SEX EDUCATION STRATEGIES AND ADOLESCENT SEXUAL BEHAVIOUR IN GHANAIAN SCHOOLS.

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Abstract

School-based sex education is meant to equip adolescents with knowledge and skills to make healthy sexual decisions, yet adolescent sexual risk-taking remains high in Ghana. This study examined the influence of different sex education strategies on in-school adolescents' sexual behaviour in the Bosomtwe District of Ghana. A mixed-methods approach was employed, surveying 489 senior high school students (aged 14–21) and conducting focus group discussions (FGDs) with students and teachers. Quantitative data (questionnaires) were analyzed for descriptive and inferential patterns, including chi-square tests of association between exposure to sex education content and sexual behaviour outcomes. Qualitative data from FGDs were thematically analyzed to contextualize and support the quantitative findings. The majority of students had been exposed to abstinence-focused education (85%) and sexual refusal skills training (88%), while contraceptive education was less emphasized. Over half (57%) of the adolescents were sexually active, with a median age of sexual debut around 15 years. Many engaged in unprotected sex; condom use, while relatively high at first sexual encounter, dropped in more recent encounters as some students cited decreased pleasure with condoms. A considerable proportion had multiple sexual partners, including transactional relationships. Chi-square analyses found no significant association between exposure to school sex education (in any form) and age at first sex or number of partners ($p>0.3$). There was a slightly positive association between abstinence-focused education and ever-use of contraception ($p\approx0.04$), but overall, the current curriculum exposure did not markedly alter risky behaviours. These findings suggest that the present abstinence-centric and piecemeal sex education approach in Ghanaian schools has limited impact on adolescents' sexual behaviour. A comprehensive sexuality education strategy that goes beyond abstinence — including practical contraceptive knowledge, skill-building for negotiation, and addressing motivational factors such as peer pressure and desire for pleasure, is recommended. Such an approach could better equip adolescents to delay sexual initiation, reduce risky practices, and make informed, safer choices regarding their sexual health.

Keywords: Sex education; Adolescents; Sexual behaviour; Educational strategies; Ghana

Introduction

Adolescent sexual and reproductive health outcomes, such as unintended pregnancy and sexually transmitted infections (STIs including HIV/AIDS), remain a serious concern in many countries. These outcomes affect not only youth well-being but also strain families, schools, healthcare systems and national development. Comprehensive sexuality education is widely seen as a key intervention to reduce negative outcomes of unprotected sex. According to UNESCO (2009), sexuality education is an age-appropriate, culturally relevant approach to teaching about sex and relationships that provides scientifically accurate, non-judgmental information. It aims to equip young people with knowledge, attitudes, and skills to make conscious, healthy, and respectful choices about their sexuality. The World Health Organization (WHO) further elaborates that comprehensive sexuality education seeks to develop the knowledge, values, and skills needed for young people to enjoy their sexuality physically and emotionally, individually and in relationships, recognizing that information alone is not enough without opportunities to build practical skills and efficacy (WHO, 2010). Notably, research has shown that sexuality education **does not** encourage earlier or increased sexual activity among youth; on the contrary, when well-implemented it can delay sexual debut and promote safer behaviour (World Association for Sexual Health, 2008; WHO, 2008). Moreover, international rights frameworks, including the UN Convention on the Rights of the Child, affirm adolescents' right to receive sexual health information and education (UNICEF, 1989; IPPF, 2008). These principles underscore the importance of providing school-based sex education as a means of promoting public health and upholding young people's rights.

Despite global consensus on the value of comprehensive sexuality education (CSE), approaches vary widely across contexts. In Ghana, there is currently no standalone comprehensive sexuality education policy; instead, a **curriculum-based, cross-curricular approach** has been adopted (Awusabo-Asare et al., 2017). This means that sex education topics are integrated into subjects such as Integrated Science, Social Studies, Biology, and Management-in-Living at the junior and senior high school levels rather than taught as a separate course. Co-curricular programs like the School Health Education Programme (SHEP) and periodic workshops by health personnel provide additional information outside the formal classes. While this approach exposes Ghanaian students to basic information about abstinence, STIs, and sometimes contraception, it may not be sufficiently comprehensive. Indeed, recent analyses suggest a disconnect between international CSE standards and local implementation in Ghana (Amo-Adjei, 2022).

Paradoxically, Ghana continues to record high adolescent pregnancy and STI rates, raising concerns about the effectiveness of existing school-based sex education. National health statistics indicate that nearly 301 adolescent girls become pregnant every day in Ghana (Ghana Health Service, 2020) – roughly 13 every hour. In the Bosomtwe District of the Ashanti Region, where this study was conducted, the teenage pregnancy rate rose from 12.8% in 2014 to about 19.0% in 2016 (Bosomtwe District Health Directorate, 2017). HIV and other STIs are also reported at concerning levels among youth in this area (GHS Report, 2017). Furthermore, prior

studies in Ghana have found that a majority of in-school adolescents are sexually active and often engage in unprotected sex despite having some exposure to sex education in the curriculum. For example, in the Kumasi metropolis, over 50% of school-going adolescents reported being sexually active, with many not using condoms (Kanwetuu et al., 2018; Adjaloo, 2011). This situation suggests that the current education on sexual health may not be adequately influencing behaviour, potentially due to its content (e.g., an overwhelming emphasis on abstinence-only messaging) or delivery methods.

In light of these challenges, this study examines the role of different **educational strategies** within school-based sex education in shaping adolescents' sexual behaviour. The focus is on three main types of sex education content delivered in Ghanaian schools: (1) **Abstinence-focused education** (promoting the delay of sexual activity until marriage), (2) **Sexual resistance skills training** (equipping students with skills to refuse or avoid sex and handle peer pressure), and (3) **Contraceptive-based education** (teaching about methods to prevent pregnancy and STIs). The central research question is the study sought to answer was: *To what extent does exposure to these sex education strategies influence in-school adolescents' sexual behaviours (such as age of sexual initiation, contraceptive use, and number of sexual partners)?* The study is conceptually shaped by the Health Belief Model (HBM), which posits that individuals' health behaviours are driven by their perceptions of risk susceptibility and severity, the perceived benefits and barriers to taking preventive action, cues or triggers for action, and self-efficacy to execute the action (Champion & Skinner, 2008; Yakubu et al., 2019). In the context of sex education, HBM suggests that increasing adolescents' knowledge of the risks of unprotected sex (thus raising perceived susceptibility/severity) and providing them with tools such as refusal skills or condoms (increasing perceived benefits and reducing barriers) should motivate protective behaviours. Guided by this framework, the study investigates whether the current school sexuality education is effectively influencing students' risk perceptions and actions, and what gaps in strategy might be contributing to the persistent high-risk sexual behaviours observed.

LITERATURE REVIEW

Historical of Sexuality Education

There is a long history attached to sexuality education because it has been developed to correspond to the emerging needs in society; and is constantly being influenced by the norms and values on sexuality of young people and the political climate of a country. In the 20th century, sexuality education started as "Education, Information and Communication'' with different names like Family Life Education, Population Education and Life Skills Education. Encouraged by International organizations such as the United Nations sexual and reproductive health agency, interventions were designed mostly in the form of mass media campaigns on topical issues and at times developed school-based programmes targeted at behaviour change in relation to reproduction (Bonjour & Van der Vlugt, 2018).

In the 1980s, there emerged much attention to adolescent health and with the rise in HIV/AIDS infection cases, educational programmes aimed at health-related behaviour change increased rapidly. A decade later, a broader vision on sexual and reproductive health including sexuality

education emerged strongly and the attention for adolescents and young women particularly increased. As a result, more progressive and comprehensive international declarations around sexuality, reproduction and gender were formulated at events like International Conference on Population and Development in Cairo in 1994. Donors and International Non-governmental Organizations picked up the issue, developed and started more comprehensive and rights-based sexuality education programmes. However, the Technical Guidance on Sexuality Education, providing a first elaborate international standard for sexuality education was published by UNESCO only in 2009 (Bonjour & Van der Vlugt (2018). Sexuality education as a school-based curriculum has a long history in Europe and US. Officially, sexuality education started in 1955 in Sweden and then followed by many more Western European Nations in the 1970s and 1980s and gradually moved to Eastern European countries in the 1990s and 2000 (Bonjour & Van der Vlugt (2018).

In the 1970s and 1980s, curriculum-based sexuality education in Western Europe coincided with the introduction of the abortion laws and contraception pill. The emergence of HIV/AIDS in the early 80s in addition to reported cases of sexual coercion and sexual violence by women and girls necessitated sexuality education on safe sex and condom use. Further, prevention of sexual violence took a long time before it was integrated into sexuality education. Generally, CSE focused on STIs and unplanned pregnancy prevention. The emergence of technology coupled with liberal climate and the continuous online education, sexual pleasure, online sexual behaviours such as sexting, grooming and pornography are now embedded in sexuality education programmes of North Western countries like Ireland, Belgium, Luxembourg, Switzerland and Netherlands (Bonjour & Van der Vlugt, 2018). Between the late 90s and early 2000s, the United States developed and implemented abstinence until marriage programmes and provided substantial amount of money to fund them but recently, funding by the US for NGOs for abortion services and sexuality education programmes globally has dwindled (Bonjour & Van der Vlugt, 2018).

