



Maternal Health Care Service Utilization and Associated Factors among Pastoral and Agro Pastoral Reproductive Age Women Residing in Jigjiga Town, Somali Regional State, Eastern Ethiopia

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Abstract

Background: Despite the implementation of different interventions, maternal health service utilization in the Ethiopian Somali regional state is still unsatisfactory. This is because the policies and interventions were simply a copy paste of the agrarian regions without considering the local pastoral and agro-pastoral communities. Therefore, this study was conducted to assess maternal health service utilization and associated factors among pastoral and agro-pastoral reproductive age women living in Jigjiga town.

Methods and Materials: A community based cross-sectional study was conducted in Jigjiga town from June 2011. A total of 722 women who had history of child birth within the last twelve month were included in the study. A multi stage random sampling techniques was applied. Pretested structured questionnaires were used for data collection. Odds ratio with 95% confidence interval was estimated using multivariable logistic regression to identify independent predictors of maternal health care service utilization.

Result: Out of 722 mothers involved in the study 66% had used antenatal care once for their recent pregnancy. While 115(15.9%) and 179(23%) had gave birth at health institution and had received post natal services from the nearby health institution respectively. The independent predictors for antenatal were being younger age (<35) [AOR=0.67, CI: (0.52-0.780)], having positive attitude [AOR=4.8, CI: (3.5-9.0)] and being lower parity [AOR=5.9, CI (3.8-7.2) where as being married [AOR=4, CI:(3.40-9.30)], high income group [AOR=11.6, CI:(8.4-12.4) and having positive attitude [AOR=11.4, CI; (9.3-21.0) were independent predictors for institutional delivery while maternal education [AOR=5.3, CI: (5.2-6.0) was independently associated with post natal care.

Conclusion: The rate of utilization of the three important maternal health services by women in Jigjiga town is lower than the previous studies done in and around Ethiopia as well as international recommendations. Hence health education addressing both couples to bring about behavioral change should be strengthened in collaboration with stake holders with in the town.

Keywords: Proportion, Antenatal care, Post natal care, Institutional delivery, Jigjiga town

Introduction

Approximately 536,000 maternal deaths occur annually of which over 95% occur in Sub Saharan Africa (SSA) and Asia [1,2]. Africa has the highest burden of maternal mortality in the world and SSA is largely responsible for the maternal death figure for that region, contributing approximately 98% of the maternal deaths for the region [1,2]. The life time risk of maternal deaths in sub Saharan Africa is 1 in 22 mothers compared to 1 in 210 in northern Africa, 1 in 290 in Latin America and Caribbean and 1 in 120 for Asia [1,2].

Ethiopia is a leading contribution to the maternal death figure in SSA because of its high maternal mortality ratio [2]. In Ethiopia maternal mortality rate was estimated to be 673 deaths per 100,000 live births which are among the highest in the world [3]. According to the Ethiopian demographic and health survey (EDHS), the antenatal care

(ANC), postnatal care (PNC) and skilled delivery care in Somali region was 21.5%, 8.4% and 7.4% respectively [3]. Though women comprise a large proportion of the world population, still many women in developing countries suffers from pregnancy and child birth health problems. This death could be prevented if women have access to basic maternity care services [1-3]. Because of this the Ethiopian government incorporated as one of the millennium development goals (MDG) with the objective to reduce maternal mortality MDG4) and infant mortality (MDG5) by 3/4 and 2/3 respectively between 1990-2015 [3-7]. Maternal health care service is influenced by socio demographic factors, cultural practices, attitude and knowledge of the mother and her family, decision making power of the women, husband support and approval to use and psychosocial support which was evidenced by studies in different regions of the world [8-26].

Despite the implementation of different national and international intervention to improve maternal health service utilization in the Ethiopian Somali regional state, service utilization still unsatisfactory.

Moreover, most literatures and government reports indicated that, the implementation of maternal health service packages in pastoral and agro-pastoral communities like Ethiopian Somali regional state has been less satisfactory when compared to the rest of Ethiopian regions and most of the time it is criticized as it is the copy paste of the other agrarian regions without considering the local pastoral and agro-pastoral communities context [27]. Therefore, the purpose of this study was to assess the current status of maternal health care services (antenatal care, skilled delivery care and post natal care) utilization and to assess factors that affect the utilization of these services among pastoral and agro pastoral communities.

