PUBLIC HEALTH & PRIMARY CARE | RESEARCH ARTICLE

Risky behaviours among adolescents in a rural community. A study conducted at Kwabre East District, Ashanti Region of Ghana

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Abstract: Background: Risky behaviour among adolescents is a major public health problem in Ghana. The study was aimed at examining the risky behaviour of adolescents and the influence of protective factors on risk behaviour. Methodology: The study was cross-sectional design conducted in three secondary schools within the Kwabre East District of the Ashanti Region of Ghana with 356 adolescents as participants. Data were analysed using descriptive statistics (mean, percentages and frequencies), Kendall's coefficient of concordance, cross tabulations, chi-squared test of independence and multiple regression. Results: A majority (56%) indicated that sexual activity is the most perceived risky behaviour among adolescents. A majority (68%) also reported that they discussed perceived risky behaviour with their families while (58%) had never accessed any adolescent friendly health services. The association between protective factors on sexual behaviour and substance used ranked access to health services, family support, school attended and religiosity in that order as protective shield for adolescent

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PUBLIC INTEREST STATEMENT

The article offers an approach to understanding and improving adolescent health within the context of risky behaviour. Understanding risky behaviour and what protects adolescents from such behaviour offers a window of opportunity to intervene early. The study examined risky behaviour among in-school adolescents and the influence of protective factors on risky behaviour. Data were collected from 365 adolescents through questionnaire. Majority of the participants (56%) indicated that sexual activity is the most perceived risky behaviour among adolescents. On current sexual partners, (47%) had no sexual partners while 53% had one or more sexual partners. Also 47% had never used a condom and 19% used condoms sometimes. Furthermore, 68% of the participants will discuss perceived risk behaviour with their families and 58% of the participants revealed that they had not accessed any adolescent friendly health services. Adolescent’s health remains important and efforts must be put in place to offer them information and support to create an environment that will facilitate healthy development of adolescents.
in dealing with risky behaviour. The regression analysis found that family and health services were positively significant on sexual behaviour whereas health services were positively significant on substance abused by adolescent.

**Conclusion:** Although family support and access to health service serve as preventive strategies to reduce risky behaviours among adolescents there is the need to tackle the situation in a concerted, holistic and broad-based manner involving all stakeholders towards improving the wellbeing of adolescents.

**Subjects:** Adolescent Development; Public Health Policy and Practice; Sexual and Reproductive Health

**Keywords:** adolescents; risky behaviour; religion; family; health service; school

1. Introduction
Adolescence is an important transitional period that includes the biological changes of puberty, the need to increase independence, preoccupation with the self and normative experimentation (Hindin & Fatusi, 2009). During the transition from childhood to adulthood, adolescents struggle to make lifestyle choices and establish patterns of behaviour that affect both their current and future health (Leversen, Danielsen, Birkeland, & Samdal, 2012).

Risk factors are characteristics within an individual or conditions in a family, school or community that increase the likelihood that someone will engage in unhealthy behaviour such as the use of alcohol, tobacco and other drugs, violence, suicide, or early sexual activity whereas protective factors are characteristics within an individual or conditions in a family, school or community that help someone to cope successfully with life challenges. Protective factors are instrumental in healthy development as they build resiliency, skills and connections as indicated by Shaffer and Kipp (2014).

A number of risky behaviour begins in adolescence that affects health both at that time and in later years (Nebbitt, Lombe, Sanders-Phillips, & Stokes, 2010). Adolescent period is a marked by experimentation with risky behaviour such as tobacco, alcohol and drug use; dietary behaviour; and risky sexual behaviour (CDC, 2009).

According to Terzian, Andrews, and Moore (2011), risky behaviour among adolescents is the leading cause of sexually transmitted infections (STIs), unintended pregnancies, cognitive damage, injuries and suicide attempts. Adolescents will engage in risky behaviour to please peers and for fear of rejection (Morokiele, Brook, & Kachenga, 2006), other authors have associated the behaviour with poverty, suggesting the need for money as a driving force for this behaviour (Booysen, 2004). Risky sexual behaviour and substance use are a major health concerns for youth. Risky sexual behaviour may include early initiation of sexual intercourse, high risk partners or sex with a partner who has one or more partners at a time (Ma et al., 2009). For (Taylor-Seehafer & Rew, 2000), inconsistent use of condoms and unprotected sexual intercourse are also risky sexual behaviours, owing to their association with transmitted diseases, unplanned pregnancies and risk reputation. (Dunn et al., 2008) reported adolescents that were heavy drinkers were four times more apt to be sexually active, were sexually active at an earlier age and had 50% more sexual partners when compared to regular drinkers. These behaviours can lead to long-term consequences such as lifetime sexually transmitted diseases (STDs) or pregnancy as a teen (Dunn et al., 2008).

