Family planning use and its associated factors among women in the extended postpartum period in Addis Ababa, Ethiopia

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Abstract

Background: Postpartum period is an important entry point for family planning service provision; however, women in Ethiopia are usually uncertain about the use of family planning methods during this period. Limited studies have been conducted to assess postpartum family planning use in Addis Ababa, in particular and in the country in general. So, this study was conducted to assess postpartum family planning use and its associated factors among women in extended postpartum period in Kolfe Keranyo sub city of Addis Ababa.

Materials and methods: A community-based cross sectional study was conducted from May to June 2015 on 803 women who have had live births during the year (2014) preceding the data collection in the sub city. The multi-stage cluster sampling technique was used to select study participants. Data were collected by interviewer administered structured questionnaire, entered into EPI INFO version 7 and analyzed by SPSS Version 20. Bivariable and Multivariable logistic regression models were employed to see the presence and strength of the association between the dependent and independent variables by computing the odds ratios with a 95% confidence intervals and p-values.

Results: The prevalence of postpartum family planning use was 80.3% (95% CI: 74.5, 83.1). Marriage, (AOR 0.09, 95% CI: 0.03, 0.22), menses resumption after birth, (AOR 2.12, 95% CI: 1.37, 3.41), length of time after delivery, (AOR 2.37, 95% CI: 1.18, 4.75), and history of contraceptive use before last pregnancy, (AOR 0.12, 95% CI: 0.07, 0.18) were the factors associated with postpartum family planning use.

Conclusion: The prevalence of postpartum family planning use was high and the main factors associated with it were marriage, menses resumption, length of time after delivery, and history of previous contraceptive use. Therefore women should get appropriate information about the possibility of exposure to pregnancy prior to menses resumption by giving special emphasis to those who had no previous history of contraceptive use and exposure to the other identified factors.

Keywords: Postpartum period, Family planning, Kolfe Keranyo, Addis Ababa, Ethiopia

Background

Family planning (FP) is an essential component of health care provided during the antenatal period, immediately after delivery, and during the first postpartum year [1]. Postpartum family planning (PPFP) is defined as the prevention of unintended pregnancy and closely spaced pregnancies during the first 12 months following childbirth [1]. The promotion of family planning in countries with high birth rates can avert 32% of all maternal deaths and nearly 10% of childhood deaths [2]. Though family planning can avert that much maternal and childhood deaths, postpartum fertility and contraception are generally not well understood by policymakers, health service providers, or the women themselves [3]. Hence, promoting and providing PPFP is a vital issue as it saves the lives of mothers and children [1, 3, 4].

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Evidences showed that the use of family planning was low among postpartum women in spite of their unmet need for family planning [3]. There are two groups of PPFP methods, namely traditional and modern [5–7]. The traditional methods of PPFP include breastfeeding, abstinence, the calendar, and lactational amenorrhea [7]. While, modern methods involve intrauterine contraceptive devices (IUCD), implants (Implanon, Jadelle, sinoplant), injectables, progesterone-only oral contraceptives, coils, and condoms [7]. The effectiveness of the two groups of family planning methods (Modern versus Traditional) is not equal in that the failure rate of traditional methods is high [7]. The recommended time for the initiation of contraceptives in the postpartum period is 6 weeks after delivery [8]. Short and long pregnancy intervals have risks on perinatal outcomes, like increased risks of preterm birth, low birth weight, and small-for-gestational age [9, 10]. All these evidences suggest that spacing pregnancies appropriately could help prevent such adverse perinatal outcomes and that PPFP use is of paramount importance.

The prevalence of contraceptive use among postpartum women varies from region to region in Ethiopia, as most women do not start taking contraceptives at the recommended time [11]. Even those who use PPFP rely on traditional, mainly lactational amenorrhea (LAM) that might pose the risk of unintended pregnancy. Therefore, initiating appropriate contraception in the postpartum period is important to avoid negative health outcomes.

