


# BMJ Open Determinants of contraceptive use among sexually active unmarried adolescent girls and young women aged 15–24 years in Ghana: a nationally representative cross-sectional study

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## ABSTRACT

**Objective** There is a decline in contraceptive use among sexually active unmarried young women in Ghana. This study assessed the prevalence of contraceptive knowledge and use, and the determinant of contraceptive use among sexually active unmarried young women in Ghana.

**Design** This was a nationally representative cross-sectional survey, using data from the 2017 Ghana Maternal Health Survey. Weighted logistic regression was used to assess the association between background and obstetric characteristics of young women and contraceptive use.

**Setting** Ghana.

**Participants** A total of 809 sexually active unmarried adolescent girls (15–19 years) and young women (20–24 years).

**Primary and secondary outcome measures** Knowledge and use of both modern and traditional contraceptive methods.

**Results** Knowledge of at least one modern and traditional contraceptive method was 99.8% and 95.0%, respectively. The prevalence of contraceptive use was 43%—with 34% modern and 9% traditional methods. From the unadjusted analyses, age ( $p=0.002$ ), past pregnancy ( $p<0.001$ ), abortion in the past 5 years ( $p=0.007$ ) and history of childbirth ( $p=0.025$ ) were independently associated with contraceptive use, whereas education ( $p=0.072$ ), place of residence ( $p=0.702$ ), household wealth ( $p=0.836$ ) and age at first sex ( $p=0.924$ ) were not independently associated with contraceptive use. In the adjusted analysis, contraceptive use was significantly higher among respondents with secondary education compared with those with primary education (OR 2.43, 95% CI 1.31 to 4.49,  $p=0.017$ ), and was higher among respondents with a history of pregnancy (OR 2.13, 95% CI 1.48 to 3.06,  $p<0.001$ ).

**Conclusion** There is a significant gap between knowledge and use of contraceptives among the study population. While intensifying knowledge of adolescents and young women on contraceptives, adolescent-friendly corners should be established at vantage points to increase utilisation and to prevent societal stigma on young women who access contraceptives services.

## Strengths and limitations of this study

- This is the first known study to explore the predictors of contraceptive use specifically among sexually active unmarried young women in Ghana, using nationally representative data.
- The data used in this study are representative of all sexually active unmarried adolescent girls and young women aged 15–24 years in Ghana.
- Even though data on contraceptive use were retrospectively collected, by including sexually active respondents (those who had sexual intercourse within 30 days of the survey), recall bias was significantly minimised.
- The findings of this study can only be generalised to sexually active unmarried adolescent girls and young women aged 15–24 years in Ghana.

## INTRODUCTION

Improving adolescent and youth sexual and reproductive health (AYSRH) is important in preventing unintended pregnancies (UP), sexually transmitted infections and unsafe abortion.<sup>1</sup> In recent years, there has been a significant improvement in the outcomes of AYSRH in sub-Saharan Africa (SSA), including a decline in child marriage,<sup>2</sup> adolescent fertility rate, increase in school enrolment and contraceptive use.<sup>3</sup> Despite this improvement, there remains disproportionately low AYSRH outcomes in SSA compared with other parts of the world, with the region having the highest adolescent pregnancy rate and the lowest rate of contraceptive use.<sup>4</sup>

Notwithstanding the increase in contraceptive use observed among young unmarried African women aged 15–24 years (from 23% for the period 1996–2000, compared with 33% for the period 2011–2015),<sup>5</sup> research from



several countries in the region have shown that there is a significant unmet need for contraception among adolescents in SSA.<sup>6–9</sup> Particularly, in about 30% of all countries in SSA, two out of every five births among adolescents are unplanned.<sup>10</sup> Studies from Ghana have also shown that, most young women with a history of pregnancy would have used contraception to prevent those pregnancies if the contraception were available.<sup>7,8</sup>

In Ghana, about 30% of all pregnancies are unintended, with a significantly higher prevalence among adolescents (70%) compared with adults.<sup>11</sup> Adolescents who become pregnant face a multitude of health, educational and social consequences including societal disapproval, which mostly results in stigma, discrimination and social rejection.<sup>12</sup> UP among young females also result in high school drop-out rates and truncates future development. In a study conducted in Chorkor, a fishing community in Ghana's Capital, 86% of the 50 teenage pregnant girls who were involved in the study had dropped out of school.<sup>13</sup> It is noteworthy that most UPs end in induced abortions,<sup>14–16</sup> with a significant number being unsafe abortions.<sup>17</sup> In Ghana, because abortion is not entirely permitted by law—unless the pregnancy was as a result of rape, defilement or incest, or the pregnancy poses a significant risk to the mother and or unborn baby,<sup>18</sup> unsafe abortion is common. Contraception use is undoubtedly very important in preventing UPs, unsafe abortions and abortion-related complications.

