

Adolescents' Perceptions of Sexual and Reproductive Health: Does the Adolescent School Health Club Intervention Matter?

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Research

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Abstract

Background: The aim of this study was to examine variations in perceptions of sexual and reproductive health of adolescents in Junior High Schools that implement the Adolescent health club intervention and those that do not.

Methods: A cross-sectional quasi-experimental study design was used consisting of 424 adolescents (255 females) between 11 years and 19 years old in schools that implement (private) and schools that do not implement (private and public) the intervention. Data was collected using a standardised questionnaire eliciting information about participants' knowledge, attitude and behaviour towards their sexual and reproductive health. Chi squares, multiple regression analysis and one-way analysis of variance statistical techniques were used to analyse the data.

Results: There were significant variations in knowledge about reproductive physiology and knowledge about condom use. Private schools with the health club intervention reported higher scores on both knowledge about reproductive physiology and knowledge about condom. Adolescents in private schools with the intervention had a more positive attitude towards abstinence. Adolescents in schools with the intervention were less likely to have had sex, use condoms, or have friends who have had sex compared to adolescents in schools that do to implement the intervention.

Conclusion: The Adolescent health club intervention has a significant influence on Ghanaian adolescents' sexual and reproductive health particularly knowledge about reproductive physiology and knowledge about condoms. It is recommended that the intervention be scaled up and intensified in Junior High Schools in Ghana.

Background

The early adolescent years are vital in empowering young adolescents towards making safe and informed decisions concerning sexual and reproductive health (Dixon-Mueller, 2011). Studies in Sub Saharan Africa show that as high as 26% of males and 27% of females reported having first sexual intercourse before the age of 15 (Doyle et al., 2012). Early sexual initiation can result in negative consequences such as increased risk of Sexually transmitted Infections (STI's) including Human Immunodeficiency Virus (HIV) and unwanted pregnancy, decreasing likelihood for continuing education as well as death from complications of pregnancy and childbirth (Pettifor, Brien, Phail, & Miller, 2009) (Chandra-Mouli, Camacho, & Michaud, 2013) (Bengesai, Khan, & Dubes, 2018) (UNFPA, 2013).

Knowledge about sexual and reproductive health is an important factor in efforts aimed at reducing the negative outcomes associated with adolescents sexual and reproductive health (Bankole, Biddlecom, Guiella, Singh, & Zulu, 2008). Unfortunately, many adolescents in sub-Saharan Africa including Ghana, do not have adequate knowledge about sexual and reproductive health (Bankole et al., 2008) (Awusabo-asare, Biddlecom, Kumi-Kyereme, & Patterson, 2006; Esantsi, Asare, & Tapsoba, 2015).

School based programs have been found to have positive outcomes in forming and changing knowledge, attitudes and behaviour related to sexual and reproductive health (Salam et al., 2016). In Ghana, sexual and reproductive health (SRH) topics are taught as part of the Primary, Junior and Senior High School curriculum (Ministry of Education, 2010). In 2014, with support from the UNFPA, through the School Health Education program (SHEP), Ghana began school based adolescent health clubs (AHC) in selected second cycle institutions. The Tema Metropolitan Health Directorate inaugurated its first adolescent school health club in June 2016 and has since expanded to include most second cycle institutions in the metropolis. However, only very few Junior High Schools are involved. The adolescent health clubs fall under the purview of abstinence plus programs-that promote sexual abstinence but at the same time provide information and positive outlooks to the use of contraceptives such as condoms (Underhill et al, 2008). The overall goal of the adolescent health clubs is to contribute to the improvement of adolescents and young people's health status in Ghana. One of its objectives is to provide information on health particularly sexual and reproductive health and promote healthy behaviour.

A review of the research is not conclusive on the benefits of such programs towards improved knowledge, attitudes and behaviour as some studies show benefits while others do not(Castro et al., 2018; Doyle, Ross, Maganja, Baisley, & Masesa, 2010; Elliott, Henderson, Nixon, & Wight, 2013; Fonner, Armstrong, Kennedy, Reilly, & Sweat, 2014)(Mmbaga et al., 2017; Tenkorang et al., 2018)(Esere, 2008; Mmbaga et al., 2017; Tenkorang et al., 2018)(Doyle et al., 2010; Tenkorang et al., 2018)(Elliott et al., 2013; Esere, 2008; Tenkorang et al., 2018).