The space for civil society is shrinking and opposition to CSE is also growing in many countries such as Uganda, Brazil, Pakistan, Indonesia Hungary and Burundi (Bonjour & Van der Vlugt, 2018). This calls for a review of the language and imagery employed to explain the principles, values and objectives of CSE to mobilize support for CSE for the desired progress and long-term social change.

Rationale for sexuality education

According to WHO, (2010), essentially, there are five core considerations for sex education. These are the need for sexuality education, sexuality forms the central part of humanity, people have the right to be informed, informal sexuality education is inadequate in modern society and the fact that young people are exposed to many new sources of information. Sexuality was historically viewed as a threat to people's health because sexual encounters could result in unplanned pregnancies and untreated sexually transmitted infections (STIs). These notwithstanding, sex-related health risks could be prevented through available information and discussions about sexuality is no longer a "taboo" topic. Naturally, people are born as sexual

beings and thus have to develop their sexual potential (WHO, 2010). Sexuality education will assist prepare adolescents and young people for life in general especially for the building and maintenance of satisfactory relationships which will eventually contribute to positive personality development and self-determination.

In relation to the right to be informed as human rights issue, several international organizations have advocated for that right to be upheld seriously. For instance, the United Nations Convention on the Rights of the Child, clearly states the right to information and the State's obligation to provide children with educational measures. Sexual rights as human rights related to sexuality offer another framework which encompasses the right for everybody to access sexuality education (UNICEF, 1989). More so, Article 8 of the IPPF Declaration reads: "Right to education and information: All persons, without discrimination, have the right to education and information generally and to comprehensive sexuality education and information necessary and useful to exercise full citizenship and equality in the private, public and political domain (IPPF, 2008). The WHO Reproductive health strategy also considers human rights as the guiding principle to accelerate progress towards the attainment of international development goals and targets, where the promotion of sexual health is among the five core aspects (WHO, 2004).

Finally, the World Association for Sexual Health equally understands sexual rights as an integral component of basic human rights and therefore as inalienable and universal (WHO 2008). Sexual health can be attained only if all people, including young people, have access to universal sexuality education and sexual health information and services throughout their lives (WHO 2008). The fear that sexuality education might lead to more or earlier sexual activity by young people is not justified, as research results show (WHO 2008). Parents and significant others and informal sources constitute important avenues for learning about human relationships and sexuality, especially for younger age groups. However, in modern society this is often inadequate, because these informal sources themselves often lack the necessary knowledge, particularly when complex and technical information is needed. For instance, issues relating to contraception or transmission modes of sexually transmitted infections (STIs). Moreover, young people prefer obtaining sex-related information from other sources to their parents especially during puberty because they feel more comfortable with the latter than the former.

Modern media such as cellphones, internet, Facebook, telegram, tic Tok, Instagram, among others, have become very important sources of information. However, a lot of sex-related information is unbalanced, distorted, unrealistic and dehumanizing especially for women for instance, internet pornography appears to portray this. This calls for a new sexuality education which will counteract and correct all the misleading information and images carried through the media. According to Bonjour & Van der Vlugt (2018) , the overall objectives of sexuality education as summarized from key international standards and guidelines are aimed at equipping children and adolescents with knowledge, skills and values that will empower them to: a) make self-determined and well-informed decisions; b) realize their health, well-being and dignity; c) develop and enjoy respectful and fulfilling relationships and responsibly, enjoy satisfying, and healthy sexual lives; and d) take responsibility for their own and other people's sexual health and well-being.

Types of Sex Education Programmes

In Sub-Saharan Africa countries such as Ghana cultural and religious expectations makes adolescents to be denied very crucial information in relation to sex education which could prevent sex related risks such as sexually transmitted infections including HIV/AIDS, unintended pregnancies as well as sexual abuse and exploitation. This is as a result of parents being the primary agents of socialization are unable to effectively talk about sex-related matters with their children/adolescents. Consequently, school-based sex education has been introduced to assist and protect children; and young people from unintended implications of sex-related behaviours such as unprotected sex with its accompanying problems such as unplanned pregnancies, illegitimate children, sexually transmitted infections and unsafe abortions which sometimes results in untimely deaths.

The United Nations Convention on the Rights of the Child and several other international organizations such as International Planned Parenthood Federation (IPPF), World Health Organization (WHO) Reproductive health strategy and World Association for Sexual Health have all advocated for the right to be informed including sexuality education. The overall aim of this advocacy is to protect children and young people and ensure that they do not engage in health endangering activities for lack of information and knowledge. Based on this, the following forms of sex education have been identified: abstinence-only sex education, comprehensive sexuality education/abstinence-plus/contraceptive-based sex education and sex resistance skills education.

Abstinence Only Sex Education

In some societies for cultural and religious reasons, expression of sexual feelings or activities are highly prohibited before marriage. This means Comprehensive Sexuality Education (CSE) for single young people are not allowed hence abstinence-only sexuality is common in such societies. The primary aim of this programme is to get single young people to abstain from sexual intercourse before marriage. The major focus of the programme is based on self-discipline and ability to restrain from all forms of sexual activity before marriage. Thus, advocating that sexual urge should be repressed by adolescents once they are not married Bonjour & Van der Vlugt (2018). Abstinence-only sex education programmes intend to promote total abstinence from sexual encounters, delay sexual initiation or abstinence until marriage and even restrict adolescents from the use of contraceptives including condoms (Leerlooijer, 2013).

This form of sexuality education seems to neglect the realities and nature of adolescents' lives, that is the strong desire for sexual activities during adolescence. Secondly, research reports that the abstinence-only programme is not effective and even harmful to adolescents who are already sexually active Bonjour & Van der Vlugt (2018). Abstinence-only sexuality education has been criticized on the grounds that: it lacks efficacy in controlling and shaping adolescents' sexual behaviour in relation to sexual intercourse. For instance, a study in the USA, found that abstinence-only sexuality education is ineffective in preventing teenage

pregnancy and may actually be contributing to the high incidence of teenage pregnancy in the country (Stanger-Hall & Hall, 2011). Additionally, abstinence-only programmes were found to lack medical accuracy information in relation to condom use and other contraceptives, risks of sexual activity and risks of abortion. This type of sex education was found to raise serious and ethical human rights issues as they tend to withhold life-saving health information from adolescents (Santelli, et al., 2006; Ott & Santelli, 2007; Kuehnel, 2008).

Comparatively, abstinence-until-marriage programs have been found to have no positive effect on delay of sex initiation, age of sexual encounter, number of sexual partners and contraceptive use including barrier methods (Kuehnel, 2008). While comprehensive sex and HIV/AIDS education programmes indicate that these programmes do not increase sexual activity but some of them even reduce sexual activity and increase contraceptive use especially condoms (Kuehnel, 2008). Moreover, abstinence-only sexuality educators employ tactics such as fear, shame and guilt to discourage adolescents from engaging in sexual activity before marriage (Santelli et al., (2017; Alford, 2001) and this may pose psychological problems later in life for the beneficiaries of the programme.

Although there is enough literature relating to the limitations of abstinence-only sexuality education programmes, few studies have also found positive demonstrable behavioural changes among young people. For instance, a commissioned survey by the National Campaign to Prevent Teen Pregnancy in 2001 reports that teens indicate religious and moral beliefs as important factors that could discourage them from engaging in premarital sex. The study further reports that adolescents who are more religious are likely to delay sexual activity because when there is a message that emphasizes on particular traditional and religious values, it has the propensity to influence their sexual behaviour positively (Collins, Alagiri, Summers and Morin, 2002). In another study on *Virginity pledges and first intercourse* by Bearman & Brückner (2001). It was found that adolescents who publicly took virginity pledges in which they promised to abstain from sex until marriage actually delayed sexual intercourse though it does not work for adolescents of all ages (Bearman & Brückner, 2001; Collins, Alagiri, Summers & Morin, 2002).

Comprehensive Sexuality Education (CSE)/Abstinence-Plus/Contraceptive-Based Sex Education

CSE also known as Abstinence-Plus education or contraceptive-based sex education, views sexuality as a health and human development issue. Sometimes it is called risk prevention approach with the main aim of solving problems or disease prevention. This kind of sex education programme strongly advocates for contraceptive use and safe sex practices in order to prevent unplanned pregnancies and sexually transmitted diseases including HIV/AIDS (Bonjour and Van der Vlugt, 2018). The programme traces its root to the notion that sexuality is a threat to people's health. As a result, it puts the emphasis on the risk involved in sexual activity and therefore attempts to prevent diseases and promote sexual health. Unlike abstinence-only sex education, Comprehensive Sexuality Educationist admits and deals with the various issues and risks associated with sexuality. It does not, however, employ and reinforce tactics such as fear, shame or taboo of young people's sexuality and gender inequality (IPPF, 2011 and Bonjour and Van der Vlugt, 2018). CSE as a positive approach to sexuality

and acknowledges adolescent's sexuality is characterized by feelings, desire and pleasure (Bonjour & Van der Vlugt, 2018).