Data from the 2017 Ghana Maternal Health Survey (GMHS) report 35.6% and 48.8% use of contraceptives among sexually active unmarried women aged 15–19 and 20–24 years, respectively.<sup>16</sup> These estimates are lower compared with the respective estimates (43.7% and 53.4%) from the 2014<sup>19</sup> and 2008<sup>20</sup> (66.6% and 74.0%) Ghana demographic and health surveys. Meeting adolescents' contraceptive need was pertinent in achieving the Ghana Family Planning 2020 goal of expanding the use of modern contraception from 1.46 million in 2015 to 1.93 million in 2020, and increasing contraceptive use among sexually active unmarried adolescents by 2020.<sup>21</sup> It is also a requirement to meet Sustainable Development Goal 3.7 on sexual and reproductive health, which targets among others that by 2030, there should be universal access to family planning or contraceptive use for all ages.<sup>22</sup>

Most research on contraception use are conducted among all women of reproductive age (15–49 years), without detailed stratified analysis by age.<sup>23–24</sup> Several studies in Ghana have looked at contraceptive use among adolescent and young women.<sup>7,8,25–27</sup> However, very few studies on adolescent contraceptive use have explored determinants of contraceptive use, making use of nationally representative data.<sup>28,29</sup> Also, studies that used nationally representative data mostly used data from the past Ghana demographic and health surveys,<sup>28–30</sup> of which the latest one is already more than half a decade old.<sup>19</sup> This study is a secondary analysis of the 2017 GMHS, which includes nationally representative data on contraception

use. With a focus on sexually active unmarried adolescents (15–19 years) and young women (20–24 years), we assessed the knowledge and prevalence of contraceptive use, and determinants of contraceptive use in Ghana. In addition, we explored the age differentials in knowledge and use of the different contraceptive methods.

## METHODS

### Data source and data description

Data from the 2017 GMHS<sup>16</sup> were used in this study. The 2017 GMHS was the second maternal health survey, following the first survey conducted in 2007.<sup>17</sup> The survey which was cross-sectional in design and nationally representative collected household and individual-level data on maternal health and maternal mortality in Ghana.

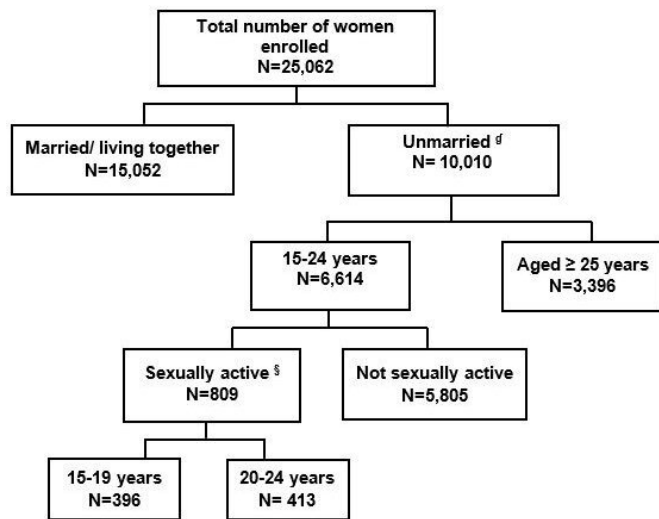
The sample for this survey was stratified and selected in two stages. The 10 administrative regions of Ghana were grouped into rural and urban, resulting in 20 sampling strata. The first stage involved probability proportional sampling of a total of 900 enumeration areas (clusters) from all the regions, with 466 clusters from the urban areas and 434 from rural areas. In the second stage, 30 households were randomly sampled from each cluster, resulting in a total sample size of 27 000 households. The 2010 Population and Housing Census of Ghana,<sup>31</sup> with enumeration area covering an average of 161 households, was used as the sampling frame for the 2017 GMHS.

The survey sampled 27 001 households, of which 26 500 were occupied. Out of the 26 500 occupied households, 26 324 (99%) were interviewed. From the 26 324 interviewed households, 25 304 women between 15 and 49 years were eligible to participate in the survey, among which 25 062 (99%) were successfully interviewed. All study respondents provided informed consent for their participation in the survey. Additional details of the survey design and methodology can be found in the survey report.<sup>16</sup>

Of the 25 062 individual respondents, 15 052 (60.1%) were married or living together with a man. Among the remaining 10 010 unmarried respondents, 6614 (66.1%) were between 15 and 24 years. Unmarried respondents are those who were single, divorced, widowed or separated. Of the 6614 unmarried respondents between 15 and 24 years, 809 (12.2%) were sexually active (had sexual intercourse within 30 days of the survey). Details of the data description are shown in [figure 1](#). Given our interest in contraceptive use among sexually active unmarried adolescents and young women aged 15–24 years, data from the subset of 809 respondents were included in our data analysis.

