

Postnatal Care Service Utilization and Associated Factors Among Mothers Who Gave Birth in Last Year: Community Based Cross Sectional Study in Adama, Ethiopia

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Abstract: Background: Postnatal period is generally the most neglected period, especially in developing countries. This study assessed postnatal care service utilization and associated factors among mothers who gave birth in the last one year in Adama Town, Oromia, Ethiopia. Methods: Community based Cross sectional study was employed in seven randomly selected kebeles in Adama town. A total of 563 mothers was included. Data was collected by face to face interview. Data were entered into Epi Info version 7 and imported to SPSS version 20. Descriptive statistics were carried out to characterize the study population. Bivariate and Multivariable Logistic regression were used to identify the associated factors. Result: The mean age of respondents was 28 (SD±5.01) Years. The prevalence of PNC utilization was 269 (47.7%) with (95% CI: 44.0, 51.8). Educational status (AOR, 2.27; 95% CI: 1.13, 4.57), mode of delivery (AOR, 5.08; 95% CI: 2.55, 10.10), Provision of PNC appointment (AOR, 2.09; 95% CI: 1.36, 3.25), and Mothers Knowledge (AOR, 5.68; 95%CI: 2.97, 10.87) showed statistically significant association with PNC service utilization. Conclusion: Postnatal care service utilization in this study is much lower than Health service transformation plan of the country. Factors like Educational status, Mode of Delivery, Appointment date, mother's knowledge of PNC utilization were found to be significantly associated with PNC utilization.

Keywords: PNC Services, Utilization, Adama Town

1. Introduction

Postnatal care (PNC) is defined as a care given to the mother and her newborn baby immediately after the birth of the placenta to the first six weeks of life. PNC interventions are used for prevention of impairments and reduction of maternal and newborn mortality. [1, 2] World Health Organization (WHO) recommends a total of four visits: on the first day (24 hours), 3rd day (48–72 hours), between 6-7 days and 6th weeks. Indeed, these contacts can be exercised in a health facility after discharge by Health care practitioners [3].

According to the WHO, only a small proportion of women in developing countries, less than 30%, receive postnatal care and in very poor countries and regions, as few as 5% of women receive such care [4]. Maternal mortality ratio (MMR)

is 15 times higher in developing than in developed regions (16/100,000 live births) [5]. Sub-Saharan African countries (SSA) had the highest MMR 500 maternal deaths per 100,000 live births and current studies in Ethiopia showed that 46,000 mothers and 48 per 1,000 live births are died [6, 7].

Study conducted in Brazil shows higher percent of women utilize postnatal care service more than many other developing countries, which is 77%. Study done in Shinyanga, India, rural district only 35% of women in the area visits health facilities for PNC services for at least once within 42 days [8]. In another study conducted in Tertiary Care Center of Delhi, Only 9.3% of women received postnatal care service after discharge from health institution [2]. In Kiambaa Sub County (75%), Bangladesh (73%), Nepal (72%) and Rwanda (71%) of women did not

receive any PNC service. another Study from Tanzania indicated low utilization of maternal PNC services among women [9].

Studies from developing countries shows that low level of PNC utilization; Uganda (57%), Haiti (55%), Mali (49%), Nigeria (46.5%), Cambodia (46%), Kenya (46%), Burkina Faso (44%), Malawi (41%) and Zambia (41%) didn't utilize PNC [9]. Ethiopian Demographic Health Survey (EDHS) shows that, the level of PNC service utilization coverage is extremely low, only 18% of women received PNC service within forty two days in a recommended timings. Among 18%, only 8% followed care within four hours of delivery, 3% within 4 to-23 hours, 2% within 1-2 days, and 5% within 3-42 days of delivery. In Oromia region, Ethiopia, only 9% of women utilized PNC service within 42 days of delivery, this is below the national level [10]. Studies conducted in different parts of Ethiopia showed low level (Somali region 8.4%, Demebecha 9.3%, Abi Adi 11.9%, Jabitena district 20.2%, Debre Markos Town 33.5%, Wolaita Zone, 34.9%, Lemo worda 51.4%), but high level of PNC utilization have been shown in Gondar Zuria district (66.8%) and in Adwa town (78.3%) [4, 5, 7, 11-14].

Study conducted in different area show that, factors like: Socio-demographic factors, (age, religion, occupation, education, Marital status, Family Income), Reproductive and Obstetric factors, like ANC follow up, Parity and gravidity, Prenatal follow up, delivery and post delivery related complications, mode of delivery, Advice and appointment on discharge significant association with PNC utilization [4, 7, 13, 15, 16].