The comprehensive sexuality approach views sexuality as an issue of personal growth, development and building up common consensual contacts and relationships. CSE does not only address physical, emotional, social and cultural aspects, but also encompasses friendship, feelings of safety, intimacy, gender, security, pleasure and attraction (Alford, 2001; Bonjour & Van der Vlugt, 2018). CSE promotes values such as gender equality, dignity, respect for others, awareness of sexual and reproductive rights and freedom from discrimination, exclusion and sexual violence (IPPF, 2017; WHO and BZgA, 2010).

Unlike abstinence-only sexuality education which raises serious and ethical human rights issues as they tend to withhold life-saving health information from adolescents (Santelli, et al., 2006; Ott and Santelli, 2007 and Kuehnel, 2008), CSE is based on the fact that people including adolescents have a right to be informed. CSE is based on the United Nations Convention on the Rights of the Child (UN, 1989; IPPF, 2008), in which sexual rights are part and parcel of human rights. CSE is of the view that all people are born sexual beings and have the right to develop their own sexual potential and identity (Bonjour & Van der Vlugt, 2018).

CSE stands to offer a workable platform to provide age and cultural appropriate information and skills to growing children because it covers a wide range of cognitive, emotional, physical, and social dimensions of human sexuality (Amo-Adjei, 2022). The major aim of CSE is to provide learners with scientifically accurate information, skills, and values that are culturally sensitive, relevant and age-appropriate and adopts the right-based approach as a strategy (Berglas et al., 2014; Amo-Adjei, 2022). Haberland & Rogow (2015) reports that CSE departs from painting sex among adolescents as evil but viewing it as balanced in respect of it being enjoyable and risk-taking. With the right-based approach, it implies that adolescents have rights to education and information including sexual and reproductive health.

Research indicates that there are clear positive effects of CSE on sexual and reproductive health namely reduction in sexually transmitted diseases (STIs) including HIV/AIDS as well as unplanned pregnancies (UNESCO, 2015). Further, there are demonstrable positive effects of CSE on adolescents and young people such as improvement in knowledge and self-esteem, changing attitudes on gender and social norms as well as building self-efficacy. This is very crucial for adolescents because it is a transitional period where attitudes are formed. Haberland (2015) reports that CSE integrates content on gender and uses the right-based approach as a mode of delivery, adolescents have access to high-quality, youth-friendly sexual and reproductive health education and services hence sexuality education becomes very effective. Studies confirmed that, sex education does not hasten sexual activity but encourages adolescents to delay sex and use contraceptives when they become sexually active (UNESCO, 2009; Fonner et al, 2014, UNESCO, 2015).

Also, studies have shown that the risk prevention approach or contraceptive- based sex education is very effective because there is an increase use of condoms and other contraceptives thereby reducing sexually transmitted diseases and unintended pregnancies (Lopez et al., 2016; Bonjour & Van der Vlugt, 2018). In spite of the numerous benefits of CSE, it is fiercely

criticized on cultural and religious grounds. For instance, Bialystok & Wright (2019), reports that in Canada, there has been a lot of contestations towards the CSE claiming that the content is an open invitation for sex- related consequences: early sex leading to unplanned pregnancies and abortions, sexually transmitted diseases. The curriculum will expose adolescents to issues such as anal sex, self-discovery through masturbation (Alford, 2001; Bialystok & Wright, 2019). The resistance to CSE is due to different notions of sexuality and the fears that it will disrupt the values of societies and expose young people to engage in risky sexual adventures. The issue is very pronounced in a situation where parents have rights to allow their children to be exposed to particular content and the children have rights to be informed including their sexuality,-parents' rights versus children's rights (Bialystok & Wright, 2019; Davies & Kenneally, 2020)

Sex Resistance Skills Education

Basically, the sex resistance skills sex education provides adolescents information on skills-building with the aim of managing the pressures to have sex before marriage**.** It is aimed at increasing resistance and self-efficacy to avoid high-risk behaviours and intentions to avoid sex before completing Senior high School. Further, it intends to increase knowledge, communication about sex and the comfort with that communication. Again, it exposes adolescents to negotiation skills to resist pressures from peers and partners. Generally, there is a positive correlation between sex education and sexual behaviour such as greater contraceptive use and age at first sexual encounter among teens and young people (Ku et al., 1992, 1993; Sabia 2006). Specifically, Ku, Sonenstein & Pleck (1992, 1993) found that, sex resistance skills training is associated with lower frequency of intercourse, fewer numbers of sexual partners and a lower probability of intercourse among male teens. This implies that the development of the resistance skills is able to reduce sexual activity among young people (Grunseit, 1997)

The social inoculation theory of health education which focuses on the principle that it is possible to immunize people against the social and peer pressures that encourage them from negative health behaviours (Howard and McCabe 1990; Grunseit, 1997). This means that when adolescents are given resistance training skills to identify and resist social and peer pressures that might motivate them to engage in sexuality, there is a positive impact. For instance, Howard & McCabe (1990) found less sexual activity among both male and female adolescents after having been exposed to sex resistance training skills. Moreover, exposure to life skills education or resistance skills training on sexual and reproductive health issues such as negotiation skills, assertiveness, self-awareness was found to delay sexual debut, reduce number of sexual partners, reduce frequency of sexual activities and practice of secondary virginity by the already sexually active adolescents (Mayabi, 2022).

Sexuality Education in Ghana

Over the years Ghana has introduced and implemented sexuality education but it was not comprehensive because it is always integrated into selected subject areas. It has been observed that in the 1950s, teaching of civics and hygiene covered areas such as human biology, personal hygiene and civic responsibilities (Awusabo-Asare K et al., 2017; Amo-Adjei, 2022). Later, life skills were introduced into the pre-tertiary curriculum as a core subject with components

such as HIV and AIDS. Besides, the Government of Ghana promoted Adolescent Reproductive Health Policy in 2000 after the International Conference on Population and Development (ICPD). In the Policy, adolescents sexual and reproductive health was included in the Junior High School curriculum.

With the emergence of HIV/AIDS as a public health issue, the Strengthening of HIV/AIDS Partnership in Education (SHAPES I & II) was developed and introduced to reinforce the teaching of adolescent sexual and reproductive health (ASRH). The School Health Education Programe (SHEP) was officially launched at the Ministry of Education/Ghana Education Service (GES) to coordinate and supervise all health programmes at the pre-university levels in the country in 2003. In 2013, National HIV and AIDS, STI Policy was introduced and it advocated for the inclusion of age-appropriate sexual and reproductive health education that includes lessons on HIV/AIDS and other STIs into the school curriculum (Awusabo-Asare K et al., 2017; Amo-Adjei, 2022).

Currently in Ghana, there is no stand-alone and examinable subject in the National Curriculum both at the basic level and second cycle institutions on sexuality education. The Ghana education system has adopted a cross-curricula approach in which sex education topics are included in certain subjects (Awusabo-Asare K et al., 2017. For instance, at the basic level including Junior High School, topics in sex education are integrated into Religious and Moral Education, Integrated Science and Social studies and at the Senior High School, sexuality education topics are also integrated into Biology and Management in Living as elective subjects and Social Studies and Integrated Science subjects (Awusabo-Asare et al., 2017). Moreover, there are two co-curricular programmes: the SHEP and the HIV Alert programme offer additional activities outside the regular curriculum either during or after the instructional hours. They operate in all schools in the Ghana targeting pupils and students in both primary and Junior High Schools in particular but they are also offered at the Senior High Schools with support from Ministry of Health and Ghana Health Service (Awusabo-Asare et al., 2017).

Adolescents Sexual Behaviour

One of the major sexual behaviours among adolescents is early initiation of unprotected sex which then exposes them unplanned pregnancies leading to unsafe abortions, sexually transmitted infections and numerous sexual partners due to attitude formation. School-based sexuality education is therefore a potential and ideal avenue to equip adolescents with knowledge and skills to guide them and assist change their behaviour in order to live responsible sexual life. The sexual behaviours to be considered in this review include: early sexual initiation, contraceptive use/unprotected sex and number of sexual partners.

Early Sexual Initiation

Many studies emphasized the exposure to sexuality education especially the school-based programmes such as abstinence-only, sex resistance skills education and CSE have delayed initiation of sexual intercourse (Bearman & Brückner, 2001; Collins, Alagiri, Summers & Morin, 2002; Ramírez-Villalobos et al., 2012; Mayabi, 2022). Studies have also found that

there are economic benefits associated with delayed sexual activity. For instance, Rotz et al., 2020b; Bridges & Hauser 2014; Sabia & Rees 2009; Meier, 2007) found that, the benefits associated with delayed initiation of sexual intercourse include; better academic achievement for young people, improved self-esteem and mental health as well as a higher quality relationship with romantic partners over time. However, early sexual activities are very likely to influence the practice of risky sexual behaviours such as keeping multiple sexual partners and inconsistent use of condoms (Kassahun, Gelagay, Muche, Dessie & Kassie, 2019). This might result in high incidence of sexually transmitted diseases including HIV/AIDS (Pettifor et al., 2009). Moreover, early sexual encounter increases the risk of unintended pregnancies, unsafe abortions, early parenthood with its psychological problems (Baumgartner et al, 2009; Durowade et al., 2017). It is stablished that early sex initiation leads to school dropout thereby entrapping the victims into perpetual poverty (Mazengia & Worku, 2009).