A study in Gauteng, South Africa (Thomas, 2009), amongst 1,139 learners; found that most sexually active adolescents were practicing unsafe sex. Of the number, a total of 55% had multiple partners and 52% indicated having engaged in sex without a condom. Similarly, a study conducted by (Khoza, 2004) in Limpopo amongst 60 adolescents revealed teenagers’ tendency to engage in risky sex practices, such as unprotected sexual intercourse, prostitution, sex at an early age, coercion and partnering with older men, thus increasing the risk of human immunodeficiency
virus (HIV). These behaviours occurred in spite of comprehensive school-based HIV and acquired immune deficiency syndrome (AIDS) policy and preventative measures in place.

Le (2013) however reported in a study that participation in extracurricular activities significantly reduces engagement in risky behaviour among Australians adolescents. The effects differ by activity type, gender and to some extent by socio economic status. Centers for Disease Control and Prevention (CDC, 2009) has offered a compelling argument that for this view students are more likely to engage in healthy behaviour and succeed academically when they feel connected to their schools. This means the students are less likely to engage in adolescent risky behaviour. As Rashid and Mwale (2016) reported in an empirical study among three secondary schools in Machinga that sex education is failing to positively impact schooling youth behaviour because of cultural and personal factors. It was revealed in the study that a good number of schooling youths had enough sexual knowledge but still undertook sexual risks.

On the other hand, (Clark & Youenn, 2003) examined the consumption of tobacco, alcohol and marijuana by adolescents. The study found out that such behaviour were correlated with the behaviour of three peer groups: others in the same school year; others one school year higher than the individual in the same school, and the individual, friends-peer group effects are the strongest within sexes. The study further revealed that girls do also follow boys, who are only affected a little by their female peers.

Asiseh, Owusu, and Quaicoe (2017) used the Ghanaian context to examine the relationship between family dynamics and student engagement in consumption of alcohol, smoking of cigarette and use of illicit drugs. It was revealed that parental consumption of alcohol increased the adolescent probability of doing the same irrespective of the gender. The study suggested that policies and interventions to address health risk behaviour should not be limited to school setting. Parental engagement and monitoring outside of school significantly mediate the extent to which student engage in health risk behaviour.

Brooks, Magnusson, Spencer, and Morgan (2012) conducted a study on 15 years old school-aged in England with the aid of multinomial regression with potential asset variables relating to school, family, peers, community and family affluence were tested for their association with levels of risk behaviour. The study revealed that sense of neighbourhood belonging, strong school belonging and parental involvement in decision-making about leisure time were related to lower engagement in health risk behaviour. A weaker sense of family belonging was associated with increased risk behaviour. The study suggests the importance of the wider community involvement alongside parents and schools as protective assets for health.

Malinakova et al. (2019) also explored the interrelatedness of spirituality and religious attendance (RA) and health-risk behaviour (HRB) in a secular environment using a sample of 4566 between 14.4 and 11 years with 48.8% boys of adolescents. RA, spirituality, tobacco, alcohol, cannabis and drug use and the prevalence of sexual intercourse were measured. The findings revealed that high spirituality only protects adolescents from HRB if combined with RA. In a similar study, (Sinha, Cnaan, & Gelles, 2007) applied three measures of religiosity and risk behaviours, ascertaining information about youths’ participation in religious activities from a parent or carer-taker. Using a sample of 2104 teens (ages 11–18), the study indicated that youth who perceive religion as important get themselves active in religious worship and activities and further showed that perceived importance of religion as well as participation in religious activities were associated with reduced risk behaviours in the areas of smoking, alcohol use, truancy, sexual activity, marijuana use and depression.

In Ghana a few studies have reported risky behaviour among adolescents. Statistics by the Narcotic Control Board in Ghana revealed that 70% of adolescents from junior and senior high schools are facing the risk of drug abuse in the country. The Ghana Demographic and Health
Survey (Ghana Statistical Service [GSS], 2015) also reported that 38.0% of girls and 19.3% of boys aged 15–19 years are sexually active. 14% of adolescent women between 15 and 19 years are mothers or pregnant with their first child (GSS, 2015).

The Kwabre East District revealed that some parents shirk their primary responsibilities due to their economic status. The aim of the study is to investigate risky behaviour among adolescents within the Kwabre East District of Ghana and to examine how protective factors operate to influence these risky behaviours.

2. Methodology

2.1. Study setting
The study was carried out in the Kwabre East District of the Ashanti Region of Ghana. Its capital, Mamponteng, is approximately 14.5 km from Kumasi. The population of Kwabre East District, according to the 2010 Population and Housing Census, is 115,556 representing 2.5% of the region’s total population. Male population accounted for 48.7% with female having 52.3%. The rural community represents 42% while the urban community accounted for 58%. The population has a youth of 39.3% depicting a broad base population pyramid which tapers off with a small number of elderly persons (3.4%). The district has 8 s cycle institutions, Kofi Agyei, Adventist Girls, Sims, Gyaaman Pesil, Antoa, Adanwomase, Our Lady of Grace and Kenyase SDA. With the first 6 and last 2 being Government and Private Institutions, respectively. The composition of the religion sects had 78.5% as Christians, 16.5% as Muslims as the two major sects; and no religion with 3.9% with others accounting for 1.1%. The district has a higher proportion of persons literate in both English and the Ghanaian language with 63.9%.