### Study variables

The variables used in the analysis include data on knowledge and use of contraceptive methods, background characteristics of respondents such as age, level of education, place of residence, household-level wealth quintile and region of residence. Also, data on age at first sex, history



**Figure 1** Description of study data. §Women are not currently married or in a consensual union (single, divorced, widowed or separated). §Women who had sexual intercourse within 30 days of the survey.

of pregnancy, abortion and childbirth were included. **Table 1** provides a detailed description of the study variables. Contraceptive knowledge was defined as having heard of any contraceptive method (either modern or traditional methods). Contraceptive use was assessed through an affirmative response to the question ‘Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?’ This includes the use of any modern or traditional contraceptive method. Modern methods comprised female sterilisation, male sterilisation, intrauterine devices (IUD), injectables, implants, pills, male condoms, female condoms, emergency contraception and lactational amenorrhoea method. Traditional methods include the rhythm and withdrawal method. Even though data on contraceptive use were retrospectively assessed, by including sexually active respondents (those who had sexual intercourse within 30 days of the survey), recall bias was significantly minimised.

### Patient and public involvement

No patient involved. Key stakeholder meetings will be organised to share the findings of this study with Ghana Health Service who are in charge of healthcare delivery in the country.

### Statistical analysis

To account for the non-proportional allocation of the sample to the different regions, sampling weights were used to obtain national/regional representation of the survey results. Given the two-stage stratified cluster sampling approach used in the survey, sampling weights were calculated separately for each sampling stage and each cluster based on sampling probabilities. Details of the design and sampling weights can be found in the survey report.<sup>16</sup> Results were left blank if they are based on less than 15 unweighted respondents.  $\chi^2$  tests were

**Table 1** Description of variables used in the study

Variable	Description/definition
Contraceptive knowledge	Respondents who have heard of any contraceptive method, both modern and traditional (yes; no)
Contraceptive use	Respondents who were doing something or using any method to delay or avoid getting pregnant (yes; no)
Age	Age of respondent (15–19 years (adolescents); 20–24 years (young women))
Level of education	Respondents’ highest level of education (no education; primary education; middle/junior secondary/high school; secondary/senior secondary/ high school; more than secondary)
Place of residence	Respondents’ place of residence (urban; rural)
Household level wealth quintile	These are scores based on the no and kinds of consumer goods owned by a respondents household, ranging from a television to a bicycle or car, and housing characteristics such as source of drinking water, toilet facilities and flooring materials. <sup>16</sup> (Lowest; second; middle; fourth; highest)
Region of residence	Respondents’ region of residence from the 10 administrative regions in Ghana (Western; Central; Greater Accra; Volta; Eastern; Ashanti; Brong Ahafo; Northern; Upper East; Upper West)
Age at first sex	Age at which respondent first had sexual intercourse ( $\leq 14$ years, $\geq 15$ years)
Ever been pregnant	History of past pregnancy/pregnancies (yes; no)
Abortion in the past 5 years	History of abortion in the 5 years before the survey (yes; no)
Ever given birth	History of child birth (yes; no)

used to assess the association between use of contraceptive methods, knowledge of contraceptive methods and respondents’ age (15–19 years vs 20–24 years).

Weighted univariate and multivariate logistic regression were used to study the association between background and obstetric characteristics of respondents and contraceptive use. With an interest in all the selected sociodemographic and obstetric variables, we included all the variables in a multivariate logistic regression model regardless of their statistical significance in the univariate analysis. However, abortion in the past 5 years and history of child birth were excluded from the multivariate model due to collinearity with history of past pregnancy.

In the multivariate analysis, significance was established at a level of 5%. Data analysis was performed using STATA V.15.0.

## RESULTS

### Characteristics of study participants

A total of 809 sexually active unmarried adolescents and young women aged 15–24 years were included in this secondary analysis. Respondents were almost equally distributed between the two age groups (49% and 51% for the 15–19 years and 20–24 years, respectively). The background and obstetric characteristics of the respondents are presented in [table 2](#). The majority of the respondents had middle/junior secondary school/junior high school education. Among all the respondents, 44% had ever been pregnant, 23% have ever had an abortion and 26% had ever given birth.