Study done in Rwanda show that older age of women was associated with low PNC utilization [17]. But in study conducted Bahi District (Tanzania), and Ethiopia (Lemo wereda, Demebecha, AbiAdi, Tigray and Holeta Town) maternal Age was not associated with PNC service utilization [5, 8, 11, 18] Whereas studies conducted in Jijiga Town, Somali Regional State, Eastern Ethiopia, in Wolaita Zone, Southern Ethiopia, showed that young mothers were 3.5 times more likely to use antenatal and postnatal care service, Study done in Kenya show that marital status has no association with PNC service utilization [19]. But study in Rwanda shows that, being married were associated with PNC utilization, that is similar with the result of study conducted in selected health centers, Addis Ababa, Ethiopia at (Entoto Fna Health Center, Gulele district) [4].

Whereas study in Tigray region, and in Jijiga Town, Somali Regional State, Ethiopia, showed that marital status was highly significant association with utilization of maternity health service. This finding is similar with study conducted in Jabitena district, Amhara region [5, 13].

In study conducted in India, maternal occupation has significant association with utilization of postnatal services [20]. Study conducted in Jabitena district and Assosa district showed that maternal occupation was not associated with PNC service [21].

Study from Rwanda, Tanzania showed that economic

status of women had statistically significant association with PNC utilization and Women from high income households were nearly 2 times more likely to use PNC services [22, 23]. Study conducted in Gulele district, Addis Ababa and AbiAdi Tigray Region, showed that good income level of women were significantly associated with PNC utilization [4, 18].

Study conducted in Delhi, Tanzania, Kenya, Uganda, and Indonesia and in Ethiopia (Gulele, in selected health center of Adiss Abeba, jabitna, Amhara rigion) shows that educational status of women was significantly association with PNC utilization [8, 12, 19, 21, 23].

A Community Based Mixed Study show that mothers who have good knowledge of postnatal care service utilization were more than 7 times more likely to utilize PNC service than those who have poor knowledge. Study conducted in Lemo distric of Hadiya zone, Debre Markos town, Jabitena District, Amhara Region showed that Knowledge on maternal complications during postnatal period were significantly associated with postnatal care service utilization [5]. In Gulele, Adiss Ababa, study showed that good Knowledge about postnatal care during antenatal care had significant effect on postnatal health care utilization, and knowing at least one danger sign of post-partum showed statistically significant association with postnatal health care service utilization [4, 24]. Study in Tanzania and Kenya shows that Mothers who attended four or more ANC visits were more likely to use PNC services compared with mothers who did not attend ANC at all [14, 23] And in Ethiopia, study conducted in Wolaita Zone, Southern Region, showed that, ANC service utilization at last pregnancy has shown statistically significant association [11]. In Gulele, Addis Ababa study shows, attending ANC had significant association on postnatal health care utilization [4]. Women who were getting antenatal and delivery care might have a positive association on the uptake of postnatal care which is similar with the studies conducted in Gondar Zuria district, Amhara region [7, 14].

Study done in Lemo worda shows, mothers who delivered by cesarean section were more likely to utilize PNC than mothers who delivered by spontaneous vaginal delivery (SVD) [5]. Similarly study in Debre markos Town shows, mothers who delivered by cesarean section were 4.8 times more likely to get postnatal care services than mothers who delivered by SVD [24]. Study in selected Health center in Adiss Ababa, women who utilized PNC service in their previous delivery was more likely to utilized current PNC service [9]. The probability of utilizing postnatal care among women multigravida was decreased compared to Prime-gravid women [21].

In Lemo worda past history of maternal complication and PNC service utilization is significant, that is mothers who experienced obstetric problems during their last birth appear strongly motivated to seek postnatal care service [5]. Similarly in Debre markos study conducted indicate that having delivery complication during child birth were 2.58 times more likely to utilize postnatal care services [24]. Study conducted In Abi Adi Town Tigry show that

mothers who know maternal postpartum period complications are more likely to have used postnatal care services [18]. Whereas in Jabitena district, mothers who had knowledge of at least one postpartum obstetric danger sign were 4 times more likely to utilize postnatal care service [21].

Place of delivery has also been an important role of postnatal care service utilization. Mothers who gave their last child birth in health institutions were about 4 times more likely to utilize postnatal care service [20]. Study conducted in Addis Ababa shows place of delivery of their last baby have significant association with utilization of PNC services [9, 11]. Another studies, in Jibatena and Debre Markos, Amhara Region, shows that Mothers who gave birth their last child in health institutions were about 4 times and 1.68 times more likely to utilize postnatal care service respectively [21, 24]. Study conducted in Debremarkos Town shows, live birth outcome were 2.7 times more likely to get postnatal care services than mothers who gave stillbirth [14].