Contraceptive Use/Unprotected Sex

The most serious reproductive health outcomes are those emanating from early and unprotected sex which include unintended pregnancies and infections with sexually transmitted diseases including HIV/AIDS (Askew et al, 2004). These outcomes could be reduced to the barest minimum with the design and introduction of school-based sexuality education because most adolescents are in school. Research studies report that exposure to sexuality education be it school-based or community-based leads to reduction in such sex-related outcomes such as prevention of unintended pregnancies and sexually transmitted infections due to condom use among sexually active adolescents, it helps delay sexual activity and builds capacity to negotiate for safer sex (Ramírez-Villalobos et al., 2012; Kanda and Mash, 2018). Research has established that adolescents and young people are aware of the devastating effects unprotected sex can cause to their lives. For instance, a study by Davids et al., (2021) revealed that adolescents indicated fear of pregnancy, early parenthood, diseases/ infections and concerns about their future stability shape their condom use decision-making.

In spite of the awareness of these benefits and concerns, it is estimated that the prevalence of condom non-use in Sub-Saharan Africa is about 60% (Sewanyana et al., 2018; Davids et al., 2021). Adolescents mostly feel reluctant to use condoms during sexual activity because of decrease pleasure, implied lack of trust or faithfulness and they claim that with long-term relationship partners there is no need to use condom. The others include alcohol and drug abuse, power and gender issues, peer pressure and refusal of partner and the size of the female condom and the perception that it is complicated to insert makes its rejection rate high by young adults (Kanda and Mash, 2018). Non-condom use is not limited to only sexually active adolescents but also university students who reported to have good knowledge of sexually transmitted infections or diseases and aware of the STI/Ds, their effects on reproductive health such as chronic pelvic discomfort, infertility, cervical cancer, recurrent miscarriages, premature labour and other severe health implication on newborns (Nzoputam, Adam and Nzoputam, 2022). The study further revealed that gonorrhoea was the most prevalent STI/D among the female participants with 27.7% of them testing positive for it (Nzoputam, Adam and Nzoputam , 2022). Meanwhile unsafe sexual activity exposes adolescents to serious infections and unplanned pregnancies. For instance, unplanned pregnancy presents serious risks to both the

mother and baby and can subsequently lead to death because of complications at birth. It can also lead to unsafe abortions as well as school dropout (Tuyisenge, Hategeka and Aguilera, 2018).

Number of Sexual Partners

Studies on adolescents' sexual behaviour indicated that sexually active adolescents have multiple sexual partners. For instance, Sewanyana et al., (2018) found that, both young men and women have more than two sexual partners but most of these adolescents reportedly protected themselves by using condoms during sexual intercourse (Gavin et al., 2006).

Research studies have revealed that keeping multiple sexual partners and greater age difference between the adolescents their sexual partners are all associated with sexually transmitted infections or diseases including HIV (Kassie et al., 2019; Mabaso et al., 2018). It has been observed in some African countries such as Swaziland, Tanzania and Zimbabwe that the larger the age-gap between sexual partners, the greater the likelihood of being HIV-infected (UNICEF, 2011; Mabaso et al., 2018). However, intergenerational and transactional sex is common due to poverty and social mobility (Shisana et al., 2014). In Ghana, studies reported tyoung men with rich background and with secondary/higher education had multiple sexual partners whereas those who delayed sexual activity and currently using modern contraceptive were less likely to engage in sexual intercourse with different people (Yeaboah et al., 2022). Mabaso et al., (2018) also found that, there is an association between an increased risk of sexually transmitted infections/ diseases especially HIV with keeping multiple sexual partners. In addition to having multiple sexual partners, transactional and intergenerational sex are high sexual behaviours with attendant high risk of infections among adolescent girls or young women (Shisana et al., 2014).

Methodology

This study employed a mixed-methods cross-sectional design with a concurrent triangulation strategy. A combination of quantitative surveys and qualitative focus group discussions was used to gather comprehensive data. The study was conducted in five senior high schools (SHSs) in Bosomtwe District in the Ashanti Region of Ghana. At the time of data collection, these five schools had a total of 4,885 students in the target grades (SHS 2 and SHS 3). Second- and third-year students were chosen because they would have received at least one year of any sex education content offered in their schools. From this population, a sample of 489 students were selected for the survey. This sample size corresponds to approximately 10% of the target student population and was determined based on a rule-of-thumb for homogeneous populations (Neuman, 2000). A multi-stage sampling approach was used: first, schools were included from different geographic zones of the district; then within each school, classes were randomly selected, and finally students within those classes were randomly chosen systematically to participate. The sample consisted of both male (53%) and female (47%) students, with ages ranging roughly from 14 to 21 years (mean ~17.5 years). Most participants (~92%) were

Christian, reflecting the dominant religion in the area, and about 72% were boarding students living on campus and the remainder 28% were day students.

Data were collected through an anonymous self-administered questionnaire and Focus Group Discussion (FGD). The questionnaire was adapted from a previously validated instrument developed by the Navrongo Health Research Centre for adolescent reproductive health surveys in Ghana (Navrongo Health Research Centre, 2005). It covered demographics, exposure to sex education topics in school, and various aspects of sexual behaviour (e.g., relationship status, history of sexual activity, age at first sex, number of partners, use of condoms or other contraceptives, etc.). The questionnaire was administered in English, which is the language of instruction in Ghanaian secondary schools, and participation was voluntary and confidential (no names or identifying information were collected).

Qualitative data were obtained to complement and deepen the understanding of the survey findings. Three student FGDs were conducted (in separate groups of: boys-only, girls-only, and a mixed group) to create comfortable environments for discussion. Each FGD had approximately 8–12 student participants who had not taken part in the quantitative survey, to avoid survey fatigue and gather fresh perspectives. In addition, two FGDs were held with key informants (teachers and school staff): one group included four subject teachers (Integrated Science, Social Studies, Biology, Management-in-Living) who are responsible for delivering sex education content, and another group included four housemasters/housemistresses (school boarding staff) who have close interactions with students outside the classroom. The FGDs were facilitated using a semi-structured guide covering themes such as: how sex education is taught in the school, students' reactions to this education, observed sexual behaviours among students, and challenges in promoting safe behaviour. All discussions were conducted in English (with occasional clarifications in local languages when needed) and were audio-recorded with consent. Participants were assured of confidentiality; pseudonyms were used during transcription to anonymize identities.

During FGDs, special care was taken to ensure a comfortable environment given the sensitive nature of the topic. For instance, the boys-only and girls-only groups allowed participants to speak more freely without fear of judgment from the opposite sex. In the mixed group, facilitators noted that boys tended to dominate the conversation initially, while many girls were reticent. The researchers actively managed the discussion to ensure the girls' views were heard, and subsequently conducted the single-sex FGDs to capture gender-specific perspectives that might not emerge in a mixed setting. This approach of separating groups by gender helped in obtaining candid discussions, especially as topics of sexuality are often considered taboo in Ghanaian homes. The group format also enabled participants to build on each other's comments, providing richer insight into peer norms and experiences.

Quantitative survey data were analyzed using SPSS (Statistical Package for Social Sciences). Descriptive statistics (frequencies, percentages, and cross-tabulations) were first generated to summarize students' exposure to different sex education components and their sexual behaviours. Next, inferential analyses were performed to test for relationships between sex education exposure and behavioural outcomes. The primary analysis was a bivariate chi-square (χ^2) test of association to examine whether students who received particular types of sex education (abstinence messages, resistance skills, contraceptive information) differed in key

outcomes such as whether they had initiated sex, their contraceptive use, or number of partners. The study also mentioned plans for multivariate analysis (e.g., multiple linear regression) to control for potential confounders; however, given the exploratory nature of this paper, the emphasis was on the bivariate relationships. Results were considered statistically significant at $p < 0.05$.

Qualitative data from FGDs were transcribed verbatim and analyzed using a narrative thematic approach. The research team read through transcripts multiple times to identify recurring themes and patterns related to the research questions. Key themes identified included: perceptions of the sex education received, strategies students use to avoid or engage in sexual activity, peer and cultural influences on behaviour, and gaps in the information provided by schools. Representative quotes that illustrated these themes were extracted. In presenting the qualitative results, quotes are used to highlight participants' voices while keeping their identities confidential (attributing only generic descriptors such as *Female student, mixed FGD* or *Male teacher, key informant FGD*). These qualitative findings were then triangulated with the quantitative data – for example, to help explain *why* certain statistical patterns might be occurring. By integrating both data sources, the study gains a more nuanced understanding of how educational content and real-life behaviours intersect.

Ethical protocols were observed throughout the study. Permission was obtained from school authorities and informed assent from students (with informed consent from those aged 18 or above, and from guardians for minors). Participation was voluntary, and respondents could skip questions or withdraw at any time. The anonymity of survey respondents and confidentiality of FGD participants' statements were strictly maintained. These measures were intended to reduce social desirability bias and encourage honesty, especially since sexual behaviour is a sensitive topic. The potential biases of self-reported data (such as recall bias regarding age at first sex or number of partners) were mitigated by assuring participants that their responses would remain confidential and not be judged.

