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Postpartum Use of Modern Contraceptives Among Women in Northern Ghana

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Abstract

Postpartum contraception is the use of modern methods of contraception as soon as possible after childbirth and the continued practice of this or an alternative method for at least twenty-four months to optimize the timing and spacing of pregnancies. This study aimed to assess postpartum contraception among women attending the Tamale Teaching Hospital (TTH) in Ghana. A cross-sectional survey was conducted among postpartum women attending TTH from November 1st to 30th, 2021. A simple random sampling method was used to select 422. Data was collected using structured questionnaires. Out of 400 respondents, 135 (33.5%) were currently using a contraceptive, the majority of whom (57, 44.9%) preferred the injectable. There was an association between contraceptive use and respondents' education level, marital status, occupation, and partner's educational level (p = 0.001, 0.005, 0.001, and 0.000, respectively). There was an association between contraceptive use and the age of the last child of respondents, respondents desiring to have another child and a positive history of contraceptive use (p= 0.015,0.003 and 0.000, respectively). 113 (28.2%) did not use contraceptives because they were afraid of becoming infertile. Postpartum contraceptive use is low among women in Tamale. The most preferred method of contraception is the injectable. The utilization of contraceptives among respondents is affected by socio-demographic characteristics as well as reproductive characteristics. The primary reason for the non-use of contraceptives was fear of infertility. More education on contraceptive use and its benefits should be intensified among women to improve its prevalence.

Keywords*: Contraceptives, Infertility, Injectable, Modern, Postpartum.*

Introduction

Postpartum contraception, as defined by the Maternal and Child Survival Programme (MCSP), is the use of a modern method of contraception as soon as possible after childbirth and the continued practice of this or an alternative method for at least twenty-four months to optimize the timing and spacing of

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pregnancies. It can also be used to limit the number of children. Postpartum contraception is necessary because pregnancies during this period are hazardous for both mother and baby. The postnatal period is associated with challenges such as postpartum hemorrhage, infections, depression, and anemia, which compromise the health of mothers and their newborn babies. The World Health Organization (WHO) recommends an interval of at least twenty-four months between pregnancies [1]. Closely spaced pregnancies may lead to adverse outcomes, including prematurity, low birth weight and fetal death. Therefore, postpartum contraception helps to delay any unintended pregnancies and allows for adequate spacing between pregnancies during the twelve months following delivery [2].

Pregnancies that occur within one year following delivery are likely to be unplanned and may result in unsafe abortions. Unsafe abortions come about as a result of a lack of safe abortion services and the inability to afford these services where they are available, resulting in increased maternal mortality [3]. Pregnancy intervals of more than twenty-four months apart in lower- and middle-income countries could lead to a decrease in maternal and infant health. Access to and use of modern family planning has increased in recent years [4]. This has not been the case for most developing countries, where contraceptive use has remained persistently low. The main reasons are poor health infrastructure and transportation facilities [5, 6]. As a result, postpartum family planning, specifically in countries with high birth rates, has the potential to reduce infant mortality by nearly 10% and 32% of all maternal deaths [5]. Furthermore, there exist several myths and misconceptions regarding the different methods of contraception that are available and that are appropriate during the postpartum period.

Available methods that can be used as soon as possible after childbirth consist of progesterone-only injectable (Depo-Provera), intrauterine devices, female sterilization, female condoms, implants, lactational amenorrhoea method (LAM) and progesterone-only pills (POP). On the other hand, combined oral contraceptive pills (COC) are recommended for use only by non-lactating women for three (3) weeks. Still, lactating women can only begin at six (6) months post-delivery. Studies show that if methods such as intrauterine devices are not done within forty-eight (48) hours after delivery, the woman must wait four (4) weeks post-delivery. Also, female sterilization should be done within seven (7) days of delivery, or she will have to wait six (6) weeks after delivery [2] (WHO, 2013). Long-acting reversible contraceptives are very potent in avoiding unplanned pregnancies. The male condom continues to be the most widely used modern contraceptive method among women during the postpartum period. However, several other couples depend on traditional and unpredictable methods of contraception like periodic abstinence, coitus interruptus and rhythm methods [7].

