Factors influencing utilization of early postnatal care services among postpartum women in Yirgalem town, Sidama Regional State, Ethiopia

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Abstract
Objective: Providing postnatal care services at right time could help to reduce maternal and newborn deaths. Thus, this study aimed to assess the factors influencing the utilization of early postnatal care services among postpartum women in Yirgalem town, Sidama Regional State, Ethiopia.
Methods: A community-based cross-sectional study was done using structured and interviewer-administered questionnaires among randomly selected 306 postpartum women. Data were cleaned, coded, and entered into EpiData-3.1, and exported to Statistical Package for Social Science-21 for analysis. Descriptive statistics, bivariable, and multivariable logistic regression analysis were done. A p-value \( \leq 0.05 \) was used to consider statistically significant variables.
Results: Generally, 202 (66.7%) visited a health facility for postpartum care. The prevalence of early postnatal care service utilization was 45.5% (95% confidence interval = 39.9–50.5). Mainly practiced services were physical examination (37%) and family planning (31%) services. Having formal education (adjusted odds ratio = 3.6; 95% confidence interval = 1.7–7.4), having antenatal care (adjusted odds ratio = 3.5; 95% confidence interval = 1.6–7.6), institutional delivery (adjusted odds ratio = 2.3; 95% confidence interval = 1.2–4.7), and getting advice from healthcare provider (adjusted odds ratio = 18.69; 95% confidence interval = 9.19–37.99) were factors significantly associated with early postnatal care service utilization.
Conclusion: The practice of early postnatal care needs more attention in the study area. Improving the educational status of the women, strengthening healthcare providers’ counseling on the benefits of postnatal care, and inspiring pregnant women to use antenatal care and institutional delivery services will improve the use of postnatal care services on time.

Keywords
Postnatal care, service, Ethiopia

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Introduction
Postnatal period is the scientific term for the period following childbirth to 6 weeks during which the body tissues particularly the genital and pelvic organs return back to normal state, and it begins as soon as placenta is expelled.1,2

Early postnatal care (EPNC) is maternal and child healthcare service offered from the time of delivery up to the first week of postpartum period. It encompasses promotion of the health and provision of advices regarding contraception use, immunization, breastfeeding, and nutrition services.3,4 The first postpartum week is a critical phase in the lives of mothers and their babies since many maternal and neonatal deaths occur in this period due to delay in early identification of the complications.2

Globally, a large proportions of women die in each year due to pregnancy and childbirth-related complications,3 and majority of these deaths occur during the postpartum period,
particularly in the first week after delivery.\textsuperscript{4} The majority (94\%) of all maternal deaths occur in low- and lower-middle-income countries due to lack of using existing services on timely manner.\textsuperscript{5,6} Providing of a postnatal care services at right time could results in reduced maternal and neonatal morbidity and mortality.\textsuperscript{3}

Sub-Saharan Africa alone accounted for roughly two-thirds (196,000) of maternal deaths, while Southern Asia accounted for nearly one-fifth (58,000).\textsuperscript{7} In addition, most of the mothers are not visiting the health facility following childbirth, indicating that EPNC services are getting less attention from policy makers and community perspectives.\textsuperscript{8,9} Most of these complications and deaths happened due to easily avertable cause like blood loss, hypertension, sepsis, HIV, pre-existing medical disorders, and other indirect causes.\textsuperscript{9}

World Health Organization (WHO) recommended that delivery of postpartum care services should be started immediately after giving birth to ensure women’s physical and mental health through advising on danger signs and symptoms, and taking appropriate measures for potentially life-threatening conditions.\textsuperscript{2} The first hours, days, and weeks after giving birth are a dangerous time for both the mothers and their newborns because majority of the complications and deaths happen during this time.\textsuperscript{10–12}

Although there is a progressive decline in maternal and child mortality rates in some regions of the world, in Ethiopia this rate is still in alarming condition with maternal, under-five, infant, and neonatal mortality ratio of 412/100,000, 67/1000, 48/1000, 29/1000 live births, respectively.\textsuperscript{13} Despite the fact that it has very substantial and positive impact on reduction of maternal and newborn morbidity and mortality, previous studies focused on general postnatal care and less attention given on factors affecting use of EPNC services. Also, there is a scarcity of updated information regarding utilization of EPNC as well as different factors influencing it in Sidama Regional State. Therefore, the aim of this study was to assess the factors influencing utilization of EPNC services among postpartum women in Yirgalem town, Sidama Regional State, Ethiopia in 2019.

