Journal of Women's Health Care

Teklehaymanot et al., J Women's Health Care 2017, 6:1
DOI: 10.4172/2167-0420.1000358

Research Article Open Access

Early Postnatal Care Service Utilization and Associated Factors among Mothers Who Gave Birth in the Last 12 Months in Aseko District, Arsi Zone, South East Ethiopia in 2016

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Received date: January 25, 2017; **Accepted date:** February 13, 2017; **Published date:** February 28, 2017

Abstract

Background: Even though early postnatal care visit is one of the strategies to reduce maternal and new-born morbidity and mortality, it is the weakest of all reproductive and child health interventions in Africa and receives much less attention from healthcare providers than pregnancy and childbirth.

Objective: To assess early postnatal care service utilization and associated factors among mothers who gave birth in the last 12 months in Aseko district, Arsi zone, South East Ethiopia, 2016.

Method: Community based cross-sectional study was conducted from May 10th-May 20th 2016 in Aseko district, Ethiopia. A total of 382 mothers who gave birth in the last 12 months were identified using random number generated by computer from six kebeles selected by simple random sampling techniques were included in the study. Data were collected using structured questionnaire through face to face interview and entered to Epi data version 3.1 and exported to SPPS version 20. Descriptive statistics, principal factor analysis (PCA), bivariate and multivariable logistic regression analysis were used for the analysis and a P-value<0.05 was declared a statistically significant in this study. Finally, the result was presented using texts, tables and figures.

Results: The level of early postnatal care service utilization was 23.7%. The reasons for not to use early PNC services were: Having no information on the importance of early PNC services 140 (48.5%) followed by lack/no transportation access 76 (26.3%). In multivariable logistic regression analysis; experience of early postnatal care utilization for previous child (AOR=4.211; 95% CI: 1.548, 11.458), Institutional delivery (AOR=2.778; 95% CI: 1.386, 5.568), Women decision making power (AOR=4.103; 95% CI: 2.087, 8.067), Information/advise about early postnatal care services from health profession (AOR=5.049; 95% CI: 2.074, 12.289), Distance/time took to arrive health facility on foot (AOR=0.458; 95% CI: 0.231, 0.908) and Access to transportation (AOR=2.655; 95% CI: 1.322, 5.330) were found to be predictors of early PNC service utilization.

Conclusion and Recommendations: Less than quarters (23.7%) of the respondents were utilizing early postnatal care services in the district. Experience of early PNC utilization, place of delivery, decision making power, information/advice from health profession, distance of health facility and access to transport were statistically significant for early postnatal care utilization. Strengthening health facilities to enhance service provision and information education and communication, decision making power of the women, improving transportation service and encouraging institutional delivery are necessary measures to enhance early PNC service utilization in the district.

Keywords: District; Early PNC; Early PNC utilization; Comprehensive care

Introduction

Women's health and involvement in health care are essential keys to health for all. Postnatal care is regarded as one of the most important Maternal and child healthcare services for the prevention of impairments and disabilities resulting from childbirth. The Postpartum period starts from one hour after the birth of placenta and ends 42 days of delivery [1].

Lack of appropriate care during this period could result in significant ill health and even death. Rates of provision of skilled care are lower after childbirth when compared to rates before and during childbirth [2]. Most maternal and infant deaths occur during this time [3].

Globally, more than 500,000 women die each year due to complications of pregnancy and childbirth and most deaths occur during or immediately after childbirth [4]. Every year three million infants die in the first week of life, and another 900,000 die in the next three weeks [5].

Bleeding and infection following childbirth account for many maternal deaths, while preterm birth, asphyxia and severe infections contribute to two thirds of all neonatal deaths [6]. A large number of women in the sub-Saharan region do not have access to health care

during the early postnatal period which puts them at risk of diseases and mortality [7].

The harsh reality is that about 4 million infants do not live through the immediate postnatal period, and a large number of them are disabled due to pregnancies and births that are poorly monitored or handled [8].

And the deaths within the first week of life account for almost 40% of all deaths among children under the age of five. Also, about 700 babies die (around 30 every hour) on a daily basis which has the highest number of new-born deaths in Africa, and the second highest in the world [9].

Maternal and new-born deaths occur mostly during pregnancy, delivery, or within the first week after delivery [10-12]. WHO estimates that 50% of maternal and 40% of new born deaths occur within the first 24 hours after delivery [13]. In developing countries also shows 50% to 71% of maternal deaths happen during postpartum period, particularly in the first few hours [4].