### Contraceptive use

The prevalence of contraceptive use is presented in [table 3](#) by the type of method used. The contraceptive prevalence rate (CPR) among adolescents and young women aged 15–24 years was 43%, with 34% using modern methods and 9% using traditional methods. Compared with respondents aged 15–19 years, CPR was significantly higher among those aged 20–24 years (49% vs 36%,  $p=0.002$ ). The use of modern contraceptive methods was significantly higher among respondents between 20 and 24 years compared with those between 15 and 19 years (39% vs 27%,  $p=0.005$ ). Although only 0.5% of the respondents used IUD, compared with respondents between 20 and 24 years, significantly more respondents between 15 and 19 years used this method (0.1% vs 1.0%,  $p=0.008$ ).

### Knowledge of contraceptive methods

Knowledge on the different contraceptive methods is presented in [table 3](#), distinguished by the type of method (modern or traditional) and age of respondents. The most commonly known contraceptive method was the male condom (99%), while male sterilisation was the least known method (33%). Knowledge of at least one modern and traditional contraceptive method was 99.8% and 95.0%, respectively. Compared with respondents between 15 and 19 years, knowledge on the use of male sterilisation ( $p=0.020$ ), IUD ( $p=0.029$ ), implants ( $p<0.001$ ), pill ( $p=0.007$ ), emergency contraception ( $p=0.001$ ), lactational amenorrhoea ( $p=0.006$ ), rhythm ( $p=0.002$ ) and withdrawal method ( $p<0.001$ ) was significantly higher among those between 20 and 24 years.

### Contraceptive use by demographic and obstetric characteristics of respondents

CPR by background characteristics of respondents is presented in [table 4](#), stratified by age. Among all respondents, CPR differed by level of education ( $p=0.032$ ) and region of residence ( $p=0.048$ ). Also, overall, CPR was higher among those who had ever been pregnant (52.5% vs 35.1%,  $p<0.001$ ), those who have had an abortion in the last 5 years (54.4% vs 39.9%,  $p=0.006$ ) and those who had ever given birth (51.2% vs 39.8%,  $p=0.025$ ).

**Table 2** Background characteristics of study participants (N=809)

	Weighted N	Overall (15–24 years)	15–19 years	20–24 years
<b>Education</b>				
No education	39	4.8	5.5	4.2
Primary	115	14.3	18.2	10.9
Middle/JSS/JHS	369	45.6	53.1	39.0
Secondary/SSS/SHS	259	32.0	22.9	39.7
More than secondary	27	3.4	0.2	6.1
<b>Place of residence</b>				
Urban	444	54.9	46.7	62.0
Rural	365	45.1	53.3	38.0
<b>Household wealth quintile</b>				
Lowest	124	15.4	23.3	8.5
Second	195	24.1	23.4	24.6
Middle	201	24.9	23.9	25.7
Fourth	188	23.2	21.6	24.6
Highest	101	12.5	7.8	16.5
<b>Region</b>				
Western	138	17.1	14.1	19.7
Central	57	7.1	7.5	6.7
Greater Accra	82	10.2	9.2	11.0
Volta	96	11.8	14.1	9.8
Eastern	85	10.6	11.0	10.1
Ashanti	176	21.8	18.1	24.9
Brong Ahafo	92	11.3	12.2	10.5
Northern	52	6.4	9.7	3.5
Upper East	12	1.4	1.6	1.3
Upper West	19	2.4	2.4	2.4
<b>Age at first sex</b>				
≤14 years	171	21.1	31.4	12.2
≥15 years	638	78.9	68.6	87.8
<b>Ever been pregnant</b>				
No	452	55.9	70.7	43.0
Yes	357	44.1	29.3	57.0
<b>Ever had an abortion</b>				
No	627	77.5	87.2	69.1
Yes	182	22.5	12.8	30.9
<b>Ever given birth</b>				
No	600	74.1	80.8	68.3
Yes	209	25.9	19.2	31.7

JHS, junior high school; JSS, junior secondary school; SHS, senior high school; SSS, senior secondary school.

Among respondent between 15 and 19 years, CPR was higher among those who had ever been pregnant (49.0% vs 30.0%,  $p=0.006$ ) and among those who had ever given