Research conducted in Istanbul showed that only 34.0% of mothers began contraceptive methods 5 months after childbirth [12]. Generally, women and family members did not perceive birth spacing as a priority, as women who deliver most recently were not using contraception [12, 13]. Another study conducted in Gondar showed that 48.8% of mothers used PPFP [14].

A variety of literature showed that factors like maternal age [15, 16], employment status [17], religion or culture [4, 18–21], lack of awareness of family planning methods [14, 20, 22], male involvement [4, 18, 21], extended family [18, 23], death of child [17], antenatal care follow up [24], inaccessibility of family planning methods [18, 20], and fear of side effects [18] were some of the factors affecting PPFP use among women in the postpartum period [4].

Therefore, by considering the above situation, this study set out to assess postpartum family planning use and its associated factors among women in extended postpartum period in Kolfe Keranyo sub-city, Addis Ababa.

Methods

Study design
A community-based cross-sectional study design was employed to obtain data from women who had live births 12 months prior to the survey.

Study period and study area
This study was conducted from May to June 2015 in Kolfe Keranyo sub-city which is located south-west of Addis Ababa. The sub-city is divided into 15 administrative districts (districts). According to the 2014 population projection estimates, there were 500,163 residents in the sub-city, with half of them being women [13]. In addition, there were twelve health centres, 2 health posts and no hospital at Kolfe Keranyo sub-city.

Source and study population
The source population of this study was women who had live births 12 months prior to the survey with the exception of those who were unable to respond during the survey in Kolfe Keranyo sub-city.

Sample size determination and sampling procedure
The sample size was determined using the single population proportion formula, considering the following assumptions: Prevalence (P) of family planning use during postpartum period = 52.5% [13], margin of error (w) =5%, design effect of 2, 10% non response rate, \( Z_{\alpha/2} = 1.96 \) at 95% confidence interval. The total sample calculated was 849.

A multistage cluster sampling technique was used to select the participants. First, out of the fifteen districts of Kolfe Keranyo sub-city, four were chosen by the simple random sampling technique (lottery method). Considering proportion, sixteen ketanas (smallest administration units of sub-cities) were selected using the lottery method. Then, the total sample size was distributed proportionally to each cluster (ketana). Postpartum women in the selected ketanas were interviewed through house to house visits until the predetermined sample size allocated to each cluster was completed. The data were collected using an interviewer administered questionnaire by ten BSc Graduate nurses who had previous experience in data collection, and the process was supervised by two experts who had Master’s degree in Public Health and previous experience in research supervision. The collected data were checked for completeness daily.

Data quality assurance
To assure the reliability and validity of the questionnaire, a pre-test was conducted on 44 individuals living outside the study area. Training was given to data collectors and supervisors for 1 day before data collection.

Operational definition
Extended postpartum period: a 12-month period after a live birth.

Postpartum women: women who had live births within the past 1 year prior to date of data collection.
Postpartum family planning use: When a postpartum woman reported using any family planning methods (pills, intrauterine device, injectable, condom, sterilization, or implants), or traditional (breastfeeding or calendar methods) during the 12-month following her most recent childbirth.

Ethical considerations
Ethical clearance was obtained from the Institutional Review Board (IRB) of the Institute of Public Health, the University of Gondar. Permission letters were obtained from Addis Ababa city and Kolfe Keranyo subcity administrations respectively. Participants were informed about the objectives of the study and reassured about the confidentiality of the findings. A written consent was obtained from each participant.

Data processing and analysis
The data were checked for completeness and coded manually. EPI-INFO version 7 and SPSS version 20 were used for data entry and analysis, respectively. Descriptive statistics, such as frequencies and percentages were computed to describe the study population in relation to relevant variables. Bivariate and Multivariable logistic regression analyses were carried out to see the presence of association between dependent and the independent variables. Variables with p-values of < 0.2 in the Bivariate analysis were further fitted to multivariable logistic regression analysis. Adjusted odds ratios with 95% confidence intervals were computed and variables with p-values of < 0.05 in the multivariable analysis were considered as statistically significant.

