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Risky sexual behaviours, contraceptive use and associated factors among unmarried female adolescents in an urban municipality in Ghana

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Abstract

In Ghana, few studies have focused on the link between risky sexual behaviours and contraceptive use among adolescents. Based on a survey of 260 randomly sampled unmarried adolescents, this study examined risky sexual behaviours and modern contraceptive use. Descriptive statistical analyses were performed in addition to bivariate and logistic regression models. Results show that 50.4% of respondents have had sex before, and many engaged in risky sexual behaviours: 48.8% have had two or more sexual partners in their lifetime; 21.4% have had sex while drunk; and 60.7% of those who reported having sex while drunk did not use a condom. Only 22.9% of sexually active adolescents ever used contraceptives. Factors that predicted use of contraceptives included being aged 17-19, knowing a place to get contraceptive, not having had drunk sex, and not feeling pressured to have unprotected sex. Public health education and self-efficacy interventions are needed to address risky sexual behaviours and improve contraceptive use. (*Afr J Reprod Health* 2021; 25[6]: 32-42).

Keywords: Adolescent; risky sexual behaviour, modern contraceptive; utilisation; urban; Ghana

Résumé

Au Ghana, peu d'études se sont penchées sur le lien entre les comportements sexuels à risque et l'utilisation de contraceptifs chez les adolescents. Sur la base d'une enquête menée auprès de 260 adolescents non mariés choisis au hasard, cette étude a examiné les comportements sexuels à risque et l'utilisation des contraceptifs modernes. Des analyses statistiques descriptives ont été réalisées en plus des modèles de régression bivariée et logistique. Les résultats montrent que 50,4 % des personnes interrogées ont déjà eu des relations sexuelles et que nombre d'entre elles ont eu des comportements sexuels à risque : 48,8 % ont eu deux partenaires sexuels ou plus au cours de leur vie ; 21,4 % ont eu des relations sexuelles en état d'ébriété ; et 60,7 % de ceux qui ont déclaré avoir eu des relations sexuelles en état d'ébriété n'ont pas utilisé de préservatif. Seuls 22,9 % des adolescents sexuellement actifs ont déjà utilisé des contraceptifs. Les facteurs qui prédisaient l'utilisation de contraceptifs incluaient le fait d'être âgé de 17 à 19 ans, de connaître un endroit pour obtenir un contraceptif, de ne pas avoir eu de relations sexuelles ivres et de ne pas se sentir obligé d'avoir des relations sexuelles non protégées. L'éducation à la santé publique et les interventions d'auto-efficacité sont nécessaires pour lutter contre les comportements sexuels à risque et améliorer l'utilisation des contraceptifs. (*Afr J Reprod Health* 2021; 25[6]: 32-42).

Mots-clés: Adolescent; comportement sexuel à risque, contraceptif moderne ; utilisation; urbain; Ghana

Introduction

Complications from pregnancy and childbirth are the leading causes of death in adolescent girls aged 15-19 in low- and middle-income countries¹⁻³. Perinatal deaths are significantly higher in babies born to adolescent mothers than to mothers aged 20 years and above, as are other problems such as low-birth weight¹. Prevention of adolescent pregnancy is

therefore a key global health strategy to improve adolescent health⁴. It is estimated that two-thirds of all unintended pregnancies in low-income countries occur among women and adolescents who do not use contraceptives⁴. Promoting modern contraceptive use and safe sexual behaviour among young people is therefore considered essential to minimising adverse reproductive health outcomes^{5,6}. By allowing young girls to postpone motherhood, space

births and cease childbearing, modern contraceptive use could reduce unwanted pregnancies and demand for unsafe abortion⁷.