Ethiopia is the second most populous country with over 100 million people [25]. And one of the poorest in Reproductive Health Service (RHS) levels as indicated by high rates of maternal morbidity and mortality. To address this problem, the country has had a significant expansion of health care facilities with more than 35,000 community health workers called Health Extension Workers (HEW) mainly engaged in maternal and child health activities [14]. Despite the Ethiopian government's effort to improve maternal health by increasing accessibility to health service but health service utilization is "unacceptably low" [26]. PNC coverage was limited to only 5% of the expected deliveries which was 4% less than Skilled Birth Attendants (SBA) coverage [13, 27]. In this study, we tried to assess Postnatal Care Service Utilization and Associated Factors among Mothers Who Gave Birth in the Last One Year In Adama Town, Oromia, Ethiopia.

2. Methods and Materials

2.1. Study Area

The study was conducted in Adama Town, Oromia Region, Ethiopia, which is located 99 km Southeast of Addis Ababa, Ethiopia. Adama town has 14 urban and 4 rural kebeles. The town has a total population of 341,796, 170,842 (50%) males and 170,953 (50%) females, Adama Town has 1 government hospital, 7 government health centers, 4 private hospitals, 94 private clinics, 2 Non-Governmental RH clinics and 108 drug stores and Pharmacies. PNC service is being delivered in all hospitals, government health centers, and Non-Governmental clinics and MCH Special Private Clinics.

2.2. Study Design and Period

Community based cross-sectional study design was

employed to determine the level of postnatal care service utilization and associated factors among mothers in Adama Town, Oromia Region, Ethiopia from October 1/2020 to December 30/2020.

2.3. Source Population

All women of reproductive age (15-49 years) who live in Adama town.

2.4. Study Population

All women of reproductive age (15 to 49 years), who gave birth in the last one year before the study period.

2.4.1. Inclusion Criteria

Mothers who gave birth within one year and who have voluntarily agreed to participate in the study were included.

2.4.2. Exclusion Criteria

Mothers who were not mentally capable of being giving information for interviewer and Mothers who gave birth to baby before one year were also excluded.

2.5. Sample Size Determination and Sampling Procedures

2.5.1. Sample Size Determination

The required sample size of this study was determined using single population proportion formula. Proportion of PNC utilization of 33.5% [24]. Margin of error, confidence level and non-response rate was assumed to be 4%, 95% and 5% respectively.

$$n = \frac{Z(\alpha/2)^2 p(1-p)}{d^2} = 535$$

After adding a 5% non-response rate to determine the final sample size is 563 for the study.

2.5.2. Sampling Procedure

Cables were stratified into two (Urban and rural). Then, from all stratum a total of seven Kebeles were randomly selected. The Sample size was allocated proportionally to each selected kebele. The initial interviewed household was selected by simple Random Sampling from the kebele. The subsequent households were selected every 10th household. In the case of no eligible woman identified in the selected household, the next household was visited. Whenever, more than one eligible respondent found in the same selected household only one respondent was chosen by lottery method to avoid intra household correlation. Revisits were made in case eligible respondents were not available at the time of the data collection. In the absence of child bearing woman in sampled household, interviewer interviewed a woman who lives in the next household.

Total participants allocated for each selected kebeles were calculated by the formula of

$$n_i = n/N \times \text{sample size},$$

and gave that:

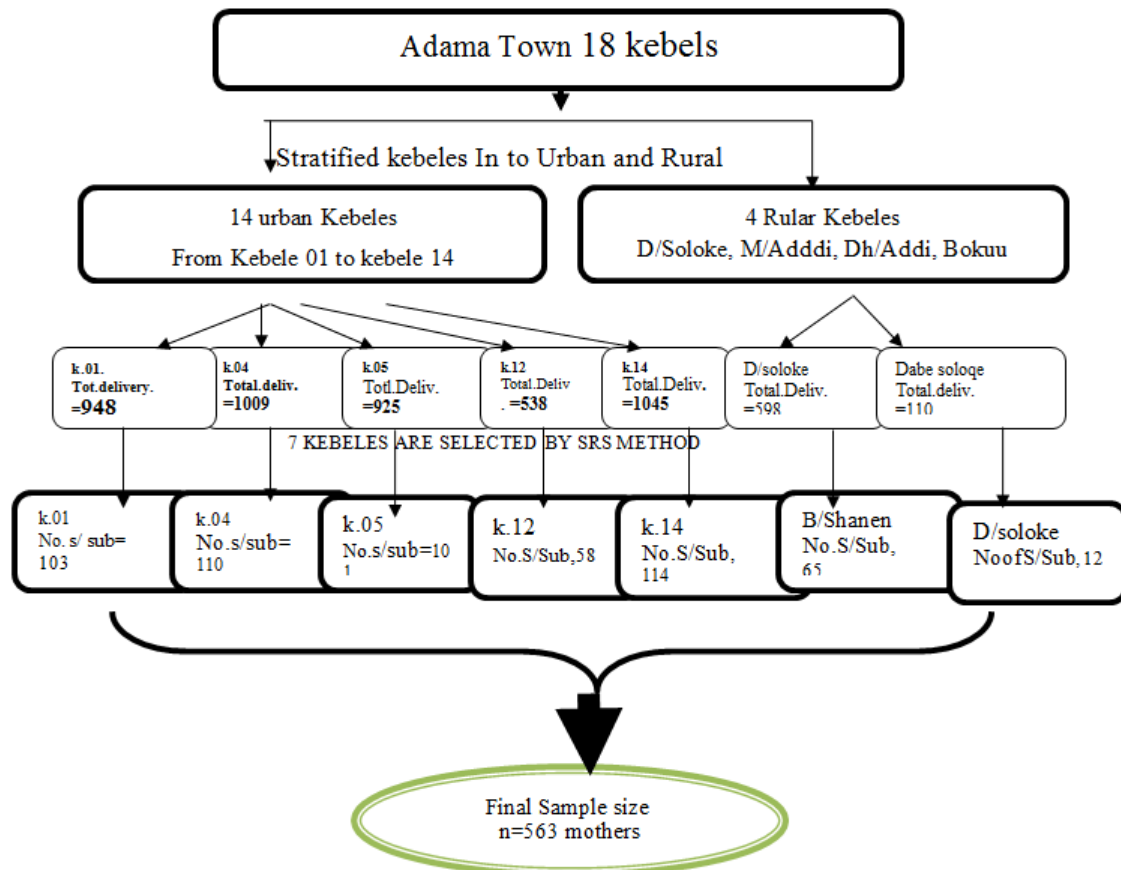


Figure 1. Schematic Presentation of sampling Procedure of the study participant In Adama Town in 2020.

2.6. Data Collection Procedures (Instruments, Personnel, Measurements)

Structured and semi structured questionnaire was adapted after reviewing relevant studies. The questionnaire was prepared in English then translated into local languages (Afan Oromo and Amharic), then back to English in order to ensure its consistency. The final version of the questionnaire was used for data collection. Five university students were recruited as interviewers and two BSC Nurses were recruited as supervisors. Data collection was conducted by a face to face interview with women having less than one year's old child at the participant home.

2.7. Data Quality Assurance

Two days training was given for both data collectors and supervisors. To check the clarity and validity of the questionnaire and gap in data collection, Pre-test was conducted on 5% of the study population out of selected kebeles. Discussion was made based on the result of the pre-test to make necessary corrections. During data collection the principal investigator & supervisors checked the data for its completeness, accuracy and clarity on daily bases.

2.8. Data Processing and Analysis

The questionnaire was checked for completeness, cleaned,

coded and entered into epi-info version 7 and finally exported to SPSS version 20 software for analysis. Frequency table, proportion and numerical summary measures were used to describe the study variables. Bivariate logistic regression was used to see a significant association between the outcome and independent variables. The variables with p value of < 0.25 on bivariate analyses were taken to multivariable logistic regression to identify the independent predictors of PNC utilization. Collinearity and Assumption of goodness of fit were checked using Hoshmer and lemshow test.

Finally, the model was built with backward elimination with 95% confidence level with its corresponding p-value < 0.05 and was considered statistically significant. To indicate strength of association, the odds ratio was used as a measure of effect and results from the multivariable logistic regression was reported in the form of adjusted odds ratios (AORs).