RESULTS

Socio-Demographic Characteristics of Respondents

Majority of the respondents were males, representing 53.28% while females consisted of 46.72%. Besides, most of the respondents fall within middle ages of 18-20years representing 48.98%. 47.54% fall within lower ages of 17years and below and a few, 3.48% fall within higher ages of 21years and above. Although majority were in the lower adult category of 18-20years, a reasonable number, 47.54% were within 17years and below which means most of the respondent were in the transition ages and may not be able to adequately make informed decisions about their sexual lives and should therefore need effective health education to make reasoned sexual decisions.

In terms of the level of education, majority, representing 55.33% were in form three (3) and the 44.67% were in form two (2). Majority were Christians forming 92.62% and the rest, 7.38% were from the Islamic and traditional religions. Most (71,52) of the students were in the boarding school and this could be a source of peer learning of both good and bad behavours,

more so, majority of the adolescents (56.76%) were living with both parents, besides, majority (71.52%) respondents' parents were married whiles a few (28.48%) of them were divorces/separated. Majority (54.30%) of the student's school fees were paid by both parents. This portrays opportunity for the students to be oriented on sex education within their families of orientation to enable them make informed sexual decisions. **Table 1** below shows the socio-demographic characteristics of respondents.

Table 1: Socio-Demographic Characteristics of Respondents

Variable	**Category**	**Frequency**	**Percentage**
Age (years)	Higher age (21 years &above)	**17**	(3.48)
	Lower age (17 years & below)	**232**	(47.54)
	Middle age (18-20 years)	**239**	(48.98)
Sex of respondent	Female	**228**	(46.72)
	Male	**260**	(53.28)
Current level in the school of respondent	SHS 2	**218**	(44.67)
	SHS 3	**270**	(55.33)
Religion	Islam/Traditional	**36**	(7.38)
	Christianity	**452**	(92.62)
Status in terms of residence of the respondent	Rented apartment	**8**	(1.64)
	Student hostel	**21**	(4.30)
	Day	**110**	(22.54)
	Boarding	**349**	(71.52)
Whom respondent is living with	Stay alone	**5**	(1.02)
	Father only	**24**	(4.92)
	Family member	**31**	(6.35)
	Mother only	**151**	(30.94)
	Both parents	**277**	(56.76)
Marital status of respondent's parents	Divorced/Separated	**139**	(28.48)
	Married	**349**	(71.52)
Payment of respondent's fees	Self	**12**	(2.46)
	My Guardian	**25**	(5.12)
	Father	**72**	(14.75)
	Mother	**114**	(23.36)

	Both Parents	**265**	(54.30)
TOTAL		**488**	**100**

Exposure to Sex Education Programmes in School

The survey confirmed that students in the selected schools had been exposed to three main categories of sex education content as part of their curriculum or school activities: abstinence-focused education, sex refusal/resistance skills training, and contraceptive-based education. Nearly all respondents reported receiving some form of sex education at school, but the frequency and depth of coverage varied by topic.

Abstinence-focused education was the most ubiquitous. About 85.5% of the students said they had attended lessons emphasizing abstinence (avoiding sex until marriage). When asked what message they took from these lessons, 73% interpreted it simply as "don't have sex until marriage," reflecting a strong abstinence-until-marriage theme. These lessons were most often delivered by teachers (63% of students said a teacher taught them this), through subjects like Social Studies or during school assemblies and religion/morality classes. In the qualitative data, teachers (key informants) indeed confirmed that abstinence is a cornerstone of the school's sexual education. One male teacher explained that *"there is a whole topic in the curriculum on **"adolescent chastity,"** covering the importance of not having premarital sex and highlighting the negative consequences of sex before marriage". "Another female teacher noted that during orientation for new students, they explicitly encourage students to **"keep a chaste life"** and warn of the detriments of early sexual activity"*. It was evident from both students and teachers that abstinence is strongly promoted at any opportunity – be it in class, at chapel/worship sessions, or school assemblies – with the underlying message that sex should be postponed until one is an adult or married.

Sexual resistance (refusal) skills training was also reported by a majority of students, though with some confusion in understanding. About 88% of students said they had received lessons on how to resist sexual advances or peer pressure to have sex. When probed about the meaning, 44% correctly described it as learning "how to say no" to sex or avoid situations that might lead to sex. However, a sizable minority (46%) misunderstood "resistance skills" to mean essentially the same as abstinence (i.e. not having sex until marriage). This overlap suggests that students did not clearly differentiate the two concepts, possibly because in practice the messaging overlaps – both emphasize not engaging in sex. Still, around 60% recalled that these resistance skills lessons were delivered by their teachers (often in guidance and counselling sessions or as part of topics on life skills). Teachers in an FGDs affirmed that they do coach students on ways to resist sexual temptation. For instance, one male teacher described advising students to avoid situations like being alone with the opposite sex, and to distract themselves by reading books, listening to music, or doing sports whenever they *"feel the urge."* A Muslim teacher added that they even encourage Muslim students to recite particular Quran verses to gain spiritual strength against sexual urges, and to think about the religious implications of premarital sex. These strategies, as recounted by teachers, range from practical activities (jogging, playing football, dancing) to spiritual interventions (prayer,

scripture) – all aimed at helping adolescents delay or avoid sexual involvement. Students in the FGDs acknowledged hearing such advice, though its impact varied among them.

Contraceptive-based sex education was the least emphasized of the three categories, however, majority (88%) of students had at least one lesson on contraception or STI prevention. Most students (80%) confirmed that, these lessons focused on the prevention of STIs, and pregnancy, typically by using condoms. The students indicated that unlike abstinence messages (which came mostly from teachers), contraceptive information was often delivered by external sources: 49% mentioned health workers (e.g. visiting nurses or speakers from health NGOs) as having provided these lessons, while 37% stated teachers handled it. This aligns with the schools occasionally inviting health professionals to talk about HIV/AIDS and contraception during health education programs. In the key informant FGDs, teachers admitted they touch on contraceptives only briefly, and somewhat reluctantly. *"We do, as the syllabus permits. I tell them if they can't abstain, then use contraceptives – preferably condoms – and explain the side effects of abusing contraceptives,"* however, a male teacher conversely said: *"I don't teach the detailed use of contraceptives because I think by doing so, I am indirectly promoting sex."* This view was also emphasized by other participants, reflecting a concern that giving too much information about contraception might be seen as encouraging students to become sexually active. Teachers observed that many students are already aware of some contraceptive methods (some girls had even obtained injectable or emergency contraceptives on their own), yet there is a sense of taboo around openly discussing proper contraceptive use in class. One of the teachers shared an anecdote: when he broached condom use in a lesson, a female student remarked that if her boyfriend wears a condom *"she doesn't enjoy the sex,"* hinting at prevailing attitudes that make these discussions challenging.

In summary, the educational strategy in these schools has heavily favored abstinence messaging, supported by some training in resisting sexual advances, and only a superficial coverage of contraceptives (often outsourced to health personnel). The next sections examine the sexual behaviour of students against this backdrop of what they are taught. **Tables 2a to 4c** below shows the types of sex education programmes attended by the students, the focus of the sex education lessons and the resource persons that delivered it.

Table 2a: Abstinence Lesson Attendance Rate

Attended a lesson on abstinence	Frequency	Percent
Yes	417	85.45
No	71	14.55
Total	**488**	**100.00**

Table 2b: Abstinence Lesson Focus Ratio

What was the lesson about?	Frequency	Percent
abstain from sex until marriage	303	72.66
use condom during sexual intercourse	40	9.59
how to say no to sex	74	17.75
Total	**417**	**100.00**

Table 2c: Resource Persons for Abstinence Lesson Rate

Who delivered the lesson?	Frequency	Percent
Teachers	265	63.55
peers/friends	16	3.84
health workers	111	26.62
NGOs	22	5.28
District Assembly	3	0.72
Total	**417**	**100.00**

Table 3a: **Sex Resistance Skills Training Attendance Rate**

Attended a lesson on sex resistance skills training	Frequency	Percent
Yes	428	87.70
No	60	12.30
Total	**488**	**100.00**

Table 3b: Focus of Sex Resistance Skills Training Rate

What was the lesson about?	Frequency	Percent
how to refuse pressures from peers to h	187	43.69
how to use condoms during sex	43	10.05
don't have sex until marriage	198	46.26

Total	**428**	**100.00**

Table 3c: Resource Person for the Sex Resistance Skills Training Rate

Who delivered the lesson?	**Frequency**	**Percent**
Teachers	261	60.98
peers/friends	18	4.21
health workers	121	28.27
NGOs	18	4.21
District Assembly	10	2.34
Total	**428**	**100.00**

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Contraceptive-Based Sex Education and Attendance

Table 4a: Contraceptive-Based Sex Education Attendance Rate

Attended a lesson in school on contraceptive-based sex education	**Frequency**	**Percent**
Yes	432	88.52
No	56	11.48
Total	**488**	**100.00**

Table 4b: Focus of Contraceptive-Based Sex Education Rate

What was the lesson about?	**Frequency**	**Percent**
how to prevent sexually transmitted inf	347	80.32
how to say no to sex	43	9.95
spacing of children	42	9.72
Total	**432**	**100.00**

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Table 4c: Resource Person for Contraceptive-Based Sex Education Rate

Who delivered the lesson?	**Frequency**	**Percent**
Teachers	154	35.65
peers/friends	51	11.81
health workers	212	49.07
NGOs	8	1.85
District Assembly	7	1.62
Total	**432**	**100.00**

Adolescents' Sexual Behaviour and Experiences

Despite widespread exposure to abstinence education, a substantial proportion of students reported being sexually active. Out of the 489 students surveyed, 57% (279 students) indicated

they have ever had sexual intercourse, while 43% said they had never had sex at the time of the survey. Many students were also engaged in romantic relationships: 63.1% reported that they were "in a relationship" (dating) currently, which often serves as a precursor or context for sexual activity among adolescents. The qualitative findings corroborated this—during FGDs, when asked about relationships, participants almost unanimously agreed *"All of us have boyfriends,"* or *"All of us here have girlfriends,"* indicating that dating is a social norm in this age group.