Method and materials

Study area and period

This study was conducted in Yirgalem town, Sidama Regional State, Ethiopia. It is 45 km east of Hawassa, a capital city of Sidama Regional State, and 320km south from Addis Ababa, a capital city of Ethiopia. It has 13 kebeles (the smallest administrative unit of the Ethiopia), one governmental general hospital, one health center, and 10 health posts. The total population of the town was estimated to be 79,506 from which 39,912 are females, out of which 18,526 are women of reproductive age group.\textsuperscript{14} The study was conducted from 25 March to 15 April 2019.

Study design, sample size determination, and population

A community-based cross-sectional study design was used. Sample size was determined by taking proportion of 0.237 from previous study,\textsuperscript{15} 95\% confidence interval (CI) with 5\% marginal of error and 10\% non-response rate with single population proportion formula as shown as follows

\[
n = \frac{(Z_{\alpha/2})^2 \times p (1-p)}{d^2} = \frac{(1.96)^2 \times 0.237 (1-0.237)}{(0.05)^2} = 278
\]

By adding 10\% non-response rate, the final sample size was 306 participants.

The source population was all women of reproductive age group in the Yirgalem town. Those women who gave birth in the last 12 months prior to this survey and lived at least for 6 months in the selected kebeles were included in the study. However, those who gave birth and were below 7 postpartum days, sick and unable to give response during data collection period were excluded.

From a total of 13 kebeles, five kebeles were selected by the lottery method. The list of all eligible women was obtained from the Yirgalem town Health Office and a sampling frame has been developed based on it. The calculated sample was proportionally allocated to each selected kebele to obtain a representative sample. Finally, study participants were selected using a simple random sampling method.

Data collection tools, procedures, and quality assurance

Data were collected using interviewer-administered structured and pretested questionnaires developed by reviewing the related literature.\textsuperscript{15,16–18} It contains socio-demographic factors, and items related to reproductive and health service utilization characteristics of the study subjects. Data were collected by five diploma nurses who have experience of data collection, and two Bachelor of Science health professionals were recruited as supervisors.

To ensure quality of the data, properly designed data collection tool was developed in English and translated into local language (Sidaamu Afoo) and back to English by language experts. All data collectors and supervisors were trained for 1 day by principal investigator before starting actual data collection. Training was given on general objective of the study, contents of the tool, and how to approach the study participants. Before starting actual data collection, the tool was pretested on 5\% of the sample at Aleta Wondo town, and necessary measure was taken accordingly. Collected data were checked for its completeness and consistency before starting actual data entry.
Measurements

EPNC services are given by healthcare professionals immediately after delivery up to the end of first postpartum week for mother and her newborn. The outcome variable was utilization of EPNC that was measured by yes or no responses. A positive answer (yes response) has been validated by asking additional question about items/types of the service they used.

Independent variables were socio-demographic factors (age, marital status, religion, ethnicity, educational, and occupational status), reproductive/obstetric factors (parity, history of abortion, birth-related complications, and mode of delivery), and health service-related characteristics of the respondents (history of antenatal care (ANC) follow-up, time of starting ANC, and place of delivery). Utilization of EPNC services was assessed by asking the mother whether or not used the services with yes or no responses.

Statistical analysis

After cleaning and checking its completeness, the data were coded and entered in to EpiData version-3.1 software and finally exported to Statistical Software for Social Science (SPSS) version 21 for analysis. Descriptive analysis was done for each predictor variable, and cross tabulation was performed to see the distribution of predictor variables in relation to outcome variable. The goodness-of-fit of the model was also checked by the Hosmer–Lemeshow goodness of model fit. Multicollinearity was checked among predictor variables. Bivariable analysis was done for each independent variable with outcome variable, and variables with p-value of $\leq 0.25$ were entered into multivariable logistic regression analysis to control possible confounders. Adjusted odds ratio (AOR) with 95% CI was calculated to determine the presence and strength of association among predictors and outcome variable. A p-value $\leq 0.05$ was used to consider statistically significant variables. Finally, the results were described by texts, figures, and tables.