The aim of this study was to examine the role of adolescent school health clubs in Ghanaian adolescents' behaviour and attitude towards sexual and reproductive health.

Methods

Population and Sample

A quasi-experimental cross-sectional survey design was used in this study. The population consisted of adolescents in six Junior High Schools (JHS) in the Tema East Sub-Metropolis in Ghana. Using a quantitative research method, participants were divided into three groups based on the type of school and whether they had a health club namely: (1) private schools with AHC's (2) private schools without AHC's and (3) public schools without AHC's. At the time of this study no public school had an adolescent school health club. There are 48 Junior High Schools in total both public and private in the Sub-Metropolis. Only three (3) of the private schools have the adolescent school health clubs. A total of 424 students in JHS 1 and 2 were obtained using a multistage sampling method.

Procedure

Schools were divided into those with the adolescent health club and those without and those without further divided into private and public schools. Two schools were chosen from each group without

adolescent health clubs at random. The participants were selected from the schools proportionately based on the population of the school, so schools with larger populations had a higher representation.

The required sample size was calculated using Cochran Formula with 95% CI with 0.05 margin of error (Kadam & Bhalerao, 2010), with a prevalence estimate of 34% (Esantsi et al., 2015), This resulted in a total of 424 participants, including a 10% non-response rate. Private school (1) and (2) had adolescent health clubs and had a total of 88 and 115 participants respectively. Private school (3) and (4) did not have adolescent health clubs and had 96 and 91 participants respectively. Public school (5) and (6) did not have health clubs consisted of 116 and 105 participants respectively. Questionnaires were administered and completed in the respective classrooms of the students.

Ethical clearance was obtained from the Ghana Health Service Ethical Review Committee (GHS-ERC 145/12/17). Informed consent was sought from parents or guardians of all participants and assent sought from participants themselves. Students were assured of anonymity and confidentiality.

Measures

the measures used to assess knowledge on sex and reproductive physiology, knowledge on condom use, attitude towards sex, and attitude towards condom use were obtained by adapting the Illustrative Questionnaire for Interview- Surveys with Young People (Cleland, 2001).

Knowledge on Sex and Reproductive Physiology

Knowledge on sex was assessed with six statements regarding when a girl can get pregnant and other questions pertaining to reproductive physiology using a five-point Likert scale from strongly agree (5), agree (4), don't know (3), disagree (2) and strongly disagree (1). Items were then summated into total scores. Higher scores indicated higher knowledge. Cronbach's alpha for this scale in this study was 0.70.

Knowledge on Condom Use

Knowledge on condom use was assessed by asking students to respond to first to statements regarding whether they had ever heard of condoms and whether they had seen a condom before.

Students were then asked seven items regarding the appropriate use of condoms and what condoms confer protection on using a five-point Likert scale from strongly agree (5), agree (4), don't know (3), disagree (2) and strongly disagree (1). Questions asked in the negative were reverse coded so that all questions had strongly agree corresponding to the correct answer. Items were then scaled by summing the responses. Higher scores indicated higher knowledge. Cronbach's alpha for this study was 0.71.

Attitude towards Sex

The attitudes of students toward premarital sex included items regarding beliefs, subjective norms and perceived control. It was measured initially by 14 items measured on a 5-point Likert scale from strongly agree (5), agree (4), don't know (3), disagree (2) and strongly disagree (1). Questions asked in the negative

were reverse coded. Items were then scaled, and the mean scores were then calculated. High scores were indicative of positive attitudes towards abstinence. The highest Cronbach's alpha obtained was 0.70 after two items was deleted making a total of 12 items.

