Postnatal care service utilization and associated factors in Ethiopia: A systematic review and Meta-analysis

Bekalu Kassie (✉ bekalukassiedmu@gmail.com)

Debre Markos University College of Health Science <https://orcid.org/0000-0002-9719-6331>

Melaku Desta

Debre Markos University College of Health Science

Habtamu Chanie

Debre Markos University College of Health Science

Bekele Tesfaye

Debre Markos University College of Health Science

Muluken Wubetu

Debre Markos University College of Health Science

Muluneh Alene

Debre Markos University College of Health Science

Leilete Yismaw

Debre Markos University College of Health Science

Yibeltal Aschale

Debre Markos University College of Health Science

Research article

Keywords: Health care service utilization, Ethiopia, systematic review, Meta-analysis

Posted Date: June 20th, 2019

DOI: <https://doi.org/10.21203/rs.2.10475/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: In Ethiopia, literatures are not in agreement on magnitude of utilization of postnatal care service and factors are not well identified. Hence, this systematic review and meta-analysis aimed to engender pooled evidence of magnitude of postnatal care service utilization and associated factors. **Methods:** For this systematic review and meta-analysis international databases such as, HINARI, PubMed, Medline, EMBASE, Google scholar and Cochrane library were used for searching studies published from 2002 to 2018 in English language. The Modified Newcastle- Ottawa quality assessment scale was used to assess the quality of studies and meta-analysis was conducted using STATA version 14. Q statistics and I² test were used to assess the heterogeneity. The random effect model was used to estimate the pooled utilization of postnatal care at 95%CI. **Result:** Total of 22 articles with total samples of 42,320 women were included to this review. The pooled prevalence of postnatal care service utilization in Ethiopia was 41.5% (95%CI: 28.51-54.52). Women who attended formal education (OR, 2.37, 95%CI: 1.13, 4.97), had middle level and above household's wealth quintile (OR, 2.57, 95%CI: 1.31,5.05), had antenatal care visit (OR, 6.72, 95%CI: 4.16, 10.87), being multigravida (OR, 0.68, 95%CI: 0.53, 0.88) and gave birth in health institutions (OR, 3.86, 95%CI: 2.89, 5.16) were high likely to utilize postnatal care services while rural resident women (OR, 0.17, 95%CI: 0.05, 0.60) were less likely to utilize postnatal care services. **Conclusion:** Postnatal care service utilization in Ethiopia is low (41.5%). It is affected by educational status, residence, wealth quintile, gravidity, antenatal care follow up and place of delivery. Scale up the service and awareness for rural people, improving economic status of the household, improve antenatal care follow up, and promote institutional delivery are having paramount importance. **Key words:** Health care service utilization, Ethiopia, systematic review, Meta-analysis

Background

Globally mothers dying from complications related to pregnancy, childbirth and purperium are dozens and of whom majority are in developing countries, including Ethiopia. Maternal mortality ratio in Ethiopia is about 412 per 100 thousand live births[1]. Health care service utilization is capable of overcoming this burden. Of these services postnatal care service is the one and can be defined as; the care to be given to the mother and her new born within the six weeks of postpartum period[2].

This postpartum period is a critical phase in the lives of mothers and newborn babies. And it is also the period in which significant changes occurred in the woman's body and to her newborn[3]. This service (postnatal care service) is very vital in reducing maternal mortality and morbidity especially in underdeveloped countries like ours. But as compared to antenatal care coverage it is used little in developing countries like Nepal[4]. Lack of this service may result in death or disability as well as missed opportunities to promote healthy behaviors, affecting women, newborns, and children[5].

Access to health care service including antenatal, postnatal and labor & delivery in Ethiopia is increasing. But it is not this much satisfactory to reduce maternal and neonatal mortality. In addition to lack of

service utilization service seeking behavior is varied. Seeking ANC is relatively high (74.3%, institutional delivery (28.7%) and postnatal care service utilization seeking behavior 22.6% [6].

Postnatal care services utilization is ranged from the lowest 6.3% in North Gondar zone[7] up to 89.2 in Addis Ababa [8]. There are also so many factors identified as statistically significantly associated with postnatal care service utilization in different parts of Ethiopia. Some of these factors are educational status of the mother [9-12], wealth quintile of the household [7, 9, 12], residence [4, 12], ANC visit [4, 11-14], number of pregnancy [9, 10], place of delivery [13, 15] and knowledge on danger signs during postpartum[4]. The prevalence of postnatal care service utilization and its associated factors in Ethiopia are highly variable and inconclusive for intervention.