Many women employ lactational amenorrhoea as a form of contraception following childbirth. However, the postpartum amenorrhoea period lasts for different lengths of time for other women, and the resumption of fertility also varies, with some happening even before the return of menses [8]. Though awareness and knowledge of contraception and family planning are widespread in Ghana, their utilization continues to be low, with increased unmet needs among women in the postpartum period [9]. Even though a lot of postpartum women wish to delay their subsequent pregnancy for a minimum of two years, the majority of them do not use effective contraception methods in the postpartum period. This study aimed to assess the use of modern contraceptives and explore the reasons for the non-use of family planning methods among postpartum women attending a postnatal clinic at the Tamale Teaching Hospital.

Method

Study Area

The study was conducted at Tamale Teaching Hospital (TTH) in the Northern Region of Ghana. TTH is in a catchment area with approximately 4.2 million inhabitants. The Hospital serves as a medical referral centre for the Northern part of Ghana and the neighbouring countries of Ivory Coast, Burkina Faso, and Togo. It has a bed capacity of about eight hundred (800) and a workforce of about two thousand five hundred (2,500) staff.

The study was conducted at the hospital's Child Welfare (postnatal) Clinic, open Monday through Friday from 8 a.m. to 2 p.m.

Study Design

A cross-sectional, prospective survey with a quantitative approach was conducted by interviewing women attending the postnatal clinic who were 6 weeks to 12 months postpartum at the Tamale Teaching Hospital from November 1st to 30th, 2021. A purposive sampling method was used to select participants. The captured and reviewed variables included participants' demographic information such as age, parity, religion, occupation, and educational status. Participants' use or non-use of contraceptives, as well as their reasons for non-use, were also captured.

Study Population

The target population consisted of all postpartum women attending the Child Welfare Clinic at Tamale Teaching Hospital. Women who were 6 weeks to 12 months postpartum were included in the study.

Exclusion Criteria

1. Women who were less than 6 weeks postpartum.
2. Women who were more than 12 months postpartum.

Sample Size

The minimum number of participants included in the study was determined by calculating the sample size using the Cochrane formula and correcting for a finite population. To this end, a 95% confidence level and a 5% margin of error were used. The sample size was calculated based on the assumption that 50% of women who are 6 weeks to 12 months postpartum would use contraception during the postpartum period.

The minimum number of participants was 422.

Sampling Procedure

A simple random sampling technique was used to select participants, targeting all women 6 weeks to 12 months postpartum who visited the clinic during the study period.

Data Collection Tool

Quantitative data were collected from participants by recording minimal standard information for proper assessment of contraceptive use. A questionnaire was drafted with two sections, based on the following headings: participant sociodemographic information and details of contraceptive use. The draft questionnaire was pretested by two pharmacists, two midwives, two medical doctors and four potential participants. All concerns raised during this phase were considered, and the draft questionnaire was amended to obtain the final tool. The final questionnaire was then used to collect all the data analyzed in the study.

Data Collection Technique and Procedure

Data was collected from child welfare record books, and participants were interviewed using a structured questionnaire. Two trained research assistants collected data, explaining the study in the patient's language where necessary. After presenting the research and defining the participants' responsibilities, their

consent was sought before the information was collected through face-to-face interviews. COVID-19 protocols, including wearing face masks, maintaining social distancing, practicing frequent handwashing, and using hand sanitizers, were adhered to.

Data Analysis

The data captured were entered into the statistical software Statistical Package for the Social Sciences (SPSS) Version 20.0 (IBM, Illinois, USA). All data collected were examined for completeness and cleaned before analysis. Means, with standard deviation, or medians with limits, where appropriate, were used to describe continuous variables. Percentages were used to summarize the counts in charts. The Chi-squared test for association was used to examine the relationship between the outcome measure (contraceptive use) and potential predictors. Significance was assumed at asymptomatic significance (p- p-values) of less than 0.05 at a 95% confidence level.

Ethical Consideration

The data collection sheets were kept under lock and key and will be kept for at least three years. The computer used to analyze the data was password-protected and thus secure. The collected data was solely used for this study. Only participants who gave free and informed consent were included in the study.