Attitude towards Condom Use

The attitudes of students toward condom use contained items regarding beliefs, subjective norms and perceived control. It was measured initially by 11 items measured on a 5-point Likert scale from strongly agree (5), agree(4), don't know(3), disagree(2) and strongly disagree(1). Questions asked in the negative were reverse coded. Items were then scaled, and the mean scores were then calculated. High scores were indicative of positive attitudes towards condom use. The highest Cronbach's alpha obtained was 0.61 after four items were deleted making a total of seven items.

Data analysis

Sources of information on puberty, SRH as well as relationships were analysed and percentages of frequencies per category of school tabulated for source of information and preferred source of information. A one-way ANOVA was used to determine differences in level of knowledge as well as attitude by the three categories of schools. Post hoc tests using Bonferroni adjustment were used when the results were significant. A Pearson Chi square test was used to determine the association between sexual intercourse then a binary logistic regression performed both by category of school. Analyses were performed with STATA 15.

Results

Knowledge about reproductive physiology and condom use

A one-way between subject ANOVA was conducted to compare the effect of the various categories of schools on the level of knowledge on reproductive physiology (Table 1). There was a significant effect of category of school on knowledge on reproductive physiology at $p < 0.05$ among the three categories of schools ($F(2,421) = 10.14, p < 0.001$). Also, private schools with adolescent health clubs were found to have the highest mean score on knowledge on condom use ($28.5 \pm 5, p < 0.001$) while private schools without health clubs were found to have the lowest mean knowledge. In addition, there was a significant effect of category of school on knowledge on condom use at $p < 0.05$ among the three categories of schools ($F(2,420) = 14.72, p < 0.001$).

On further analysis of the results using Bonferroni, private schools with adolescent health clubs were more likely to have higher knowledge scores than private schools without adolescent health clubs ($p < 0.001$) as well as public schools without health clubs ($p < 0.001$). However, between private schools without health clubs and public schools without health clubs, the difference seen was not significant ($p > 0.05$).

Attitudes to sex and condom use

Private schools with adolescent health clubs were found to have attitudes that leaned more towards abstinence (4.0 ± 0.6 , $p < 0.001$) while public schools without adolescent health clubs were found to be relatively less likely to have abstinence attitudes (Table 1). All schools however had a mean attitude on condom use which was more towards abstinence. A one-way between subject ANOVA was conducted to compare the effect of the various categories of schools on the attitudes of students to sex. There was a significant effect of category of school on attitudes to sex at $p < 0.05$ among the three categories of schools ($F(2,421) = 10.90$, $p < 0.001$).

Post hoc analysis of the significant results regarding attitudes towards sex using Bonferroni adjustment showed that private schools with adolescent health clubs were more likely to have abstinent attitudes than public schools without adolescent health clubs ($p < 0.001$). However, the difference between private schools with health clubs and those without health clubs was not significant ($p > 0.05$). Between private schools without health clubs and public schools without health clubs, the difference seen was found to be significant as well with students from private schools without health clubs having more abstinence attitudes than students from public schools without health clubs ($p > 0.05$).

Both private schools with adolescent health clubs and public schools were found to have more positive attitudes to condom use (3.1 ± 0.7 , $p > 0.05$) while private schools without health clubs were found to have a relatively less positive attitude to condom use (Table 1). Private schools without adolescent health clubs were found to be relatively less likely to have abstinent attitudes. All schools however had a mean attitude on condom use which was more towards abstinence. Also, there was not a significant effect of category of school on attitudes to condom use at $p < 0.05$ among the three categories of schools ($F(2,421) = 2.64$, $p < 0.05$).

Table 1
Knowledge and attitude by school type

	School Type		
	Private with AHC Mean \pm SD	Private without AHC Mean \pm SD	Public without AHC Mean \pm SD
Knowledge on reproductive physiology	23.3 \pm 3.7***	21.7 \pm 4.7	20.8 \pm 5.6
Knowledge on condom use	28.5 \pm 5***	25.5 \pm 5.2	25.6 \pm 5.6
Attitude to sex	4.0 \pm 0.6***	3.9 \pm 0.7	3.7 \pm 0.7
Attitude to condom use	3.1 \pm 0.7	2.9 \pm 0.6	3.1 \pm 0.7
*** $p < 0.001$			

Sex and condom use behaviour

Adolescents in schools with adolescent health clubs were least likely to have had sex and least likely to have friends who have had sex. A chi-square test of independence was performed to examine the relation between the various categories of schools and engagement in sexual intercourse (Table 2). The relation between these variables was significant, $\chi^2 (2, N = 424) = 10.17, p < 0.01$. Same was found for the association between the categories of schools and having friends who have had sex $\chi^2 (2, N = 424) = 19.40, p < 0.001$.