Methods and Materials

Study setting and design

A community based cross sectional quantitative study was conducted among randomly selected mothers who had history of child birth in past one year in Jigjiga town, which is located 630 km from the capital city Addis Ababa in the Eastern Ethiopia from June 10 to 20, 2011. According to the 2007 national census, the total population of the town is 98,076 and of which 26,241(54.98%) are found in reproductive age group. There are 3 public health institutions (2 health centers and 1 hospital) and 15 non-governmental health institutions owned by NGO's and private owners which provide maternal health services and other different services for the community [4,21].

Study participants

Mothers who had history of child birth in past one year prior to the study period who are residing in Jigjiga town were eligible for this study. Those women who were not long term residents of the study area (less than 6 months) were excluded from the study.

Sample size and sampling procedure

The sample size for study was determined using a single population proportion formula with the following assumption: Proportion of mothers using antenatal care (ANC) service – 34.0% margin of sampling error tolerated- 5% (0.05), critical value at 95% confidence interval of certainty (1.96), design effect 2 and 10% for non-response making the final sample size of 759 mother who gave birth in the last one year. The study participants were selected through a multi-stage random sampling technique. The sample size was proportionally allocated to the kebeles (the smallest administrative unit in the Ethiopia government structure) based on the total number of reproductive age women residing in the kebele. The complete list of reproductive age woman is available in the selected kebeles and therefore each mother were selected by computer generated random number and interviewed until the desired sample size was achieved for the respective kebeles.

Measurement

A structured and pretested interview questionnaire was used to collect data on the socio demographic characteristics, maternal and child characteristics, knowledge and attitude towards maternal health care service utilization and as well cultural beliefs regarding maternal health care service utilization. Data collectors were given two day training on the questionnaires and interviewing techniques. The questionnaires were initially prepared in English and then have been translated into the local language, Somoligna and again it was

retranslated back into English to check its consistency. The questionnaires were pretested before the actual data collection. Additional modifications were made to the questionnaire in terms of in terminologies and formatting based on the pretest findings. The supervisors checked each completed questionnaire and principal investigator monitored the overall quality of the data collection. In this study, ANC attended was defined if a women visits health institution at list once to get pregnancy care during her recent pregnancy while when a woman gives birth at government/private health institution in the recent delivery.

Also if a woman gets one of the cares given for a woman after delivery within 42 days is labeled as PNC attended. Respondents were said to have good knowledge if they answered at least 70% of the questions related with maternal health service. Their attitude was measured through seven closed ended questions using Likert scale which is ranging from 1=strongly disagree to 5=strongly disagree. The total sum score was calculated and those who scored above the mean were considered as having positive attitude towards maternal health service practice.

Statistical analysis

Quantitative data were cleaned, edited, and entered onto Epidata version 3.2.0 and exported to SPSS version 16 statistical software for analysis. Frequency distribution and cross tabulation were done against the variables of interest. Bivariate analyses were done to assess the association between explanatory variables and outcome variable of the study. All variables with a p-value of <0.3 at the bivariate analysis were included into multivariable logistic regression model in which odds ratio with 95% confidence intervals were estimated to identify independent predictors of maternal health care service utilization. P-values less or equal to 0.05 were employed to declare the statistical significance. The study was approved by Jigjiga university research and community service directorate office. Official recognition and support was secured from the relevant organizations and departments. The interviewees have also been informed about the aim of the study. Additionally, written and verbal consent were secured from the study participants. Finally, confidentiality was ascertained by justifying that no information was disclosed individually without the full willingness of the respondent.

Results

Data regarding antenatal care, institutional delivery and post natal care utilization were collected from 722 mothers who gave birth in the last twelve month before the survey from three randomly selected kebeles in Jigjiga town. The response rate was 95.7% and the mean age of respondents was 29 ± 5 SD years. Four hundred eighty (66.5%) were Muslims in their religion followed by orthodox Christian which accounts 187(25.9%). Majority (49.6%) of the respondents were Somali in their ethnicity. 652(90.3%) of mothers were married as shown in Table 1 below. From the total respondents 478(66.2%) had received one antenatal care for their recent pregnancy and the rest 244(33.8%) did not receive care. Out of those who utilized ANC services, 302(63.2%) of them made their first visit in their second trimester of pregnancy and only 125 (26.6%) had four or more visits during their last pregnancy. The major reasons mentioned for not attending ANC were absence illness during pregnancy by 120(49.2%) of the mothers, lack of awareness about ANC for 66(27%), and husband disapproval (resistance) for ANC were 58 (23.8%).

