

# Fear of infertility limits contraceptive usage among first-time mothers in Ghana: A cross-sectional study

SAGE Open Medicine

Volume 9: 1–9

© The Author(s) 2021

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/20503121211021256

journals.sagepub.com/home/smo



Emmanuel Adofo<sup>1\*</sup>, Elvis J Dun-Dery<sup>2,3\*</sup> , Agnes M Kotoh<sup>2</sup>,  
Frederick Dun-Dery<sup>4</sup> , James Atampiiga Avoka<sup>5</sup>  
and Mary Eyram Ashinyo<sup>6</sup> 

## Abstract

**Objectives:** This study aimed to determine postpartum modern contraceptive use among first-time young mothers attending child welfare clinics in the Eastern Region of Ghana and explore factors that influence family planning uptake after the first delivery, including fear of infertility.

**Methods:** This facility-based, cross-sectional study used interviewer-administered structured questionnaires. The study recruited 422 first-time young mothers aged 15–24 years, with 6- to 18-month-old babies attending child welfare clinics.

**Results:** Overall, less than half (44%) of first-time mothers used modern contraceptives within 18 months after delivery. Fear of infertility after contraceptive use (56%) is the main barrier reported as the reason for women's non-use of modern contraceptives. Mothers with tertiary education have higher odds of using postpartum contraceptives (adjusted odds ratio = 1.6, 95% confidence interval: 0.4–2.0). Compared to mothers with younger children, those with children older than 6 months have higher odds of postpartum contraceptive use (adjusted odds ratio = 1.3, 95% confidence interval: 0.3–1.7). Nonspousal communication (adjusted odds ratio = 0.1, 95% confidence interval: 0.1–0.3) as compared to communication among partners about contraception and those in formal employment (adjusted odds ratio = 0.3, 95% confidence interval: 0.1–0.7), were less likely to use postpartum contraceptives.

**Conclusion:** Considering that there is low postpartum contraceptive utilization, mostly due to concerns about fear of infertility after use, it is paramount to intensify education on actual side effects and reformulate policies that address specific concerns of infertility among mothers and contraceptive use.

## Keywords

Contraception, postpartum period, prevalence rate, family planning, postpartum, postpartum amenorrhoea

Date received: 16 October 2020; accepted: 4 May 2021

## Introduction

Postpartum family planning is initiation family planning services within the first 12 months following childbirth, to prevent closely spaced and unintended pregnancies.<sup>1</sup> After reviewing multiple studies, the World Health Organization (WHO)<sup>2</sup> Technical team recommended a minimum of 24-month interval after childbirth to the next pregnancy to reduce the adverse outcomes for the mother and baby. Other reviews have shown that pregnancies occurring less than 12 months after the last delivery had poor outcomes for both mother and the infant, especially in women who had previous childbirth experience.<sup>3</sup> Closely spaced pregnancies are often associated with increased maternal morbidities such as anaemia, bleeding disorders, premature rupture of

<sup>1</sup>Lekma Government Hospital, Accra, Ghana

<sup>2</sup>Department of Population, Family and Reproduction Health, School of Public Health, College of Health Sciences, University of Ghana, Accra, Ghana

<sup>3</sup>Department of Population and Health Research, Research Web Africa, Sunyani, Ghana

<sup>4</sup>Heidelberg Institute of Global Health, Ruprecht-Karls-Universität Heidelberg, Heidelberg, Germany

<sup>5</sup>Ghana Health Service, Birim Central Municipal Health Directorate, Akim Oda, Ghana

<sup>6</sup>Department of Quality Assurance, Ghana Health Service, Accra, Ghana

\*first authors

### Corresponding author:

Elvis J Dun-Dery, Department of Population and Health Research, Research Web Africa. Box 233, Sunyani, Ghana.

Emails: [dunderjuniior@yahoo.co.uk](mailto:dunderjuniior@yahoo.co.uk); [ejdun-dery@st.u.edu.gh](mailto:ejdun-dery@st.u.edu.gh)



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons

Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

membranes, and mortality.<sup>4</sup> Spacing pregnancies at least 2 years apart in the developing world could reduce maternal mortality by more than 40%, and mortality in children under five by 31%.<sup>5</sup>

Although progress has been made to increase access to maternal and child care services in sub-Saharan Africa,<sup>2</sup> no significant improvement has been observed in contraceptive use by first-time mothers after delivery.<sup>6</sup> Preliminary research conducted by Ganaba et al.<sup>6</sup> suggests that unintended pregnancy remains a challenge in sub-Saharan Africa, and the underlying factors include inadequate access to family planning in the postpartum period.<sup>7</sup> Meanwhile, cross-continental surveys indicate that access to contraception during the postpartum period improves child survival, improves newborn and maternal health, and addresses unsafe abortion in Africa.<sup>8</sup>