Despite the enormous benefits of modern contraceptive use, evidence suggests that modern contraceptive use among adolescents in sub-Saharan Africa is still low albeit risky sexual behaviours are common⁸. For instance, use of contraceptives among adolescents varies from 3% in Rwanda to 56% in Burkina Faso⁹. Among the few adolescents who use modern contraceptives, majority use them just for child-spacing and not for limiting the number of children⁹. In Ghana, current use of any method of contraception is 23% among all women, and lowest (19%) among adolescents aged 15-19³. This challenge is greater in the Brong Ahafo Region of Ghana (the study area), where teenage pregnancy and childbearing are high. While there are no credible population level data on sexually active adolescents in the region, data from the Ghana District Health Information Management Systems (DHIMS 2) show that the total number of pregnancies recorded in antenatal care (ANC) facilities in the region was 63,721, 64,351, 66,409, 64,847, 65,686 in 2012, 2013, 2014, 2015 and 2016 respectively. Adolescent pregnancies constituted 12,934(20.3%), 12,833(20.0%), 12,981(19.5%), 12,492(19.3%), and 12,499 (19.0%) in 2012, 2013, 2014, 2015 and 2016 respectively¹⁰. These numbers exclude adolescent pregnancies that may have been terminated through abortion or miscarriage as well as those that did not attend ANC. In the Sunyani Municipality in particular, 647(10%) teenage pregnancies were recorded out of 6,766 pregnancies in 2012; 589 (11.2%) out of 5,259 in 2013; 600 (11.5%) out of 5,217 in 2014; and 541(12.2%) out of 4,434 in 2015¹⁰. Again, these numbers are likely to be higher because the data came from ANC registrants across health facilities in the municipality and did not include adolescent pregnancies for which ANC was not sought or pregnancies that may have been terminated outside of health facilities.

Sexual risk taking and contraceptive use among adolescents are a function of multiple factors. For instance, studies have identified that adolescents in low-income settings do not use contraceptives due to inadequate knowledge about contraceptives and their availability^{11,12}. Contraceptive usage by adolescents has also been

found to be influenced by socio-economic status, stigma, residential area, educational status, and counseling received about contraceptives¹³. In many African countries, several studies have identified negative attitudes of healthcare providers towards providing contraceptives to unmarried adolescents as an impediment to contraceptive uptake¹³⁻¹⁵. Other studies have highlighted cultural values placed on childbearing, beliefs and norms related to contraception and promiscuity, and religious objections as barriers to contraceptive use^{16,17}. In Ghana, recent studies have reported similar determinants of contraceptive use among adolescents^{3,15}. While these studies provide useful insights into adolescent contraceptive use behaviours and determinants, many have not focused on examining the link between risky sexual behaviour and contraceptive use. Besides, differences in socio-economic and cultural circumstances across Ghana mean that more community-based empirical research is still needed. At the time of this study, no known specific studies existed that looked at risky sexual behaviours and modern contraceptive use among adolescents in the Sunyani municipality of Ghana. This knowledge gap could potentially hamper effective planning and delivery of adolescent sexual and reproductive health services. The purpose of this study was to identify risky sexual behaviours and determine modern contraceptive use prevalence and associated factors among adolescents.

Methods

Study design and setting

A cross-sectional quantitative survey was conducted. Empirical data collection was done in the Sunyani Municipality in the Brong Ahafo Region of Ghana. The municipality has a population of 123,224, made up of 61,610 males and 61,614 females¹⁸. The estimated adolescent population is 27,109, and this constitutes 22.6% of the total population of the municipality¹⁰. Total fertility rate is 2.6¹⁰, and crude birth rate is 2.1 per 1000 population¹⁸. The municipality has a regional hospital, which serves as the main referral point for the region. There is also a municipal hospital. In all, there are 34 health facilities in the municipality, and 18 of these provide antenatal and postnatal services.

Family planning services are provided in 21 health facilities¹⁰. The municipality also has several functional adolescent-friendly corners, which provide sexual and reproductive health counseling, education and services, including condom distribution, and treatment of STIs¹⁰.

Population and sample size

The study's population comprised unmarried female adolescents. Although the WHO defines adolescents as persons between the ages of 10-19 years¹⁹, this study focused on female adolescents aged 14-19 because high incidence of teenage pregnancy in the Sunyani municipality has been found in this age group. The estimated prevalence of modern contraceptive use among adolescents in Ghana is 19%¹⁰. Based on this, and using 95% confidence level and 5% error margin, the minimum sample size required to detect any significant statistical association was estimated to be 260 using Cochran's statistical formula²⁰.