2.2. Study design
This study employed a quantitative approach using a cross-sectional survey design. The design helped in identifying risky behaviour among adolescents and also allowed for questioning a large group of persons about a particular issue. The population of the study includes all persons between the ages of 10–19 enrolled in a formal education. The target population however was secondary school students only within that age group. Hence the target population was adolescents between the ages of 10–19 in the registered secondary schools within the Kwabre East District.

Multi-stage sampling approach was employed for the study. The first of which was the purposive selection of Kwabre East District out of the 43 metropolitan, municipals and districts assemblies within the Ashanti Region. The decision was on the familiarity of the district by the authors and the willingness of the key stakeholders to cooperate with the study. The second stage was targeting the second cycle institutions purposively within the district and finally, simple random sampling was used in selecting the number of schools to be included and three schools amongst the eight schools in the district were selected.

The participants of the study were recruited from Simms Senior High School, Adventist Girls Senior High School and Kenyase SDA Senior High School. Though selecting the participants was random the study also benefited from self-selected sample where some of the participants decided to place themselves in the sample. This enhanced the cooperation of the sample. The sample size of 356 participants was used for the study where the contribution of each school was distributed proportionately depending on each school’s enrolment (quota method). The determination of the sample size was non-statistical; it was based on the availability of a knowledgeable participant on the purposes and objectives of the study. Most importantly the participant should be voluntarily ready to be part of the study.

Data were collected by the authors during school hours and mostly in the morning. Participants were interviewed using a structured questionnaire to solicit information from the participants. The questionnaire used varied scales for its measurement, and it included open-ended and closed-ended
formats. Open-ended questions were kept to a strict minimum since it is more difficult to answer, to code and harder to analyse. In closed questions the adolescents were given a set of alternatives responses from which to choose. The questionnaire was divided into sections and in all it had five sections: Section A collected data on socio-demographic on age of respondents, marital status, religion, type of school attended and educational level; Section B concentrated on the prevalent risky behaviour and question such as what is the commonest risk behaviour among colleagues in the school?, age at which such behaviour is likely to start and which behaviour they are likely to engage in themselves; Section C concentrated on describing the sexual behaviour of adolescents with questions such as been in relationship, number of sexual partners, use of condoms, and age of sexual debut, Section D also on substance abuse where questions such as common substances used, age of first usage, duration of use and reasons for use were asked and section E was on the available protective factors and this was aimed at reasons that will mitigate risky behaviour and factors such as family, religion, school and health service were considered and selection was based on the literature search on factors likely to reduce risky behaviour in adolescents.

On the demographic data of the adolescent, a dichotomous scale was used for gender, school, religion and adolescent friendly health service, age as an interval variable and sexual partners, use of condoms, perceived risky behaviour were on categorical scales. Dichotomous scale and frequency distribution were used for the variables and for the cross-tabulations while the protective factors for risky behaviours were measured using ordinal scale through ranking of the factors.

The questionnaire was self-administrated due to the characteristics of the participants. The questionnaire was pretested in a school which was not part of the study's sample and modifications were made before the actual data collection.

The reliability assessment of the different subcomponents of the questionnaire after data collection revealed a Cronbach’s alpha value of 0.907 for protective factors (5 items), 0.859 for substance abuse (5 items) and 0.896 for socio-demographics (8 items). All the alpha values were above 0.70 which is normally acceptable by researchers as a good reliability of a scale to indicate its internal consistency.

The results were described in terms of frequencies, percentages and means on the socio-demographics of the participants. Kendall’s coefficient of concordance (W) analysis was used to rank the reasons and importance of protective factors on risky behaviour with (W) = 0.265 and that of substance abuse with (W) = 0.370. The degree of agreement of the rankings by the participants was measured with (W) which ranges from 0 to 1. The score of (W) explains the degree of concordance among the participants, hence the higher the (W) the better the degree of concordance.

Cross tabulation using contingency table analysis was used to assess the association between sexual behaviour and protective factors, similarly it was also used to assess the association between substance abuse and protective factors as shown in Tables 2 and 3 where each table had four quadrants. An extension to the 2 × 2 contingency table was the Pearson's Chi-square test of independence. The chi-square statistic ($X^2$) test for independence is an inferential statistical test used to determine whether two qualitative variables are independent or associated. The study used a nominal scale, mutually exclusive row and column variable categories, all expected counts were greater than five (5) together with independent observations. This was used to conclude that chi-squared test of independent has integrity and is appropriate for the study as it meets the assumptions for using ($X^2$) statistics to analyse the data.