Unfortunately, postpartum women in Ghana have limited access to contraceptives,<sup>8</sup> as compared to most sub-Saharan African countries,<sup>9</sup> and the situation is particularly rampant among women having their first child.<sup>10</sup> This is because cultural and religious barriers exist, making first-time mothers shy away from contraceptive uptake.<sup>11</sup> These new mothers are often under pressure from family members to prove their fertility by producing many children.<sup>12</sup> Although knowledge of contraception and family planning is universal in Ghana, contraceptive use among first-time mothers remains low,<sup>10</sup> whereas unmet need in the postpartum period is still high.<sup>13</sup> Even though many young Ghanaian first-time mothers prefer to delay their next pregnancy for at least 2 years, only 17% of married women between ages 15 and 19 years use a modern method of contraception compared to 38% of women between 25 and 39 years.<sup>14</sup> In a typical Ghanaian society, low uptake of contraceptives is mostly associated with fear of side effects, poor access, and cultural and religious biases.<sup>15</sup>

In settings like the Eastern Region of Ghana, access to family planning services remains a challenge,<sup>16</sup> even though contraceptives are purchased at a relatively low cost from the Ghana Health Service.<sup>8</sup> First-time young mothers who seek contraceptive services before the resumption of menstruation are sometimes turned away by health care providers, who suggest they return after menses resumes.<sup>17,18</sup> Consequently, many first-time mothers tend to use modern contraception only after resumption of sexual intercourse or return of menses, exposing them to the dangers of unintended pregnancy.<sup>19</sup> In the current study area (the Kwaebibirem District, in the Eastern Region of Ghana), teenage pregnancy is still an issue. Compared to the national (17%) prevalence of teen pregnancy, the figure is slightly higher (19%).<sup>16</sup> However, the contraceptive prevalence in the Kwaebibirem District within the female population is 12%, a figure far below the national contraceptive prevalence of 27%.<sup>14</sup> That of postpartum contraceptive use among first-time mothers is not reported in the literature. Hence, this study aims to determine the prevalence of postpartum contraception use among first-time young mothers. The study also examined factors associated with the use or nonuse of modern contraceptives during the postpartum period.

## Methods

### Study location

The study was conducted in the Kwaebibirem District in the Eastern Region of Ghana, with a population of 113,721 and an annual growth rate of 2.1%. Males constitute 49%, and females represent 51%.<sup>16</sup> The Kwaebibirem District was selected for the study because the Eastern region is known to have the highest reported cases of teenage pregnancy in Ghana,<sup>15</sup> with the lowest contraceptive use in the Kwaebibirem District.<sup>16</sup> The district has 1 hospital, 3 health centres, and 24 Community Health and Planning Services Centres (community health centres established within the community by the Ghana Health Service as a means to meeting community health needs). The district hospital serves as the main referral facility for the inhabitants in the area and others from the adjoining districts. Six subdistrict facilities provide basic emergency maternal and neonatal care, with only the district hospital providing comprehensive obstetric care.

### Sample size

The sample size calculation is based on the assumption that 50% of first-time mothers would use contraception during the postpartum period.<sup>20</sup> This assumption represents the population proportion, usually assumed when the prevalence of the condition among the study population has not been reported in the literature.<sup>21</sup> The sample size for this study was calculated within the following parameters. The assumed percentage of postpartum contraceptive use of 50%,<sup>20</sup> 95% confidence interval (CI), a margin of error of 5%, an alpha level of <0.20, and power of 80%, giving a sample size of 384. The sample size was increased by 10% to account for the nonresponse rate, resulting in a sample size of 422.

### Study design, sampling method, study population, and inclusion criteria

This study uses a facility-based descriptive cross-sectional design. The study involved a multistage and purposive sampling technique in selecting facilities and respondents. By the convenience sampling method, the district hospital and all three health centres were chosen, considering that they are the most extensive facilities providing a wide range of services for young mothers. In addition, the study randomly selected 12 community health planning service (CHPS) centres across the district from a total of 24 CHPS centers. The names of all 24 CHPS centres were written on pieces of papers, put in a container, mixed, and 12 CHPS centres randomly chosen. The researchers coded the different health facilities selected and created an identification serial number for each respondent. In the first stage, a systematic sampling technique was employed in selecting every third respondent who was between ages 15 and 24 years with a child. For a respondent to qualify to participate in the study, she should have

delivered for the first time between 6 and 18 months before the study and should be attending a child welfare clinic. The nurses referred first-time mothers present at the child welfare clinic to research assistants (who were present on clinic days). A mother was considered qualified after her records were reviewed, found to be a first-time mother between ages 15 and 24 years, and delivered within the last 6–18 months. First-time mothers who gave consent to participate in the study were recruited using the same method until the sample size of 422 was achieved. Once an eligible respondent was identified, she was invited orally to participate in a one-on-one interview. For mothers less than 18 years of age, researchers arranged an appointed interview date and sought consent from the guardian in the respondent's presence before conducting interviews. Mothers with medical conditions preventing contraceptive use, those with severe mental illness or hysterectomy, were excluded from the study.