3. Results

3.1. Socio-Demographic Characteristics of Participants

A total of 563 mothers of reproductive age who gave birth in the last one year prior to this study were interviewed with a 100% response rate. (36.9%) participants were at the age of 25-29 years with the mean age of the respondents was 28.00

(SD±5.01) years. Regarding the religion of study participants, 270 (48.0%) of them were orthodox, Concerning ethnic group 245 (43.5%) were Oromo in the area. Regarding to the marital status of respondents 469 (83.3%) was married. Concerning to educational status 186 (33.0%) was at the level of secondary school and participant husband's educational status, 158 (33.7%) were attended secondary school, regarding their Occupational status more than one-third 220 (39.1%) of respondents were Housewives and 182 (38.8%). The respondent husbands were employed. (For detail description sees Table 1).

3.2. Reproductive and Obstetric Characteristics

More than half (68.1%) of respondents were multigravida

and 518 (92.0%) of participants had at least one ANC follow up during their current birth. As to mode of delivery, Three-fourth (79.3%) of respondents delivered by spontaneous vertex delivery, followed by Cesarean section 104 (18.6%). Of mothers 552 (98.0%) gave birth to their last child in health institution. Regarding obstetric complication, less than one-fourth 116 (20.6%) of respondents experienced at least one complication after delivery. Regarding to advice and telling appointment date before discharge from health facility, 279 (50.3%) of respondents was advised about PNC service and more than 1/3rd of mothers 200 (36.3%) were appointed to return back to PNC service (Table 2).

Table 1. Socio-demographic characteristics of respondents in Adama Town, Oromia Region, Ethiopia, 2020 (N=563).

Variables	Frequency	Percent
Age of respondents (Years)		
<20	62	11.0
20-24	93	16.5
25-29	208	36.9
30-34	130	23.2
>35	70	12.4
Religion		
Orthodox	270	48.0
Muslim	174	30.9
Protestant	114	20.2
Other*	5	0.9
Ethnicity		
Oromo	245	43.5
Amhara	157	27.9
Gurage	105	18.7
Other**	56	9.9
Marital Status		
Single	41	7.3
Married	469	83.3
Divorced/Widowed	53	9.4
Educational Status of Respondents		
No formal Education	74	13.3
Primary Education	157	27.8
Secondary School	186	33.0
Above Secondary school	146	25.9
Occupation of respondent		
Employee	187	33.2
Merchant	121	21.5
Daily Laborer	35	6.2
House Wife	220	39.1
Husband Educational status (N=469)		
No formal Education	15	3.2
Primary Education	126	26.9
Secondary Education	158	33.7
Above secondary Education	170	36.2
Husband Occupational status		
Employee	182	38.8
Merchant	110	23.5
Daily Laborer	148	31.5
Work Less	29	6.2

NB-Other *- Jehovah witness, Waqefeta, Other**-Siltii, Tigrai, Welaita, kmbata.

Table 2. Obstetric and Reproductive characteristics of mothers who give birth in the last one year prior the study in Adama Town, Oromia Region, Ethiopia (2020).

Variables	Frequency	percent
Parity (N=563)		
Primi-Para	180	31.9
Multi –Para	383	68.1
ANC Utilization during current pregnancy		
Yes	518	92.0
No	45	8.0
Mode of Delivery		
Spontaneous Vaginal Delivery	447	79.3
Instrumental Delivery	12	2.1
Cesarean section	104	18.6
Place of Delivery		
Home Delivery	11	2.0
Institutional Delivery	552	98.0
Birth Outcome		
Still Birth	9	1.5
Alive	554	98.5
Delivery complication during current pregnancy		
Yes	97	17.2
No	466	82.8
Postnatal complication during current pregnancy		
Yes	116	20.6
No	447	79.4
Advised about PNC before discharge (n=552)		
Yes	279	50.5
No	273	49.5
Appointment for Postnatal service Utilization (n=552)		
Yes	200	36.3
No	352	63.7

3.3. Utilization of Postnatal Care Service Among Mothers

Of the total respondents 268 (47.6%) with (95% CI: 44.0, 51.8) mothers utilized postnatal care service. With regard to attending time of PNC only 12 (4.5%) of mothers use the PNC service within 48 hours and 200 (74.7%) mothers were visiting one time. Concerning source of information, the majority 177

(66.0%) of respondents got information from Mass media (TV/Radio), followed by during ANC follow up 68 (25.4%) and others from their friends and relatives 23 (8.6%). Overall, 295 (52.3%) of mothers did not use Postnatal care service at their last delivery. The reason explained by participants were, the majority 133 (45.1%) of them had lack of information on the importance of PNC service.

Table 3. Respondents Postnatal care service utilization of mothers in Adama Town, Oromia regional state, Ethiopia, 2020 (n=268).