In terms of dependency between the variables, the Cramer’s V was employed to results of this study. The Cramer’s V is a form of correlation and is interpreted exactly the same. A value of zero indicates no relationship while a value of one indicates a perfect relationship. In both tests, p value < 0.001 was considered significant.
Hypothesis of the study were constructed as follows:

$H_{01}$ = Family support has an insignificant/association on sexual behaviour

$H_{02}$ = Religion has an insignificant/association on sexual behaviour

$H_{03}$ = School has an insignificant/association on sexual behaviour

$H_{04}$ = Health facility visitation has an insignificant/association on sexual behaviour

$H_{05}$ = Family support has an insignificant/association on substance abuse

$H_{06}$ = Religion has an insignificant/association on substance abuse

$H_{07}$ = School has an insignificant/association on substance abuse

$H_{08}$ = Health facility visitation has an insignificant/association on substance abuse

The study will reject the null hypothesis when the ($X^2$) statistic is larger than the critical value and vice versa.

Risky behaviours beget other risky behaviours. Adolescent risky behaviour often co-occur which makes engaging in any risky behaviour a risk factor for engaging in another. The variables used in Model 1 and Model 2 had the same independent variables which were family, religion, school and health services. The variables were selected based on literature search on adolescent sexual behaviour and substance abuse. The variables were used by several authors on the same subject area, for instance studies done by Dunn et al. (2008) and Ugoji (2014). These authors adopted the Youth Risky Behaviour Questionnaire from which the study picked religion. Sinha, Cnaan and Gelles also used religion, alcohol use and smoking as risky behaviour of adolescents. However, CDC (2009) also used families and schools as protective predictors for adolescent in a study they conducted. Brooks et al. (2012) in a study considered the role of the family, school and the community as protective factors to address risky behaviour of adolescents. The selection of these variables in the model was influenced by the available literature and a prior study on the subject area.

The rationale for using the multiple regression analysis was to examine the degree to which family, religion, school and health services predicts the adolescent sexual behaviour and substance abused. It further assessed the relationship and the strength of relationship between sexual behaviour of adolescents as the dependent variable and independent variables as family, religion, school and health services as indicated in Model 1, while Model 2 had substance abused by adolescents as the dependent with the independent variable been family, religion, school and health services. The method used was standard or simultaneous multiple regression which is also term as Enter Method on SPSS meaning it will conduct the regression on all predictors simultaneously. All the variables in the models have been described in detail under Section 2.3 as variable descriptions.

The study made use of multiple regression analysis. The regression equation is stated as:

**Model 1:**

The study employed multi-regression equation to determine the factors (family, religion, school and health service) that influence the sexual behaviour of adolescents.
The estimated equation was specified as:

\[ SBH = \alpha_i + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_t \]  

(1)

Where:

\[ X_1 = \text{Family} \]
\[ X_2 = \text{Religion} \]
\[ X_3 = \text{School} \]
\[ X_4 = \text{Health services} \]

**Model 2:**

The study employed multi-regression equation to determine the factors (family, religion, school and health service) that influence the substance abused by adolescents.

The estimated equation was specified as:

\[ SAB = \alpha_i + \theta_1 X_1 + \theta_2 X_2 + \theta_3 X_3 + \theta_4 X_4 + \varepsilon_t \]  

(2)

Where:

\[ X_1 = \text{Family} \]
\[ X_2 = \text{Religion} \]
\[ X_3 = \text{School} \]
\[ X_4 = \text{Health services} \]

**2.3. Variable description**

**2.3.1. Dependent variables**

**Sexual behaviour:** This entails how many times adolescent have had sex, how many sex partners they have and how many times they use condom during sexual intercourse.

**Substance abused:** Adolescent drinking alcohol, use marijuana or cigarette.

**2.3.2. Independent variables**

**Family:** Family plays an important role in helping adolescents to strengthen their character and shape their behaviour. Although adolescents are susceptible to risky behaviour, factors such as good relationship with parents and parental support might buffer against adolescent tendency toward risky behaviour.

**Religion:** Religion is the set of beliefs, feelings, dogmas and practices that define the relationship between human being and scared or divinity. One factor that protects the individual from risky behaviour is religiosity. Religion plays an important role in young people’s life; religious adolescents are less likely to indulge in risky behaviour. In Ghana the major religions are Islam and Christianity.

**School:** Schools need to create an environment that facilitates healthy development of children and adolescents. The physical environment and psychosocial climate can set the stage for positive student perceptions of school. Adolescents are more likely to engage in healthy behaviours and
succeed academically when they feel connected to the school. School connectedness can be a strongest protective factor for adolescent, thus decrease substance use, early sexual initiation and school absenteeism.

**Health services:** Health services often include the provision of information, advice, counselling, aimed at preventing a health problem. It can be assumed that an adolescent who regularly visits a health facility and couple with right lifestyle is less likely to live a risky behaviour.

2.4. Ethical considerations
The regional and district health directorate were written to and consent sought before the study was undertaken. Informed consent was sought from the adolescents and caregivers (teachers) before they were given the questions. Students who declined to take part were allowed to excuse themselves. Students were assured of anonymity and emphasis was made on the fact that names were not allowed and questions that had names were immediately destroyed.