### *Patient and public involvement statement*

Before implementing the research, healthcare workers reported a slow turnout for contraceptives among the age group 15–24. Most women in this age group were later found to have delivered, but the reasons for their low contraceptive uptake were not known. Mothers were later informed during clinic days that research would be carried out on the reasons and measurement of their contraceptive use. Once the results became available, researchers shared the study with service providers and patients through publication, presentation on postnatal clinic days, and patient education. Health service providers were also guided through the implementation of the study recommendations.

### *Outcome measurement*

The research measured postpartum contraceptive use by calculating the percentage of mothers who used or are currently using contraceptives immediately after childbirth until 18 months after delivery. A binary variable was created with the questions “have you ever used contraceptives after delivery?” and “are you currently using contraceptives?” with response categories “0” for no or “1” for yes to enable researchers to measure the outcome variable. Another question was framed as “what would you say is the reason women are not using contraceptives?” and options were provided for respondents to select. Options included commonly known side effects of contraceptives, including fear of infertility. A follow-up question was created (Would you consider the fear of infertility as the main reason women are not using contraceptives?) with options of “yes” and “no.” The aggregate of all responses was taken as the total percentage of responses favouring fear of infertility. The questions adopted from DHS were modified to measure the outcome of interest (contraceptive use). Women who initiated contraceptive use after childbirth but discontinued use

and those currently using were coded as “ever use” and “current use,” respectively. Responses were coded categorically using numerals and with possible answers for respondents to select. Responses were marked by the interviewer based on verbal responses and were later coded with numbers during data entry.

### *Covariates*

We controlled for several factors associated with contraceptive use among first-time mothers, including age,<sup>22</sup> residence,<sup>23</sup> and level of education.<sup>24,25</sup> These covariates were selected for analysis because they are predominantly cited in the literature as determinants of contraceptive uptake among women. Covariates, including sociodemographic variables (maternal and child age—which was categorized into 24 years or less and 18 months or less, respectively), marital status modified as married and not married, level of education, occupation, and religion, were also assessed.

### *Data collection*

The researchers used interviewer-administered questionnaires adapted from the Ghana Demographic Health Survey<sup>14</sup> on contraception. A professional translator translated the questionnaires into three different local languages that the respondents were comfortable speaking. Research assistants conducted data collection over a 1-month period. Of the 422 first-time mothers aged between 15 and 24 years who were recruited for this study, 416 responded to the questionnaires. This gave a response rate of 99%. However, only 414 questionnaires were used for analysis due to data recording errors on two questionnaires. Before data collection, a total of 56 questionnaires were pretested in Madina child welfare clinic, a setting with similar demographic characteristics as the study area. Sensitive questions were removed, and others modified to ensure researchers get appropriate responses.

### *Data processing and analysis*

Unprocessed data extracted from the responses in the questionnaires were coded into categories. Coded data were entered into an Excel spreadsheet (Microsoft Office, 2010), cleaned, and exported into STATA version 12 for analysis. Descriptive statistics were calculated, and chi-square tests were used to determine the association between the outcome variable (contraceptive use) and other individual factors. Using a statistical significance of 95% CI and  $p \leq 0.20$  variables significant in bivariate analyses were put into a multiple logistic regression model and adjusted odd ratios were calculated. This was to further test associations and control for confounders. The results obtained from the various analyses were presented in descriptive texts, tables, and figures.

## Data sharing

No additional data are available.

## Results

### Respondents' characteristics

In total, 414 first-time mothers were interviewed, 73% were between ages 20 and 24 years, and the mean age of all respondents was 21 years. Close to three-quarters (72%) of the mothers had completed secondary level education, 16% had primary education, and only 3% obtained tertiary education. In addition, almost half of the young first-time mothers (46%) were unemployed. Even among those employed, only 28% were in the formal sector (private and public), while 26% were self-employed. Furthermore, the majority (88%) of the respondents were Christians, and more than half of the respondents (65%) were rural dwellers who came from other parts of the district to access health services.

At the time of the survey, almost all women (97%) who took part in this study had a child who was less than a year old. While more than half of the respondents (64%) expressed the desire to have another child, just 31% did not want any more children. However, 5% were uncertain about their future reproductive goals. A portion of mothers (63%) had the interest to delay their next birth by at least 2 years, while 70% of the respondents had resumed sexual intercourse at the time of the study. Among those who had started sex, 72% initiated sexual intercourse before their babies were 6 months old. While 47% of the respondents confirmed ever using contraceptives in their lifetime, only 44% are currently using a modern method of contraception. Overall, 65% desire to space their childbirth, and 24% wish to delay their next delivery. Other details are included in Table 1.