Variables	Frequency	Percent
Utilized PNC service		
Yes	268	47.6
No	295	52.4
Time mothers attending PNC after delivery		
Within 48 hours	12	4.5
2-3days	55	20.5
6-7 days	97	36.2
at 6 weeks	104	38.8
Frequency of post natal service utilization		
One time	200	74.7
Two times	56	20.8
Three and above	12	4.5
Source of information (n=268)		
Mass media (TV/Radio)	177	66
Health institutions	68	25.4
Friends/Relatives	23	8.6
Reasons for not utilizing PNC service (n = 295)		
Lack of information	133	45.1
Feeling well after delivery	72	24.3
Lack of guardian/help	55	18.7
Unplanned pregnancy and Waiting for fall of cord	35	11.9

3.4. Attitude of Respondents About PNC Services Utilization

To assess mother's attitude, a 5-point Likert scale type questions were prepared. Of the study respondents 347 (61.7%) were agreed that advice about PNC service should be provided during ANC follow up. About 288 (51.2%) of mothers agreed on PNC importance and that it can minimize morbidity and mortality of mothers and newborn. Regarding to the time of PNC service follow up 376 (66.8%) of mothers agreed to use PNC within 42 days, whereas, 53 (9.4%) were neutral whether the time is 42 days or not. The majority 411 (73.0%) of mothers has a positive attitude toward PNC utilization.

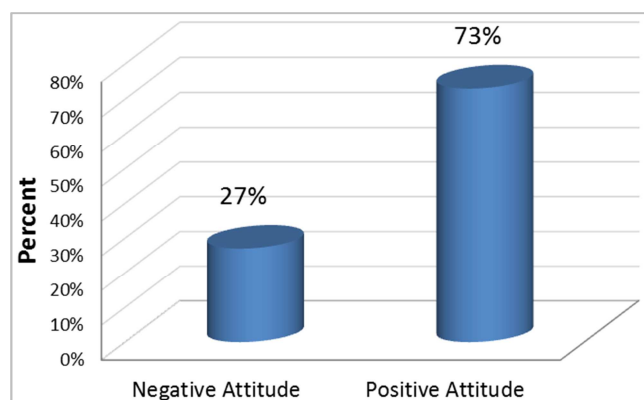


Figure 2. Level of attitude among mothers toward PNC utilization in Adama town.

3.5. Respondent's Knowledge Level About Postnatal Care Utilization

More than half 297 (52.8%) of mothers have not heard information about PNC, and 331 (58.8%) mothers did know the correct time when to use PNC service. 318 (56.5%) of mothers know about the recommended number of PNC service follow up. Two third 341 (60.6%) of mothers did know the service provided during their postnatal period. From all PNC users, 198 (35.1%) had moderate knowledge, 261 (46.4%) low knowledge and the least 104 (18.5%) high knowledge.

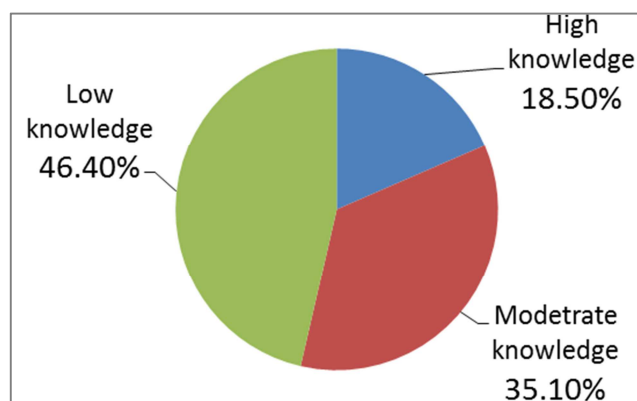


Figure 3. Knowledge level of women toward PNC utilization in Adama town.

3.6. Factors Associated with PNC Service Utilization

To identify the association of independent variables with dependent variable both bivariate and multi variable logistic regression analysis was used. The variables that had significant association to the dependent variables at P-values less than 0.25 were entered into multi variable logistic regression. Only four of them (Maternal Education, Mode of delivery, Appointment for PNC service and Respondents Knowledge about PNC service Utilization) has shown a statistically significant association at $P < 0.05$.

Mothers who attend above secondary school were more than 2 times (AOR, 2.09; 95% CI: 1.09, 3.98) more likely to utilize postnatal care service compared to those having no formal education mothers. The odds of having postnatal care appointment date after delivery were 2.6 times (AOR, 2.55; 95% CI: 1.71, 3.82) more likely to use postnatal care service than their counterparts.