3. Results

3.1. Demographic information of participants
Among the 356 participants, 70% of the participants were males and 30% were females. In terms of age ranges, 71% fall within the age range of 17–19 years. Considering the affiliation of religious sect, it was revealed that 83% of the sampled population are Christians while the other 17% are Muslims. Participants in the government schools accounted for the 85% and those from the private schools represented 15%. Majority of the participants that is 56% indicated that sexual activity is the most prominent under perceived risky behaviour in an adolescent’s life. It was also revealed that 68% of the participants discussed perceived risk behaviour with their families. In addition, the majority of the participants (58%) revealed that they have not accessed any adolescent friendly health services. The number of sexual partners by the participants indicated that 47% had no sexual partners while 31% and 12% had single sexual partner and two sexual partners, respectively. On the use of condom by the participants, 34% regularly use condom during sexual intercourse whiles 19% used it sometimes, 47% never used condom. The details of the demographic characteristics of the participants are presented in Table 1.

3.2. Sexual behaviour and protective factors
This section reports on the result using cross-tabulation, chi-square test of independence and Cramer’s V using sexual behaviour by an adolescent with family support, religious affiliation, type of school attended and visitation to Adolescent Friendly Health Service (AFHS) as indicated in Table 2.

3.2.1. Sexual behaviour and family
Does the sexual behaviour of an adolescent depend on family support? It seems so on the basis of Table 2 as 93.5% of the participants answered “yes” by the percentage computation. There is a significant relationship between sexual behaviour and family, $X^2(1, N = 356) = 307.209, p < 0.001$. Since ($X^2$) value of 307.209 is greater than the critical value of 10.83 at 0.001 level, we reject the null hypothesis that family support has an insignificant association on sexual behaviour. The Cramer’s $V = 0.929$ indicates a very high positive significant relationship between sexual behaviour of the adolescent and family support.

3.2.2. Sexual behaviour and religion
The second hypothesis stated that religion has an insignificant association on sexual behaviour. As indicated in Table 2, the perceived importance of religion (64.2%) was significantly associated with the adolescent sexual behaviour; $X^2(1, N = 356) = 85.659, p < 0.001$. Since ($X^2$) value of 85.659 is greater than the critical value of 10.83 at 0.001 level, we reject the null hypothesis that religious affiliation is insignificant on sexual behaviour. The Cramer’s $V = 0.491$ indicates a moderate positive significant relationship between sexual behaviour of the adolescent and religiosity.
3.2.3. Sexual behaviour and school type
The third hypothesis stated that school has an insignificant/association on sexual behaviour. As indicated in Table 2, the school type whether government or private was significant, indicating (80.3%) of the adolescent confirming that school type has a bearing on sexual behaviour. Since $X^2(1, N = 356) = 207.703$, $p < 0.001$ is greater than the critical value of 10.83 at 0.001 level, we reject the null hypothesis that school type has an insignificant/association on sexual behaviour. The Cramer's $V = 0.764$ indicates a high positive significant relationship between sexual behaviour of the adolescent and the school type.

3.2.4. Sexual behaviour and health service
The fourth hypothesis stated that access to health services has an insignificant/association on sexual behaviour. As indicated in Table 2, access and visitation of health services was significant, indicating (100%) of the adolescent confirming who access and visit health services had a bearing on sexual behaviour. Since $X^2(1, N = 356) = 194.331$, $p < 0.001$ is greater than the critical value of 10.83 at 0.001 level, we reject the null hypothesis that access to health services has an insignificant/association on sexual behaviour. The Cramer's $V = 0.739$ indicates a high positive significant relationship between sexual behaviour of the adolescent and the access to health services.

3.3. Substance used and protective factors
This section report on the result using cross-tabulation, chi-square test of independence and Cramer's $V$ on substance used by an adolescent with family support, religious affiliation, type of school attended and visitation to Adolescent Friendly Health Service (AFHS) as indicated in Table 3.

Table 1. Demographic characteristics of the sample

| Construct                        | Frequency (%) | Mean |
|----------------------------------|---------------|------|
| Gender                           |               |      |
| Male                             | 108 (30)      | 1.70 |
| Female                           | 248 (70)      |      |
| Religion                         |               |      |
| Christian                        | 295 (83)      | 1.17 |
| Muslim                           | 61 (17)       |      |
| School                           |               |      |
| Government                       | 304 (85)      | 1.15 |
| Private                          | 52 (15)       |      |
| Perceived risk behaviour         |               |      |
| Sexual activity                  | 198 (56)      | 1.68 |
| Substance abuse                  | 74 (20)       |      |
| Abortion                         | 84 (24)       |      |
| Discussion of perceived risky behaviour with family | | |
| Discussed                        | 241 (68)      | 1.32 |
| Never discussed                  | 115 (32)      |      |
| Adolescent friendly health service |             |      |
| Accessed                         | 150 (42)      | 4.13 |
| Never accessed                   | 206 (58)      |      |
| Sexual Partners                  |               |      |
| ≥ four partners                  | 7 (2)         | 1.58 |
| Three partners                   | 30 (8)        |      |
| Two partners                     | 42 (12)       |      |
| Single partner                   | 109 (31)      |      |
| No partner                       | 168 (47)      |      |
| Use of Condom                    |               |      |
| Never                            | 167 (47)      | 1.87 |
| Sometimes                        | 68 (19)       |      |
| Always                           | 121 (34)      |      |