Results

Socio-demographic characteristics of the study participants

From 306 study participants planned for this study, about 303 respondents were interviewed, making the response rate of 99%. The mean age of the respondents was 27.62 ± 6.3 years. Of them, 209 (69%) were followers of protestant religion and Sidama was the dominant ethnic group with 194 (64%). Regarding the marital status, majority of respondents were married 257 (84.8%). Concerning educational status, only 190 (62.7%) did not attend formal education. In terms of occupational status, 171 (56.4%) were housewives (Table 1).

Reproductive/obstetrics characteristics of the study participants

Majority (73.3%) of the participants reported that their last pregnancy was planned. About 213 (71%) of them had less than four children and 90 (29%) had four and above children. Fifty-eight (19.1%) of them faced complications during their last pregnancy. About 115 (38%) of the respondents developed complications at the time of delivery (Table 2).
Respondents’ characteristics related to the healthcare service utilization

In terms of ANC service utilization, 220 (72.6%) of them had at least one ANC visit. Less than half (42.9%) of them gave birth to their last child at health institution. About 202 (66.7%) visited health facility for postpartum care. From them, only 92 (45.5%) used EPNC services for current delivery (Table 3). The most commonly used services were physical examination for mothers and their newborn (37%)
followed by provision of family planning (31%) (Figure 1). These services were delivered by health extension workers (32.6%), midwives (27.2%), doctors (21.7), and health officers/nurses (18.5%). Family planning methods used were injectables (50%), implants (34.4%), and intra-uterine contraceptive device (15.6%).

Factors associated with utilization of EPNC services

In bivariable logistic regression analysis, six variables (attending ANC, place of delivery, educational status of the mother, getting advice from healthcare providers on EPNC services, previous experience of using EPNC, and condition of last pregnancy) were found to be candidate for multivariable logistic regression analysis. After controlling the confounders using multivariable logistic regression analysis, attending ANC, place of delivery, educational status of the mother, and getting advice from healthcare providers on EPNC services were found to be statistically significant predictors of EPNC utilization.

Those whose educational level was college and above were 2.6 times more likely to use EPNC service when compared with their counter parts (an illiterate mothers) (AOR=2.6; 95% CI=1.7–7.4). Those mothers who gave birth at health facility were two times more likely to use EPNC when compared with those who gave at home (AOR=2.3; 95% CI=1.2–4.7).

Mothers who got information/advice on early postnatal care serves utilization from health professionals were 18.7 times more likely to use early postnatal care utilization than those who did not get information (AOR=18.7; 95% CI=9.2–37.9). In addition, mothers who attended ANC during their last pregnancy were 3.5 times more likely to use EPNC services than those who did not attend ANC (AOR=3.5; 95% CI=1.6–7.6) (Table 4).

Discussion

This study has attempted to assess the level of EPNC service utilization and its associated factors among postpartum women. Accordingly, the prevalence of EPNC service utilization was found to be 45.5% (95% CI=39.9–50.5). This finding was in line with previous study conducted in India (45%).

But it was high when compared with previously reported findings from Aseko district (23.7%), Jabitena district (20.2%), Nepal (13.5%), Ambo town (9.3%), Dembecha district (34.5%), and Loma district (7%). It was also found to be high when compared with other findings from South Sudan (11.4%) and Kenya (38%). The possible reason for this gap could be differences in socio-demographic characteristics of the study participants and the population across the countries, as well as in variation of study period.

In addition to this, majority of the study participants of the previous Aseko and Loma districts were from rural settings and this might decreased their intention of practicing the service due to lack of information, limited resources, and other related obstacles. Other explanation for this difference could be that majority of the study participants in Ambo town, Dembecha district, and South Sudan were not advised...
on EPNC services and most of them gave their birth at home. As a result, the probability of practicing the service would be decrease when compared this study.