Sampling methods and procedures

Multi-stage sampling procedure was followed. First, there are six demarcated health sub-zones in the municipality. Therefore, the total sample size of 260 was distributed equally among the 6 sub-zones, giving an average of 44 respondents per sub-zone. Second, house numbers in each sub-zone were obtained from the Municipal Population, Housing and Census office. House numbers in each sub-zone were recoded (e.g. H1, H2...Hn), and entered into an excel spreadsheet. Third, the recorded numbers were exported into a google-based electronic random number generator programme, where 44 houses from each sub-zone were randomly selected. Fourth, the researchers visited each of the selected houses to first meet both potential respondents and their parents/guardians, where the purpose of the study and sampling procedures were thoroughly explained. Given the sensitive nature of the research topic and the fact that many parents may not be aware that their adolescent girls are sexually active, we explained that our study aimed to understand general reproductive health challenges of female adolescents. Potentially eligible adolescents were then given one week to discuss their participation in the study with their parents/guardians. All potential

adolescent respondents were then re-contacted via telephone after the one-week period. Where the number of qualified adolescents in any of the selected houses were more than one, a list was made of all such adolescents and simple random sampling method was used to select only one. To do this, adolescents were made to randomly select pieces of folded paper that were placed in a basket. One of the papers was labelled 'YES', and the rest 'NO'. The one who picked YES was included in the study. Where there was no qualified adolescent in any of the houses originally selected (and there were only six such cases), such houses were replaced by repeating the random selection process.

Data collection

Structured questionnaires were designed and used to collect data. The questionnaires were designed in English, but asked in both English and local dialects (i.e. *Bono* and *Twi*). The questionnaires were based on validated questions adapted from the Ghana Demographic and Health Survey³. The questionnaires were however pre-tested in Sunyani West District, which had socio-demographic characteristics similar to Sunyani municipality. All relevant modifications were made. The data were collected between June 2016 and August, 2016. The data collection instrument was administered personally by the first author who is fluent in English, *Bono* and *Twi*.

Data entry and processing

Completed questionnaires were first manually examined for completeness, then hand-coded and entered into Epi info 7. To ensure data quality, data entry was done independently by the first and third authors. The second author then compared the two data entries. Errors and inconsistencies that were detected were discussed and resolved before the data were exported into Stata 14 version software for further cleaning. Cleaning of the data was done by running frequencies on each variable, and all inconsistencies and errors were resolved.

Variables

The main outcome variable was use of modern contraceptives. Modern contraceptive use was

defined in line with the Ghana Demographic and Health Survey as the use of the following methods: female sterilisation, intrauterine device (IUD), implants, injectable, the pill, female condoms, and lactational amenorrhoea method (LAM)³. Several independent variables were also measured. Risky sexual behaviour was an important independent variable, which we operationally defined to include multiple sexual partnerships, drunk sex, use of any contraceptive method during drunk sex, and transactional sex (that is, trading sex for food, protection or other material and psychosocial benefits)²¹. While having sex without using a condom or other contraceptives is itself a risky sexual behaviour, we did not include it as risky sexual behaviour as such. This was because our primary outcome of interest was contraceptive use, including condom use. We measured multiple sexual partnership in terms of the number of sexual partners a respondent has had in the last 12 months before the survey²¹. Drunk sex was measured as a categorical variable with a dichotomous outcome, and coded as 1 if respondent has ever had sex while drunk, and 0 if the respondent has not²¹. We also measured transactional sex as a categorical variable with a dichotomous outcome, and coded as 1 if respondent has ever traded sex for food, protection or other material and psychosocial benefits, and 0 if the respondent has not²¹. Note that while transactional sex was included as risky sexual behaviour, we did not observe it in our data, hence its absence in our results as will be shown later. Other independent variables included socio-demographic factors like age and education; and health facility and community level factors such as knowledge of places to get contraceptives.

Statistical analysis

Socio-demographic characteristics of respondents, risky sexual behaviours and use of modern contraceptives were summarised using descriptive statistical techniques. Chi-square test of independence and Fishers exact test (for variables with less than 5 cell observations) were first used to assess association between the outcome variable (modern contraceptive use) and explanatory variables. Regression models were fitted to further assess the strength of association among variables that were significantly associated with use of

modern contraceptives. Confidence level was held at 95%, and $P < 0.05$ was considered statistically significant.

Results

Socio-demographic characteristics

Table 1 presents information on characteristics of respondents. Mean age was 17.2 years ($SD = \pm 1.39$), and majority (51.1%) were aged 17-19 years. More than half (55.8%) were either in or had completed Junior High School (JHS). Some 74.3% stayed with their parents/guardians, while the remaining 25.7% stayed alone or with boyfriends. More fathers than mothers of the adolescents had attained some formal education.