Variables	Frequency	%
Age group		
Less than 20 year	62	8.6
20-34	401	55.5
35-49	259	38.9
Ethnicity		
Somali	336	46.5
Amhara	179	24.8
Oromo	145	20.1
Gragie	62	8.6
Husband education		
Cannot read and write	200	27.7
Primary education completed	142	19.7
Secondary and above	380	52.6
Religion		
Muslim	482	66.8
Orthodox	185	25.6
Protestant	55	7.6
Marital status		
Married	566	78.4
Single	72	10
Widowed	38	5.3
divorced	46	6.4
Occupation		
Merchant	324	44.9
Unemployed	242	33.5
Government employee	156	18.7
Educational status of the mother		
Cannot read and write	200	27.7
Primary completed	381	52.8
secondary and above	135	18.7
Average monthly income		
<500 ETB	60	8.3
501-2500 ETB	579	80.2
>2500 ETB	83	11.5

Table 1: Socio-demographic characteristics of women of reproductive age group in Jigjiga town Somali region, Eastern Ethiopia, 2011.

Only 115(15.9%) mothers gave birth at health institution in their recent delivery. Their reasons for choosing to delivery at health institution were asked and 79(68.7%) said that it is important for mother and her infant while 36(31.3%) said they had birth complication for their last delivery. One hundred seventy nine (24.8%) receive postnatal service within 42 weeks after delivery and the rest 543(75.2% did not use PNC. Among those who received the care 38(5.3%) seek this service because of bleeding problem and other illness during post-delivery while the rest 115(15.9%) receive the service as a normal delivery care and while 26(3.6%) got the care when they came to immunize their child.

In the current study young age mothers were 3.5 times more likely to use antenatal care than their counter parts (older mothers). Mothers whose male partners couldn't read and write were 50% less to use ANC than those with secondary and above educational status. Women who favor the use of ANC by all pregnant mothers were 4.8 times likely to receive the service than those who do not favor. First time mothers were 6 times more likely to use ANC than women who gave more than five births as shown in Table 2.

Young age mothers were 2 times more likely to deliver at health institution than older mothers. Mothers of Amhara ethnicity were 1.5 times higher to give birth at health institution than Somali. Mothers whose male partners couldn't read and write were 3.6 times less likely to deliver at health institutions as compared to educated ones Non educated mothers were 5.6 times less likely to deliver at health institution compared to mothers with secondary and above educational status. Women who favor delivering at health institution were 11.4 times higher to use it. Married women and higher income mothers were 11.6 times higher in seeking delivery care from health institution than low income mothers as shown in Table 3. In the multivariate analysis for the use of postnatal care within 42 days post-delivery maternal education, parity and income were independently associated with PNC as shown in Table 4 below.

Discussion

Pregnancy and childbirth are inextricably a part of women's lives. While this is ordinarily a period of pride and joy, it is associated with pain, disability and even death for too many women particularly in developing countries. This study investigated individual, demographic and socioeconomic related factors that that could affect mother's decision to seek health care during pregnancy, delivery and postpartum periods.

In this study, considering single exposure to ANC two third of study participants had received care during their recent pregnancy and only 30% of mothers attend ANC according to the WHO recommendation. The WHO recommends that a woman without complications have at least four focused visits to gain full benefits of ANC. This finding is much larger than 2011 EDHS result of ANC use by mothers Somali region but less the than the figure for Addis Ababa [21]. This increment might be brought by the promotion of maternal health services by urban health extension workers.

In the current study only one out of four pregnant women made their first visit at their first trimester of pregnancy though health professionals recommend that the first antenatal visit should occur within the first three months of pregnancy to identify early problems pregnancy. This result is also higher compared to 2011 EDHS reported where only 11% of women in Ethiopia made their first antenatal care visit before the fourth month of pregnancy [21]. The same pattern was

observed in study done in Nigeria [22] which can be attributed to the lack of adequate information on the content and schedule of antenatal visits and constitutes a serious barrier to the utilization of all the interventions recommended for efficient pregnancy care. This could be an important area of intervention which needs community based health education regarding the importance of early start of ANC to get comprehensive pregnancy care.