### Sociodemographic characteristics of respondents and bivariate relationship with contraceptive use (bivariate analyses)

As presented in Table 1, further analyses were conducted to understand the relationships between the outcome variable and other variables. Age of the respondent ( $p = 0.12$ ) and level of education ( $p = 0.20$ ) were associated with postpartum contraceptive use. Similarly, having a partner with a higher education level ( $p = 0.005$ ) and residing in an urban area ( $p = 0.001$ ) were also significantly associated with the use of postpartum contraceptives (Table 1). The use of contraceptives by respondents in the postpartum period was significantly associated with resumption of menstruation ( $p = 0.001$ ), age of the child before menstruation ( $p = 0.001$ ), fear of infertility ( $p = 0.001$ ), and resumption of sexual intercourse after delivery ( $p = 0.001$ ). Agreeing to a family planning method after counselling ( $p = 0.002$ ) and counselling of mothers before hospital discharge were also significant to postpartum contraceptive use ( $p = 0.011$ ) (variables not indicated in Table 1). The bivariate

results also indicate that communication between partners about family planning was also associated with postpartum contraceptive usage ( $p = 0.001$ ).

### Associations between selected characteristics and postpartum contraceptive use (multiple logistic regression analysis)

As shown in Table 2, the results of our adjusted multiple logistic regressions suggest that women with tertiary education had higher odds of postpartum contraception use (adjusted odds ratio (AOR) = 1.6, 95% CI: 0.4–2.0) compared to those with only primary education (AOR = 0.3, CI: 0.2–0.6). In terms of employment, the women in formal jobs had lower odds of postpartum contraceptive use (AOR = 0.3, 95% CI: 0.1–0.7). Compared to women who expressed fear of infertility as the main reason women are not using contraceptives, those who did not consider the fear of infertility as a barrier to contraception had higher odds of postpartum contraceptive use (AOR = 2.2, 95% CI: 2.0–2.6). Similarly, as compared to younger mothers, older mothers of age 20–24 years had higher odds of postpartum contraceptive uptake (AOR = 3.2, 95% CI: 2.3–3.4). In considering spousal communication, couples who discussed contraceptive use had higher odds of using contraceptives compared to those who do not communicate on contraceptives (AOR = 0.1, 95% CI: 0.1–0.3).

## Discussion

Forty-four percent (44%) of the respondents in this study were current users of a method of contraception. This finding contradicts findings reported by the Ghana Demographic and Health Survey for young women aged less than 25 years, where contraceptive prevalence was low (19%).<sup>14</sup> The high prevalence found in this study is expected because the Demographic and Health Survey study was a population-based study, giving it a wider sample as compared to this study being a facility-based study. Contraceptive prevalence in this study was higher than a similar study in Burkina Faso among postpartum women, where only 28% of the women adopted a modern method after delivery.<sup>6</sup> Considering that both studies are district-facility-based, variations observed can be attributed to differences in health sector programs and policies on maternal health services. Similarly, the figure reported in the current study (44%) is less as reported for a survey conducted in Ghana among young mothers (32%).<sup>10</sup> Several studies have documented the same trends of low uptake of family planning in developing countries.<sup>26–28</sup> In this study, majority (73%) of respondents were between ages 20 and 24 years, as compared to previous studies conducted in other parts of Ghana on the predictors of contraceptive use among first-time adolescent mothers, 68% of respondents were within same age<sup>15</sup> as reported in this study. Even though

**Table 1.** Sociodemographic characteristics of respondents and bivariate relationship with contraceptive use (N = 414).

Attribute	Frequency	Percent (%)	Contraceptive use		p-value
			Yes (%)	No (%)	
Age group (in years)					0.120
15–19	111	27	41.4	58.6	
20–24	303	73	50.2	49.8	
Educational level					0.200
No education	37	9	59.1	40.9	
Primary education	66	16	43.5	56.5	
Secondary education (JHS and SHS)	299	72	50.7	49.3	
Tertiary education	12	3	51.3	48.7	
Partner's educational level					0.005
No education	33	9	69.7	30.3	
Primary education	194	47	47.9	52.1	
Secondary education (JHS and SHS)	126	30	36.8	63.2	
Tertiary education	61	14	56.3	43.7	
Occupation					0.001
Unemployed	191	46	44.0	56.0	
Self-employment	106	26	40.2	59.8	
Formal employment	117	28	66.7	33.3	
Residence					0.001
Urban	270	65	53.7	46.3	
Rural	144	35	36.8	63.2	
Age of child (months)					0.001
6–12	402	97	47.3	52.7	
13–18	12	3	66.7	33.3	
Mother wanted another child					0.307
Yes	268	64	63.4	36.6	
No	132	31	57.8	42.2	
Not sure	14	5	44.9	55.1	
Resumption of menses					0.001
Yes	299	72	46.1	53.9	
No	115	28	62.7	37.3	
Has resumed sexual intercourse after delivery					0.001
Yes	304	73	58.9	41.1	
No	110	27	60.9	39.1	
Pregnancy was unplanned	268	66	47.3	52.7	0.211
Ever use of contraception	193	47	68.4	31.6	0.001
Reasons for contraceptive use (N = 193)					0.001
Used to space births	126	65	58.6	41.4	
Used to delay births	46	24	60.8	39.2	
Used as medication	211		69.6	30.4	
Reasons women don't use contraceptives					0.107
Prolonged vaginal bleeding	58	14	59.4	40.6	
Abdominal pains	82	20	70.1	29.9	
Infertility	230	56	54.5	45.5	
Dizziness	44	10	52.3	47.7	
Fear of infertility as the main reason for women nonuse					0.001
Yes	230		56	54.5	45.5
Current contraceptive use	184	44	47.3	52.7	—
Preferred contraceptive method (N = 193)					0.231
Injectable	101	53	—	—	
Implant	51	26	—	—	
Pills	30	15	—	—	
IUD	11	6	—	—	
Partners discussed contraceptive use	237	57			0.001