So this review and meta-analysis was aimed to systematically identify and synthesize existing evidences to estimate the pooled prevalence of postnatal care service utilization and associated factors among reproductive age women who gave live birth in Ethiopia.

Methods

Study design and search strategy

Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P)[16] was used for ensuring scientific precision. This systematic review and meta-analysis was carried out by reviewing different literatures after systematic search from the scientific databases like HINARI, PubMed, Medline, EMBASE and Google scholar.

The PECO (Population, Exposure, Comparison and Outcomes) search was used this review.

P: Reproductive age women who gave live birth in Ethiopia

E: Associated factors of postnatal care service utilization

O: Postnatal care service utilization

The Electronic databases were searched with keyword searching and using the medical subject heading [MeSH] terms for each selected PECO component.

Key words including “postnatal care” OR “postnatal care service utilization” OR “maternal health care” OR “maternal health care service utilization”, OR “postnatal care service utilization AND associated factors” OR “maternal health care service utilization AND associated factors” AND “Ethiopia” were used as terms of searching for literatures. Articles were searched by authors till July 1st of 2018 to identify additional studies. Repeated articles during searching of the different databases were sorted by reviewing the title, year, author, population and sample size.

Study selection and eligibility criteria

This review included studies that reported the prevalence of postnatal care service utilization or the associated factors among reproductive age women in Ethiopia. All studies conducted at the community or health institution level, published in English language from 2002 to 2018 were included. Whereas, studies conducted within the study populations other than those women, case reports, surveillance data (Demographic health survey), conference abstracts, and articles without full access were excluded from the review. In the screening phase, two reviewers (BK and LY) assessed the articles independently for inclusion through a title, abstract and full review. Any disagreement was solved by BT. In the second phase of screening, those potentially eligible studies were undergoing full-text review to determine if they satisfy the predetermined inclusion criteria and assessed for duplicated records. When duplicate data were encountered, only the full-text article published was retained.

Outcome of interest

Postnatal care service utilization coverage which defined as the care given to the mother and her newborn starting from immediately after birth to six weeks of postpartum period is the primary outcome of this study.

Independent variables included to this study were educational status (attended formal education and not attended), middle income level or above and below middle income level), ANC follow-up (has ANC follow-up and has not), number of pregnancy (primigravida and multigravida) and place of delivery (home delivery and institution delivery). Primigravida refers to women who become pregnant for the first time and multigravida refers to women who are pregnant two or more times.

Data extraction and synthesis

By using data bases, articles were searched and codes were given two each for appraisal purposes. The two authors BK and LY independently extracted data as per the standardized format. The abstraction included Code/ID, Name author(s), year of study, Region the study conducted in the Country, Types of Population (community/institutional), Study design, mean age of study subjects, Response rate, Sample size, number of people with outcome and proportion of the outcome variable. The cross tabulation table of each included articles were accessed for quantitative data based on exposure status and divided as exposed with the outcome, exposed with no outcome, non-exposed with outcome and non-exposed with no outcome for Meta-analysis.

Quality assessment

The two authors BK and LY assured the quality of each article independently by using the Newcastle-Ottawa Scale tailored for crossectional studies with three sections named as selection with maximum score of five, comparability with maximum of two scores and the last outcome with three scores. Disagreements on data extraction and quality assessment between the two authors were resolved by the third author BT. Other authors were involved in the analysis and write-up of the manuscript.

The magnitude (pooled prevalence) was measured in percent while the strength of association of independent variables was measured by odds ratio (OR). Data was first extracted to excel and then entered to Sata 14 for analysis. Heterogeneity of study results was assessed by I^2 test and possible publication bias was also foreseen by using funnel plot. Because of the heterogeneity subgroup analysis was done by region in the country.

Results

By searching scientific databases like HINARI, PubMed, Medline, EMBASE and Google scholar we retrieved 610 articles and of which 315 were excluded due to duplication of results. Of 295 articles 209 due to inconvenience title after reading abstracts and 57 after reviewing full texts were excluded. Of the remaining 29 articles 7 were excluded due to an unacceptable result. Finally 22 were included to the review (Fig-1).

Socio demographic characteristics of participants:

Analysis of National data from demographic health survey, and other community and institution based crosssectional studies were included from different regions of the country, Ethiopia. And all included studies were twenty two in number (Table-1). The mean age of participants was 28.4 years.