Early postnatal care (EPNC) visits can reduce maternal and new born morbidity and mortality, and enhance survival, particularly through early detection and management of postpartum complications [14]. However, it is the weakest of all reproductive and child health interventions in Africa and receives much less attention from healthcare providers than pregnancy and childbirth [13].

As WHO global database on maternal health indicators, globally, only 48% of the mothers are following the postnatal care within two days of child birth [15]. Based on an analysis of Demographic and Health Surveys in 23 African countries, no more than 13% receive a postnatal care visit within two days of delivery [11]. The level of postnatal care coverage is extremely low in Ethiopia. Only 7% of women received postnatal care within two days, as recommended [16].

Studies in developing countries indicates that factors affect utilization of early postnatal care services such as distance from health services, access to transportation, socio-economic status, geographical location, maternal education, multiple demands on women's time, women's lack of power in decision making within the family and poor quality of services including poor handling by health providers [17]. Even though early PNC service utilization plays a critical role in reducing maternal and new born child mortality, little is known about its determinants. Thus, understanding the factors related with early PNC utilization is critical for countries like Ethiopia with alarmingly high maternal mortality.

Therefore, such adequate postnatal care utilization is mandatory to reduce mortality and morbidity among mothers' and their babies. Postnatal care is important for mothers for treatment of complications arising from delivery, especially for births that occurred at home.

For non-institutional births particularly, postnatal care enables detection of complications that may threaten the survival of the mother. Yet, despite the benefits of PNC, most new born and mothers do not receive postnatal care services from a skilled health care provider during the critical first few days after delivery [3]. In Ethiopia, where the largest proportions of births take place at home, postnatal care by health professionals is extremely low and uncommon [10]. Therefore, this study aims to identify factors affecting early PNC utilization and recommend increasing the service in the study area (Figure 1).

Materials and Methods

The assessment was conducted in Aseko district, Arsi zone, Oromia region, South East Ethiopia, which is 244 km far from Addis Ababa and 186 km from Arsi zone, Asella. Aseko district is bounded by Western Haraghe from East, Fentale/East shewa from south, Merti woreda from West and Gololcha woreda from North. The weather condition of the district is characterized by 44% Weyna dega, 33% Kolla and 22% Dega.

The district has 18 Kebeles with one urban and seventeen rural kebeles. According to the 2007census population projection, the total populations of the district are estimated 107,376 out of which 53,258 are females. The total numbers of women of reproductive age group are 23,730, pregnant women are 3,726 and surviving infants are 3,458.

95% of the district has rural population. There are three public health center, 18 health posts, six private clinics and three private drug venders and it has 53 health professional workers and 39 health extension workers. The district had planned 3,726 women for postnatal care services by 2015/2016 [18].

The required sample size determined by using single population proportion formula based on the following assumption. The prevalence of early postnatal care (P) was considered to be 34.5% (P=0.345) with 95% level of confidence, 5% margin of error and 10% none response rate was considered. The district has a total of 18 kebeles. First 6 kebeles named Iftu Bulala, Haro Alle, Aseko 01, Dirre Oda, Nano Aseko and Komicha kebeles were chosen by simple random sampling technique. Then after consultation with local administrators and district health office, a census of the sampled six Kebeles with the help of health extension workers was conducted and frames of all households with women who gave childbirth from May 2015 to May 2016 was made [19-23].

From the result of census, the number of woman who gave birth in the past 12 months in each kebele were; Iftu Bulala (367), Haro Alle (288), Aseko 01 (207), Dirre Oda (300), Nano Aseko (129) and Komicha (133). The total sample size of 382 was distributed proportionate allocation to size to each kebele. Finally, the participants were selected by simple random sampling using random number generated by computer from the existing sampling frame of households. Structured interview questionnaire had been developed by reviewing pertinent literatures using English language then translated into the local language, Afan Oromo and used to collect the data after back translating to English by different experts to check its consistency [16,24-31].

The questionnaires were designed to capture demographic and socio-economic characteristics or household assets and equipment's, water supply, power supply, sanitary facility, residential homes, farmlands and livestock ownership to compute wealth index, maternal status including ten question of maternal knowledge on early PNC and danger sign of postpartum, three questions for women's decision making power which was adopted from EDHS, 2011, experience on ANC, PNC, health care factors and utilization of early postnatal care.

Six diploma nurses who are fluent in the local language and familiar with the local customs had been trained for the purpose of data collection. The data was collected from the respondents by using face to face interview. One BSc. nurse was assigned as a supervisor to check for the daily activity, consistency and completeness of the questionnaire and to give appropriate support during the data collection process.