Risky sexual behaviour among adolescents

Table 2 shows results on sexual behaviour of adolescents. A little over half of them (50.4%) reported having had penetrative vaginal sex before, and mostly had their first sex aged 14-16 (46.6%). Majority (77.9%) of sexually active adolescents had sexual partners at the time of the study, and 48.8% and 33.6%, respectively, have had two or more sexual partners in their lifetime and in the last 12 months. Among sexually active adolescents, 21.4% have engaged in sex while drunk, and 60.7% did not use any contraceptive during drunk sex. Furthermore, more than half of the sexually active adolescents (50.4%) reported feeling pressured into having unprotected sex, mainly by their friends (63.6%) and partners (36.4%).

Awareness and knowledge of contraceptives

Majority of the respondents (95.4%) had heard about contraception, and 96.0% correctly indicated that contraception was any method or procedures used to prevent pregnancy (Table 3). Furthermore, 88.3% of those who had heard about contraceptives reported knowing at least one modern contraceptive method. Male condom (87.7%) was the most mentioned method. Most respondents (88.6%) who were aware of modern contraceptive methods reported knowing a place in their community where they could get a modern contraceptive. However, 54.8% of the respondents who have heard about contraceptives before indicated that women who use contraception may become promiscuous.

Table 1: Socio-demographic characteristics of respondents (n= 260)

Variable	Frequency	Percent
Age		
14-16	127	48.9
17-19	133	51.1
Educational level		
None	5	1.9
Primary	14	5.4
JHS	145	55.8
SHS	86	33.1
Tertiary	10	3.9
Religious Affiliation		
Christianity	154	59.2
Islamic	106	40.8
Educational level of Mother		
None	85	32.7
Primary	18	6.9
JHS	65	25.0
SHS	49	18.9
Tertiary	43	16.5
Educational level of Father		
None	60	23.1
Primary	9	3.5
JHS	48	18.5
SHS	45	17.4
Tertiary	98	37.8
Whom adolescent stays with		
Parent/guardian	193	74.3
Self/boyfriend	67	25.7
Occupation of Father		
Informal*	158	60.8
Formal**	102	39.2
Occupation of Mother		
Informal*	206	79.2
Formal**	54	20.8

*Jobs that don't earn monthly salary; **Jobs that earn monthly salary

Prevalence of modern contraceptive use

Table 4 shows prevalence of ever use of modern contraceptives among adolescents as well as use during last sexual act among those who reported ever having sex. Prevalence of modern contraceptive use was 22.9% among adolescents who reported ever having sex. This prevalence however reduced to 19.1% during last sexual act before the study.

Factors associated with modern contraceptive use

To determine factors influencing use of modern contraceptives, bivariate analyses were first performed to examine association between a total of

Table 2: Risky sexual behaviour among adolescents

Variable	Frequency	Percent
Ever had sex (n=260)*		
Yes	131	50.4
No	129	49.6
Age at first sex (n=131)		
8-10	3	2.3
11-13	20	15.3
14-16	61	46.6
17-19	47	35.8
Currently have sexual partner (n=131)*		
Yes	102	77.9
No	29	22.1
Number of sexual partners ever had (n=131)		
1	67	51.2
2+	64	48.8
Number of sexual partners in the last 12 months (n=131)		
1	87	66.4
2+	44	33.6
Sexual intercourse while drunk (n=131)		
Yes	28	21.4
No	103	78.6
Use of any contraceptive method during drunk sex(n=28)		
Yes	11	35.5
No	17	60.7
Pressure to have unprotected sex (n=131)		
Yes	66	50.4
No	65	49.6
Pressure from whom(n=66)		
Friends	42	63.6
Partner	24	36.4

*Penovaginal intercourse or partner

20 individual factors and modern contraceptive use (see Table 5). From the bivariate analyses, nine factors were statistically associated with use of modern contraceptives. To further investigate strength of associations, these nine factors were pulled into a binary and multiple logistic regression models and odds ratios were estimated. The results are shown in Table 6.