**Table 3** Knowledge and use of contraceptives among sexually active unmarried adolescent and young women aged 15–24

Contraceptive method	Contraceptive use				Contraceptive knowledge			
	Age groups			P value	Age groups			P value
	15–24	15–19	20–24		15–24	15–19	20–24	
<b>Modern methods</b>								
Female sterilisation	0.0	0.0	0.0	–	76.5	73.1	79.4	0.096
Male sterilisation	0.3	0.6	0.0	0.137	33.0	27.6	37.7	<b>0.020</b>
Intrauterine devices	0.5	1.0	0.1	<b>0.008</b>	48.8	43.6	53.4	<b>0.029</b>
Injectables	6.6	4.8	8.1	0.112	93.1	91.1	94.9	0.084
Implants	6.5	4.7	8.0	0.128	91.2	86.8	95.1	<b>&lt;0.001</b>
Pill	5.5	4.6	6.3	0.411	91.3	88.1	94.0	<b>0.007</b>
Male condoms	7.2	6.7	7.6	0.665	99.2	99.0	99.5	0.436
Female condoms	0.0	0.0	0.0	–	88.4	86.5	90.2	0.168
Emergency contraception	7.2	4.8	9.3	0.077	76.1	69.6	81.7	<b>0.001</b>
Lactational amenorrhoea	0.0	0.0	0.0	–	32.7	26.0	38.6	<b>0.006</b>
Any modern method	33.7	27.2	39.3	<b>0.005</b>	99.8	99.5	100.0	<b>0.049</b>
<b>Traditional methods</b>								
Rhythm	6.2	4.8	7.3	0.279	83.9	78.7	88.4	<b>0.002</b>
Withdrawal	2.9	3.5	2.4	0.344	88.5	83.7	92.7	<b>&lt;0.001</b>
Any traditional method	9.1	8.4	9.8	0.591	95.0	92.1	97.5	<b>0.002</b>
Any contraceptive method (both modern and traditional methods)	42.8	35.6	49.0	<b>0.002</b>	99.8	99.5	100.0	<b>0.049</b>

P values <0.05 are highlighted in bold and italicised text.

birth (53.0% vs 31.5%,  $p=0.013$ ). CPR also differed by respondents' region of residence, with the highest prevalence in the Western region and lowest prevalence in the Greater Accra region ( $p=0.024$ ). Among respondents between 20 and 24 years, CPR was significantly higher among those who had ever been pregnant compared with those who had never been pregnant (54.1% vs 42.3%,  $p=0.040$ ).

#### Determinants of contraceptive use

The results for the association between the demographic and obstetric characteristics of respondents and contraceptive use are presented in table 5. At a 5% significant level, age ( $p=0.002$ ), ever been pregnant ( $p<0.001$ ), abortion in the past 5 years ( $p=0.007$ ) and ever given birth ( $p=0.025$ ) were independently associated with contraceptive use. However, education ( $p=0.072$ ), place of residence ( $p=0.702$ ), household wealth quintile ( $p=0.836$ ) and age at first sex ( $p=0.924$ ) were not independently associated with contraceptive use.

Due to collinearity with history of past pregnancy, abortion in the past 5 years, and history of child birth were excluded from the adjusted model. In the adjusted analysis, education and pregnancy history were significantly associated with contraceptive use. Respondents with secondary level education were more likely to use contraceptives compared with those with primary education (OR 2.43, 95% CI 1.31 to 4.49,  $p=0.017$ ). Also, respondents

who had ever been pregnant were more likely to use contraceptives compared with those who had never been pregnant (OR 2.13, 95% CI 1.48 to 3.06,  $p<0.001$ ).

#### DISCUSSION

This study used data from the 2017 GMHS<sup>16</sup> to present nationally representative estimates on the prevalence of contraceptive knowledge and use, and to assess the determinants of contraceptive use among sexually active unmarried adolescent girls (15–19 years) and young women (20–24 years) in Ghana. Similar to the results of other studies on contraceptive knowledge in Ghana,<sup>25 27 32</sup> we found knowledge of contraceptive methods to be almost universal, with a prevalence of 99.8% and 95.0% for at least one modern and at least one traditional method, respectively. The CPR was 43%, with 34% use of modern methods and 9% use of traditional methods. Compared with usage among the entire population of adolescents (9.8%) and young women (28.6%) in Ghana,<sup>16</sup> contraceptive use is higher among sexually active unmarried adolescent girls (15–19 years; 35.6%) and young women (20–24 years; 49.0%).

The choice of contraceptives by sexually active unmarried adolescents and young women in Ghana is different from the choice of contraceptives among all women of reproductive age. For modern contraceptives, among