Mothers who attended college and above education were 2.6 times more likely to use EPNC service when compared with their counterparts (no formal education). This finding was concurrence with similar studies done in Ethiopia and South Sudan.16–19,22 The possible explanation for this might be that educated women might get evidence-based and updated information on benefits of maternal health service utilization as well as related consequences due to lack of these services on recommended manner.18,20 Therefore, this could encourage them to practice postnatal care services on timely manner.

Those mothers who gave birth at health facility were 2.3 times more likely to use EPNC when compared with those who gave at home. This finding was in line with similar studies done in Ethiopia, India, and Bangladesh.15,17,19,23,24 This could be happened due to that if woman gave birth at health facility, she can get all necessary information immediately after delivery from healthcare professionals who assisted her during delivery. So, this might help her to access the available services before discharge from the facility and would be more excited to come back for the next appointments.9,22,24

Mothers who got information/advice on EPNC services from health professionals were 18.7 times more likely to utilize EPNC services when compared with those who did not get. This finding was consensus with previous studies done in Ethiopia, South Sudan, and Kenya.15,18,19,21 Counseling mothers during pregnancy, labor, or at time of delivery on importance of utilizing available maternal health services could increase their intention to practice the existing maternal care services including EPNC.

In addition, mothers who have attended ANC during their last pregnancy were 3.5 times more likely to use EPNC services than those who did not attend ANC. This finding was also in line with similar studies previously done in Dembecha district and Gondar Zuria district.16,25 ANC service is one of the best strategies to detect different risk factors during pregnancy. So, these activities could help postpartum women to access and utilize all packages of maternal care services on right time.19,22,25,26

The main drawback of this study was that it did not assess different factors related to cultural beliefs in the community, as well as health sector-related issues. In addition, this study applied a cross-sectional study design, so it could not establish causal relationship between the outcome and exposure variables.

**Conclusion**

Although this study reported slightly higher results as compared to previous findings, so far, it needs more attention. Attending ANC, place of delivery, educational status of the mothers, and receiving advice from healthcare professionals are strongly associated with EPNC service utilization among postpartum women.
women, and getting advice from healthcare providers were predictors positively associated with EPNC service utilization. Improving the educational status of the women, strengthening healthcare providers’ counseling, enhancing practice of ANC, and institutional delivery will increase the likelihood of using EPNC services.

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Author contributions
A.D. contributed to conception and design, acquisition, analysis, interpretation of data, and preparing the original manuscript. T.T. contributed to conception and design, analysis, and interpretation of the data. A.A. and D.D. critically revised the document. All authors read and approved the final version to be published.

Availability of data and materials
The finding of this study is generated from the data collected and analyzed based on stated methods and materials. The original data supporting this finding are available from the corresponding author on reasonable request.

Declaration of conflicting interests
The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethics approval
Ethical approval for this study was obtained from the Research and Ethics Review Committee of the Yirgalem Hospital Medical College with a reference number of REC075/2019. Also, a supporting letter was taken from the Yirgalem town Administration Health Office.

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Informed consent
The Research and Ethics Review Committee of the Yirgalem Hospital Medical College approved verbal consent for this study. Accordingly, informed verbal consent was taken from the entire study participant after explaining the aim of the study. Informed verbal consent was also obtained from the legally authorized representatives of minor subjects prior to study initiation and approved by the Research and Ethics Review Committee of the Yirgalem Hospital Medical College.