Adolescents who were aged 14-16 were less likely to use contraceptives when compared to those aged 17-19 (COR=0.52; 95% CI=0.28-0.99; p=0.001). When other factors were controlled for, the odds of using contraceptives among adolescents aged 14-16 further reduced, and the difference was still statistically significant (AOR=0.37; 95% CI=0.22-0.62; p=0.046).

Table 3: Awareness, knowledge, and sources of information about contraceptives

Variable	Frequency	Percent
Heard about contraception (n=260)		
Yes	248	95.4
No	12	4.6
Knows what contraception is (n=248)		
Yes	238	96.0
No	3	1.2
Don't Know	7	2.8
Knows any modern contraceptive method (n=248)		
Yes	219	88.3
No	29	11.7
Specific modern contraceptive methods known (n=219)*		
IUD	19	8.7
Injectable	52	23.7
Implants	27	12.3
Pills	125	57.1
Female condom	114	52.1
Male condom	192	87.7
Diaphragm	3	1.3
Lactational amenorrhea method	2	0.9
Knows a place in the community to get modern contraceptive (n=219)		
Yes	194	88.6
No	25	11.4
Specific place in the community to get modern contraceptive (n=194)*		
Hospital/clinic	40	20.6
Pharmacy/drug store	142	73.2
Health provider	27	13.9
Family Planning/PPAG Clinic	4	2.1
Friend	7	3.6
Thinks contraceptive is women's business (n=248)		
Yes	66	26.6
No	182	73.4
Thinks women using modern contraceptive may become promiscuous (n=248)		
Yes	136	54.8
No	112	45.2
Sources of information about contraception (n=248)*		
Radio	71	28.6
Teacher	109	44.0
Health worker	47	19.0
Family member	21	8.5
Friends	55	22.2
Print media	13	5.2
Television	21	8.5

*Multiple responses allowed

Table 4: Modern contraceptive use among sexually active unmarried female adolescents

Variable	Frequency	Percent
Ever used any modern contraceptive (n=131)		
Yes	30	22.9
No	101	77.1
Use of contraceptive at last sex (n=131)		
Yes	25	19.1
No	106	80.1

Three other factors that independently predicted use of contraceptives after adjusting for other variables were: knowing a place to get contraceptive (AOR=1.96; 95%CI, 1.72 - 5.50; p=0.049), not having had drunk sex (AOR=1.55; 95%CI, 1.52 - 4.65; p=0.028), and not feeling pressured to have unprotected sex (AOR=1.73; 95%CI, 1.72 - 3.28; p=0.012).

Discussion

This study focused on identifying the links between risky sexual behaviours and use of modern contraceptives among unmarried female adolescents in Ghana. A number of findings from this study deserve further attention. First, although it is often a taboo in most cultures in Ghana to have pre-marital sex²², 50.4% of the adolescents in this study reported having had sex before. Age of sexual debut for some adolescents was 8 years, and majority (57%) of them did not use condom or any contraceptive at their first sex. While early sexual debut is a widely reported phenomenon in many parts of Africa^{7,22,23}, the possibility of unwanted pregnancy and STIs infection is a source of concern. This is particularly so for adolescents who may be unprepared biologically, emotionally and economically to deal with adverse outcomes like teen pregnancy. For many adolescents, the benefits tend to be pleasure without any opportunity for assessing the real benefit over the risks particularly as first sex is mostly unplanned²¹. This could lead to unsafe abortions, a factor that accounts for approximately 20.8% of maternal deaths in some major health facilities in Ghana²⁴. In the event of an STI infection, such adolescents may not know where to seek treatment or they may simply be shy to seek treatment. This could potentially contribute to long-term reproductive health morbidities.

Table 5: Factors associated with use of contraceptives among among sexually active unmarried female adolescents (bivariate analysis), *n*=131