Similarly, those mothers who gave birth by cesarean section were 5 times (AOR, 4.87; 95% CI: 2.77, 8.57) more likely to utilize postnatal care service compared to mothers who gave birth by spontaneous vaginal delivery. Mothers having high Knowledge about PNC importance were 4 times (AOR, 4.07; 95% CI: 2.30, 7.22) more likely to utilize PNC service compared to those mothers who have low Knowledge.

Table 4. Factors associated with PNC utilization among respondents in Adama town, Oromia Region, Ethiopia, 2020.

Variables	PNC service Utilization		COR (95%CI)	AOR (95%CI)
	No (%)	Yes (%)		
Marital Status of Respondents				
Single	27 (65.9)	14 (34.1)	1:00	1:00
Married	231 (49.2)	238 (50.8)	1.98 (1.06, 4.01)*	1.89 (0.88, 4.08)
Divorced/Widowed	36 (67.9)	17 (32.1)	0.91 (0.39, 2.24)	0.68 (0.25, 1.86)
Education Status of respondents				
No formal Education	47 (63.5)	27 (36.5)	1:00	1:00
Primary education	100 (63.7)	57 (36.3)	0.99 (0.54, 1.69)	0.87 (0.46, 1.64)
Secondary education	94 (50.5)	92 (49.5)	1.70 (0.95, 2.85)	1.55 (0.84, 2.84)
Above secondary school	54 (37.0)	92 (63.0)	2.97 (1.61, 5.09)*	2.09 (1.09, 3.98)**
No of Deliveries				
Primi-Para	112 (62.2)	68 (37.8)	1:00	1:00
Multi-Para	182 (47.5)	201 (52.5)	2.06 (1.09, 2.25)*	1.50 (0.99, 2.29)

Variables	PNC service Utilization		COR (95%CI)	AOR (95%CI)
	No (%)	Yes (%)		
Mode of delivery				
Spontaneous Vaginal Delivery	269 (60.2)	178 (39.8)	1:00	1:00
Instrumental Delivery	5 (41.7)	7 (58.3)	2.12 (0.66, 6.77)	1.95 (0.52, 7.25)
Cesarean section	21 (20.2)	83 (79.8)	5.97 (3.61, 10.11)*	4.87 (2.77, 8.57)***
Delivery Place				
Home	9 (81.8)	2 (18.2)	1:00	1:00
Institution	285 (51.6)	267 (48.4)	4.22 (1.02, 21.56)*	2.59 (0.53, 12.81)
Appointment for PNC service Utilization				
No	221 (60.9)	142 (39.1)	1:00	1:00
Yes	73 (36.5)	127 (63.5)	2.71 (1.90, 3.89)*	2.55 (1.71, 3.82)***
PNC Complication				
No	243 (82.7)	51 (17.3)	1:00	1:00
Yes	203 (75.5)	66 (24.5)	1.55 (1.03, 2.34)*	1.22 (0.75, 1.96)
Respondent's knowledge Level				
Low Knowledge	149 (57.3)	111 (42.7)	1:00	1:00
Moderate Knowledge	122 (61.3)	77 (38.7)	0.1 (0.59, 1.24)	0.78 (0.51, 1.18)
High Knowledge	23 (22.1)	81 (77.9)	4.73 (2.82, 8.04)*	4.07 (2.30, 7.22)***

NB-Significant association with p value $<0.25^*$, $P<0.05^{**}$, $P<0.001^{***}$, 1:00 –Reference.

4. Discussion

The result of this study shows that prevalence of PNC is 47.6% and factors like Maternal Education, Mode of delivery, PNC appointment and Mothers Knowledge showed significant association with PNC utilization.

The results of the current Study were relatively higher than the finding from study in Kenya (9.3%), and in Ethiopia (Somalia region (8.4%), Abi Adi (11.9%), Jabitena district (20.2%), Debre Markos Town, (33.5%) and in Denbecha (34.8%)) But lower than the finding from studies conducted in Tanzania (70.8%), and in Ethiopia (Lemo wereda (51.4%), Entoto fana Health center, Gulele sub city (76.2%), and Gondar Zuria district (66.8%) [4, 5, 7, 11–14]. This discrepancy may be due to educational status of the mothers, access to information/awareness of respondents to the use of postnatal care service. Maternal knowledge, counsel/advise and mothers who delivered in health institution to come back for postnatal care, maternal attitude have a positive effect on the importance of PNC service.