Among the women who had not utilized antenatal care in this study, the major reasons reported for not utilizing antenatal care were due to absence of illness during pregnancy, lack of awareness about ANC, being too busy, and husband disapproval. These reasons are consistent with the findings of studies conducted in different regions of Ethiopia [23-25]. This indicates an area of intervention to minimize hindering factors for service use.

This study has identified various factors that affect antenatal care utilization among the women in Jigjiga town. As in findings of most studies in Ethiopia maternal age, husband's educational status, attitude towards ANC use and husband approval, and perceived susceptibility to pregnancy related illness were found to have influence on the use antenatal care by women in Jigjiga town. Younger aged mothers seek ANC service more than elders in the current study and others studies had reported similar finding [21-24]. The possible explanation for higher utilization of ANC by younger women could be related to the

perceived self-risk for pregnancy related complications as it is first burden of motherhood. Additionally it might be due the large scale intervention on adolescents' reproductive health which might in turn improve maternal health care service utilization.

In this study, maternal education was an important influencing factor for usage of antenatal care. This is due to the fact that education increases the woman's autonomy, understanding and decision making power at household level which in turn enables a women to use the service when she needs. On the other hand education is an important instrument that modifies women's beliefs about disease causation and cure and thus influences both child-care practices and the use of modern health-care services [1,6,18].

Women whose husband approves of antenatal care were more likely to have used prenatal care than women whose husband did not approve of ANC consistent with the findings of other studies [11,22,25]. Targeting men in promotion of ANC such as (FGDs, IEC etc.) is an essential activity to gain husband acceptance for the service use. This study also showed that women whose recent pregnancy was planned were more likely to use ANC than those women got pregnant without plan. This is in line with the Yirgalem study which revealed that women who wanted their pregnancies were more likely to have used prenatal care than women who did not want their pregnancies [10].

Variable	ANC use		Odds Ratio(95% CI)		P-value
	Yes	No	Crude	Adjusted	
Age group					
Less than 20 year	50	12	1	1	0.005
20-34	282	119	0.57(0.42-0.62)	0.67(0.52-0.78)	
35-49	106	153	0.17(0.14-0.19)	0.28(0.21-0.46)	
Husband education					
Cannot read and write	120	80	0.5(0.32-0.68)	0.67 (0.49-0.73)	0.02
Primary education completed	93	49	0.63(0.33-0.72)	0.65 (0.34-0.68)	
Secondary and above	285	95	1	1	
Attitude					
Favorable attitude	299	191	7.7(4.6-16)	4.8(3.5-9.0)	0.03
Unfavorable attitude	39	193	1	1	
Parity					
1	102	24	7.6(2.0-9.0)	5.9(3.8-7.2)	0.001
02-May	223	168	2.3(1.6-2.5)	1.8(1.5-2.7)	
>5	77	138	1	1	

Table 2: Multivariate analyses of factors affecting ANC use among reproductive age women in Jigjiga town, Somali region, Eastern Ethiopia, 2011

Young mothers (under age 35) usually tend to visit health institutions for delivery care than older mothers which is in line with a study done different parts of world [22,25].

Variable	Place of delivery		Odds Ratio (95% CI)		P -value
	Institution	Home	Crude	Adjusted	
Age group					
Less than 20 year	34	28	1	1	0.001
20-34	60	350	0.07(0.14-.34)	0.32(0.28-0.46)	
35-49	21	238	0.5(0.42-0.57)	0.58(0.54-0.62)	
Husband education					
Cannot read and write	17	160	0.22(0.17-0.32)	0.28 (0.23-0.34)	0.05
Primary education	23	180	0.45(0.29-0.53)	0.52(0.41-0.57)	
Secondary and above	75	267	1	1	
Attitude					
Favorable attitude	110	380	13.1(9.5-16.0)	11.4(9.3-21.0)	
Unfavorable attitude	5	227	1	1	0.003
Maternal education					
Cannot read and write	36	351	0.18(0.14-0.22)	0.27(0.25-0.37)	
Primary education	51	207	0.43(0.35-0.47)	0.48(0.39- 0.53)	0.005
Secondary and above	28	49	1	1	
Income(ETB)					
< 800	26	219	0.18(0.14-0.22)	0.27(0.25-0.37)	0.001
800-1600	61	346	0.43(0.35-0.47)	0.48(0.39- 0.53)	
1601-2400	28	42	1	1	
Marital status					
Single	61	320	1	1	0.002
Married	246	11	7.2(3.4-17.0)	4.0(3.4-9.3)	
Widowed	20	18	1.4(0.8-2.2)	0.5(0.01-1.2)	
Divorced	24	22	1.4(0.6-3.2)	0.5(0.08-1.7)	