Results
Socio-demographic characteristics
In this study, 803 postpartum women participated with a response rate of 94.9%. Majority of respondents, 675(84.1%), were aged 20–34 years. Regarding respondents marital status, religion, and occupation, 748(93.2%) were married, 454(56.5%) were Orthodox Christians, and 468(58.3%) were housewives. Concerning their educational status, 90(11.1%) of the respondents did not have any formal education, and one-fourth of them, 197(24.5%) were grade 12 and above (Table 1).

Fertility and reproductive characteristics
Among the respondents, 535(66.6%) had one or two children and about half, 401(49.9%), had a lapse of 6 months since their delivery. The majority, 719(89.5%), reported that their recent pregnancy was planned, and 652(81.2%) desired to have a birth interval of more than 2 years. More than half, 442(55.0%), of the respondents said that menses had not resumed after their recent birth, and 748(93.2%) reported they were breastfeeding at the time of the survey. Slightly more than three-fourths, 629(78.3%), had histories of family planning use before their last pregnancies (Table 2).

Postpartum family planning method use
In this study, the prevalence of PPFP use was 80.3% (95% CI: 74.5, 83.1) and the most preferable method used by 221(32.2%) of the women was the injectable (Fig. 1).

Factors associated with postpartum family planning use
The result of the multivariable analysis showed that marital status, length of time after delivery, menses resumption after recent birth, and history of family planning use before current pregnancy were significantly associated with PPFP use. Unmarried women were 91.0% less likely to use family planning methods as compared to married ones (AOR = 0.09, 95% CI: 0.03, 0.22). Women with a time lapse of over 6 months since their delivery were two times more likely to use family planning method as compared to women who had less than that (AOR = 2.37, 95% CI: 1.18, 4.75). Women who had had menses resumption after recent birth were two times more likely to use family planning method than who had not (AOR = 2.12, 95% CI: 1.37, 3.41). Women who had no history of contraceptive use before their last birth were 88% less likely to use family planning method during the postpartum period compared to those who had (AOR = 0.12, 95% CI: 0.07, 0.18) (Table 3).

Discussion
Postpartum period is an entry point to initiate family planning methods for mothers, but usually it is a missed opportunity. The prevalence of postpartum family planning method (PPFP) use in this study was 80.3% (95% CI: 74.5, 83.1%). This finding is in line with that of a study conducted in Nichisti District Hospital, Malawi where the prevalence of PPFP was 75% [25]. This similarity might be due to the similarity of participants in the two studies in some socio demographic characteristics. For instance, the proportion of women who were married in this study was 93.2%, and in the Malawi study it was 93.3% [25]. Moreover, the educational status of the two participants was almost similar.

Postpartum contraceptive use in this study was higher than those of other studies conducted in Ethiopia, for example the 2011 EDHS, Gondar town, Dabat, Axum, and Somali region reported 55, 48.4, 10.3, 48, and 12.3%, respectively [11, 14, 26–29]. It was also higher than the findings of studies conducted in Uganda (28%) [28] and Rural Uganda (25.0%) [30].

The discrepancy could be due to time gap of studies and the presence of some dissimilar socio-demographic and reproductive characteristics among participants. For instance, literature documented that educational level
### Table 1: Socio-demographic characteristics of women in the first year of postpartum period in Kolfe Keranyo sub city, Addis Ababa, 2015

