institutional delivery services (24.8%) in the district whereas utilization of institutional delivery is higher among urban (72.1%) than rural area (8.9%). This result is almost in consistent with study conducted in India in 2009(25%). However, the result is higher than most studies conducted in other parts of the country such as study conducted in rural Bangladesh (11.4%), in Southern Ethiopia (3.3%), Report of MOH in Ethiopia in 2006/7 (16.4%), EDHS 2011 in BenishangulGumuz (9.1%) and study Metekel zone in 2008 (12%)^{5,13,14,17,18}. This is due to this study area include the capital city of the BenishangulGumuz and study done in the specific district for that the result was higher. However, the results lower than the study conducted in Kenya in (42%) and the results of EDHS 2011 in Harari (32.5%)^{5,12}. This is due to the Harari have small catchment area and the all district were urban for that the result was higher.

Utilization of institutional delivery service in urban women (72.5%) was higher than as compared to rural women (8.9%). This because of in rural women there were cultural influence and norm that encourage the women to give delivery at home. Women who were live in rural area were 94 percent times less likely to utilized delivery service than women who were in living in urban area. This result in the line with EDHS 2005 reveals that children born in urban areas were 20 times more likely to be delivered in a health facility than their rural counterparts¹⁹. Delivery service utilization among women at first pregnancy age between 20 to 29 years old were 2.15 times more than women age at first pregnancy below 20 years old. Whereas, studies done in Jimma Town in 2005, maternal age is significantly associated with place of delivery²². Different studies suggested that important demographic variable that affects the utilization of health seeking behaviour is mother age at the time of birth^{2,11,20,21}. However, result of EDHS report shows a positive linear relationship between mother age at birth and institutional delivery²³. This is due to women who have an early/teenage pregnancy were become afraid or fear to go to the health facility to give the birth

In this study the women who had health problems during labour increases the likely hood of institutional delivery about 1.95 times than women who were in the absence of health problems. This is lower than study in Skeka zone in 2008 reveals that women who had encountered problems in their immediate birth were 33.78 times more likely to give birth at health facilities²⁴. This could be due to the fact that most mothers in developing countries prefer home delivery and go to health institution when the labour is going wrong, particularly if it failed to be delivered within 12 hours.

ANC service utilization increased the likely hood of institutional delivery by about seven times and acquiring information on facility delivery services

increased the likely hood of institutional delivery by about 2.49 times than in the counterpart in this study. This result is in line with Sheka zone study of 2008, study in Harari region, study in Jimma town in 2005 and study in North Showa in 2009^{14,15,24,25}. This is due to gaining better information and having knowledge about important of institutional delivery during ANC visit and advice on institutional delivery how it could prevent pregnancy or labour related problems were increase utilization of institutional delivery services.

In the current study, women who were knowledge on maternal health care service were 5.84 times more likely to utilized institutional delivery than not knowledgeable on it. This result in the line with in developing country reveals that delays in seeking health care during pregnancy are influenced by individual and community knowledge on maternal health care services and other study conducted in Sheka zone in 2008 reveals maternal knowledge on obstetric risks and services, mothers who knew at least one risks of home delivery were more than twice more likely to deliver at a health facility than mothers who did not know²⁴. Other study in North Showa zone reveals that women who were knew the danger of giving birth at home were five times more likely to utilize institutional delivery service than those who were never know the danger of giving birth at home respectively²⁵. This might imply those mothers who are able to recognize danger signs, knowledgeable and good perception on important of maternal health care services could have greater fear of the possible outcomes of the signs so that they would be encouraged and motivated to deliver at health facility. Moreover, maternal awareness on danger signs, women's perceived benefit of giving birth at health facility and risk of giving birth at home, outcome of pregnancy and delivery encourage timely to made decision to utilize health facility.

Women having favourable attitude towards delivery service were 9.25 times more likely to use institutional delivery than unfavourable attitude towards delivery service. This result is higher than study in Sheka zone in 2008 reveals women who had favourable attitudes towards health facility delivery service were 1.88 times more likely to give birth at health facility than those with unfavourable attitudes^{22,24}. This is due to strong implementation of health extension programme in the study areas at this moment than previous time. This strong implementation of health extension worker should bring behavioural change communication (BCC) on the institutional delivery service which increases utilization of institutional delivery services.

The patterns of decision making power within the household were perceived as key determinants of the place of delivery. Mothers who decide to use institutional delivery by consulting others for decision making on delivery service were 3.9 times more likely to give birth at health facilities than mothers who could

decide by themselves. In contrast to this result, other studies conducted in Jimma town in 2005 revealed that women who decided by themselves to have institutional delivery services were 8.25 times more likely to give birth at the health facility than women who decided by other people and Sheka zone in 2008 revealed that women who decided by themselves were 1.57 times more likely to use institutional delivery than decide by others^{22,24}. This is due to women in this area have strong cultural norms to have delivered at home and culturally giving birth on the bed were forbidden in the community so that they prefer to give birth at home by sitting position on the ground and they consult others to make decisions after the labour became complicated to give birth at health facility.

VI. ACKNOWLEDGMENT

All staffs of Department of Population and Family Health in Jimma University deserve my deepest appreciation for their cooperation. I would also like to thank The B/G/R/H/B for their financial support and cooperation that facilitated the study process.

I would also thank all supervisor and data collectors for their genuine gathering consistent and reliable information that helps for analysis and report of research thesis. Last but not least I am highly indebted to my wife Abebech Tefera and my son Nahom Mulu was who had taken the whole responsibility managing the family and be silence during my course respectively

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