Postnatal care service utilization:

In Ethiopia the magnitude of utilization of postnatal care service ranged from the lowest 6.3% in 12 kebeles North Gondar Zone, Amhara region [7], up to highest 89.2 in Gulele sub city of Addis Ababa[8], followed by 88.1% in two districts of northern and south central parts of Ethiopia[9]. The overall prevalence of PNC service utilization in Ethiopia in this study was 41.52 with (95%CI: 28.51, 54.52) with considerable heterogeneity ($I^2=99.9\%$) which leads us to use random analysis (Fig-2). In the sub group analysis its magnitude was 77.49 in Addis Ababa region, 72.1% in Tigray region, 40.8% in Oromia region, 42.1 % in SNNP, 30.9% in Amhara region and 16.2% in the national level demographic health survey (Fig-3). Funnel plot was done to sow a publication bias and there was asymmetry of the funnel plot which showed the bias.

Factors associated with post natal care utilization:

In this meta-analysis many factors are depicted as a significant factor to affect postnatal care utilization of mothers in Ethiopia. These factors are maternal education, residence, wealth quintile of the household, ANC visit, number of pregnancies and place of delivery. Four studies were identified as maternal educational status is significantly associated with postnatal care service utilization with the odds ratio ranged from 1.17 up to 4.97. Those mothers who attended formal education were 2.37 times more likely than those who did not (OR, 2.37, 95%CI: 1.13, 4.97) attend formal education to utilize postnatal care service. Based on the factor analysis of the included studies those mothers who resided in rural settings were less likely to utilize postnatal care (OR, 0.17, 95%CI: 0.05, 0.60) than urban resident. Three studies

were found to be significantly associated with PNC utilization and the meta analysis assured that those mothers whose household wealth quintile with middle income level and above were more likely than their counter parts (OR, 2.57, 95%CI: 1.31,5.05).

Antenatal care visit is a significant factor for utilization of postnatal care services. In this analysis mothers who had antenatal care follow-up were more than six times (OR, 6.72, 95%CI: 4.16, 10.87) more likely to attend PNC as compared to those who had no visit. The number of pregnancies/gravidity was assessed for its statistical significant association with PNC utilization and it revealed that being pregnant once were about 32% more likely to visit the PNC clinic as compared to multigravida mothers(OR, 0.68, 95%CI: 0.53, 0.88). The odds of utilization of PNC services among mothers who gave birth in the health institutions were about 3.9 times (OR, 3.86, 95%CI: 2.89, 5.16) more than the odds among those who gave birth at home.

Discussion

In this review the pooled prevalence was 41.52% which is higher than the national report Ethiopia by 2016[1]. This could be due to non-addressing of the rural communities as it is described above about association with residence.

Variables like maternal educational level, residence, household wealth quintile, and ANC visit, number of pregnancy and place of delivery were statistically significantly associated with PNC services utilization. When we compared this review with other reviews it is in line with the systematic review conducted in developing countries; maternal education, husband's education, women occupation, number of pregnancies, number of ANC visits and socioeconomic status played pivotal role in PNC utilization[17].

In this systematic review and meta-analysis, those women who attended formal education were 2.37 times more likely to get postnatal care services than those who don't. It is in line with the review conducted in developing countries[17]. This might be due to the fact that as people become educated, they could have knowledge on postnatal care service utilization importance and knowledge[4] triggers everyone to get that service. Moreover, residence of mothers also another factor that affect this maternal health care service. Based on the factor analysis of the included studies, those mothers who resided in rural setting were less likely to utilize postnatal care than urban resident. This could be due to two reasons. The first reason; the service might be paramount in urban than rural and the second reason; awareness towards the postnatal care service could be less in rural than urban. Wealth quintile of the household was another factor which contributes for PNC services utilization. Three studies were analyzed and those mothers whose household wealth quintile with middle income level and above were 2.57 times more likely than those who had below middle income level. As it is known, basic needs are firstly mandatory to seek another service which means that rich people seek and utilize maternal health care service than the poor ones.

When we see the exposure to health care services, mothers who had antenatal care follow-up were more likely to attend PNC as compared to those who had no visit. It is supported by the systematic review

conducted in developing countries and this is because ANC service includes counseling for PNC and it could provoke. That is why PNC is less than ANC based on the DHS report[1]. Primigravida (became pregnant once) mothers were about 32% more likely to visit the PNC clinic as compared to multigravida mothers. This might be either mothers become anxious for their first baby or multigravida mothers are elder and the new generation could be in greater concern for health. Those mothers who gave birth in health institutions were more likely to utilize PNC service. This is similar with ANC service because by the time they get delivery service in health institutions, they could have counseling on PNC and danger signs.

Conclusions

Postnatal care service utilization in this review was low. Educational status, residence, wealth quintile, gravidity, antenatal care follow up and place of delivery are statistically significantly associated factors with postnatal care service utilization.