Results

Questionnaires were distributed to 422 mothers attending the antenatal clinic of the Tamale Teaching Hospital who were between 6 weeks and 12 months postpartum. Only 400 people responded, giving a response rate of 94.8%.

Socio-Demographic Characteristics of Respondents

Half (200/400, 50%) of the respondents were within the 22-28 age group, 116 (29.0%) were within the 29-35 age group, 56 (14.0%) were in the 15-21 age group, and 25 (6.2%) were in the 36-42 age group. Those above 42 years were the least, with only three members (0.8%).

Table 1 below shows a summary of the demographic characteristics of respondents.

Table 1. Socio-Demographic Characteristics of Patients Included in the Study

Variable	Frequency	Percent
Age group		
15-21	56	14.0
22-28	200	50.0
29-35	116	29.0
36-42	25	6.2
More than 42	3	0.8
Highest level of education		
No formal education	26	6.5
Basic	150	37.5
Secondary	100	25.0
Tertiary	124	31.0
Religion		
Christianity	117	29.3
Islam	283	70.7
Traditional African Religion	0	0.0
Marital status		
Married	342	85.5

Cohabitating	34	8.5
Single	5	1.3
Divorced	19	4.7
Occupation		
Student	10	2.5
Farmer	3	0.7
Unemployed	58	14.5
Salaried worker (public)	46	11.5
Salaried worker (Private)	61	15.3
Trader	214	53.5
Artisan	8	2.0
Partner's educational level		
No formal education	62	15.5
Basic	48	12.0
Secondary	102	25.5
Tertiary	188	47.0

Reproductive Health-Related Characteristics of Respondents

More than half of respondents (297/400,74.3%) said they had never used contraceptives before, but 103 respondents (25.7%) said they had never used contraceptives before. Two hundred and three respondents (50.8%) reported that their menses returned after delivery, while 197 (49.2%) stated that they had not yet returned.

The reproductive health characteristics are summarized in Table 2 below:

Table 2. Reproductive Health-Related Characteristics of Study Participants

Variable	Frequency	Percent
Parity		
1	164	41.0
2	146	36.5
3	61	15.3
4	22	5.5
5 or more	7	1.7
Age of the last child		
0-3 months	255	63.7
4-7 months	78	19.5
8-12 months	67	16.8
Wants to have another child		
No	70	17.5
Yes	330	82.5
Have you ever used any contraceptives in the past?		
No	297	74.3
Yes	103	25.7

Return of menses		
No	197	49.2
Yes	203	50.8
Age of child when mensesreturned	N=245	
0-3 months	186	75.9
4-7 months	47	19.2
8-12 months	12	4.9
Resumption of sexual intercourse		
No	261	65.3
Yes	139	34.7
Current use of contraceptives		
No	266	66.5
Yes	134	33.5

Preferred Contraception Method

Most respondents currently using contraception methods (63/134, 47.0%) preferred the injectable, 28 respondents (20.9%) were using the oral contraceptive pill, 27 respondents (20.1%) had implants in place, seven respondents (5.2%) were using intrauterine devices, 6 (4.4%) use emergency contraceptives, and 2 (1.5%) each for withdrawal method and female condom.

Table 3. Preferred Contraception Methods

Variable	Frequency	Percent
Injectable	63	47.0
Pills	28	20.9
IUD	7	5.2
Female condom	1	0.8
Implant	27	20.1
Emergency contraception	6	4.5
Withdrawal	2	1.5
Total	134	100.0

Association of Socio-Demographic Characteristics with Postpartum Contraceptive Use

Table 4 presents a cross-tabulation of respondents' socio-demographic characteristics and contraceptive use. There was an association between contraceptive use and respondents' highest education level, marital status, occupation, and partner's educational level (p= 0.001, 0.005, 0.001, 0.001, and 0.000, respectively). However, no association was found between contraceptive use and respondents' age or religion (p 0.171 and 0.609, respectively).