Variable	Contraceptive Use		P-value
	Yes, n(%)	No n(%)	
Age			
14-16	8(12.5)	56(87.5)	0.001*
17-19	22(33.8)	45(67.2)	
Educational status			
None	0(00.0)	3(100.0)	0.001*
Primary	1(14.3)	6(85.7)	
JHS	12(16.4)	61(83.6)	
SHS	13(30.2)	30(69.7)	
Tertiary	4(80.0)	1(20.0)	
Religion			
Christianity	20(25.6)	58(74.4)	0.198
Islamic	10(18.9)	43(81.1)	
Educational status of mother			
None	3(7.0)	40(93.0)	0.028*
Primary	1(11.1)	8(88.9)	
JHS	5(15.2)	28(84.8)	
SHS	7(28.0)	18(72.0)	
Tertiary	14(63.6)	8(36.4)	
Educational status of father			
None	4(13.3)	26(86.7)	0.913
Primary	1(20.0)	4(80.0)	
JHS	6(25.0)	18(75.0)	
SHS	7(30.4)	16(69.6)	
Tertiary	12(24.5)	40(75.5)	
Whom adolescent stays with			
Parents/guardian	25(23.6)	81(76.4)	0.003*
Partner/boyfriend	5(20.0)	20(80.0)	
Occupation of father			
Informal worker	16(20.0)	64(80.0)	0.351
Formal worker	14(27.5)	37(72.5)	
Occupational of mother			
Informal worker	21(20.2)	83(79.8)	0.487
Formal worker	9(33.3)	18(66.7)	
Age at first sex			
8-10	3(100.0)	0(0.0)	0.110
11-13	15(75.0)	5(25.0)	
14-16	42(68.9)	19(31.1)	
17-19	41(87.2)	6(12.8)	
Number of sexual partners in the last 12 months			
1	23(26.4)	64(73.6)	0.001*
2+	7(15.9)	37(84.1)	
Ever heard of any contraceptive method			
Yes	30(24.0)	95(76.0)	0.061
No	0(0.0)	6(100.0)	
Knows of a place in the community to get contraceptive			
Yes	29(25.0)	87(75.0)	0.034*
No	1(6.7)	14(93.3)	
Thinks that one unprotected sex can result in pregnancy			
Yes	18(66.7)	9(33.3)	0.046*
No	10(10.4)	86(89.6)	
Don't know	2(25.0)	6(75.0)	
Thinks that modern contraceptive can offer 100% protection from pregnancy			
Yes	18(25.6)	77(74.4)	0.549
No	6(23.1)	20(76.9)	
Don't know	5(38.5)	8(61.5)	

Thinks that contraceptive is women's business			
Yes	7(20.0)	23(80.0)	0.165
No	23(24.0)	73(76.0)	
Thinks that women using modern contraceptive may become promiscuous			
Yes	16(22.2)	56(77.8)	0.771
No	14(23.7)	45(76.7)	
Have sexual intercourse while drunk			
Yes	1(3.6)	27(96.4)	0.001*
No	29(28.2)	74(71.8)	
Felt pressured to have unprotected sex			
Yes	7(10.6)	59(89.4)	0.001*
No	23(35.4)	42(64.6)	
Received sex education in school			
Yes	21(23.3)	69(76.7)	
No	5(17.2)	24(82.8)	0.274
Don't know	3(33.3)	6(66.7)	
Not applicable (no education)	1(33.3)	2(66.7)	
Received sex education at home			
Yes	6(22.2)	21(77.8)	
No	21(21.9)	75(78.1)	0.488
Don't know	3(37.5)	5(62.5)	

*p<0.05

Table 6: Predictors of modern contraceptive use among sexually active unmarried female adolescents (logistic regression)