ANC: antenatal care; FP: family planning; JHS: junior high school; N: sample who answered a specific question (all variables are based on n = 414 except otherwise stated); SHS: senior high school.

**Table 2.** Correlation between selected characteristics and postpartum contraceptive use (multiple logistic regression model).

Attribute	AOR	(95% CI)
Age group (in years)		
15–19	Ref.	
20–24	3.2	2.3–3.4
Educational level		
No education	Ref.	
Primary education	0.3	0.2–0.6
Secondary education (JHS and SHS)	1.1	0.7–2.1
Tertiary education	1.6	0.4–2.0
Partner's educational level		
No education	Ref.	
Primary	0.6	0.4–2.9
Secondary	1.6	1.4–1.8
Above secondary	2.6	2.5–2.9
Occupation		
Unemployed	Ref.	
Self-employment	0.3	0.1–1.3
Formal employment	0.3	0.1–0.7
Resumption of menses		
Yes	Ref.	
No	1.5	1.4–1.8
Residence		
Urban	Ref.	
Rural	0.2	0.1–0.5
Age of child (months)		
6–12	Ref.	
13–18	1.3	0.3–1.7
Fear of infertility as the main reason for nonuse		
Yes	Ref.	
No	2.2	2.0–2.6
Age of child before the resumption of menses		
Before 6 months	Ref.	
After 6 months	1.3	0.3–1.7
Agreed to an FP method at ANC counselling		
Yes	Ref.	
No	0.2	0.1–1.2
FP counselling before hospital discharge		
Yes	Ref.	
No	0.5	0.4–1.2
Partners discussed contraceptive use		
Yes	Ref.	
No	0.1	0.1–0.3

ANC: antenatal care; AOR: adjusted odds ratio; CI: confidence interval; FP: family planning; JHS: junior high school; SHS: senior high school.

age was significantly related to contraceptive use in this study, Ajah et al.<sup>27</sup> reported contrary findings in a Nigerian study, suggesting that respondents' age does not determine their contraceptive uptake.

Although majority (72%) of first-time mothers in our study had resumed sexual intercourse before 6 months, only 44% were currently using a modern method of contraception. This finding compares with a similar survey among first-time

mothers in Onitsha, in the southeastern part of Nigeria. The Onitsha study reported that more than half of the women resumed menses before 6 months, and close to 90% had resumed sexual activity by the sixth month. Still, only 49% were using contraceptives.<sup>29</sup> From these findings, it was clear many women who were not using any method of contraception were exposed to the risk of a rapid repeat of pregnancy with serious adverse effects on the mother and baby. Most young women are not provided with information on long-term methods of contraception,<sup>8</sup> Sterilization, and other permanent methods of contraception because of their age,<sup>30</sup> a reason that could account for the above. Previous literature has reported several factors determining greater contraceptive use among young mothers,<sup>31</sup> including older age,<sup>22</sup> residing in an urban area,<sup>23</sup> and a higher level of education.<sup>24</sup>

One major factor that predicted mothers' use of contraceptives during the postpartum period was a higher level of education. This finding is similar to studies done in Africa and elsewhere.<sup>32,33</sup> The previous literature has indicated similar factors that contribute to the use of contraceptives.<sup>12,18,22</sup> This is because women with a higher level of education are more informed about their contraceptive choices and may make better health and family decisions concerning childbirth.

Compared to unemployed women, women in formal employment were less likely to use contraceptives. Conversely, other studies showed that formal employment status is a positive determinant of contraceptive use.<sup>34</sup> The study may attribute this finding to the fact that women in formal employment find it stressful to combine paid work, childbirth, and subsequent child care.