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Supplemental material
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References
1. Dey T, Ononge S, Weeks A, et al. Immediate postnatal care following childbirth in Ugandan health facilities: an analysis of demographic and health surveys between 2001 and 2016. BMJ Glob Health 2021; 6(4): e004230.
2. World Health Organization. Recommendations of postnatal care to mother and newborn. Geneva: World Health Organization, 2013.
3. Sserwanja Q, Musaba MW, Mutsiya LM, et al. Continuum of maternity care in Zambia: a national representative survey. BMC Pregnancy Childbirth 2021; 21: 604.
4. Sserwanja Q, Nuwabaine L, Kamara K, et al. Prevalence and factors associated with utilisation of postnatal care in Sierra Leone: a 2019 national survey. BMC Public Health 2022; 22: 102.
5. World Health Organization. Trends in maternal mortality: 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization, 2019.
6. World Health Organization. World health statistics 2020: monitoring health for the SDGs, sustainable development goals. Geneva: World Health Organization, 2020.
7. United Nations. The sustainable development goals report 2021, https://unstats.un.org/sdgs/report/2021/.
8. Mgawadere F, Kana T and van den Broek N. Measuring maternal mortality: a systematic review of methods used to obtain estimates of the maternal mortality ratio (MMR) in low- and middle-income countries. Br Med Bull 2017; 121(1): 121–134.
9. Say L, Chou D, Gemmill A, et al. Global causes of maternal death: a WHO systematic analysis. Lancet Glob Health 2014; 2(6): e323–e333.
10. Li X, Fortney J, Kotelchuck M, et al. The postpartum period: the key to maternal mortality. Int J Gynecol Obstet 1996; 54: 1–10.
11. Sines E, Syed U, Wall S, et al. Postnatal care: a critical opportunity to save mothers and newborns. Washington, DC: Population Reference Bureau, 2007.
12. Matthews M, Severin V and Jelka Z. WHO technical consultation on postpartum and postnatal care. Geneva: World Health Organization, 2010.
13. Central Statistical Agency of Ethiopia; ICF International. Central Statistical Agency of Ethiopia: Ethiopia demographic and health survey 2016 report. Addis Ababa, Ethiopia; Rockville, MD: Central Statistical Agency of Ethiopia; ICF International, 2016.
14. Yirgalem Town Health Office. Health service delivery report and plan. Yirgalem, Ethiopia: Yirgalem Town Health Office, 2019.
15. Teklehaymanot A, Niguse D and Tesfay A. 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. J Women’s Health Care 2017; 6(358): 2167.
16. Workineh YG and Hailu DA. Factors affecting utilization of postnatal care service in Jabitenia district, Amhara region, Ethiopia. Sci J Public Health 2014; 23: 169–176.
17. Moreda TB and Gebisa K. Assessment of postnatal care service utilization and associated factors among mothers attending antenatal care at ambo health facilities. Epidemiol Int J 2018; 2(2): 000111.
18. Hordofa MA, Almaw SS, Berhanu MG, et al. Postnatal care service utilization and associated factors among women in Dembecha District, Northwest Ethiopia. *Sci J Pub Health* 2015; 3(5): 686–692.

19. Singh A, Padmadas SS, Mishra US, et al. Socio-economic inequalities in the use of postnatal care in India. *PLoS ONE* 2012; 7(5): e37037.

20. Paudel M, Khanal V and Acharya B. Determinants of postnatal service utilization in a Western District of Nepal: community based cross sectional study. *J Women’s Health Care* 2013; 2(3): 126.

21. Yarinbab TE and Tona WC. Utilization of postnatal care and its determinants in Loma District, Southwest Ethiopia: a community based cross sectional study. *Gynecol Women’s Health* 2017; 9(2): 555760.

22. Izudi J, Akwang GD and Amongin D. Early postnatal care use by postpartum mothers in Mundri East County, South Sudan. *BMC Health Serv Res* 2017; 17(1): 442.

23. Otunga CL. Assessment of utilization of postpartum care services among women in Webuye West, Bungoma County, Kenya, 2017, https://ir-library.ku.ac.ke/bitstream/handle/123456789/18394/Assessment%20of%20utilization%20of%20postpartum%20care%20among%20women%20in%20Webuye%20West.pdf?sequence=1&isAllowed=y

24. Saol T. Prevalence of postnatal care utilization and associated factors among postnatal mothers in Sodo Zuria District, Wolaita Zone, South Ethiopia, 2016, Addis Ababa, Ethiopia: Addis Ababa University, 2016.

25. Rahman MM, Haque SE and Zahan MS. Factors affecting the utilisation of postpartum care among young mothers in Bangladesh. *Health Soc Care Community* 2011; 19(2): 138–147.

26. Tesfahun F, Worku W, Mazengiya F, et al. Knowledge, perception and utilization of postnatal care of mothers in Gondar Zuria District, Ethiopia: a cross-sectional study. *Matern Child Health J* 2014; 18(10): 2341–2351.