Age at sexual initiation was fairly young among those who were sexually active. Among students who had ever had sex, the majority said their first sexual intercourse occurred during mid-adolescence: 78% of sexually active respondents had their first sex between ages 12 and 17. More specifically, many cited ages 15–17 as the time of sexual debut, which often coincides with junior high or early senior high school years. A smaller fraction (about 15%) first had sex at age 18 or older, and a noteworthy 6.8% (19 students) reported initiating sex at age 11 or younger, which is extremely early and raises concerns about coercion or abuse. Indeed, reasons for first sexual encounter varied widely. By survey responses, the most common reason was *"to show love to my partner,"* indicated by 69% – suggesting that many adolescents see sex as an expression of love or a way to please a boyfriend/girlfriend. However, a significant minority (19%) said their first sex happened because they were *forced or coerced* (this includes instances of rape). Another 11.5% had sex *"in exchange for gifts or money,"* implying transactional sex motivated by economic need or material gain. The FGDs illustrated these scenarios: one female student recounted how, due to her parents' inability to provide for her needs, she yielded to an older man who gave her money and gifts (a *"sugar daddy"* situation). Others mentioned curiosity and peer influence – for example, a boy said he was curious after seeing peers boast that sex was *"sweet,"* and even after witnessing sexual acts (in his case, observing his parents). Tragically, one participant revealed *"my first sex was a rape at age 6,"* highlighting that some initiations were non-consensual and traumatic. These narratives underscore that early sexual initiation is often linked to external pressures — be it peer pressure, economic hardship, or abuse — rather than a lack of knowledge that sex should be delayed.

Regarding protective behaviours, the study gathered data on contraceptive use at first sex and in recent sexual activity. Among those who had had sex, just over half took precautions to prevent STIs or pregnancy during their first sexual encounter. Specifically, 55.6% said they used a condom during first sex, whereas 41.6% admitted they did nothing for protection against STIs. A small number (2.9%) mentioned taking some kind of drug or medicine (likely referring to post-exposure prophylactics or traditional concoctions believed to prevent infections). When asked about preventing pregnancy at first sex, about 40% said they used a condom (which aligns with the STI prevention figure), 15% used an oral contraceptive (e.g. a birth control pill or emergency pill), 14% relied on the *calendar method* (timing intercourse to avoid fertile days), and the remaining ~28% did not use any method to prevent pregnancy.

These responses indicate that condoms were the primary method if any method was used at first intercourse. However, when looking at participants' most recent sexual encounter, a worrying decline in protective measures emerges. In their latest sexual activity, 57% said they

used a condom to prevent STIs (very similar to the first time percentage), but 43% still did nothing to protect against STIs. For pregnancy prevention in the most recent encounter, only 36% used a condom, 6.5% used an oral contraceptive, 19.7% used the calendar method, and about 28% did nothing. The drop in condom use from first sex (40%) to more recent sex (36%), and the low uptake of reliable contraception like the pill, suggest a trend where consistent condom use is not maintained. Qualitative feedback shed light on possible reasons: many students, especially girls, voiced that condoms diminish pleasure. In one mixed-gender FGD, a female student described using a condom as *"like eating gari (cassava flakes) without sugar,"* implying it's bland and not pleasurable. This vivid analogy captured a common sentiment that *"no one is willing to abstain from sex [entirely]. But we use other contraceptives and sometimes maintain single partners,"* as a female participant put it. Some adolescents thus opt for methods like withdrawal or periodic abstinence (calendar method) instead of condoms, prioritizing perceived pleasure over maximum protection which seem dangerous for these young ones. In a boys' FGD, participants openly discussed strategies like taking native drugs believed to *"make sperm weak,"* using withdrawal in the first round of sex and then not withdrawing in subsequent rounds under the false belief that it won't cause pregnancy, or girls taking emergency contraceptive pills after sex. These practices point to gaps in understanding and a casual attitude towards consistent condom use. Notably, a number of sexually active girls reported having covertly accessed modern contraception (such as injectable Depo-Provera or oral pills) without their parents' knowledge, although some experienced side effects (one girl fainted after a clandestine injectable, as she shared in the FGD). This suggests some motivation to avoid pregnancy, albeit through less supervised means, while condom use specifically remains unappealing to many.

Number of sexual partners was another important aspect of adolescent sexual behaviour explored. Among those who were sexually active, the survey asked how many different sexual partners they had engaged within the last 12 months and over their lifetime. In the past year, 46% of sexually active students said they had only one partner (indicating either a steady partner or monogamy in that period). However, 22.9% had two partners, and about 23.7% had three or more partners in the last year – evidence of multiple partnering among nearly a quarter of sexually active students. Looking at lifetime sexual partners (which, given the age group, essentially covers their adolescent period), 31.9% had only one partner ever, 20% had two, and almost half (48%) reported three or more lifetime partners. This indicates that multiple partnering is fairly common by late adolescence, especially among boys (who slightly outnumbered girls in having higher numbers of partners, according to cross-tab analysis not detailed here). The FGDs provided vivid accounts: *"Almost all of us have boyfriends and girlfriends. Some of us have multiple… I have a 'cashier', a 'lover', a 'crush', and a 'sugar daddy',"* a female student in the mixed group confessed. She explained that not all demanded sex; some relationships were for financial or emotional support, but at least one involved transactional sex (sugar daddy). Another girl mentioned having more than seven boyfriends. In the boys' group, when asked about lifetime partners, participants shouted answers like "one, two, more than my age, four, three, twenty-six, countless," showing bravado and peer influence in reporting multiple conquests. While these responses might include some exaggeration, they reveal a social environment where multiple sexual partnerships are common among young

adolescents transitioning into adulthood and may lead to pride among peers, reflecting high risk. The mention of transactional relationships (e.g., having an older partner who provides money/gifts) particularly by girls suggests economic incentives and exploitation are evident for some adolescents, a factor largely neglected by the abstinence-focused school curriculum. **Tables 5a to 5e and Tables 7a to 7b** depicts students sexual behavour and experiences.

Table 5a: Sexual Partner Relationship Rate

Has the respondent a boy/girlfriend?	Freq.	Percent
No	180	36.89
Yes	308	63.11
Total	**488**	**100.00**

Table 5b: Sexual Intercourse Rate

Has respondent ever had sexual intercourse?	Frequency	Percent
No	209	42.83
Yes	279	57.17
Total	**488**	**100.00**

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Table5c: Person whom respondent had sexual intercourse with Rate

Whom did respondent have sexual intercourse with?	Frequency	Percent
friend/peer	210	75.27
friend/peer	36	12.90
closed relative	33	11.83
Total	**279**	**100.00**

Table 5d: Age at First Sex Rate

How old were you when you had your first sex	Frequency	Percent
Lower age (11 years & below)	19	6.81
Middle age (12-17 years)	218	78.14
Higher age (18 years & above)	42	15.05
Total	**279**	**100.00**

Table 5e: Reason for his/her First Sexual Intercourse Rate

Respondents' best reason for his/her first sexual intercourse	Frequency	Percent
wanted to show love to my partner	193	69.18
was forced to have sex	54	19.35

had sex in exchange for a gift	32	11.47
Total	**279**	**100.00**

Table 6a: Precautions to Prevent Pregnancy During First Sexual Intercourse Rate

Precautions respondents used to prevent pregnancy during first sexual intercourse	Frequency	Percent
used condom	112	40.14
did nothing	78	27.96
took oral contraceptives	42	15.05
calendar method	39	13.98
Withdrawal	8	2.87
Total	**279**	**100.00**

Table 6b: Precautions to prevent STIs During First Sex Rate

Precautions respondents used to prevent STIs during first sex	Frequency	Percent
used condom	155	55.56
did nothing	116	41.58
Took some drugs	8	2.87
Total	**279**	**100.00**

Table 6c: Precaution to Prevent Pregnancy During Recent Sex Rate

Precautions used to prevent pregnancy during recent sexual intercourse	Frequency	Percent
used condom	100	35.84
did nothing	78	27.96
took oral contraceptives	46	16.49
used calendar method	55	19.71
Total	**279**	**100.00**

Table 6d: Precautions to Prevent STIs During Recent Sex Rate

Precautions respondents used to prevent STIs during recent sex	Frequency	Percent
used condom	159	56.99
did nothing	120	43.01
Total	**279**	**100.00**

Table 7a: Number of Sexual Partners in the Last 12 Months Rate

Number of sexual partners within the last 12 months	Frequency	Percent
One	127	45.52
Two	64	22.94
three and above	66	23.66
No sex for the past 12months	22	7.89
Total	**279**	**100.00**

Source: Field Survey, 2023.