Source: Field data, 2019. Note: Sample (N = 356).
| Sexual Behaviour | Yes | No  | Total | N   | X²  | df | p-value | Cramer’s V | Critical value |
|------------------|-----|-----|-------|-----|-----|----|---------|------------|---------------|
| **Family**       |     |     |       |     |     |    |         |            |               |
| Yes              | 93.5| 6.5 | 100%  | 201 | 307.209 | 1  | 0.001   | 0.929      | 10.83         |
| E.C.             | 106.1| 94.9| –     |     |     |    |         |            |               |
| No               | 0   | 100 | 100%  | 155 | 8.19  | 1  | 0.001   | 0.929      | 10.83         |
| E.C.             | 81.9| 73.1| –     | 356 |     |    |         |            |               |
| **Religion**     |     |     |       |     |     |    |         |            |               |
| Important        | 64.2| 35.8| 100%  | 293 | 85.659 | 1  | 0.001   | 0.491      | 10.83         |
| E.C.             | 154.7| 138.3| –     |     |     |    |         |            |               |
| Not important    | 0   | 100 | 100%  | 63  | 0    | 1  | 0.001   | 0.491      | 10.83         |
| E.C.             | 33.3| 29.7| –     | 356 |     |    |         |            |               |
| **School type**  |     |     |       |     |     |    |         |            |               |
| Gov’t            | 80.3| 19.7| 100%  | 234 | 207.703 | 1  | 0.001   | 0.764      | 10.83         |
| E.C.             | 123.6| 110.4| –     |     |     |    |         |            |               |
| Private          | 0   | 100 | 100%  | 122 | 0    | 1  | 0.001   | 0.764      | 10.83         |
| E.C.             | 64.4| 57.6| –     | 356 |     |    |         |            |               |
| **Health service**|    |     |       |     |     |    |         |            |               |
| Visited          | 100 | 0   | 100%  | 135 | 194.331 | 1  | 0.001   | 0.739      | 10.83         |
| E.C.             | 71.3| 138.3| –     |     |     |    |         |            |               |
| Not visited      | 24  | 76  | 100%  | 221 | 0    | 1  | 0.001   | 0.739      | 10.83         |
| E.C.             | 116.7| 104.3| –     | 356 |     |    |         |            |               |

Note: E.C. = expected count, N = number of cases, Gov’t = government. Source: Author’s Computation, 2019
### Table 3. Cross-tabulation of substance used and protective factors

| Substance used | Yes | No | Total | N  | $X^2$ | df | p-value | Cramer’s V | Critical value |
|----------------|-----|----|-------|----|-------|----|---------|------------|----------------|
| **Family**     |     |    |       |    |       |    |         |            |                |
| Yes            | 40.3| 59.7| 100%  | 201| 80.861| 1  | 0.001   | 0.477      | 10.83          |
| E.C.           | 45.7| 155.3|       |    |       |    |         |            |                |
| No             | 0   | 100 | 100%  | 155|       |    |         |            |                |
| E.C.           | 35.3| 119.7|       |    |       |    |         |            |                |
| **Religion**   |     |    |       |    |       |    |         |            |                |
| Important      | 27.6| 72.4| 100%  | 293| 22.546| 1  | 0.001   | 0.252      | 10.83          |
| E.C.           | 66.7| 226.3|       |    |       |    |         |            |                |
| Not important  | 0   | 100 | 100%  | 63 |       |    |         |            |                |
| E.C.           | 14.3| 46.7|       |    |       |    |         |            |                |
| **School type**|     |    |       |    |       |    |         |            |                |
| Gov’t          | 34.6| 65.4| 100%  | 234| 54.670| 1  | 0.001   | 0.392      | 10.83          |
| E.C.           | 53.2| 108.8|       |    |       |    |         |            |                |
| Private        | 0   | 100 | 100%  | 122|       |    |         |            |                |
| E.C.           | 27.8| 94.2|       |    |       |    |         |            |                |
| **Health service** | |    |       |    |       |    |         |            |                |
| Visited        | 60  | 40  | 100%  | 135| 171.657| 1  | 0.001   | .694       | 10.83          |
| E.C.           | 30.7| 104.3|       |    |       |    |         |            |                |
| Not visited    | 0   | 100 | 100%  | 221|       |    |         |            |                |
| E.C.           | 50.3| 170.7|       |    |       |    |         |            |                |

Note: E.C. = expected count, N = number of cases, Gov’t = government. Source: Author’s Computation, 2019
3.3.1. Substance used and family
Table 3 presents a two-way classification of the sample of the participants by substance used and family support. From the table, 40.3% of the participants of 201 agreed that family support affect the use of substance while 59.7% thought otherwise. As indicated in Table 3, family support was significant on substance used. Since $X^2(1, N = 356) = 80.861, p < 0.001$ is greater than the critical value of 10.83 at 0.001 level, we reject the null hypothesis and conclude that family support has effect on substance used by an adolescent. The Cramer's $V = 0.477$ indicates a weak positive significant relationship between family support and substance used by an adolescent.