Table 4. Socio-Demographic Characteristics of Respondents against Postpartum Contraceptive Use

Variable	frequency	Contraceptive use No N (%)	Yes N (%)	p-value
Age group				0.171
15-21	56	38 (67.9)	18 (32.1)	
22-28	200	131 (65.5)	69 (34.5)	
29-35	116	82 (70.7)	34 (29.3)	
36-42	25	12 (48)	13 (52)	
More than 42	3	3 (100)	0 (0.0)	
Highest level of education				0.001
No formal education	26	24 (92.3)	2 (7.7)	
basic	150	110 (73.3)	40 (26.7)	
secondary	100	60 (60.0)	40 (40.0)	
tertiary	124	72 (58.1)	52 (41.9)	
Religion				0.609
Christianity	117	80 (68.4)	37 (31.6)	
Islam	283	186 (65.7)	97 (34.3)	
Traditional African Religion	0	0 (0.0)	0 (0.0)	
Marital Status				0.005
Married	342	216 (63.2)	126 (36.8)	
cohabitating	34	30 (88.2)	4 (11.8)	
single	5	5 (100.0)	0 (0.0)	
divorced	19	15 (78.9)	4 (21.1)	
Occupation				0.001
student	10	10 (100.0)	0 (0.0)	
farmer	3	3 (100.0)	0 (0.0)	
unemployed	58	42 (72.4)	16 (27.6)	
Salaried worker (public)	46	19 (41.3)	27 (58.7)	
Salaried worker (Private)	61	36 (40.9)	25 (41.0)	
Trader	214	151 (70.6)	63 (29.4)	
Artisan	8	5 (62.5)	3 (37.5)	
Partner's educational level				0.000
No formal education	62	55 (88.7)	7 (11.3)	
Basic	48	39 (81.2)	9 (18.8)	
Secondary	102	64 (62.7)	38 (37.3)	
Tertiary	188	108 (57.4)	80 (42.6)	

Influence of Respondents' Reproductive Health Characteristics on Postpartum Contraceptive Use

The association between respondents' reproductive health characteristics and postpartum contraceptive use is presented in Table 5. There was an association between contraceptive use and the respondents' desire to have another child, the age of the last child and whether respondents have used a contraceptive

before (p= 0.003, 0.015 and 0.000, respectively).

Table 5. Respondents' Reproductive Health Characteristics and Postpartum Contraceptive Use

Variable	Frequency	Contraceptive use No N (%)	Yes N(%)	p-value
Parity				0.058
1	164	119 (72.6)	45 (27.4)	
2	146	90 (61.6)	56 (38.4)	
3	61	43 (70.5)	18 (29.5)	
4	22	11 (50.0)	11 (50.0)	
5 or more	7	3 (42.9)	4 (57.1)	
Age of the last child (months)				0.015
0-3	255	165 (64.7)	90 (35.3)	
4-7	78	62 (79.5)	16 (20.5)	
8-12	67	39 (58.2)	28 (41.8)	
Wants to have another child				0.003
No	70	36 (51.4)	34 (48.6)	
Yes	330	230 (69.7)	100 (30.3)	
Have you ever used any contraceptives?				0.000
No	297	215 (72.4)	82 (27.6)	
Yes	103	51 (49.5)	52 (50.5)	
Return of menses				0.396
No	197	127 (64.7)	70 (35.3)	
Yes	203	139 (68.5)	64 (31.5)	
Age of the child when menses returned	N=245			0.556
0-3 months	186	128(69.6)	58 (30.4)	
4-7 months	47	29 (61.7)	18 (38.3)	
8-12 months	12	9 (75.0)	3 (25.0)	
Resumption of sexual intercourse				0.750
No	261	175 (67.0)	86 (33.0)	
Yes	139	91 (65.5)	48 (34.5)	
Age of the child when intercourse resumed	N=136			
0-3 months	85	58 (68.2)	27 (31.8)	0.509
4-7 months	49	31 (63.2)	18 (36.8)	
8-12 months	2	2 (100.0)	0 (0.0)	

Reasons for Non-Use of Postpartum Contraception

Out of the 266 respondents who reported that they do not use contraceptives, 37 (13.9.0%) said it was because their husbands disapproved of the use of contraceptives. 113 (42.5%) said they did not use contraceptives because they were afraid they would not become pregnant again. 42 (15.8%) said they were scared of the side effects of the contraceptives. Table 6

below summarizes the reasons for non-use of contraceptives among the respondents.