Lifetime Sexual Partners Rate

Table 7b: Number of lifetime sexual partners of sexually active adolescents

Number of adolescents lifetime sexual partners	Frequency	Percent
One	89	31.90
Two	56	20.07
three and above	134	48.03
Total	**279**	**100.00**

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Association of Sex Education Exposure with Sexual Behaviour

A key question for this study was whether the sex education that students received in school had any measurable impact on their sexual behaviours. To explore this, bivariate analyses (chi-square tests) were conducted. The exposure variables were whether a student had received each type of sex education (abstinence lessons, resistance skills training, contraceptive education), and the outcome variables included: whether the student had initiated sex (sexual debut), their condom use and contraceptive use, and their number of sexual partners.

The statistical tests found no significant association in most cases. Specifically, there was no significant difference in the age of sexual initiation between students who reported being taught abstinence and those who did not ($p = 0.800$), nor for those taught resistance skills ($p = 0.849$) or contraceptive topics ($p = 0.390$). In other words, exposure to these educational messages in school did *not* correspond to a higher likelihood of delaying sexual debut. Similarly, having received education about resisting sexual advances or about contraceptives showed no significant relationship with contraceptive use at first or last sex ($p = 0.716$ and $p = 0.890$ respectively for those two program types). Interestingly – and somewhat counterintuitively – there was one statistically significant finding: students who had been exposed to abstinence-focused education were actually *more likely* to report having used a contraceptive (especially condoms) at some point, compared to those who hadn't learned about abstinence (this was evidenced by a positive association with $p = 0.039$ for abstinence education and contraceptive use). This might indicate that the abstinence messages, despite focusing on "no sex," did not deter those who chose to become sexually active from at least trying to use protection. Indeed, some teachers' messaging of "if you cannot abstain, use a condom" may have resonated. However, aside from this modest link, no significant

associations were found between exposure to any of the school sex education content and the number of sexual partners students had (p = 0.356 for abstinence, 0.303 for resistance skills, 0.135 for contraceptive education). In summary, the quantitative analysis suggests that the current form of sex education in these schools *has had limited measurable impact* on key sexual behaviour outcomes. Adolescents who received the standard school sex education were just as likely to engage in early or risky sexual behaviours as those who might have missed some of that education, with the possible exception that hearing repeated abstinence messages correlates with slightly greater condom awareness/use (though cause and effect are unclear).

It is important to interpret these results in context. The lack of association could be due to the sex education content being ineffective or insufficient (as will be discussed), but it may also reflect that almost all students receive roughly similar exposure (with little variation to detect effects) and that other factors overwhelm any slight influence the curriculum might have. The following discussion section delves deeper into the possible explanations and implications of these findings, drawing on both the statistical trends and the qualitative insights from students and teachers. **Tables 8a to 11** depicts the association sex education and sexual behavour among students.

Table 8a: Bivariate Association Between Sex Education and in-school Adolescents' Sexual Behaviour

Variable	Category	Age at first sex Freq (%)					Contraceptive use Freq (%)					
		Lower age (11 years &below)	Middle age (12-17 years)	Higher age (18 years & above)	χ2	P-Value	Used condom	Did nothing	Took oral contraceptives	Used calendar method	χ2	P-Value
Abstinence	Yes	15(78.95)	183(83.94)	36(85.71)	0.447	0.800	88(88.00)	64(82.05)	42(91.30)	40(72.73)	**8.379**	**0.039**
	No	4(21.05)	35(16.05)	6(14.29)			12(12.00)	14(17.95)	4(8.70)	15(27.27)		
sex resistance	Yes	17(89.47)	187(85.78)	37(88.10)	0.326	0.849	85(85.00)	66(84.62)	42(91.30)	48(87.27)	1.354	0.716
	No	2(10.53)	31(14.22)	5(11.90)			15(15.00)	12(15.38)	4(8.70)	7(12.73)		
Skills & contraceptive-based	Yes	19(100)	203(93.11)	38(90.48)	1.878	0.391	93(93.00)	74(94.87)	42(91.30)	51(92.73)	0.630	0.890
	No	0	15(6.89)	4(9.42)			7(7.00)	4(5.13)	4(8.70)	4(7.27)		

Table 8bNumber of Sexual Partners and Resistance Rate

Variable	Category	Number of sexual partners Freq (%)				
		One	Two	Three and above	χ2	P-Value

Abstinence	Yes	77(86.52)	49(87.50)	108(80.60)	2.068	0.356
	No	12(13.48)	7(12.5)	26(19.40)		
sex resistance skills	Yes	81(91.01)	47(83.93)	113(84.33)	2.388	0.303
	No	8(10.11)	9(16.07)	21(15.67)		
Contraceptive-based	Yes	81(91.01)	50(89.29)	129(96.27)	4.012	0.135
	No	8(8.10)	6(10.71)	5(3.73)		

.Table 9: Age at First Sexual Intercourse Rate

Age	**Frequency**
Lower age (11 years &below)	19 (6.81)
Middle age (12-17 years)	218 (78.14)
Higher age (18 years & above)	42 (15.05)

Table 10: Precautions Respondents used to Prevent Pregnancy in Recent Sexual Intercourse

Precautions	**Frequency**
Used condom	100 (35.84)
Did nothing	78 (27.96)
Took oral contraceptives	46 (16.49)
Used calendar method	55 (19.71)

Table 11: Number of Lifetime Sexual Partners

Sexual partners	**Frequency**	**Percent**	**Cum.**
1. one	89	31.90	31.90
2. two	56	20.07	51.97
3. three and above	134	48.03	100.00

Discussion

Drawing upon the Health Belief Model and the study's mixed-method evidence, this research explored how school-based sex education in a Ghanaian district corresponds (or fails to correspond) with adolescents' sexual behaviour. The findings highlight a disconnect between what is taught and what students actually do, raising questions about the adequacy of the educational strategies in place.

Firstly, the predominance of abstinence-only messaging in the schools is evident and aligns with Ghana's unofficial stance of promoting chastity among youth. Our results showed abstinence is by far the most emphasized topic, delivered frequently during class, assemblies, and religious gatherings. This is consistent with earlier studies noting that abstinence-until-marriage programs often dominate sex education, especially in contexts influenced by conservative or religious values. The schools in this study frequently employed tactics such as

invoking fear of consequences (unwanted pregnancy, infertility, HIV) and shame (moral or religious guilt) to encourage students to abstain from sex. This mirrors the strategies documented in abstinence-only programs in the United States and elsewhere – for example, Santelli et al. (2017), and Alford (2001), found that fear, shame, and guilt are common tools used by abstinence educators to discourage premarital sex. Teachers here shared graphic cautionary tales and spiritual warnings (e.g., that premarital sex could jeopardize one's future or one's soul), similar to the fear-based content reported by those authors. While such approaches may succeed in instilling caution or anxiety about sex, they often do so at the expense of open dialogue. There is evidence that emphasizing only abstinence can leave young people ill-prepared when they do choose to have sex, potentially leading to poorer outcomes (Stanger-Hall & Hall, 2011). In our study, despite extensive abstinence campaigning, many students engaged in sex early, suggesting this singular focus did not achieve the intended behavioural delay. It's possible that students tune out repetitive "just say no" messages, particularly if not coupled with practical guidance for real-life situations.

Secondly, the schools did attempt to provide sex resistance skills training, but the content of this training appears misaligned with best practices. Instead of teaching communication skills, assertiveness, or negotiation (as recommended in comprehensive sex education curricula), the teachers' advice centered on avoidance tactics and distraction. The idea of *"social inoculation"* – training youths to resist peer pressure – is sound (Howard & McCabe, 1990), and studies have shown that such skills can reduce sexual activity (Mayabi, 2022). However, our findings show that what was labeled as *"resistance skills"* in these schools largely meant encouraging students to occupy themselves with sports, music, or prayer to take their minds off sex. These measures, while perhaps helpful for some individuals, do not directly teach adolescents how to communicate "no" to a persistent partner or how to negotiate safe sex if they decide to be intimate. In fact, many students conflated the resistance training with abstinence itself, indicating a lack of clarity in the curriculum. This contrasts with recommendations in the literature: for instance, Mayabi (2022) reports that effective resistance training should include negotiation skills, assertiveness, and self-awareness regarding sexual situations, which were not explicitly highlighted by our respondents. Thus, there is a missed opportunity to impart real-life skills that could empower especially girls to navigate sexual pressure. Our qualitative data did show that some well-meaning advice was given (e.g., avoid watching sexually explicit media, avoid being alone with boys), but these are avoidance strategies rather than empowerment strategies. The implication is that the educational strategy needs to shift from just telling students what *not* to do, to building their capacity to make conscious choices and communicate boundaries.