As reported in other studies,<sup>23,31</sup> communication between partners in this study was associated with the likelihood of contraceptive use. Similarly, contraceptive decisions made by one partner (the man) can lead to discontinuation by the other party (the woman).<sup>30</sup> This may be because, in Ghana and other African homes, men usually have the health decision-making power but may not agree to contraceptive use due to their desire for more children or family pressure to prove their fertility.

In the previous literature, several factors are identified as reasons for the low uptake of contraceptives. According to Daniels and Mosher,<sup>30</sup> many women discontinue contraceptive use due to fear of infertility associated with body changes in their postpartum period.<sup>31</sup> In similar findings of this study, low contraceptive uptake reflects the existence of barriers to use. A number of studies point to the fact that misconceptions about infertility<sup>35</sup> and fear of infertility mainly result in limited or no contraceptive use.<sup>36</sup> This study found that a belief in becoming infertile after contraceptive use was the main factor contributing to the nonuse of postpartum contraception. Other authors have also expressed similar results.<sup>27,28</sup>

More specifically, fear of infertility as the primary reason for low uptake of contraceptives is more prevalent among first-time mothers of age 15–19 years compared to older mothers.<sup>37</sup> This fear can be linked to the type of counselling

services, hospital visits, and a lack of experience with postpartum contraceptives among first-time mothers.<sup>34</sup> However, the results of this study did not associate the number of antenatal visits, counselling services, and contraceptives offered during these interactions with contraceptive use after delivery. Rather than the type or number of counselling sessions, differences in uptake could have been as a result of mothers' interaction with health service providers and the kind of information given out to mothers. This finding was comparable with other literature, which reported no or little effect of prenatal contraceptive advice on postpartum use.<sup>19,34</sup>

In contrast, a study to determine the unmet need among Nigerian young women in first-year postpartum contraceptive use found a significant association between contraceptive counselling and family planning use after delivery.<sup>5</sup> A Nigerian study<sup>27</sup> also reported a positive association between multiple prenatal counselling sessions and subsequent postpartum family planning. From the literature, there appears to be conflicting data on the effect of prenatal counselling and postpartum contraceptive use among first-time mothers.

Further research indicates that first-time mothers prefer to receive counselling that includes peer support and is more in-depth,<sup>38,39</sup> provided by well-trained community health workers who demonstrate competency in counselling.<sup>40</sup> Similarly, other groups of new mothers expressed their desire for counselling services provided by midwives before and after delivery.<sup>41</sup> In this study, mothers who did not receive postnatal counselling were still likely to use family planning at the time of the study. It is imperative to conduct further investigations into which healthcare providers and counselling methods are more successful for first-time mothers in promoting contraceptive uptake. The possible use of contraceptives even without postnatal counselling reported by this study is inconsistent with an investigation by Brunie et al.,<sup>42</sup> but agrees with Gebremariam and Gebremariam,<sup>39</sup> where counselling was marginally significant but positively associated with postpartum contraception. The reason for this unusual finding could be due to inaccurate and/or limited information provided to young mothers at postnatal clinics.

## Strengths and limitations

Limited studies are available that measured the contraceptive uptake among first-time mothers, especially in Ghana, but few data suggested fear of infertility as a primary concern. It is important to note that no study in this subject area has been conducted in the study area, and this happens to be the first assessing the relationship between contraception and first-time mothers. Furthermore, there is low postpartum contraceptive use among first-time mothers due to fear of infertility after first childbirth. Fear of infertility among first-time mothers is predominant among the well-known side effects of contraceptives. This study is not without limitations. For example, the study was facility-based and did not collect data on all first-time mothers who were not visiting

the facilities for reproductive health care. Second, only the main facilities providing services were selected and did not include most rural health centres. As a result, the prevalence data does not represent all first-time mothers in the Eastern region but only mothers visiting the selected facilities. Furthermore, the study is facility-based, and the results cannot be generalized to the entire country.

## Conclusion and recommendations

The study shows that less than half of young first-time mothers' use contraceptives. Fear of infertility after contraceptive use is the main barrier that prevents first-time mothers from using contraception in the immediate and extended postpartum period. Formal education of partners and communication among couples were identified to be positively associated with postpartum contraceptive use. As a result, intensified education and policy formulation, which relates to behaviour change, is paramount to correcting misconceptions about fears of infertility associated with contraceptives. The involvement of men and other family heads as partners of national family planning programs and education campaigns can also be considered a relevant strategy.

## Acknowledgements

We appreciate all the young mothers for providing us with the opportunity to share their views and experiences relating to contraceptive use. We thankfully acknowledge all heads of department and institutional heads and Ghana Health Service for their administrative support during the research. Pre-Publication Support Service (PREPSS) supported the development of this manuscript by providing pre-publication peer-review and copy editing.