3.3.2. Substance used and religion
The sixth hypothesis stated that religion has an insignificant/association on substance used. 72.4% of the participants, $n = 293$ disagree that religiosity affects the use of substance while 27.6% thought otherwise. As indicated in Table 3, religion affiliation was significant on substance used. Since $X^2(1, N = 356) = 22.546, p < 0.001$ is greater than the critical value of 10.83 at 0.001 level, we reject the null hypothesis and conclude that religiosity has effect on substance used by an adolescent. The Cramer's $V = 0.252$ indicates a very weak positive significant relationship between religion affiliation and substance used by an adolescent.

3.3.3. Substance used and school type
The hypothesis stated that school type has an insignificant/association on substance used. Out of the population, 65.4% of the participants of 234 disagree that school type affects the use of substance while 34.6% thought otherwise. As indicated in Table 3, school type was significant on substance used. Since $X^2(1, N = 356) = 54.670, p < 0.001$ is greater than the critical value of 10.83 at 0.001 level, we reject the null hypothesis and conclude that type of school attended by an adolescent has effect on substance used. The Cramer's $V = 0.392$ indicates a weak positive significant relationship between religion affiliation and substance used by an adolescent.

3.3.4. Substance used and health service
The hypothesis stated that access to health services has an insignificant/association on substance used. 60% of the participants of 135 agree that visiting a health services affect the substance used while 40% thought otherwise. As indicated in Table 3, access to health services was significant on substance used. Since $X^2(1, N = 356) = 171.657, p < 0.001$ is greater than the critical value of 10.83 at 0.001 level, we reject the null hypothesis and conclude that access to health services by an adolescent has effect on substance used. The Cramer's $V = 0.694$ indicates a strong positive significant relationship between access/visitation of a health services and substance used by an adolescent.

3.4. Ranking of protective factor on risky behaviour
Participants were asked to rank from their perspective protective factors was important and will help them avoid or reduce risky behaviour. Table 4 indicates their responses in a ranking form using coefficient of concordance (W).

The study identified four protective factors on risky behaviours. These were: family support, religious affiliation, school type and health service. The participants were asked to rank these protective factors as indicated in Table 4. The $F$ test for concordance (W) between the rankings of the themes on protective factors on risky behaviours is (37%). It was shown that the most important protective factor on risky behaviour was access to health services with a mean rank of 3.38, followed by family support, school type and religious affiliation with corresponding mean rank of 2.91, 2.68 and 2.27, respectively.

3.5. Regression results on sexual behaviour of an adolescent on protective factors
To test study hypothesis, a multiple regression model was used. In the Model 1, the dependent variable was the sexual behaviour of the adolescent and the explanatory variables were family, religion, school and health services. Model 1 was statistically significant (Adjusted $R^2 = 0.881; F = (4, 355) = 657.993;$
p < 0.01). Likewise, in Model 2, the dependent variable was the substance abused by the adolescent and the explanatory variables were family, religion, school and health services. Model 2 was statistically significant (Adjusted $R^2 = 0.476$; $F = (4, 355) = 81.711$; $p < 0.01$). To check for multicollinearity in the multiple linear regression model, the Tolerance should be > 0.1 (or VIF < 10) for all variables, from Table 5 the collinearity statistics by the figures of the Tolerance and VIF indicated that there was no multicollinearity for Model 1 and Model 2, which made the models more reliable.

The regression results showed that two explanatory variables were statistically significant: family support and access to health services. In Model 1, it explains 88% variation in adolescent sexual behaviour in terms of risky behaviours. The regression results showed that only one explanatory variable was statistically significant, that is access to health services. In Model 2, it explains 48% variation in adolescent substance abused in terms of risky behaviours.

### 4. Discussion

The discussion would be done on the demographic characteristics followed by cross tabulation using sexual behaviour and use of substance as dependent variables and then family support, Religion, type of school and health service as independent variables. Lastly, a ranking of the protective factors is presented.

On the demographic characteristics, the study found that the mean age of the participants was approximately 15 years. This is consistent with a study by Brooks et al. (2012) in which adolescents were of the same mean age. Majority of the participants were Christians, and this is not different from the 2010 population and housing census which recorded 78.5% of the Ghanaian population as Christians (GSS, 2015). This indicates the prominence of Christianity among the religion sects in Ghana. Also, majority of the adolescents in the sample study were males which is not surprising within the Ghanaian context as culturally males are given better opportunity to school as a priority than females. The study shows that 85% of adolescents attend Government schools than the private school. The reality in the country is those who have the economic power will usually send their children to private schools due to the expensive nature of the fees. As evident in rural settings, the chances of an adolescent attending a private school is very low due to poor economic power, and this accounts for the high number of adolescents in the government schools.