**Table 4** Contraceptive use by background characteristics of respondents

Variable	N	Overall (15–24 years)		15–19 years		20–24 years	
		% (95% CI)	P value	% (95% CI)	P value	% (95% CI)	P value
<b>Education</b>							
No education	39	40.8 (23.7 to 60.5)	<b>0.032</b>	24.7 (7.2 to 57.9)	0.083	59.1 (34.9 to 79.6)	0.429
Primary	115	35.7 (25.7 to 47.1)		27.1 (16.4 to 41.3)		48.1 (31.2 to 65.4)	
Middle/JSS/JHS	369	38.0 (31.7 to 44.7)		33.3 (25.9 to 41.5)		43.6 (33.6 to 54.1)	
Secondary/SSS/SHS	259	53.1 (44.7 to 61.4)		49.7 (36.2 to 63.2)		54.9 (45.3 to 64.1)	
More than secondary	27	42.2 (23.2 to 63.9)		–		40.5 (21.5 to 62.8)	
<b>Place of residence</b>							
Urban	444	42.0 (35.7 to 48.6)	0.702	33.9 (25.1 to 44.1)	0.630	47.3 (39.9 to 54.8)	0.439
Rural	365	43.7 (38.0 to 49.6)		37.0 (29.2 to 45.7)		51.8 (43.2 to 60.4)	
<b>Household wealth quintile</b>							
Lowest	124	41.1 (30.9 to 52.0)	0.838	32.1 (20.7 to 46.1)	0.807	62.2 (43.3 to 77.9)	0.504
Second	195	40.4 (30.7 to 50.9)		39.1 (27.6 to 52.0)		41.4 (29.8 to 54.1)	
Middle	201	46.1 (37.9 to 54.5)		39.6 (28.2 to 52.3)		51.3 (40.0 to 62.6)	
Fourth	188	40.9 (31.9 to 50.5)		30.5 (19.5 to 44.2)		48.8 (36.7 to 61.0)	
Highest	101	46.5 (35.1 to 58.2)		37.2 (17.8 to 61.9)		50.2 (36.3 to 64.1)	
<b>Region</b>							
Western	138	52.0 (41.5 to 62.3)	<b>0.048</b>	53.0 (36.5 to 68.9)	<b>0.024</b>	51.4 (39.9 to 62.7)	0.908
Central	57	40.5 (27.8 to 54.7)		29.2 (12.5 to 54.2)		51.5 (30.3 to 72.2)	
Greater Accra	82	27.6 (16.7 to 42.1)		12.9 (4.6 to 31.2)		38.2 (21.8 to 57.8)	
Volta	96	43.3 (29.9 to 57.6)		41.8 (23.4 to 62.9)		45.0 (32.4 to 58.2)	
Eastern	85	35.3 (24.3 to 48.1)		23.9 (11.6 to 43.0)		46.1 (30.1 to 62.9)	
Ashanti	176	50.7 (39.4 to 62.0)		46.6 (30.4 to 63.7)		53.3 (39.8 to 66.3)	
Brong Ahafo	92	43.9 (33.4 to 55.1)		37.2 (23.2 to 53.6)		50.8 (33.9 to 67.5)	
Northern	52	30.6 (22.1 to 40.7)		23.3 (15.1 to 34.1)		48.3 (32.6 to 64.3)	
Upper East	12	35.3 (20.5 to 53.6)		14.8 (3.6 to 44.3)		55.9 (33.7 to 75.9)	
Upper West	19	38.1 (24.8 to 53.4)		28.6 (16.4 to 45.0)		46.4 (27.8 to 66.1)	
<b>Age at first sex</b>							
≤14 years	171	42.4 (32.6 to 52.7)	0.924	34.2 (23.7 to 46.5)	0.770	60.6 (43.9 to 75.1)	0.135
≥15 years	638	42.9 (38.2 to 47.8)		36.2 (29.1 to 44.0)		47.4 (41.6 to 53.3)	
<b>Ever been pregnant</b>							
No	452	35.1 (29.9 to 40.7)	<b>&lt;0.001</b>	30.0 (23.9 to 37.1)	<b>0.006</b>	42.3 (34.0 to 50.9)	<b>0.040</b>
Yes	357	52.5 (46.0 to 59.0)		49.0 (36.9 to 61.2)		54.1 (46.7 to 61.4)	
<b>Abortion in the last 5 years</b>							
No	646	39.9 (35.1 to 44.8)	<b>0.006</b>	34.0 (27.7 to 41.1)	0.137	46.1 (39.7 to 52.6)	0.086
Yes	163	54.4 (44.9 to 63.6)		47.9 (31.1 to 65.2)		56.7 (46.0 to 66.7)	
<b>Ever given birth</b>							
No	600	39.8 (35.0 to 44.9)	<b>0.025</b>	31.5 (25.5 to 38.2)	<b>0.013</b>	48.4 (41.6 to 55.3)	0.763
Yes	209	51.2 (42.5 to 59.8)		53.0 (37.0 to 68.4)		50.3 (40.5 to 60.0)	

P values <0.05 are highlighted in bold and italicised text.