Table 3: Multivariate analysis of factors affecting place of delivery use among reproductive age women in Jigjiga town Eastern Ethiopia, 2011

Young mothers (under age 35) usually tend to visit health institutions for delivery care than older mothers which is in line with a study done different parts of world [22,25]. The possible explanation might be young women with their first pregnancy and childbirth is more careful about their pregnancy and therefore requires seeking institutional care than women having repeated pregnancy. The others justification could be older women tend to trust traditional birth attendants due to previous experiences they had. Married women were 4 times more likely to deliver at health institution as compared to unmarried mothers which is in line with a study finding in [22-25]. This is true since married women have no social pressures like the unmarried once. Additionally she can afford any expenses associated with institutional delivery since she has good income as compared to unmarried once. Low income mothers are less likely to delivery at health institutional than high income mothers which also noted in

EDHS 2011 report [21]. This could be due to the service fee or other logistic issues such as transportation to and from health institution.

Adequate utilization of postnatal care can also help reduce mortality and morbidity among mothers and their babies. Mother's attending secondary and above were 7 times more likely to have PNC as compared to non-educated mothers. This finding is comparable with a study finding in [22,25]. This might be true since educated mothers are more aware on the benefit of post natal care visit for the mother as well as for their child. The findings of this study should be interpreted with some limitations. Since the study is cross sectional in nature temporality and causality cannot be determined. Additionally cultural factors as well as service qualities regarding maternal issue were not sufficiently addressed. Despite the above limitations the study has the following strengths: Recall bias was minimized by tracing mothers who

had history of birth in the last one year prior to study. Additionally it addresses all the three maternal health services in a comprehensive manner.

Variable	PNC use		OR (95%CI)		p-value
	Yes	No	Crude	Adjusted	
Maternal education					
Cannot read and write	33	354	1	1	
Primary education	110	148	7.97(6.8-9.3)	5.3(5.2-6.0)	0.01
Secondary and above	36	41	9.4(1.4-58.6)	7 (1.04-4.4)	
Household income					
<800	84	343	1	1	0.004
801-2500	64	154	1.7(1.4-2.5)	1.4(1.01-7.9)	
>2500	31	46	2.8 (1.2-11.6)	2.0(1.2- 8.4)	
Parity					
1	117	142	1		
02-May	41	215	0.23(0.12-1.6)	0.45(0.26-11.6)	0.05
>5	21	186	0.14(0.09-1.4)	0.34(0.11-0.98)	

Table 4: Multivariate analysis of factors affecting PNC use among reproductive age women in Jigjiga town, Somali region, Eastern Ethiopia, 2011

Conclusion

The rate of utilization of the three important maternal health services by women in Jigjiga town is lower than the previous studies done in and around Ethiopia as well as international recommendations set by WHO and others. Younger age (<35 years), husband support, husband's educational status, planned pregnancy and having positive attitude were independently associated with ANC. Age of mother at first pregnancy, ethnicity, maternal education, religion, husband education; marital status, household income and attitude were found to be significantly associated with institutional delivery. While the use of postnatal care was independently associated maternal education, number of pregnancy and income. Hence awareness creation about maternal health care service utilization through behavioral change communication (BCC) activities should be emphasized by targeting both women and men.

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Competing Interests

We authors declare that we have no competing interests in this paper.

Authors' Contributions

The author's contributions were as follow: WS designed, analyzed and supervised the study to ensure the quality of the data. BM assisted in the data entry, analysis and interpretation of the data. WS, the principal investigators, drafted the manuscripts and while BM had the responsibility to submit the manuscript for publication. All the authors critically reviewed the manuscript and approved the final version of the manuscript.

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