Thirdly, contraceptive education was notably minimal and treated somewhat as a taboo subject by teachers. This finding was unsurprising given the controversy around CSE in many cultures; educators often fear that discussing contraception will be seen as endorsing teenage sex. In our study, teachers admitted to skimming over the topic, echoing the sentiment reported by Bialystok and Wright (2019) in Canada found that too much talk of contraception is viewed by some as "an open invitation" for youth to have sex. The result is that students might know of contraceptives by name (many were aware of condoms and pills, and some even of injectable or emergency contraceptives), but they lack thorough understanding or a sense of normalization

of their use. The quantitative data showed many sexually active students did not use any protection in recent encounters, and the qualitative data revealed myths and negative attitudes (e.g., condoms ruin pleasure, or misconceptions about withdrawal and drug use). If contraceptive use is not being actively encouraged and integrated into the educational messaging, it is predictable that adolescents will under-utilize these methods or use them inconsistently. In fact, some of the teachers' own comments undermined condom promotion – by emphasizing side effects or suggesting that instructing on use would *promote* sex, they may inadvertently reinforce stigma around contraception. This reflects a critical strategic gap: a comprehensive educational strategy would openly address contraception, including condoms, as a responsible choice for those who are sexually active. Not doing so leaves students to learn from peers, media, or personal experimentation, which can lead to misuse or non-use. The finding that abstinence education had a slight positive correlation with contraceptive use might indicate that hearing "don't have sex" often may at least prompt some students, when they *do* have sex, to think of protection (perhaps because the dangers were drilled into them). However, relying on indirect effects is not enough. A more direct and affirming approach to contraceptive education is needed to equip youth with the knowledge and confidence to protect themselves. Other contexts have demonstrated that when adolescents are taught about and given access to contraception, it does not increase sexual activity but rather increases safe practices (Fonner et al., 2014; Ott & Santelli, 2007).

Additionally, our study sheds light on the complex motivations behind adolescent sexual behaviour that current school programs are not addressing. Many youths engage in sex due to peer influence, curiosity, or as proof of love, which suggests a need for relationship and communication education – aspects of sexuality education that cover emotional skills and decision-making. Others, particularly some girls, are having sex for economic reasons (transactional sex) or are coerced. This points to socio-economic and gender-power dimensions that go beyond what a basic curriculum covers. A truly comprehensive strategy would incorporate discussions on sexual rights, gender equality, and power dynamics (as advocated by rights-based approaches to CSE; see Berglas et al., 2014). For instance, helping students build self-efficacy and aspiration might make them less susceptible to exploitation by "sugar daddies." At the moment, an abstinence-only framework does not equip a girl who is, say, considering an older boyfriend for financial security, with the tools to handle that situation safely or to seek alternatives. The fact that many students have multiple partners, some concurrently, shows that the reality of adolescent sexual networks is complicated. Simply telling them to have one partner or wait for marriage does not resonate when, in their social reality, having a boyfriend/girlfriend (or several) is normative. Peer norms can normalize multiple partnerships, and unless education programs actively discuss these norms and their risks, they will have little influence. Our participants even glamorized multiple partners in discussions. Thus, educational interventions must move into the terrain of peer norm transformation – for example, involving peer educators or role models who can speak to the benefits of respecting oneself and others, and making healthy choices even if it means bucking the peer pressure.

Another notable finding was the decline in condom use with increased sexual experience, tied to the pursuit of sexual pleasure. Many adolescents used condoms the first time (perhaps out of caution or because it was a new partner), but as they got more comfortable or had steady partners, they began having unprotected sex more often. They explicitly cited reduced pleasure as a key reason for abandoning condoms. This is a critical insight: it suggests that sexual pleasure – an inherent part of human sexuality – is not addressed at all in the current educational strategy. Comprehensive sexuality education experts argue that acknowledging sexual pleasure and teaching how to balance it with safety is important (Haberland & Rogow, 2015). If programs ignore pleasure, young people will still seek it, potentially at the expense of safety. In our context, ignoring this aspect meant students perceived a trade-off: enjoyment vs. protection, and many chose enjoyment. A more effective strategy could be to openly discuss this issue, debunk myths (for example, modern condoms have features to enhance sensation), and encourage couples to find ways to maintain intimacy while using protection. Currently, such nuanced conversations are absent. Instead, the messaging frames sex negatively (dangerous, sinful, etc.), so when adolescents inevitably discover positive aspects (pleasure, emotional connection), the advice they've been given loses credibility. This could partly explain why those exposed to abstinence education did not significantly differ in behaviour – once they step outside the paradigm of "sex is bad" and experience it, they might disregard all related advice, including using condoms, because the education didn't prepare them for a realistic middle ground.

In light of these observations, it becomes evident that the educational strategies in place need recalibration. The largely didactic, moralistic approach (teachers preaching abstinence and warning of dangers) has limited efficacy in the face of strong social and personal forces driving adolescent sexual activity. International evidence strongly supports comprehensive approaches: for example, a global review by Fonner et al. (2014) found that school-based comprehensive sex education programs (those that include information about contraception, STIs, and practice life-skills) can significantly increase condom use and reduce HIV risk in youth. Our findings resonate with the reasons why comprehensive approaches work – they tackle knowledge, skills, and attitudes together – whereas our local abstinence-centric approach tackled mainly attitudes (through fear/shame) without sufficiently building knowledge or skills for safe practice.

It is also worth noting some contextual limitations that might have affected the outcomes. This study relied on self-reported behaviour, which is subject to social desirability and recall biases. Adolescents might under-report sexual activity or over-report condom use to appear responsible. We tried to mitigate this by assuring anonymity and conducting FGDs without authority figures present, yet some bias may remain. The frankness of many FGD responses, however, suggests that the students were relatively open. Another limitation is that the study is cross-sectional – we measured exposure and behaviour at the same time, so we cannot conclusively say the education (or lack thereof) caused the behaviours, only that there is an association (or lack of association). It's possible that students predisposed to certain behaviours pay different levels of attention to sex education, for example. Nonetheless, the sheer lack of difference in outcomes between those who got the education and those who didn't is telling. It

indicates any potential positive impact of the current sex education is either too small to detect or universally overshadowed by other factors.

Conclusion and Recommendations

In conclusion, the current modes of sex education being implemented in these Ghanaian senior high schools have limited impact on adolescents' sexual behaviour. The heavy emphasis on abstinence-until-marriage, while well-intentioned, has not succeeded in delaying sexual initiation for many students nor in reducing the prevalence of risky practices such as unprotected sex or multiple partnerships. Students are becoming sexually active in their mid-teens for a variety of reasons – love, peer influence, economic need, or curiosity – that an abstinence-only message alone cannot address. Moreover, once sexually active, many do not consistently protect themselves, due in part to gaps in the educational content (e.g., inadequate contraceptive education and lack of open discussion about issues like sexual pleasure). The findings highlight that knowledge and awareness by themselves (students did recall being taught key concepts like HIV prevention) are not translating into behaviour change, likely because the educational strategies have not sufficiently empowered students with practical skills or motivated them by addressing their real-life context and pressures.

To create meaningful improvements in adolescent sexual health, a paradigm shift in educational strategy is recommended. Rather than a singular focus on abstinence, schools should adopt a comprehensive sexuality education (CSE) approach that balances messages of delaying sexual activity with factual information and skills for safe practices for those who do become sexually active. Concretely, this means the curriculum should include: open and honest discussion of contraceptives (with an emphasis that using contraception is a responsible choice, not an immoral one, for sexually active individuals), training in communication and negotiation skills so that youth can resist unwanted sex or insist on condom use when needed, and incorporation of topics like healthy relationships, consent, and sexual well-being. Such content acknowledges that some level of adolescent sexual experimentation is likely to occur and focuses on harm reduction and informed decision-making. International bodies like UNESCO and WHO have provided guidelines for CSE which could be localized for the Ghanaian context, ensuring cultural relevance while still conveying critical knowledge and skills.

Additionally, teacher training and support are crucial. The hesitancy and discomfort of teachers in discussing certain topics was evident. Teachers need training not only in the facts of sexual health but in pedagogical techniques to engage youth in sensitive discussions without embarrassment or judgment. Providing teachers with clear curricula, teaching aids, and perhaps the presence of health professionals in the classroom can help. In our study, involvement of health workers was beneficial for delivering contraceptive information; formalizing this collaboration (e.g., regular visits by trained sexual health educators) could ensure students get accurate and complete information. Moreover, addressing teachers' and parents' concerns – for example, by communicating that CSE *does not encourage promiscuity but rather equips students to be safe* – will be important to build community support for a more open approach.

Policy implications: At the policy level, the Ghana Education Service and Ministry of Education might consider introducing a dedicated comprehensive sexuality education program or strengthening the existing curriculum guidelines to ensure all topics (including those currently glossed over) are covered in age-appropriate ways. Given the findings that many adolescents face economic and social pressures, linking sex education with youth empowerment programs could also be beneficial. For instance, integrating discussions of gender equality, self-worth, and economic opportunities could reduce scenarios where girls feel driven to transactional sex.

Finally, it is recommended that schools foster a more youth-friendly environment for sexual health education, possibly by establishing peer educator clubs or confidential counselling services. If students have access to trustworthy sources of advice (e.g., a school nurse or counsellor trained in adolescent sexual health), they may make better choices. The conclusion from this study is clear: empowering adolescents with comprehensive knowledge and practical skills, rather than only instilling fear, is a more effective and evidence-based strategy for positively shaping their sexual behaviours. Adopting such educational strategies in Ghanaian schools could lead to reductions in teen pregnancies, STIs, and other negative outcomes, as well as support the development of healthier relationships among young people. Future research should evaluate the implementation of comprehensive programs to continually refine approaches that resonate with Ghana's youth and cultural context.

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