The questionnaire was pre-tested on 19 (5%) of the total sample size and a necessary adjustment was made before used for actual data collection. During data collection when the selected households were closed, the interviewers revisit the house holds three times at different time intervals.

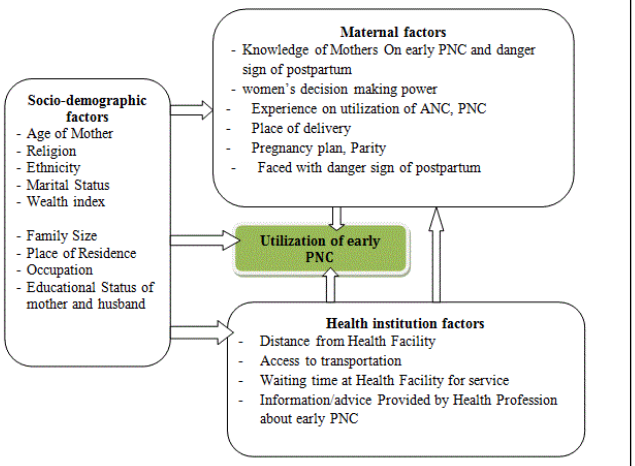

Figure 1: Conceptual framework developed from review of different literatures.

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The data were coded, edited and entered into Epi data version 3.1 software package. Then exported to SPSS version 20.0 statistical software package and recoded, cleaned for inconsistency and missing value and finally analysed. Descriptive statistics such as frequencies, percentages, means, standard deviations, crosstabs and chi-square were computed to describe the study population in relation to relevant variables (age, residence, ethnicity, religion, marital status, educational status, occupational status, parity, family size, ANC, distance from health facility and place of delivery) and to show the prevalence of early postnatal care utilization.

Wealth index was determined by quintiles using Principal Component Analysis (PCA). Bivariate and multivariable logistic regression analysis was used to determine the association between dependent and independent variables and controlling the confounding effect.

Those factors that were significant at p-value<0.25 level in the Bivariate logistic regression analysis were considered for the multivariable logistic regression analysis. The crude and adjusted odds ratio together with their corresponding 95% confidence interval was computed. A P-value<0.05 was considered declaring a result as statistically significant in this study. Finally the result was presented using texts, tables and figures.

Operational Definitions

Early postnatal care

In this study healthcare services that are given immediately after delivery to the end of first week of delivery both for the mothers and new born babies by health workers and health extension workers.

Early postnatal care utilization

In this study mothers or their new born babies those who had at least one early postnatal care check-up for the current delivery by health workers and health extension workers within first week of delivery.

Good knowledge

Mothers those who are capable of answering >5 out of 10 knowledge question on utilization of early postnatal care and danger sign of postpartum.

Fair knowledge

Mothers those who are capable of answering 4-5 out of 10 knowledge question on utilization of early postnatal care and danger sign of postpartum.

Poor knowledge

Mothers those who are capable of answering <4 out of 10 knowledge question on utilization of early postnatal care and danger sign of postpartum.

Women decision making power

Women are considered to participate in a decision if they usually make that decision alone or jointly with their husbands on households [16].

Autonomous

In this study if women are usually make decision alone or jointly with their husbands on household's three out of three decision making question.

Non-autonomous

In this study if women are usually make decision alone or jointly with their husbands on households' less than three out of three decision making question.

Poorest women

Woman lives in a household with the 1st quintile or the 1st 20% from the score of wealth index.

Poor women

Woman lives in a household with the 2nd quintile or the 2nd 20% from the score of wealth index.

Middle women

Woman lives in a household with the 3rd quintile or the 3rd 20% from the score of wealth index.

Rich women

Woman lives in a household with the 4th quintile or the 4th 20% from the score of wealth index.

Richest women

Women lives in a household with the 5th quintile or the 5th 20% from the score of wealth index [10,16].

Ethical Considerations

Ethical clearance and approval was obtained from the Ethical Review Committee of the College of Health Sciences, Jimma University. Permission was obtained from district administrative office, district health office and local administrative. Written and verbal consent was obtained from each participant after explaining the purpose and nature of the research. Participation in the study was on a voluntary basis and participants were informed their right to quit/ refuse their participation at any stage of the study if they did not want to participate. Moreover, confidentiality and privacy of study participants were assured during the interview.