A binary logistic regression model was then run on the two variables (Table 3). It was found that private schools without health clubs (OR=1.56, $p > 0.5$) and public schools without health clubs (OR=2.44 $p < 0.01$) were more likely to have had sex than private schools with health clubs. Private schools without health clubs (OR=1.15, $p > 0.5$) and public schools without health clubs (OR=2.75 $p < 0.001$) were more likely to have friends who have had sex than private schools with health clubs. However, when the regression model was adjusted for age, both findings were not significant. Adolescents in schools with adolescent health clubs were least likely to have had sex and least likely to have friends who have had sex while students from public schools with health clubs were most likely to use a condom.

Table 2
Chi square analysis showing association between school type and sexual intercourse

	School Type			χ^2
	Private with AHC N (%)	Private without AHC N (%)	Public without AHC N (%)	
Friends who have had sex before?				19.14***
Yes	72(50.7)	70(54.26)	113(73.86)	
No	70(49.3)	59(45.74)	40(26.14)	
Ever had sex?				10.17**
Yes	23(16.2)	30(23.26)	49(32.03)	
No	119(83.8)	99(76.74)	104(67.97)	
** $p < 0.01$ *** $p < 0.001$				

Table 3
Logistic regression model predicting sex and condom use behaviour

	Unadjusted		Adjusted ^a	
	OR	95% CI	AOR	95% CI
Likelihood of Having Had Sex	ref			
Private School with Health club	1			
Private school without health club	1.56	0.85-2.87	1.42	0.77-2.62
Public school without health club	2.44**	1.39-4.27	1.81	0.99-3.34
Likelihood of Friends Having Had Sex				
Private School with Health club	1			
Private school without health club	1.15	0.72-1.85	1.06	0.65-1.73
Public school without health club	2.75***	1.68-4.47	2,19	1.30-3.70
p<0.01 *p<0.001				

Discussion

Knowledge about reproductive physiology and condom use

several studies have shown that school based programs have potential to increase the level of knowledge of adolescents on sexual and reproductive health issues (Fonner et al., 2014; Tenkorang et al., 2018). Results from this study are consistent with other studies that show an increased in knowledge after exposure to a program (Rashid & Mwale, 2016; Tenkorang et al., 2018; Yeboah & Appai, 2017). Results from this study support the hypothesis that schools with adolescent health clubs have better knowledge on reproductive physiology than schools without adolescent health clubs. The statistical significance of the findings further supports this. The fact that further analysis revealed there was no significant difference between private schools without health clubs and public schools without health clubs further reinforces the fact that it is the adolescent health clubs that most likely accounts for the increased knowledge and not the type of school.

Several studies have shown that school based intervention have been found to have a positive effect on knowledge on condom use (Rashid & Mwale, 2016). It is different however than studies where the intervention did not result in a difference in knowledge on condom use (Mmbaga et al., 2017). The results from this study support the hypothesis that schools with adolescent health clubs have better knowledge on reproductive physiology and condom use than schools without adolescent health clubs. Further analysis reinforces the fact that it is the adolescent health clubs that most likely accounts for the increased knowledge and not whether it is a private or public school.