Maternal education has a strong positive association with PNC utilization. Mothers who attended secondary and above education were 2 times more likely to utilize PNC service as compared to those mothers who had no formal education. This finding was similar with study conducted in Tanzania and in Ethiopia; Gulele sub city, Addis Ababa, and Abi-Adi which shows that non educated mothers were (86%) and (95%) less likely to utilize PNC service respectively compared to educated women [4, 18]. The result of current study was supported by the National survey and other studies report that, postnatal service utilization increases with women educational level [2, 4–6, 14, 18, 21]. This could be due to the fact that education has a valuable input in enhancing female autonomy and help develop greater concern about their health.

Utilization of postnatal care was significantly influenced

by mode of delivery. Mothers who gave birth by cesarean section were 5 times more likely to get postnatal care service than mothers who delivered by spontaneous vaginal delivery. This is in line with study conducted in Debre Markos Town, Amhara Regional State, Ethiopia, in which mothers who delivered by cesarean section were 4.8 times more likely to get postnatal care service than who delivered by spontaneous vaginal delivery [24]. This might be due to fear of occurrence of complication and to prevent further complication which may result in increased care seeking behavior of the mothers.

The other factor associated with PNC utilization was appointment date given to mothers after delivery by health professionals. Mothers who appointed for PNC service were 2 times more likely to use the PNC service than counterparts. The result of this study is similar with the study conducted in selected Health centers in Addis Ababa town which showed that, women who were appointed after institutional delivery were more than 3 times more likely to utilize PNC service than their counterparts [9]. This may be due to that health care professionals might have informed the mothers about the benefits of PNC.

In the current study, mothers who have high Knowledge about postnatal care service and its importance were 4 times more likely to utilize the service. This result is in line with the study conducted in Debre Markos Town, Amhara, Abi Adi Town, Tigray and Wolayita Zone, Southern Ethiopian [11, 18, 24]. This can be explained by the fact that women having information, knowledge about the importance of PNC service, the service provided and the recommended time for PNC follow up may has high PNC services utilization seeking behavior.

5. Strength and Limitation

5.1. Strength

Training was given for data collectors and supervisors.

Primary data were collected by trained female data collectors.

New data collected by face to face interview.

Since the study was community based, the result of this study can be generalized to the general population.

5.2. Limitation

The study design was cross-sectional, hence, the cause and effect relationship of variables were difficult to ascertain and it may not be able to establish a temporal relationship.

Finally, recall bias was more likely since women were asked for events which have already happened within the past one year prior to this study.

6. Conclusion

The finding of this study indicated that PNC service utilization is still low, because more than 50% of women are not utilizing PNC service. Factors like Maternal Education, Mode of delivery, PNC appointment, Mothers Knowledge were found independent predictors of PNC utilization. Low utilization of PNC may contribute to increased maternal morbidity and mortality which is high in our country.

7. Recommendations

Government and stakeholders should work hard on increasing knowledge of community on the benefits of PNC service, Strengthen the provision of information, education and communication about postnatal care service.

All health care providers should encourage and provide post-delivery appointment for PNC service for all mothers.

Health workers should give attention to women who give birth by spontaneous vaginal delivery. Because mothers who give birth by SVD may assume that all the delivery process is normal, nothing can be occurred. But this may not be true always. Post-delivery problems may occur within 42 days. Therefore, attention should be given to mothers who give birth by SVD.

List of Acronym

ANC	Antenatal Care
AOR	Adjusted Odds Ratio
CI	Confidence Interval
COR	Crude odds Ratio
EDHS	Ethiopian Demographic Health Survey
MMR	Maternal Mortality Ratio
MCH	Maternal and Child Health
PNC	Postnatal Care
RH	Reproductive Health
SBA	Skilled Birth Attendant
SSA	Sub Saharan Africa
SVD	Spontaneous Vertex Delivery
WHO	World Health Organization

Declarations

Ethical Considerations

Ethical clearance was obtained from the Institutional Review Board of Adama Hospital Medical College. Permission and supportive letters were received from the Adama Town Health Bureau and verbal consent was obtained from each respondent before an interview after informing the purpose and importance of the study, each participant was given full right to refuse/ to reply and discontinue the interview if any inconvenience or if she or He was not comfortable about the questionnaire. Confidentiality was assured throughout the study period. Personal identifiers were not included in the questionnaires to ensure participants' confidentiality.

Consent for Publication

Not applicable.

Availability of Data and Material

All data sets used and/or analyzed during the current study are available from the corresponding authors on reasonable request.

Competing Interest

The authors declare that they have no competing interests.

Authors' Contribution

All authors contributed into concept preparation and design, acquisition of data, analysis and interpretation of data and writing the final manuscript.

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