Variable	Contraceptive Use		cOR[95%CI]	p-value	aOR[95%CI]	p-value
	Yes, n(%)	No n(%)				
Age (years)						
17-19 (<i>ref</i>)	22(33.8)	45(67.2)	1		1	
14-16	8(12.5)	56(87.5)	0.52(0.28-0.99)*	0.001	0.37(0.22-0.62)*	0.046
Educational Status						
None(<i>ref</i>)	0(00.0)	3(100.0)	1		1	
Primary	1(14.3)	6(85.7)	0.89(0.11-7.11)	0.912	0.28(0.02-4.13)	0.219
JHS	12(16.4)	61(83.6)	1.63(0.26-10.14)	0.597	0.39(0.03-4.78)	0.599
SHS	13(30.2)	30(69.7)	0.61(0.10-3.82)	0.595	0.21(0.02-2.61)	0.052
Tertiary	4(80.0)	1(20.0)	0.17(0.02-1.78)	0.138	0.06(0.00-1.22)	
Educational status of mother						
None (<i>ref</i>)	3(7.0)	40(93.0)	1		1	
Primary	1(11.1)	8(88.9)	0.29(0.10-0.84)*	0.023	0.19(0.06-0.64)	0.007
JHS	5(15.2)	28(84.8)	1.20(0.61-2.38)	0.596	0.97(0.46-2.06)	0.942
SHS	7(28.0)	18(72.0)	0.55(0.27-1.12)	0.102	0.61(0.28-1.32)	0.212
Tertiary	8(36.4)	40(93.0)	1.19(0.55-2.58)	0.662	1.05(0.43-2.56)	0.906
Whom adolescent stays with						
Parent/guardian (<i>ref</i>)	25(23.6)	81(76.4)	1		1	
Self/boyfriend	5(20.0)	20(80.0)	0.96(0.50-1.83)	0.894	0.76(0.37-1.58)	0.464
Number of sexual partners in the last 12 months						
1 (<i>ref</i>)	23(26.4)	64(73.6)	1		1	
2+	7(15.9)	37(84.1)	0.02(0.01-0.05)*	0.001	1.06(0.23-4.91)	0.958
Knows a place in the community to get contraceptive						
No(<i>ref</i>)	1(6.7)	14(93.3)	1		1	
Yes	29(25.0)	87(75.0)	2.58(1.05-6.34)*	0.039	1.96(1.72-5.50)*	0.049
Thinks that one unprotected sex can result in pregnancy						
Yes(<i>ref</i>)	18(66.7)	9(33.3)	1		1	
No	10(10.4)	86(89.6)	1.07(0.54-2.10)	0.843	0.61(0.26-1.48)	0.275
Don't know	2(25.0)	6(75.0)	4.37(1.25-15.32)*	0.021	4.26(0.84-21.67)	0.080
Have sexual intercourse while drunk						
Yes(<i>ref</i>)	1(3.6)	27(96.4)	1		1	
No	29(28.2)	74(71.8)	10.26(3.79-27.78)*	0.001	1.55(1.52-4.65)*	0.028
Felt pressured to have unprotected sex						
Yes(<i>ref</i>)	7(10.6)	59(89.4)	1		ref	
No	23(35.4)	42(64.6)	2.50(1.50-4.17)*	0.001	1.73(1.72-3.28)*	0.012

cOR= crude odds ratio; aOR= adjusted odds ratio; CI=confidence interval; *ref*=reference category; *p<0.05

Our findings here would therefore suggest a need to intensify early sexual and contraception education and counselling for female unmarried adolescents at home and in school as well as self-efficacy training and skills acquisition to help them negotiate peer-pressures to initiate sex early and to protect themselves during sexual intercourse. The role of parents and guardians in providing sexual and reproductive health education needs to be encouraged. Currently, sexual and reproductive health topics remain taboo subjects for most parents to discuss with their adolescent children in Ghana¹⁵. However, given the rate of early sexual debut among the female adolescents surveyed in this study, parents and guardians must be encouraged to openly discuss these matters with their adolescent children.

Also, more than three-quarters (95.4%) of the respondents had heard about contraceptives. This is very consistent with what has been reported in the Ghana Demographic and Health Survey 2014, where knowledge of at least one method is nearly universal in Ghana (99%)³. The results are also similar to one recent study in Ghana, which reported that over 90% of adolescents between the ages of 12 and 19 years have knowledge on at least one modern method of contraceptive¹⁵. This high level of awareness about contraceptives could be attributed to successful dissemination of family planning messages to young people, mainly through the mass media and school health programmes. Knowledge of the male condom is not particularly surprising in the wake of its promotion as a dual protection method against pregnancy and HIV/AIDS in Ghana. Ongoing radio and television campaigns in Ghana such as “it’s your life, it’s your choice” often emphasise this method.

The high awareness about contraceptives notwithstanding, ever use of modern contraceptive among sexually active adolescents in this study was 22.9%. While this prevalence is slightly higher than the 19% reported in the Ghana Demographic and Health Survey 2014³, it is still relatively low, and indeed reechoes the fact that awareness and knowledge about contraceptive methods may not necessarily lead to actual use. This is in fact one of the conclusions of a recent study among students of public secondary schools in Nigeria²³. This is very concerning because having sex without using contraception itself could be a risky sexual

behaviour, especially for unmarried female adolescents who most likely will not want to become pregnant. It is also concerning because sex without contraceptive use, especially condom use, could expose adolescents to STIs. Taken together, our findings here highlight a need for improved supply of contraceptive commodities at the community level, especially in socially-safe urban spaces easily accessible to adolescents. The Ghana Health Service should train or retrain all reproductive health service providers in the Sunyani municipality in the provision of youth-friendly services to enable them provide friendly services to adolescents.