## Author contributions

E.A. and E.J.D. Conceived the study and discussed it with A.M.K. for inputs. All authors equally contributed to the design of the study. A.M.K. and M.E.A. supervised study tools development and data collection. E.J.D. reanalyzed the data and drafted the first version of the manuscript. A.M.K., F.D.-D., and E.A. critically reviewed it for intellectual content. J.A.A. carried out further analysis based on reviewers' comments and improved on grammatical writing. All authors read and approve the final manuscript.

## 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.

## Ethical approval

The research obtained ethical clearance from the Ghana Health Service Ethical Review Committee (GHS-ERC) with ethic number: GHS-ERC: 77/02/15. Permission was sought from the Kwabebire District Health Management Team, the management of all the health centres in the district included in the study. Participation in the study was voluntary, and respondents could withdraw at any point in the interview process. Researchers also ensured

respondents' privacy and confidentiality through one-on-one interviewing methods.


### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### Informed consent

Written informed consent was obtained from all subjects and from the legally authorized representatives (if they were minors) before the study.

### ORCID iDs

Elvis J Dun-Dery  <https://orcid.org/0000-0002-5551-5031>

Frederick Dun-Dery  <https://orcid.org/0000-0003-2791-0103>

Mary Eyram Ashinyo  <https://orcid.org/0000-0002-8493-9378>

### Availability of data

Data used for this research are confidential for ethical reasons but can be made available upon request.

### Supplemental material

Supplemental material for this article is available by contacting the corresponding author.

### References

- Kumar S, Sethi R, Balasubramaniam S, et al. Women's experience with postpartum intrauterine contraceptive device use in India. *Reprod Health* 2014; 11(1): 32.
- World Health Organization (WHO). *Report of a technical consultation on birth spacing*. Geneva: World Health Organization, 2007, [http://www.who.int/maternal\\_child\\_adolescent/documents/birth\\_spacing05/en](http://www.who.int/maternal_child_adolescent/documents/birth_spacing05/en)
- DaVanzo J, Hale L, Razzaque A, et al. Effects of interpregnancy interval and outcome of the preceding pregnancy on pregnancy outcomes in Matlab, Bangladesh. *Int J Obst Gynaec* 2007; 114(9): 1079–1087.
- Conde-Agudelo A and Belizán JM. Maternal morbidity and mortality associated with interpregnancy interval: cross-sectional study. *Br Med J* 2000; 321(7271): 1255–1259.
- Adeyemi AB, Ijadunola KT, Orji EO, et al. The unmet need for contraception among Nigerian women in the first year postpartum. *Eur J Cont Reprod Health Care* 2005; 10(4): 229–234.
- Ganaba R, Marshall T, Sombié I, et al. Women's sexual health and contraceptive needs after a severe obstetric complication ("near-miss"): a cohort study in Burkina Faso. *Reprod Health* 2010; 7(1): 22.
- Tsui A, Brown W and Li Q. Contraceptive practice in sub-Saharan Africa. *Popul Dev Rev* 2017; 43(Suppl. 1): 166–191.
- Baiden F, Mensah GP, Akoto NO, et al. Covert contraceptive use among women attending a reproductive health clinic in a municipality in Ghana. *BMC Wom Health* 2016; 16: 31.
- Rossier C and Hellen J. Traditional birth spacing practices and uptake of family planning during the postpartum period in Ouagadougou: qualitative results. *Int Perspect Sex Reprod Health* 2014; 40(2): 87–94.
- Cleland J, Conde-Agudelo A, Peterson H, et al. Contraception and health. *Lancet* 2012; 380(9837): 149–156.
- Yusuf JB. Contraception and sexual and reproductive awareness among Ghanaian Muslim youth: issues, challenges, and prospects for positive development. *SAGE Open* 2014; 4(3): 1–12.
- Eliason S, Baiden F, Quansah-Asare G, et al. Factors influencing the intention of women in rural Ghana to adopt postpartum family planning. *Reprod Health* 2013; 10: 34.
- Apanga PA and Adam MA. Factors influencing the uptake of family planning services in the Talensi District, Ghana. *Pan Afr Med J* 2015; 20: 10.
- Ghana Statistical Service (GSS). *Ghana Demographic and Health Survey: final report*. Accra, Ghana: Ghana Statistical Service, 2015.
- Robinson N, Moshabela M, Owusu-Ansah L, et al. Barriers to intrauterine device uptake in a rural setting in Ghana. *Health Care Women Int* 2016; 37(2): 197–215.
- Ghana Health Service (GHS). *Ghana health service 2014 annual report*. Accra, Ghana: Ghana Health Service, 2015.
- Sensoy N, Korkut Y, Akturan S, et al. Factors affecting the attitudes of women toward family planning. *J Fam Plan* 2018, <https://www.intechopen.com/books/family-planning/factors-affecting-the-attitudes-of-women-toward-family-planning>
- Smith KB, Van der Spuy ZM, Cheng L, et al. Is postpartum contraceptive advice given antenatally of value? *Contraception* 2002; 65(3): 237–243.
- Wuni C, Turpin CA and Dassah ET. Determinants of contraceptive use and future contraceptive intentions of women attending child welfare clinics in urban Ghana. *BMC Public Health* 2017; 18(1): 79.
- Naing L, Winn T and Rusli BN. Practical issues in calculating the sample size for prevalence studies. *Arch Orofac Sci* 2006; 1(Ci): 9–14.
- Kadam P and Bhalerao S. Sample size calculation. *Int J Ayurveda Res* 2010; 1(1): 55–57.
- Hailemariam TG, Tesfaye T, Melese T, et al. Sexual experiences and emergency contraceptive use among female university students: a cross-sectional study at Wachamo University, Ethiopia. *BMC Res Notes* 2015; 8(1): 112.
- Singh A, Ogollah R, Ram F, et al. Sterilisation regret among married women in India: implications for the Indian national family planning program. *Int Perspect Sex Reprod Health* 2012; 38(4): 187–195.
- Tessema GA, Mekonnen TT, Mengesha ZB, et al. Association between skilled maternal healthcare and postpartum contraceptive use in Ethiopia. *BMC Pregnancy Childbirth* 2018; 18: 172.
- Nyauchi O. Unmet need for family planning among teenage women in Kenya. *J Stud Soc Sci* 2015; 12(1): 142–159.
- Abraha TH, Teferra AS and Gelagay AA. Postpartum modern contraceptive use in northern Ethiopia: prevalence and associated factors. *Epidemiol Health* 2017; 39: e2017012.
- Ajah LO, Onubogu ES, Anozie OB, et al. Adolescent reproductive health challenges among schoolgirls in southeast Nigeria: role of knowledge of menstrual pattern and contraceptive adherence. *Patient Prefer Adherence* 2015; 9: 1219–1224.
- Atchison CJ, Cresswell JA, Kapiga S, et al. Sexuality, fertility and family planning characteristics of married women aged 15 to 19 years in Ethiopia, Nigeria and Tanzania: a comparative analysis of cross-sectional data. *Reprod Health* 2019; 16(1): 6.