JHS, junior high school; JSS, junior secondary school; SHS, senior high school; SSS, senior secondary school.

all women of reproductive age, injectables (6.0%) and implants (5.3%) are the most used methods.<sup>16</sup> However, among sexually active unmarried adolescents and young women, emergency contraception (7.2%) and male

condom (7.2%) are the most used modern contraceptive methods. Emergency contraception appears to be a popular contraceptive method among young women in Ghana. Among respondents between 20 and 24 years,

**Table 5** Factors associated with contraceptive use

Variable	Univariate analysis		Multivariate analysis	
	OR (95% CI)	Overall P value	OR (95% CI)	Overall P value
<b>Age</b>				
15–19	1	<b>0.002</b>	1	0.163
20–24	1.74 (1.23 to 2.46)		1.31 (0.90 to 1.92)	
<b>Education</b>				
No education	1.24 (0.49 to 3.15)	0.072	1.23 (0.50 to 3.02)	<b>0.017</b>
Primary	1		1	
Middle/JSS/JHS	1.11 (0.64 to 1.92)		1.14 (0.65 to 1.99)	
Secondary/SSS/SHS	2.05 (1.11 to 3.76)		2.43 (1.31 to 4.49)	
More than secondary	1.32 (0.49 to 3.56)		1.72 (0.57 to 5.22)	
<b>Place of residence</b>				
Urban	1	0.702	1	0.339
Rural	1.07 (0.75 to 1.53)		1.24 (0.80 to 1.93)	
<b>Household wealth quintile</b>				
Lowest	1	0.836	1	0.816
Second	0.97 (0.54 to 1.74)		0.83 (0.46 to 1.53)	
Middle	1.23 (0.70 to 2.16)		0.98 (0.55 to 1.74)	
Fourth	0.99 (0.56 to 1.77)		0.75 (0.40 to 1.39)	
Highest	1.25 (0.65 to 2.38)		0.93 (0.45 to 1.94)	
<b>Age at first sex</b>				
≤14 years	1	0.924	1	0.814
≥15 years	1.02 (0.65 to 1.61)		0.94 (0.59 to 1.52)	
<b>Ever been pregnant</b>				
No	1	<b>&lt;0.001</b>	1	<b>&lt;0.001</b>
Yes	2.05 (1.45 to 2.88)		2.13 (1.48 to 3.06)	
<b>Abortion in the past 5 years</b>				
No	1	<b>0.007</b>		
Yes	1.80 (1.18 to 2.75)			
<b>Ever given birth</b>				
No	1	<b>0.025</b>		
Yes	1.58 (1.06 to 2.37)			

P values <0.05 are highlighted in bold and italicised text.

JHS, junior high school; JSS, junior secondary school; SHS, senior high school; SSS, senior secondary school.

emergency contraception was the most used modern contraceptive method (9.3%). Other studies in Ghana have also reported high emergency contraception use among adolescents and young women.<sup>33 34</sup> A qualitative study on emergency contraception use among young unmarried women in Ghana's capital found the method to be the most preferred and most used.<sup>33</sup> In a study by Grindlay *et al*,<sup>34</sup> next to the use of male condom, emergency contraceptives was the second most popular modern contraceptive method used by young female respondents between 18 and 24 years.

In our analysis, we found age, history of pregnancy, abortion in the past 5 years and history of child birth to be independently associated with contraceptive use. However, in an adjusted analysis, contraceptive use was

significantly higher among respondents with secondary level education, and in those with a history of pregnancy. Other studies in Ghana<sup>28</sup> and other parts of Africa<sup>35 36</sup> have also reported high contraceptive use among respondents with secondary education. The high use of contraceptives among respondents with secondary education compared with those with primary education can be attributed to how informed respondents with higher education are about the benefits of contraceptive use. Education also empowers women to make better decisions concerning their reproductive health. Participants who have been pregnant in the past may have already experienced the consequences of non-use of contraceptives and may have learnt their lessons. Also, in Ghana, education on contraceptive use is part of the services provided to pregnant

women during antenatal care attendance. As such, respondents who have ever been pregnant may have been educated on the importance of contraceptive use and may also know where and how contraceptives could be obtained. Other studies in Ghana on adolescent sexual and reproductive health have shown that most young women who get pregnant wished they were educated on contraceptive use before the pregnancy.<sup>7 8</sup> This emphasises the need to make family planning or contraceptive use available for all ages.

It is worthy to point the significant gap observed between knowledge and use of contraceptives, which is consistent with the results of other studies.<sup>25 27 32 37</sup> This may be due to several factors including knowledge of where and how family planning methods could be obtained. Another factor contributing to the gap between knowledge and use of contraceptives is the myth surrounding the use of various methods and the female sex.<sup>25</sup> Owing to several factors including societal norms and stigmatisation, it is difficult in the Ghanaian setting for a young female to easily have access to contraceptives.<sup>38</sup> It has also been reported that male sexual partners often may not accept a condom from their female counterparts.<sup>38 39</sup> Hence, females may be aware of various contraceptive methods, they are however limited in acquiring them and initiating their use.