Results

Socio-economic and demographic characteristics of respondents

Of the total 379 sample respondents, 134 (35.4%) of them were at the age group 25-29 years and 254 (67%) of them were Muslim. Oromo was the predominant ethnic group, 280 (73.9%) and majority of respondents 358 (94.5%) are currently married.

Regarding educational status, 176 (46.4%) of them attended primary school. The great majority, 278 (73.4%) of them were housewives (Table 1).

Variable Name and Category		Frequency	Percentage (%)
Age of the mothers	15-19	19	5
	20-24	89	23.5
	25-29	134	35.3
	30-34	84	22.2
	≥5	53	14
Religion	Muslim	254	67
	Orthodox	119	31.4
	Protestant	6	1.6
Ethnicity	Oromo	280	73.9
	Amhara	99	26.1
Marital status	Married	358	94.5
	Single	4	1.1
	Divorced	9	2.3
	Widowed	8	2.1
Place of residence	Rural	314	82.8
	Urban	65	17.2
Maternal educational status	Unable to read and write	148	39.1
	Primary school (1-8)	176	46.4

	Secondary school (9-12)	47	12.4
	Above secondary	8	2.1
Husband educational status	Unable to read and write	102	28.3
	Primary school (1-8)	167	46.4
	Secondary school (9-12)	66	18.3
	Above secondary	25	7
Maternal occupational status	Housewife	278	73.4
	Farmer	54	14.2
	Merchant	24	6.3
	Employed	17	4.5
	Daily labour	6	1.6
Husband occupational status	Farmer	273	75.8
	Merchant	30	8.3
	Employed	38	10.6
	Daily labour	19	5.3
Family size	<5	165	43.5
	05-Jul	176	46.5
	>7	38	10
Wealth index	Poorest	75	19.8
	Poor	76	20.05
	Middle	76	20.05
	Rich	76	20.05
	Richest	76	20.05

Table 1: Socio-demographic characteristics of respondents, Aseko district, Arsi zone, South east Ethiopia, 2016.

Early PNC service utilization

The level of early postnatal care service utilization was 23.7% of which 58 (15.3%) were within 24 hours of postpartum, 23 (6.1%) within 24-48 hours of postpartum and about 9 (2.3%) within 49 hours-6 days of delivery and 65 (72.2%) of them had got services at health centre.

The reasons that the participants responded for not to use early PNC services were; having no information on the importance of early PNC services 140 (48.5%) followed by lack /no transportation access 76 (26.3%) (Table 2).

Variables		Frequency	Percentage (%)
Frequency of early PNC utilization	One	79	87.8
	Two	11	12.2
Time of Early PNC utilization	Within 24 hours	58	64.4
	24-48 hours	23	25.6
	49-72 hours	1	1.1
	4-6 days	8	8.9

	Health post	7	7.8
	Health centre	65	72.2
	Hospital	11	12.2
Place of early PNC service utilization	Home	7	7.8
	Lack/no transportation	76	26.3
	Far from health facility	28	9.7
	I don`t know the benefit	140	48.5
	It is not customary	35	12.1
The reason for not to use early PNC	Others	10	3.4

Table 2: Early PNC utilization and the reasons participants responded for not to use the service in Aseko district, 2016.

Maternal factors

Out of the total respondents, 164 (43.3%) of them had fair knowledge on early postnatal care services and danger sign of postpartum.

From the total respondents only 36 (9.5%) of them had experience on early PNC service utilization for previous child (Figure 2).