29. Adanikin AI, Onwudiegwu U and Loto OM. Influence of multiple antenatal counselling sessions on modern contraceptive uptake in Nigeria. *Eur J Cont Reprod Health Care* 2013; 18(5): 381–387.
30. Daniels K and Mosher WD. Contraceptive methods women have ever used: the United States, 1982–2010. *Natl Health Stat Report* 2013; 62(20): 1–15.
31. Abdul-Rahhman L, Marrone G and Johansson A. Trends in contraceptive use among female adolescents in Ghana. *Afr J Reprod Health* 2011; 15: 45–56.
32. Huber D, Saeedi N and Samadi AK. Achieving success with family planning in rural Afghanistan. *Bull World Health Organ* 2010; 88(3): 227–231.
33. Gonçalves H, Souza AD, Tavares PA, et al. Contraceptive medicalisation, fear of infertility and teenage pregnancy in Brazil. *Cult Health Sex* 2011; 13(2): 201–215.
34. Muanda MF, Ndongo GP, Messina LJ, et al. Barriers to modern contraceptive use in rural areas in DRC. *Cult Health Sex* 2017; 19(9): 1011–1023.
35. Cleland J, Shah I and Daniele M. Interventions to improve postpartum family planning in low- and middle-income countries: program implications and research priorities. *Stud Fam Plan* 2015; 46(4): 423–441.
36. Malarcher S, Meirik O and Lebetkin E. Provision of DMPA by community health workers: what the evidence shows. *Contraception* 2011; 83(6): 495–503.
37. Rahnema P, Hidarnia A, Amin Shokravi F, et al. Withdrawal users' experiences of and attitudes to contraceptive methods: a study from Eastern district of Tehran, Iran. *BMC Public Health* 2010; 10: 779.
38. Doku D. Substance use and risky sexual behaviours among sexually experienced Ghanaian youth. *BMC Public Health* 2012; 12: 571.
39. Gebremariam A and Gebremariam H. Contraceptive use among lactating women in Ganta-Afeshum District, Eastern Tigray, Northern Ethiopia, 2015: a cross-sectional study. *BMC Pregnancy Childbirth* 2017; 17(1): 421.
40. Mahmood SE, Srivastava A, Shrotriya VP, et al. Postpartum contraceptive use in rural Bareilly. *Indian J Commun Health* 2011; 23(2): 56–57.
41. Campbell M, Sahin-Hodoglugil NN and Potts M. Barriers to fertility regulation: a review of the literature. *Stud Fam Plan* 2006; 32(2): 87–98.
42. Brunie A, Tolley EE and Ngabo F. Getting to 70%: barriers to modern contraceptive use for women in Rwanda. *Int J Gynaecol Obstet* 2013; 123(Suppl. 1): e11–e15.