Also, adolescents who were aged 17-19 were more likely to use contraceptives when compared to those aged 14-16. This is again consistent with Nyarko’s study where older female adolescents were more than three times likely to practice contraceptive use than younger female adolescents¹⁵. Perhaps, this is because older adolescents are more matured and enlightened in terms of knowing where to get contraceptives as well as the importance of contraceptive use, compared to younger adolescents who may be comparatively naive and shy⁵. Besides, older adolescents are more likely to be working and may be able to afford contraceptives on their own, and may also have built up broader social networks, which they could use to obtain contraceptive information and services than their younger counterparts^{5,21}. In terms of policy action, the Ghana Education Service and the Ghana Health Service must ensure that pragmatic adolescent reproductive health programmes target adolescents aged 14-16 and below at the Basic and Secondary schools as well as adolescents without any formal education.

Not knowing a place in the community where contraceptives may be obtained was also found to strongly predict non-use of contraceptives. This result would suggest a need to provide adequate information about appropriate places in the communities where adolescents could obtain contraceptive services safely. In particular, the Ghana Health Service should institute and/ or improve informational dissemination and provider-level training to ensure that adolescents know what to expect when accessing and using modern contraceptives. In addition to existing adolescent health corners, social media platforms such as

Facebook, WhatsApp and twitter could be leveraged to provide sexual and reproductive health information to adolescents. Furthermore, adolescents who engaged in high-risk sexual behaviours such as having sex while drunk were less likely to use contraceptives. This is also consistent with results from a recent study in Ghana²¹. That drunk sex reduces the odds of contraceptive use is indeed not surprising given that alcohol consumption may impair sexual judgment and undermine any sense of personal vulnerability to unwanted pregnancy or STI infection. Nevertheless, the relatively high prevalence of risky sexual behaviours observed in this study is concerning precisely because they could result in adverse health outcomes. For instance, multiple sexual partnership has been shown to be a risk factor for STIs, including HIV/AIDS as well as hepatitis B⁴. Therefore, in addition to sex and contraception education and counselling, there is a need for early information and counselling for adolescents, particularly on alcohol and drug use. Self-efficacy and skills acquisition training interventions for adolescents are also needed to help them safely negotiate and overcome peer pressure and various substance abuses.

Finally, the findings and discussion in this study should be interpreted with certain limitations in mind. Data came from a cross-sectional study, and some of the variables such as sexual activity and contraceptive use were measured retrospectively. Therefore, the possibility of recall bias is acknowledged since there was no mechanism to independently verify respondents' self-reported information. Also, the study covered only one urban municipality, and involved a relatively small sample size. Therefore, the limitation of generalising the results is acknowledged. These limitations notwithstanding, the study provides additional insights into the occurrence of risky sexual behaviours among unmarried female adolescents and the links between risky sexual behaviour and modern contraceptives use, which have implication for adolescent health policy and interventions particularly in the study setting.

Ethical considerations

Ethical clearance was obtained from the Ghana Health Service Ethical Review Committee (Protocol

ID No. GHS-ERC: 04/12/2015). Informed written consent was obtained from all adolescents aged 18 and above. For adolescents aged below 18, their parents/guardians gave written informed consent, and such adolescents then assented to their parents' or guardians' consent. All participants were assured of anonymity, privacy and confidentiality. Participation in the study was entirely voluntary and participants could withdraw at any point without consequence.

Conclusion

In conclusion, the findings from this study are that although risky sexual behaviours are quite common among sexually active adolescents in the study area, and awareness about contraceptives is also generally high, contraceptive use is rather very low. This suggests that home, community, and school-based public health education and self-efficacy interventions are urgently needed to address risky behaviours like multiple sexual partnership, drunk and peer-pressured sex among adolescents and to as well provide information on where to obtain contraception. Also, findings highlight a need for more research and evidence to be generated in different contexts in Ghana to show the magnitude of risky sexual behaviours among unmarried female adolescents, and their links to modern contraceptive use. Such research/evidence, when consolidated, could inform policy, practice and future research.

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Conflict of interest

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