| Variables                  | Frequency | Percent |
|----------------------------|-----------|---------|
| Age                        |           |         |
| 15–19                      | 16        | 2.0     |
| 20–34                      | 675       | 84.1    |
| 35–49                      | 112       | 13.9    |
| Educational status         |           |         |
| No formal education        | 89        | 11.1    |
| Primary                    | 275       | 34.2    |
| Secondary                  | 242       | 30.1    |
| Above Secondary            | 197       | 24.5    |
| Marital status             |           |         |
| Married                    | 748       | 93.2    |
| Unmarried                  | 55        | 6.8     |
| Ethnicity                  |           |         |
| Amhara                     | 321       | 40.0    |
| Oromo                      | 178       | 22.2    |
| Tigre                      | 70        | 8.7     |
| Gurage                     | 142       | 17.7    |
| Silte                      | 51        | 6.4     |
| Other                      | 41        | 5.0     |
| Occupation                 |           |         |
| Housewife                  | 468       | 58.3    |
| Merchant                   | 84        | 10.5    |
| Daily Labourer             | 22        | 2.7     |
| Gov/ Private Employee      | 195       | 24.3    |
| Other                      | 34        | 4.2     |
| Religion                   |           |         |
| Orthodox                   | 454       | 56.5    |
| Catholic                   | 31        | 3.9     |
| Protestant                 | 109       | 13.6    |
| Muslim                     | 209       | 26.0    |
| Spouse’s educational status (773) |   |         |
| No formal education        | 18        | 2.2     |
| Primary                    | 258       | 258     |
| Secondary                  | 210       | 210     |
| Above Secondary            | 287       | 287     |
| Spouse’s occupation (773)  |           |         |
| Merchant                   | 256       | 33.1    |
| Daily Labourer             | 160       | 20.7    |
| Gov/ Private Employee      | 245       | 31.7    |
| Other                      | 112       | 14.5    |

### Table 2: Fertility and reproductive characteristics of women in the first year of postpartum period in Kolfe Keranyo sub city, Addis Ababa, 2015

| Variables                  | Frequency | Percent |
|----------------------------|-----------|---------|
| Parity                     |           |         |
| 1–2                        | 535       | 66.6    |
| 3–4                        | 243       | 30.3    |
| ≥ 5                        | 25        | 3.1     |
| Duration of month since delivery |   |         |
| < 6 Months                 | 271       | 33.7    |
| 6 Months                   | 131       | 16.3    |
| > 6 Months                 | 401       | 49.9    |
| Planned birth              |           |         |
| Yes                        | 719       | 89.5    |
| No                         | 84        | 10.5    |
| Preferred birth space      |           |         |
| ≤ 2 Years                  | 174       | 21.1    |
| > 2 Years                  | 652       | 81.2    |
| I Don’t Know               | 134       | 16.7    |
| Number of children wish to have |   |         |
| ≤ 4                        | 443       | 55.2    |
| > 4                        | 46        | 5.7     |
| I Don’t Know               | 314       | 39.1    |
| Health education about FP during ANC |         |         |
| Yes                        | 365       | 45.5    |
| No                         | 438       | 54.5    |
| Menses before pregnancy    |           |         |
| Regular                    | 676       | 84.2    |
| Irregular                  | 127       | 15.8    |
| Menses after delivery      |           |         |
| Yes                        | 361       | 45.0    |
| No                         | 442       | 55.0    |
| Visit HC after delivery    |           |         |
| Yes                        | 649       | 80.8    |
| No                         | 154       | 19.2    |
| Currently breastfeeding    |           |         |
| Yes                        | 748       | 93.2    |
| No                         | 55        | 6.8     |
| Number of FP you know      |           |         |
| ≤ 4                        | 328       | 40.8    |
| ≥ 4                        | 475       | 59.2    |
| History of FP use before current pregnancy |   |         |
| Yes                        | 629       | 78.3    |
| No                         | 174       | 21.7    |
has a direct relationship with PPFP use [11, 13, 31, 32]. The possible reason for the difference in the prevalence of PPFP might be the difference in educational level of study participants. For example, in the study conducted in Gondar town, the proportion of women who did not have any formal education was higher (21.9%) than that of this study (11.1%). The same was true with the study conducted at Dabat district in which the proportion of women who did not have formal education was 64.4% [26], higher than what was seen in this study. Meanwhile, the proportion of participants with tertiary education in this study was higher (24.5%) than that of the study conducted in Gondar (20.6%) [14]. The proportion of study participants who had higher education was lower in the studies conducted in Dabat, Ethiopia (1.8%) [26] and Axum (12.2%) [27] than that of this study (24.5%). The proportion of women who had secondary education and above was higher (54.6%) in this study compared to (23.7%) of Uganda [28] and 42.6% of rural Uganda [30].