Table 6. Showing Reasons for No Use of Contraceptives Among Respondents

Parameter	**Frequency**	**Percent**
My husband disapproves	37	13.9
It is harmful to the health of my child	5	1.9
I could not get a method of my choice	8	3.0
I am breastfeeding	21	7.9
My religion disapproves of contraceptive use	8	3.0
I am afraid of side effects	42	15.8
I am afraid I will not become pregnant again	113	42.5
I intend to use contraceptives when menstruation begins	14	5.3
I don't have any Knowledge on contraceptive use	18	6.7
Total	**266**	**100**

Discussion

This study assessed the use of modern methods of contraception among postpartum women attending a postnatal clinic at the Tamale Teaching Hospital, Ghana.

Results from the study showed the prevalence of contraceptive use among postpartum mothers to be 33.5%. This finding is lower than that found in studies conducted in Ethiopia (44%), Burkina Faso (56%) and Kenya (75.5%) [10, 11, 12]. However, it was higher than the prevalence of 22% identified by the Ghana Demographic Health Survey (GDHS) [13] in 2014 and the 26.3% found by a study conducted at Tema General Hospital and Tema Polyclinic in southern Ghana [14]. Low rates of contraceptive use among postpartum women are associated with short intervals and unplanned pregnancies, which have adverse outcomes for both mother and child [1]. These adverse outcomes include an increased risk of preterm birth, low birth weight, and pre-eclampsia [15]. In addition, the study found the types of contraceptives commonly used by postpartum women to be injectable, oral contraceptive pills, implants, IUDs, emergency contraceptives, and withdrawal methods. Out of these, the injectable was identified as the most preferred contraceptive (63/134, 47%) in the postpartum women attending a postnatal clinic at the Tamale Teaching Hospital. This finding is consistent with the results of global studies [16,17,18]. In Ghana, a study conducted at the Tema General Hospital and Tema Polyclinic found that the most preferred contraceptive was injectable (29.8%) [14]. These studies show that postpartum women prefer short-term hormonal contraceptives like the injectable. However, long-term contraceptives like IUDs and implants have been demonstrated to be more effective in preventing unplanned pregnancies [19].

Furthermore, the study found an association between the women's level of education and postpartum contraceptive use (Chi square=16.755, p-value=0.001). The higher the level of education of the respondents, the more likely they were to use contraceptives. This could be because the high level of education increases the knowledge of women about

contraceptive use and its benefits. An association was also found between contraceptive use and the respondents' marital status, occupation, and their partners' education level (Chi squares = 12.765, 23.743, 25.978, p-values = 0.005, 0.001, 0.000, respectively). Respondents who were gainfully employed were more likely to use contraceptives. This finding is consistent with those reported in [20] on family planning. Postpartum women who were highly educated and those who had partners with high educational levels were also more likely to use contraceptives.

Also, a history of contraceptive use before the last pregnancy increased the likelihood of current contraceptive use among the respondents (chi square=17.965, P=0.000). This finding is consistent with studies in India and Ethiopia [21, 22]. This association can be attributed to the fact that women who have prior experience with contraceptives are aware of the benefits that they can derive from them. An association was found between the desire to have another child in the future and contraceptive use (chi-square =8.651,p=0.000). The proportion of postpartum women using contraceptives was higher (48.6%) in those who did not want to have more children compared to those who desired to have additional child/children (30.3%).

In this study, fear of not being able to conceive again was found to be the primary reason why respondents did not use contraceptives. One hundred thirteen respondents reported this out of the 266 (42.5%) who said they were not using any form of contraception. The fear of side effects was also reported in 15.8% (42/266) of respondents as a reason for their non-use of postpartum contraception methods. These findings are consistent with findings from a Malawian study that showed the perception of the side effects of contraceptives was a barrier to their use [23]. Similarly, the Ghana Statistical Service reported fear of side effects of contraceptives as a significant reason for the non-use of contraceptives by women [24]. However, this finding was different from the findings of other studies that showed disapproval from husbands as the primary reason for the non-use of contraceptives among women [25, 26].