Attitudes to sex and condom use

There was a significant difference in attitudes with regards to sex but not to condom use. Adolescents from private schools with adolescent school health clubs are more likely to have abstinent attitudes with regards to sex than the other categories of schools. The adolescent school health clubs fall under abstinence plus programs. The results from this study is consistent with studies that show that such programs have been found to be more effective than abstinence only programs in improving attitudes to sex (Underhill et al., 2008). It also replicates a study that found that adolescents in a program to be more likely to have abstinent attitudes to sex but did not have positive attitudes about condom use (Tenkorang et al., 2018). The lack of significant difference in attitude to condom use is different from many of the studies reported where interventions had a positive impact on attitude to condom use (Esere, 2008; Fiscian, Obeng, Goldstein, Shea, & Turner, 2009; Givaudan, Leenen, Van De Vijver, Poortinga, & Pick, 2008; Tenkorang et al., 2018). However, further analysis of attitudes to sex revealed that there was no statistical significance between private schools with and private schools without health clubs but rather a significant difference between private schools without health clubs and public schools without health clubs. This suggests that the type of school being private or public may have a role to play in attitude to sex rather than the presence or absence of the adolescent school health club.

Sex and condom use behaviour

Only about one third of studies worldwide have been known to have an effect on sex and condom use behaviour (Kirby, 2011). As with attitudes, the results from this study show a significant relationship between schools with the adolescent health club and having had sex but not with condom use. The results are consistent with other studies that have shown that school based programs have the potential to positively affect risky behaviour among adolescents (Bakaroudis, Blum, & Hopkins, 2015; Esere, 2008; Mmbaga et al., 2017; Tenkorang et al., 2018). The fact that not all aspects of behaviour were affected by the program is supported by a study that found that no single program has the ability to affect sexual behaviour completely (Elliott et al., 2013; Kirby, 2011; Paul-ebhohimhen, Poobalan, & Van, 2008). Again, the difference between private school with and without the health clubs were not statistically significant with regards to having had sexual intercourse. When age was accounted for with regards to sex, the difference seen was no longer significant. Studies show that increase in age is positively related to likelihood to have sex (Awusabo-Asare et al., 2006; Esantsi et al., 2015) and this may account for the differences seen.

Limitations

The use of self-administered questionnaires and self-report of behaviour by adolescents with regards to sexual and reproductive health issues may have led to falsely reported behaviour, self-representation or social desirability bias. However, these methods provided very useful and relevant data that would serve as benchmark data for further studies. Also, the use of purely quantitative techniques for a study among adolescents on sexual and reproductive health issues may not yield consistent results. Addition of

qualitative techniques would have improved triangulation and crystallization of results and made the study more robust. However, the results of the study provide a rich account of the performance of the adolescent health clubs between private and public schools in Ghana.

Conclusion

Schools located in the study area have similar sources for information. The adolescent health club, to some extent, has influenced knowledge, attitude and behaviour of the students within the Tema East Sub-Metropolitan area in Ghana. The findings of this study are useful to stakeholders from all levels of policy, advocacy and implementation including the community and families. These stakeholders have a role to play in ensuring improved sexual and reproductive health outcomes for adolescents within the Tema East Sub-Metropolitan area in particular and Ghana as a whole.

Abbreviations

AHC	Adolescent Health Club
AIDS	Acquired Immune Deficiency Syndrome
CSE	Comprehensive Sexuality Education
GDHS	Ghana Demographic and Health Survey
HIV	Human Immunodeficiency Virus
JHS	Junior High School
MOE	Ministry Of Education
MOH	Ministry Of Health
NGO	Non-Governmental Organisation
SDGs	Sustainable Development Goals
SHEP	School Health Education Program
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infection
TMA	Tema Metropolitan Assembly
UK	United Kingdom
UNAIDS	United Nations Program on HIV And AIDS
UNESCO	United Nations Educational Scientific and Cultural Organization
UNFPA	United Nations Population Fund
WHO	World Health Organization

Declarations

Ethics approval and consent to participate: Ethical clearance was obtained from the Ghana Health Service Ethical Review Committee (GHS-ERC 145/12/17). Informed consent was sought from parents or guardians of all participants and assent sought from participants themselves.

Consent for publication: Not applicable

Availability of data and material: Data and materials are available upon request.

Competing interest: All authors declare that they have no conflict of interest.

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Authors contribution: NAKD designed and implemented the research, carried out the statistical analysis and writing of the initial manuscript under the supervision of FNG. Both NAKD and FNG contributed to the final version of the manuscript. FNG supervised the project.

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