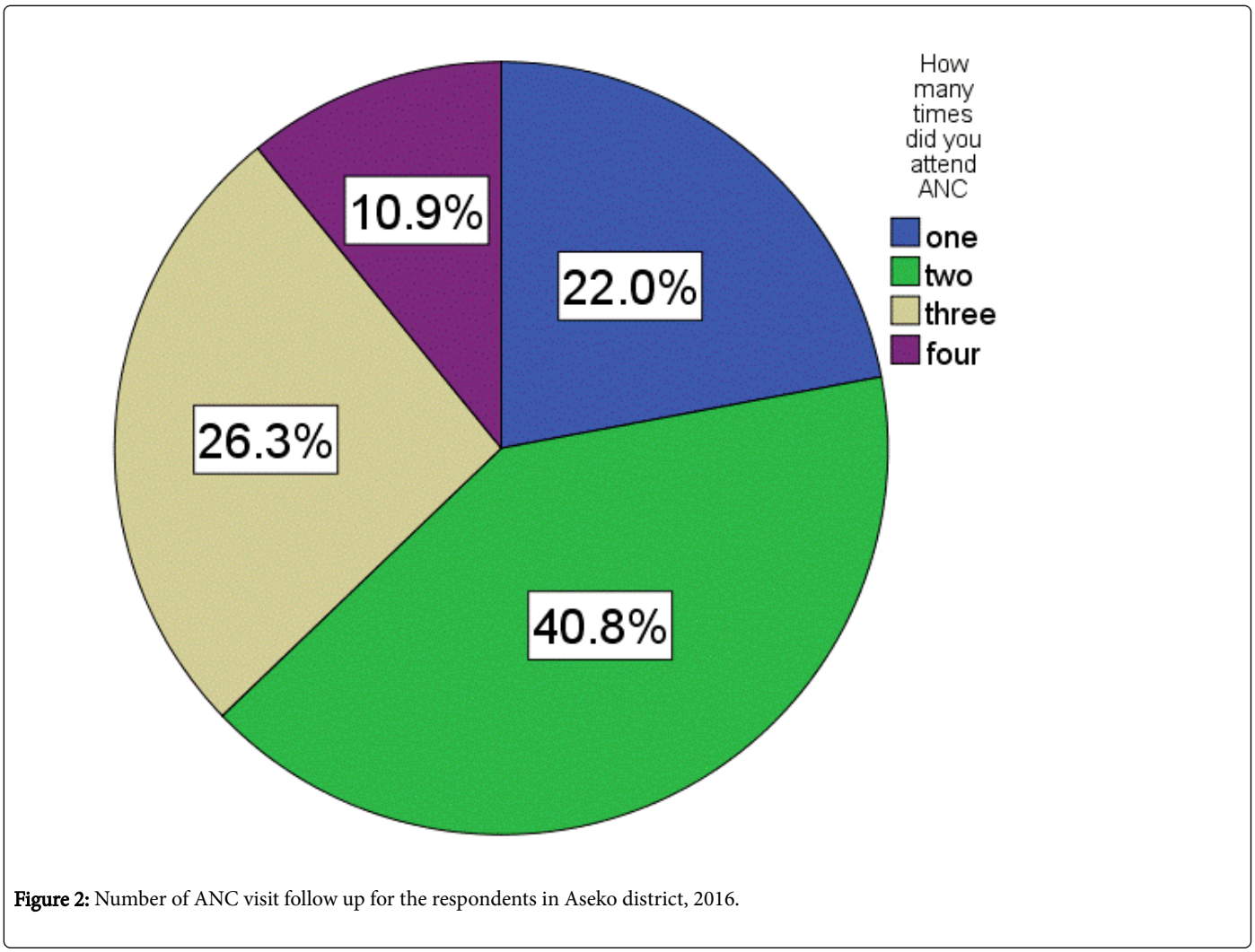

Figure 2: Number of ANC visit follow up for the respondents in Aseko district, 2016.

Place of delivery

Regarding Place of delivery, 96 (25.3%) of respondents gave births their last child in health institution and 86 (89.6%) of them were attended by Midwife/Nurse/Health officer. From those gave birth at health facility, 50 (52.1%), 29 (30.2%) and 17 (17.7%) of them had stayed at health institution for 24 hours, for less than 24 hours and for more than 24 hours, respectively.

From sampled women, only 57 (15%) of them experienced/faced any health problem related to last delivery during postpartum with 20 (35.1%) of the health problem was vaginal bleeding (Table 3).

Institutional factors for early PNC services utilization

From the total respondents, 237 (62.5%) of them had got information/ advice from health profession for early PNC check-up. For 256 (67.5%) of participants, took two hours and more to arrive to the nearest health facility and majority 270 (71.2%) of respondents had no access to transportation (Table 4).

Variables		Frequency	Percentage (%)
Number of live birth	01-Mar	261	68.9
	4-5	85	22.4
	≥6	33	8.7
Level of maternal knowledge on early PNC and danger sign during postpartum	Poor knowledge	71	18.7
	Fair knowledge	164	43.3
	Good knowledge	144	38
Early PNC service utilization for previous child	Yes	36	9.5
	No	343	90.5
ANC follow up	Yes	304	80.2
	No	75	19.8
Place of current delivery	Health facility	96	25.3
	Home	283	74.7
Experienced/faced with any health problem related to last delivery	Yes	57	15
	No	322	85
Health problem faced	Vaginal bleeding	20	35.1
	Fever	11	19.3
	Lower abdominal pain/cramp	19	33.3
	Foul smelling of vaginal Discharge	7	12.3
Pregnancy planed/wanted	Yes	259	68.9
	No	120	31.1
Women decision making power	Autonomous	164	43.3
	Non-autonomous	215	56.7

Table 3: Maternal factors of sample respondents, Aseko district, Arsi zone, south east Ethiopia, 2016.