Conclusion

Postpartum contraceptive use is low among women in Tamale. The most preferred method of contraception is the injectable. Still, others such as the implant, combined oral contraceptive pill, IUD, female condom, emergency contraceptive pill and withdrawal methods are also used. The utilization of contraceptives among postpartum women attending the Tamale Teaching Hospital post-natal clinic is affected by the level of education of the women, their marital status, their occupation, the level of education of their partners, the age of the last child of the woman, their desire to have an additional child(ren) and history of prior use of contraceptives. The main reason why most women did not use any contraception method was that they were afraid they would not be able to get pregnant again. Other reasons included the fear of side effects, disapproval from their husbands, the fact that they were breastfeeding, and their lack of knowledge of the various contraception methods available.

Recommendations

Postpartum contraceptive use is essential in preventing unplanned pregnancies and for ensuring adequate spacing of pregnancies. Based on the results of this study, the following recommendations have been made:

1. More education on contraceptive use and its benefits should be intensified among both men and women to improve its prevalence.
2. Adequate counselling on the different methods of contraception available should be provided to enable couples to choose the most appropriate type.

3. Strategies to increase enrollment and retention in schools for both males and females should be intensified since contraceptive use is positively associated with the formal education of both partners.

Limitations of the Study

The limitations of the study include:

1. The sensitive nature of matters relating to sex and contraceptive use in Ghana could be a limitation, as respondents may be unwilling to offer specific information they consider to be private.
2. The study focused on the mother, but other factors such as male partners, healthcare providers, and healthcare facility factors also influence contraceptive use.
3. This study was carried out in Tamale Teaching Hospital; thus, it might not provide a true reflection of the use of contraceptives in postpartum women in the larger population

Consent

Only participants who gave free and informed consent were included in the study.

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The authors did not receive support from any organization for the submitted work.

Conflict of Interest

The authors declared no conflict of interest.

Ethical approval

Approval was obtained from the Tamale Teaching Hospital Ethics Committee.

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References

[1]. World Health Organization, Geneva, Switzerland.

[2]. World Health Organization, 2013. Programming strategies for postpartum family planning.

[3]. Cleland, J., Conde-Agudelo, A., Peterson, H., Ross, J., & Tsui, A., 2012, Contraception and health. The Lancet, 380(9837), 149–156. https://doi.org/10.1016/S0140-6736(12)60609-6

[4]. World Health Organization, 2005, Report of a WHO technical consultation on birth spacing. Report of a WHO Technical Consultation on Birth Spacing, 13(6), 1–44. http://www.who.int/maternal_child_adolescent/documents/birth_spacing.pdf

[5]. Cleland, J., Bernstein, S., Ezeh, A., Faundes, A., Glasier, A., & Innis, J. (2006). Family planning: The unfinished agenda. Lancet (London, England), 368(9549), 1810–1827. https://doi.org/10.1016/S0140-6736(06)69480-4

[6]. Yeakey, M. P., Muntifering, C. J., Ramachandran, D. V., Myint, Y. M., Creanga, A. A., & Tsui, A. O., 2009, How contraceptive use affects birth intervals: Results of a literature review. Studies in Family Planning, 40(3), 205–214. https://doi.org/10.1111/J.1728-4465.2009.00203.X/ABSTRACT

[7]. Ghana Statistical Service, 2016, Health of Women and Children in Ghana.

[8]. Jackson, E., & Glasier, A., 2011, Return of ovulation and menses in postpartum nonlactating women: A systematic review. Obstetrics and Gynecology, 117(3), 657–662. https://doi.org/10.1097/AOG.0b013e31820ce18c

[9]. Aviisah, P. A., Dery, S., Atsu, B. K., Yawson, A., Alotaibi, R. M., Rezk, H. R., & Guure, C., 2018, Modern contraceptive use among women of reproductive age in Ghana : analysis of the 2003 – 2014 Ghana Demographic and Health Surveys. 1–10.