Several other factors have been attributed to the nonuse of contraceptives among sexually active unmarried young women. This includes lack of education on how to use contraceptives and their potential side effects.<sup>40</sup> Studies have reported that some women are less motivated to use contraceptives because of their perception of the risk and side effects of some of the methods.<sup>10 40 41</sup> Recent studies in central Ghana revealed that sexually active adolescents seeking contraceptives are stigmatised and perceived as bad or spoilt kids.<sup>7 25</sup> Another barrier to contraceptive use is judgemental healthcare providers, who may deny adolescents contraceptive services if they feel adolescents 'are not old enough' or are unmarried. Adolescents are thus shy to access contraceptives.<sup>7</sup>

Non-use of contraceptive is often associated with UP, which has deleterious consequences on young females, including dropping out of school,<sup>42</sup> which result in truncation of future development.<sup>43–45</sup> UP often end in induced abortion,<sup>14</sup> with a significant number being unsafe abortions.<sup>15 17</sup> Unsafe abortion is widespread among adolescents in Ghana, and it contributes significantly to the burden of morbidity and mortality in the country<sup>46 47</sup>; about 35% of all women who die as a result of unsafe abortion in Ghana are adolescents.<sup>47</sup> To this end, promoting contraceptive use among adolescents and young girls, as well as ensuring the availability of quality postabortion contraception is undoubtedly very important. Apart from the fact that promoting contraceptive use contributes to achieving international targets,<sup>21 22</sup> it also prevents UPs, unsafe abortions and abortion-related complications. In recognising the need to promote and increase contraceptive use in Ghana, the government of Ghana through

the 2012 National Health Insurance Act authorised that family planning should be free under its national health insurance scheme.<sup>48</sup> However, to date, this has still not been implemented. In the meantime, the government has increased its financial contribution towards the procurement of family planning commodities, and currently, purchases about 25% of all family planning commodities in the country. Also, more health service providers have been trained in Adolescent and Youth-friendly Health Services.<sup>21</sup>

Given that a higher percentage of sexually active unmarried adolescents and young women in Ghana do not use contraceptives, appropriate interventions should be put in place to promote contraceptive use among this population to mitigate the deleterious consequences associated with adolescent pregnancy. Pertinent among these interventions is for relevant key stakeholders like the Family Health Division of the Ghana Health Service to embark on public education regarding the importance of contraceptive use, and making contraceptives accessible for people who need them. Evidence suggests that the use of adolescent-friendly reproductive health facilities improves usage of several health services including contraceptives.<sup>49 50</sup> Owing to the stigma associated with contraceptive use among adolescents and young women, we advocate for setting up confidential, friendly and non-judgemental adolescent reproductive health centres in the community and the different levels of educational institutions in Ghana. Literature highlights a very important role of commercial drug sellers as far as adolescents and young women contraceptive sourcing is concerned.<sup>4</sup> Given the barriers adolescents and young women encounter in seeking contraceptive services, community-based drug outlets and pharmacies can complement the adolescent-friendly centres. These facilities are more accessible, provide faster services, have longer opening hours and are confidential in providing adolescents and young women with contraceptive services.<sup>51</sup> The stigma attached to adolescents, most especially late teenagers who patronise contraceptives services should be addressed by intensifying health education, particularly at the community level. In this study, more than 70% of the respondents owned a mobile phone. In light of this high rate of mobile phone use, contraceptive use interventions for young women could be pursued through mobile phones.

It should be emphasised that the use of nationally representative data can be of great importance in identifying several issues of public health importance. This study used data from the GMHS to assess contraceptive use among a population that is often underrepresented in sexual and reproductive health studies. To this end, the findings of this study can only be generalised to sexually active unmarried adolescent girls and young women aged 15–24 years in Ghana.

## CONCLUSION

Knowledge of contraceptive methods is almost universal among sexually active unmarried adolescent girls and



young women in Ghana. However, this does not reflect on the use of these methods. To address the gap in contraceptive use among young women, the Ghana Health Service and other relevant stakeholders should ensure that contraceptive services are available and easily accessible in Ghana. Also, outreach contraceptives services in Ghana should be intensified and expanded to places where adolescents and young women can easily access the services without fear of stigma by society. We advocate for the setting up of confidential, friendly and non-judgemental adolescent reproductive health centres in the community and different levels of the educational institutions in Ghana. More gender-transformative approaches, including thoughtful collaborations with other sectors (eg, education, local government), should be explored.

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