Variables		Frequency	Percentage (%)
Information/ advice from health profession for early PNC check up	Yes	237	62.5
	No	142	37.5
Place for information/ advice for early PNC service	At Health Post	107	45.2
	At Health Centre	93	39.2

	At Hospital	9	3.8
	At the community level	28	11.8
Think/perceived services given at health facility having a long Waiting time problem	Yes	39	10.3
	No	340	89.7
Distance/time took to arrive to the nearest health facility from house on foot	<2hours	123	32.5
	≥2hours	256	67.5
Access to transportation to reach health facilities	Yes	109	28.8
	No	270	71.2

Table 4: Health institutional factors for early PNC utilization among respondents in Aseko district, Arsi zone, South East Ethiopia, 2016.

Factors associated with early postnatal care utilization

Using principal component analysis (PCA), the wealth index score was made by 8 variables with 3 components that explained a total variance of 67.9% and measure of sampling adequacy 0.734.

Out of a total 28 variables, 14 variables namely: place of residence, mother's educational status, husband educational status, husband occupation, wealth index, knowledge of mothers on early postnatal care and danger sign of postpartum, experience of early PNC utilization for previous child, place of delivery, experienced/faced with any health problem related to last delivery, pregnancy plan, decision making power of the women, getting information/advice about early postnatal care follow up from health profession, distance/time took to arrive on foot to the nearest health facility and access to transportation were considered for multivariable logistic regression analysis.

Finally, after adjusting for confounders using multivariable logistic regression model, 6 variables namely, experience of early PNC utilization for previous child, place of delivery, decision making power of the women, getting information/advice about early postnatal care follow up from health profession, distance/time took to arrive on foot to the nearest health facility and access to transportation were found to be statistically significant predictors for early postnatal care utilization.

Mothers with experience of early postnatal care utilization for previous child were 4.2 times more likely to utilize early postnatal care than mothers with had no experience (AOR=4.211; 95% CI: 1.548, 11.458). Similarly mothers who gave births their last child at health institution were significantly better in early postnatal care utilization than those gave births at home (AOR= 2.778; 95% CI: 1.386, 5.568).

Early Postnatal care service utilization also increased with increasing decision making power of mothers. Mothers who have been able to decide on health care service by themselves were 4.1times more likely to attend early postnatal care as compared with mothers whose health care service was decided by other people (AOR=4.103; 95% CI: 2.087, 8.067). In addition, mothers who got information/advise about early postnatal care services from health profession were 5 times more likely to utilize early postnatal care than mothers who didn't get information/advice (AOR=5.049; 95% CI: 2.074, 12.289). The result also revealed that, mothers who travelled for two and more hours on foot to the nearest health facility were 54% less likely to utilize early postnatal care than mothers who travelled less than two hours (AOR=0.458; 95% CI: 0.231, 0.908).

Moreover, mothers who had access to transportation were 2.6 times better in attending early postnatal care as compared with those had no access of transportation to reach health facility (AOR=2.655; 95% CI: 1.322, 5.330) (Table 5).

Variables		Early PNC utilization		COR 95% CI	AOR 95% CI
		Yes	No		
Place of residence	Rural	62	252	1	1
	Urban	28	37	3.076 (1.750, 5.407)	0.955 (0.221, 4.126)
Mother's education	Unable to read and write	1 7	131	1	1
	Primary school	39	137	2.194 (1.183, 4.069)	0.937 (0.337, 2.602)
	Secondary school	29	18	12.415 (5.718, 26.957)	1.54 (0.348, 6.814)
	Above secondary school	5	3	12.843 (2.815, 58.599)	0.944 (0.37, 23.852)
Husband education	Unable to read and write	12	90	1	1
	Primary school	32	135	1.778 (0.870, 3.634)	0.637 (0.236, 2.063)