[10]. Wassihun, B., Wosen, K., Getie, A., Belay, K., Tesfaye, R., Tadesse, T., Alemayehu, Y., Yihune, M., Aklilu, A., Gebayehu, K., & Zeleke, S., 2021, Prevalence of postpartum family planning utilization and associated factors among postpartum mothers in Arba Minch town, South Ethiopia. Contracept Reprod Med 6, 6, https://doi.org/10.1186/s40834-021-00150-z

[11]. Houston, S., Barros, A. J. D., Amouzou, A., Shiferaw, S., Maïga, A., Akinyemi, A., Koroma, D., 2015, Patterns and trends of contraceptive use among sexually active adolescents in Burkina Faso, Ethiopia, and Nigeria: evidence from cross-sectional studies. Global Health Action, 8(1). https://doi.org/10.3402/gha.v8.29737

[12]. Tran, N. T., Yameogo, W. M. E., Langwana, F., & et al., 2018, Participatory action research to identify a package of interventions to promote postpartum family planning in Burkina Faso and the Democratic Republic of Congo. BMC Women's Health, 18, 122.

[13]. Cleland, J., Shah, I. H., & Daniele, M., 2015. Interventions to Improve Postpartum Family Planning in Low- and Middle-Income Countries: Program Implications and Research Priorities. Studies in Family Planning, 46(4), 423–441. https://doi.org/10.1111/j.1728-4465.2015.00041.x

[14]. Coomson, J. I., Manu, A., 2019, Determinants of modern contraceptive use among postpartum women in two health facilities in urban Ghana: a cross-sectional study. Contracept Reprod Med 4, 17. https://doi.org/10.1186/s40834-019-0098-9

[15]. Bahk, J., Yun, S., Kim, Y., & Khang, Y., 2015, Impact of unintended pregnancy on maternal mental health : a causal analysis using follow-up data of the Panel Study on Korean Children (PSKC). 1–12. https://doi.org/10.1186/s12884-015-0505-4

[16]. Moore, Z., Pfitzer, A., Gubin, R., Charurat, E., Elliott, L., & Croft, T., 2015, Missed opportunities for family planning: An analysis of pregnancy risk and contraceptive method use among postpartum women in 21 low- and middle-income countries. Contraception, 92(1), 31-39. https://doi.org/10.1016/j.contraception.2015.03.007

[17]. Abera, Y., Mengesha, Z. B., & Tessema, G. A., 2015, Postpartum contraceptive use in Gondar town, Northwest Ethiopia: A community-based cross-sectional study. BMC Women's Health, 15(19). https://doi.org/10.1186/s12905-015-0178-1

[18]. Jalang'o, R., Thuita, F., Barasa, S. O., & et al., 2017, Determinants of contraceptive use among postpartum women in a county hospital in rural Kenya. BMC Public Health, 17, 604. https://doi.org/10.1186/s12889-017-4510-6

[19]. Blumenthal P. D., Voedisch A., Gemzell-Danielsson K., 2011, Strategies to prevent unintended pregnancy: increasing use of long-acting reversible contraception. Hum Reprod Update. 2011;17:121–37. Doi: 10.1093/humupd/dmq026.

[20]. Achyut, P., Mishra, A., Montana, L., & et al., 2016, Integration of family planning with maternal health services: An opportunity to increase postpartum modern contraceptive use in urban Uttar Pradesh, India. Journal of Family Planning and Reproductive Health Care, 42, 107-115.

[21]. Gebremedhin, A. Y., Kebede, Y., Gelagay, A. A., & et al., 2018, Family planning use and its associated factors among women in the extended postpartum period in Addis Ababa, Ethiopia. Contraception and Reproductive Medicine, 3, 1. https://doi.org/10.1186/s40834-017-0054-5

[22]. Dombola, G. M., Manda, W. C., & Chipeta, E., 2021, Factors influencing contraceptive decision making and use among young adolescents in urban Lilongwe, Malawi: A qualitative study. Reproductive Health, 18, 209. https://doi.org/10.1186/s12978-021-01259-9

[23]. Burdette, A. M., Haynes, S. H., Hill, T. D., & Bartkowski, J. P., 2014, Religious variations in perceived infertility and inconsistent contraceptive use among unmarried young adults in the United States. Journal of Adolescent Health, 54(6), 704-709.
https://doi.org/10.1016/j.jadohealth.2013.11.002

[24]. Apanga, P. A., & Adam, M. A., 2015. Factors Influencing the Uptake of Family Planning Services in the Talensi District, Ghana. Pan African Medical Journal, 20, 10. https://doi.org/10.11604/pamj.2015.20.10.5301