The other possible reasons for the differences between this work and the study done in Axum might be variations in spousal educational status and birth intention, not only women’s educational level, but also that of their husbands can take part in PPFP use. If spouses are educated, they can understand the benefits of having adequate space between births and encourage and advise on the use of family planning methods, which could contribute to the uptake of PPFP.

The proportion of partners educational status in this study was higher than that of Axum. The proportion of mothers who wanted to have birth intervals of less than or equal to 2 years was higher among the participants in Axum (24.2%) than in this study (2.1%) [27].

Marital status of women might have contributions to the observed differences in the prevalence of PPFP use. If a woman is married, she may have early postpartum sexual contact than those who are not married. So, there may be differences in risk perception between the two groups of women that risk perception relating to unwanted or mistimed pregnancy is expected to be high among married women than none married ones. The proportion of our participants who were married was higher (93.2%) than that of the study done in Uganda [28]. Another possible reason for the difference in PPFP use among postpartum women might be differences in perinatal service utilization. Women who had history of antenatal and postnatal care visits might have better chances of getting counselling about contraceptive use. The proportion of mothers who had postnatal care visits was higher in this study (80.8%) than the study done in Dabat, Ethiopia (5.7%) [26].

However, the uptake of PPFP in this study was lower than those of studies conducted in Kenya, Nairobi (95.2%) and South Africa (89.0%) [21, 33]. The difference could be due to the presence of socio-economic differences, cultural variations, and service accessibility.

Unmarried women were 91.0% less likely to use PPFP methods than married ones. This could be due to the fact that unmarried women may be less likely to be sexually active than married ones which might reduce their demand and use of PPFP methods. It might also be explained in terms of the fact that married women might have more access to different PPFP methods compared to unmarried ones.

In this study, women whose menses resumed after the recent birth were two times more likely to use the PPFP method than women whose menses did not (AOR 2.22, 95% CI: 1.39, 3.51). This finding was in line with those of studies conducted in Gondar town and Axum Ethiopia, and in Malawi [14, 16, 27]. That is because most women may tend to believe that the risk of pregnancy is linked to only menses resumption, and might not take family planning methods during the postpartum period.

Duration in months after delivery was found to have a significant association with the use of PPFP. The longer the duration after delivery, the better the use of contraceptives. This finding was similar with the results of studies conducted in Gondar town and Somali region [14, 29]. The possible explanation could be that as the duration of postpartum increased the proportion of women who start sexual activity raise hence, women might suspect pregnancy during the sexual exercise, and decide to use PPFP.

Women who had history of family planning method use prior to their last pregnancy were also found to use contraceptives in their postpartum period more than those who had no such history. This result was similar with that of a study conducted in rural Uganda, where women who
had previous history of family planning method use were nearly two times more likely to use family planning methods compared to their counter parts [30]. This could be explained by the fact that women who had history of previous family planning method use might have more knowledge, better attitude, and practice regarding the use of family planning methods compared to those who had not.

The proportion of women who had no history of previous contraceptive use was 88% less likely to use PPFP use than those who had previous experience. This might be explained by the fact that women who had previous history of contraceptive use might have better attitude and practice with regard contraceptives as compared to those who had not.

Since this was a cross-sectional study, it shares the limitations of the study design. Including women within the first 6 weeks postpartum was one of the shortcomings of this study. Moreover, as the study mainly focussed on individual level factors, it is recommended that researchers include factors relating to the health system and service providers in the future.

**Conclusion**
This study found that the prevalence of postpartum family planning use was high. Marital status (marriage), number of months after delivery, history of menses resumption after recent birth, and history of family planning use before the current pregnancy were factors significantly associated with postpartum contraceptive use.