	Secondary school	32	34	7.059 (3.262, 15.274)	0.949 (0.231, 3.892)
	Above secondary school	12	13	6.923 (2.575, 18.616)	0.096 (0.008, 1.100)
Husband occupation	Farmer	45	228	1	1
	Employed	25	13	9.744 (4.637, 20.474)	6.085 (0.742, 49.885)
	Merchant	15	15	5.067 (2.314, 11.095)	1.542 (0.225, 10.56)
	Daily labourer	3	16	0.950 (0.266, 3.396)	0.97 (0.100, 9.443)
Wealth index	poorest	10	65	1	1
	poor	12	64	1.219 (0.492, 3.020)	0.261 (0.060, 1.135)
	Middle	16	60	1.733 (0.730, 4.115)	0.237 (0.056, 1.002)
	Rich	25	54	3.009 (1.329, 6.814)	0.692 (0.192, 2.496)
	Richest	27	46	3.815 (1.684, 8.645)	1.576 (0.469, 5.292)
Knowledge of mothers on early PNC and danger sign of postpartum	Poor knowledge	10	61	1	1
	Fair knowledge	24	140	1.046 (0.471, 2.319)	3.076 (0.683, 13.862)
	Good knowledge	56	88	3.882 (1.837, 8.201)	4.287 (0.972, 18.915)
Experience of early PNC utilization	No	63	280	1	1
	Yes	27	9	13.333 (5.977, 29.744)	4.211 (1.548, 11.458)*
Place of delivery	Home	35	248	1	1
	Health institution	55	41	9.505 (5.554, 16.268)	2.778 (1.386, 5.568)*
Experience/faced with any health problem related to delivery during postpartum	No	70	252	1	1
	Yes	20	37	1.946 (1.063, 3.563)	2.749 (1.057, 7.145)
Pregnancy plan	No	9	111	1	1
	Yes	81	178	5.612 (2.709, 11.626)	1.356 (0.484, 3.802)
Decision making power	Non-autonomous	17	198	1	1
	Autonomous	73	91	9.343 (5.214, 16.742)	4.103 (2.087, 8.067)**
Getting information/advice about early PNC from health profession	No	8	134	1	1
	Yes	82	155	8.861 (4.136, 18.984)	5.049 (2.074, 12.289)**
Distance/time took to arrive on foot to the nearest health facility	<2hours	45	78	1	1
	≥2hours	45	211	0.370 (0.227, 0.602)	0.458 (0.231, 0.908)*
Access of transportation	No	30	240	1	1
	Yes	60	49	9.796 (5.736, 16.730)	2.655 (1.322, 5.330)*

Table 5: Multivariable logistic regression analysis result of factors affecting early PNC service utilization of respondents in Aseko district, Arsi zone, Southeast Ethiopia, 2016.

Discussion

This study primarily aimed to assess early postnatal care service utilization and associated factors among mothers who gave birth in the last 12 months in Aseko district, Arsi zone, South East Ethiopia. The study revealed that the level of early PNC service utilization was 23.7%. This figure is low compared with the study findings in Nepal, 2011, where 43.2% of the mothers had attended immediate postnatal care within 24 hours of delivery [19] and Kingdom of Cambodia, 2013, where 77% of urban and 58% of rural attended postnatal care within the first 24 hours [20].

This difference of service provision may be attributed due to the difference in socio-economic status, geographical barriers and

accessibility of services, information and health education between countries.

Moreover, a community based cross sectional study in Ethiopia, Dembecha district in 2013 revealed still a higher figure that show 34.5% of women utilized the service [27]. However, this study showed the early PNC service utilization in the district to be slightly higher than the case of Soroti district, eastern Uganda in 2015, where only 15.4% of women used early PNC [30]. In addition, the result of the current study indicates the service utilization to be higher than EDHS in 2011, study results that show only 7% of women received postnatal care within two days [16].

This difference may be explained by the time period difference for early PNC service reported by EDHS and this study as well the study time difference that there could be improvement in accessing and utilizing health care service through time. This low coverage of service provision indicates that a lot needs to be done in the study area as well as in the country to increase service utilization to the desired target.

In this study, the maternal status and institutional factors were found to be important determinants of early postnatal care utilization. Among maternal status, experience of early PNC for previous child, place of delivery and decision making power of the women were significant predictors of dependent variable. Mothers with experience of early postnatal care for previous child were 4.2 times more likely to utilize early postnatal care than mothers with had no experience.

This finding was consistent with cross-sectional study done in Gondar Zuria in the year 2014 [32]. This may be explained by experienced mothers may had a better opportunity to get information/advice provision on the importance of early postnatal care service follow up during previous child from health care providers.