Recommendation: Education for all women, scale up health care services and awareness for rural people, improving economic status of the household, scale up antenatal care follow up, and promote institutional delivery are having paramount importance.

Limitation of the study: Risk of bias of each studies was not assessed.

Declarations

Ethical approval and consent to participate: Not applicable to this study

Consent to publish: not applicable for this study

Availability of data and materials: The data extracted data is available in the hand of the principal investigator

Competing Interest: The authors declare that they have no competing interests.

Fund: No fund obtained for this review.

References

1. CSA, WHO, and USAID, *2016 Ethiopia Demographic and Health Survey (EDHS)*. 2016.
2. organization., W.h., *WHO recommendations on Postnatal care of the mother and newborn*, health, Editor. 2013.
3. organization., W.h., *COUNSELLING FOR MATERNAL AND NEWBORN HEALTH CARE*. 2013.
4. Sailesh Bhattarai, Paras Pokharel, and Surya B. Parajuli, *Postnatal Care Service Utilization among Mothers in Eastern Region of Nepal*. Juornal of Nobel medical college, 2013. **2**(4).

5. H. Berhe, et al., *UTILIZATION AND ASSOCIATED FACTORS OF POSTNATAL CARE IN ADWA TOWN, TIGRAY, ETHIOPIA- A CROSS SECTIONAL STUDY*. Advanced research in pharmaceuticals and biologicals, 2013. **3**(1).
6. Kifle, D., et al., *Maternal health care service seeking behaviors and associated factors among women in rural Haramaya District, Eastern Ethiopia: a triangulated community-based cross-sectional study*. Open access research reproductive health, 2017. **14**(6).
7. Abebaw Gebeyehu Worku, Alemayehu Worku Yalew, and Mesganaw Fantahun Afework, *Factors affecting utilization of skilled maternal care in Northwest Ethiopia: a multilevel analysis*. BMC International Health and Human Rights, 2013.
8. Shibru, A., A. Belihu, and G. Abdissa, *Postnatal Care Services Utilization and Its Associated Factors Among Women Who Gave Birth in the Past One Year in Gulele Sub City, Addis Ababa, Ethiopia*. Journal of Health, Medicine and Nursing, 2018. **46**.
9. Mesganaw Fantahun Afework, et al., *Effect of an innovative community based health program on maternal health service utilization in north and south central Ethiopia: a community based cross sectional study*. Reproductive Health, 2014.
10. Workineh, Y.G. and D.A. Hailu, *Factors affecting utilization of postnatal care service in Jabitena district, Amhara region, Ethiopia*. science publishing group, 2014.
11. Hordofa, M.A., et al., *Postnatal Care Service Utilization and Associated Factors Among Women in Dembecha District, Northwest Ethiopia*. science publishing group, 2015. **3**.
12. Andargie, A.A. and M. Abebe, *Factors associated with utilization of institutional delivery care and postnatal care services in Ethiopia*. Journal of Public Health and Epidemiology, 2018. **10**(4).
13. Darega, B., et al., *Institutional delivery and postnatal care services utilizations in Abuna Gindeberet District, West Shewa, Oromiya Region, Central Ethiopia: A Community-based cross sectional study*. BMC Pregnancy and Childbirth, 2016.
14. Tesfahun, F., et al., *Knowledge, Perception and Utilization of Postnatal Care of Mothers in Gondar Zuria District, Ethiopia: A Cross-Sectional Study*. Matern Child Health Journal, 2014). **18**.
15. Limenih, M.A., Z.M. Endale, and B.A. Dachew, *Postnatal Care Service Utilization and Associated Factors among Women Who Gave Birth in the Last 12 Months prior to the Study in Debre Markos Town, Northwestern Ethiopia: A Community-Based Cross-Sectional Study*. Hindawi Publishing Corporation International Journal of Reproductive Medicine, 2016.
16. *PRISMA 2009 Checklist*. 2009.
17. Adhikari, C., et al., *Proportion and factors affecting for post-natal care utilization in developing countries: A systematic review*. JMMIHS-14 original article, 2016. **1**(3).

Tables

Due to technical limitations, Table 1 has been placed in the Supplementary Files section.

Figures

Figure 1

Schematic presentation fo screening of articles based on PRISMA to include into the review.

Figure 2

Pooled prevalence of utilization of postnatal care service in Ethiopia.

Subgroup prevalence of utilization of postnatal care by region in the country in Ethiopia, 2002–2018

Figure 3

Sub group analysis of prevalence of postnatal care utilization by region of the country.

Figure 4

Publication bias of PNC service utilization in Ethiopia.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Tablepdf.pdf](#)