### Table 3
Multivariate analysis showing factors associated with PPFP use in Kolfe Keranyo sub city, Addis Ababa, 2015

| Variables                              | PPFP use | COR 95% CI | AOR 95% CI |
|----------------------------------------|----------|------------|------------|
|                                        | Yes      | No         |            |
|                                        | Number (%) | Number (%) |            |
| Age in years                           |          |            |            |
| 15–19                                  | 10(62.5) | 6(37.5)    | 1          |
| 20–34                                  | 402(59.6)| 273(40.4)  | 1.13(0.84,2.01) | 0.30(0.20,4.70) |
| 35–39                                  | 72(64.3) | 40(35.7)   | 0.93(0.45,1.70) | 0.61(0.70,3.73) |
| Marital status                         |          |            |            |
| Married                                | 627(83.3)| 121(16.2)  | 1          |
| Unmarried                              | 18(32.7) | 37(67.3)   | 10.65(0.96,11.01) | 0.09(0.03,0.22)* |
| Educational Status                     |          |            |            |
| No formal education                    | 26(29.2) | 63(70.8)   | 1          |
| Primary                                | 116(42.2)| 159(57.8)  | 0.57(0.42,2.00) | 1.72(0.53,5.49) |
| Secondary                              | 194(80.2)| 48(19.8)   | 0.10(0.01,3.79) | 0.68(0.98,2.40) |
| Above Secondary                        | 145(73.6)| 52(26.4)   | 0.15(0.11,4.50) | 1.60(0.85,3.02) |
| Time in months since delivery          |          |            |            |
| <6                                     | 192(70.8)| 79(29.2)   | 1          |
| 6                                      | 107(81.7)| 24(18.3)   | 0.55(0.24,1.39) | 2.38(1.19,4.80)* |
| >6                                     | 346(86.3)| 55(13.7)   | 0.39(0.17,0.82) | 2.73(1.73,4.52)* |
| Occupation                             |          |            |            |
| House wife                             | 157(33.6)| 311(66.4)  | 1          |
| Merchant                               | 43(51.2) | 41(48.8)   | 0.48(0.22,1.59) | 1.40(0.91,3.52) |
| Daily laborer                          | 8(36.4)  | 14(63.6)   | 0.88(0.21,3.01) | 1.30(0.72,3.03) |
| Government/Private employee            | 135(69.2)| 60(30.8)   | 0.22(0.10,1.51) | 0.83(0.61,4.50) |
| Other*                                 | 8(23.5)  | 26(76.5)   | 1.64(0.38,1.20) | 1.51(0.87,2.12) |
| History of previous FP use             |          |            |            |
| Yes                                    | 557(88.6)| 72(11.4)   | 1          |
| No                                     | 88(50.6) | 86(49.4)   | 7.56(0.95,8.01) | 0.12(0.07,0.18)* |
| Menses resumption after delivery       |          |            |            |
| Yes                                    | 266(73.7)| 95(26.3)   | 1          |
| No                                     | 379(85.7)| 63(14.3)   | 2.07(1.38,3.41)* |

*P < 0.05 = Significant *House servants, Jobless
Abbreviations
ANC: Antenatal Care; AOR: Adjusted Odds Ratio; CI: Confidence Interval; CROR: Crude Odds Ratio; DHS: Demographic and Health Survey; FP: Family Planning; HC: Health Centre; OR: Odds Ratio; PFPF: Postpartum Family Planning; RTT: Research and Technology Transfer Core Process; SPSS: Statistical Package for the Social Sciences; WHO: World Health Organization

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Availability of data and materials
All the dataset supporting the conclusions of this article is included within the article.

Authors’ contributions
AYG, YK and AAG: designed, acquired the data; analyzed and interpreted the study. YAH and AAG prepared the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate
Ethical clearance was obtained from the institution review board of Institute of Public Health, University of Gondar. Moreover permission letter was obtained from Kofle Keranyo sub city administration authorities. Written consent was obtained from each study subjects and respondents were also informed that they have the right to refuse or discontinue participation at any time. Information was recorded anonymously to maintain confidentiality and privacy of respondent’s.

Consent for publication
Consent to publish was obtained from the study subjects.

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

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