Moreover, mothers who gave births their last child at health institution had 2.78 times more chance of getting early postnatal care service compared with mothers who gave births at home. This finding is in line with study results done in Kenya, DHS in 2014 [22] and with cross sectional study results in Ethiopia namely, in Jabitena district in 2013, Dembecha district in 2013 and Enderta district in 2013 [26,27,31].

For instance in Jabitena district, mothers who gave birth their last child in health institutions were about 4 times more likely to utilize postnatal care service utilization. This can be attributed to the fact that women who gave their last birth in health institution have greater opportunity and access of health education and advice or counselling received on early postnatal care follow up provided by health care providers during stayed in health facility.

The other variable that has significant and positive effect on mothers' early postnatal care service utilization was decision making power of the mothers themselves. Mothers who had autonomy to make decision in the household were 4.1 times more likely to attend early postnatal care than counterparts. This finding agrees with the results of study done in Jabitena district in 2013, Abi-Adi town in 2013 and Gondar Zuria district in 2014 [26,28,32].

For instance, in Jebitena district mothers who were autonomous to make health care decision by themselves were about 13 times more likely to utilize postnatal care service than those whose health care decision was made by others. This may be explained by the fact that gender inequality or women often have unequal access to health services, education and economic resources and thus influences of socio-economic inequality for women result in unable to make informed decision for their health care services.

Among institutional factors, information/advice on early postnatal care follow up from health profession, distance/time taken to arrive on foot to the nearest health facility and access to transportation were found to be significantly associated variables with early postnatal care utilization. Mothers who have information/advice on early postnatal care services were 5 times more likely to utilize the service than mothers who didn't have information/advice. This finding is also in line with findings of study done in Enderta district, 2013 and Abi-Adi town, 2013 [28,31]. Women who had got information about postnatal care services from health extension workers and Midwife/Nurse were more likely to attend postnatal care service than counter parts. This implies unequal access or dissemination of information, education and communication/advice provision on the importance of early postnatal care services for all women at all part of the study area.

With regard to distance from health institution, the study showed that mothers who travelled for two and more than two hours on foot to arrive at nearest health facility were less likely to utilize early postnatal care than mothers who travelled for less than two hours. This finding is consistent with study outcomes done in Dembecha and Gondar zuria districts, Ethiopia in 2013 and 2014, respectively [27,32,33]. This may be explained due to the reason that having nearby health facility increases access to health information and reduces distance barriers leading to better utilization.

The analysis result also identified that mothers who had access to transportation service were 2.6 times more likely to utilize early postnatal care as compared with those had no access to transport to reach health facility. Again this finding is line with findings of study conducted in Dembecha district in 2013 [27]. This could be the main reason why mothers did not use early postnatal care especially for those live in rural areas and no road for transportation.

Conclusion

The findings of this study show that early postnatal care service utilization in the study area was 23.7%. This implies that less than a quarter of the participants were using early PNC services. This figure is low compared with most of study findings conducted in other parts of the country and in other countries. The main reasons stated by mothers for not using early postnatal care service were: having no information on the importance of early postnatal care, it is not customary to go out of home before a week after delivery, lack/no transportation access to reach health facility and distance of health facility from their residence implying the need to travel longer distances on foot to get the service.

The multivariable logistic regression analysis estimation result revealed that, mother's experience of early PNC utilization for previous child, place of delivery, decision making power of the women, getting information/advice about early postnatal care follow up from health profession and access to transportation were positively associated factors while distance/time took to arrive on foot to the nearest health facility was negatively associated factor with early postnatal care service utilization.

Recommendations

Based on the findings of the study, the following recommendations are forwarded to respective responsible bodies to enhance early postnatal care service utilization in the study area:

For district level administrative office

Should give strong attention to improve transportation service in the study area by connecting kebeles of the district through road construction.

For district level women and children affairs office

Encourages women to practice more and strengthening to optimize their ability to make informed decisions about their own health care service utilization.

For district level health office

Increasing the access and strengthening health facilities to enhance service provision and information, education and communication both at the facility and at the community level to improve early PNC service.

For health workers and health extension workers

- Strengthening community based Information, Education and communication on the importance and availability of the services as well as on postpartum danger signs for all women at all part of the study area.
- Should take the opportunities to encourage mothers who attend delivery and ANC on the importance and availability of early PNC services.
- Strengthening institutional delivery service and encouraging mothers to attend skilled delivery in health institutions to improve the early postnatal care service utilization in the study area.
- Strengthening the service through home visit for those travelling more hours on foot to the nearest health facility.

For researchers

Researchers should conduct further studies which are supported by qualitative studies.

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