On the number of sexual partners, 47% had no sexual partners while 31% and 22% had single sexual partner and two or more sexual partners, respectively. Comparing adolescents who had no sexual partner to adolescents with single partners and two or more sexual partners, the adolescents with multiple sexual partners are more likely to get STI and unwanted pregnancy than those with single sexual partners although the reverse can also happen. This could be attributed to more sexual demands from multiple sexual partners and the likelihood to also look somewhere to meet their sexual desires which will increase the chances of getting STI. These results align with Terzian et al.
### Table 5. Results of the regression analysis

| Independent variables | Model 1 |          |          | Model 2 |          | Collinearity statistics |
|-----------------------|---------|----------|----------|---------|----------|-------------------------|
|                       | B       | p-value  | Adjusted R² | B       | p-value  | Adjusted R² | Tolerance | VIF  |
| Family                | 0.798***| 0.001    | 0.881     | 0.000   | 1.000    | 0.476      | 0.251     | 3.978|
| Religion              | 0.000   | 1.000    | 0.000     | 0.000   | 1.000    | 0.588      | 0.588     | 1.702|
| School                | 0.000   | 1.000    | 0.000     | 0.000   | 1.000    | 0.264      | 0.269     | 3.789|
| Health service        | 0.191***| 0.001    | 0.649***  | 0.001   | 1.000    | 0.529      | 0.529     | 1.891|

$F = 657.993, \text{Sig.} = 0.000$

$F = 81.711, \text{Sig.} = 0.000$

Source: Author’s computation, 2019. Note: *** p < 0.01,
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(2011) stressing that multiple sex partners are the leading cause of STIs. On the other hand, (Ma et al., 2009) suggested that early initiation of sexual intercourse with one or more sex partners at a time puts partners at high risk to acquire STI which is not different from the results of the study.

Regarding the unsafe use of condom as part of protective sex by the adolescent, 34% regularly use condoms during sexual intercourse whiles 19 and 47% use it at times and never use condoms respectively during sexual intercourse. The inconsistent use of condom among adolescents during sexual intercourse exposes them to a greater risk of acquiring STI/HIV and unwanted pregnancies. Condom use is a practical approach for reducing the transmission and acquisition of HIV/STI and improving its usage will help adolescents. These findings were however consistent with a study by Thomas (2009) in Gauteng which found that most sexually active adolescents were practicing unsafe sex. Furthermore, 52% had engaged in sex without ever using a condom. Similarly, a study in Limpopo (Khoza, 2004) revealed adolescents' tendency to engage in risky sexual practices such as unprotected sex. As adolescents have multiple sexual partners, the demand for sex increases and the risk of not using a condom during sex further increases their risk of acquiring STI/HIV. Consistent use of condom during any sexual intercourse must be emphasized as well as its implication in HIV prevention.

On adolescents perceived risk behaviour, 56% perceived sexual intercourse as risky behaviour, 20% substance abuse and 24% abortion. On whether they will discuss these risky behaviour with their families, 68% would do so if need be while 32% will never discuss the perceived risky behaviour with their family. The results can benefit from the study of Fawara (2013), indicating the need for parents to have open conversation on sex education and building self-esteem of the adolescents as this could serve as a protective resource for girls. On the contrast, Rashid and Mwale (2016) revealed that sex education has failed to impact on adolescent’s behaviour positively due to some cultural and personal factors.

Beyond family they were asked if they had access to Adolescent friendly health service. Out of the total number of adolescents (356) only 42% had ever accessed the service and 58% had never accessed the service. Considering that adolescents might not discuss their perceived risky behaviour with family and also are less likely to visit an Adolescent friendly health service, these pose a serious risk to adolescents’ decisions making as they might not have access to the right information. Adolescents rating of protective factor such as family support, health services, school type and religion, they rated access to adolescent’s health service as first, but the number who had accessed it was below half, which implies an unmet need of the adolescents that has to be addressed by the relevant stakeholders.

Adolescents response to how sexual behaviour can be influenced by family, religion, school and health service (Table 2) indicated that family support with appreciation of effects of early unprotected sex will help the adolescents to avoid risky behaviour hence family served as a protective resource with 93.5% confirming by responding to yes to the influence of family on sexual behaviour. This gives credence to the need of family role in protecting children through open communication on sexuality. This result supports the work of Brooks et al. (2012) in which school, family, peers, community and family affluence were tested for their association with levels of risk behaviour. The study revealed that a weaker sense of family belonging was associated with increased risk behaviour, the importance of wider community involvement alongside parents and schools as protective assets for health were also emphasised. On the other hand, those without family support and had less appreciation of risky consequences of early sexual debut accounted for 6.5% among the group. This is worrying as 15% of the total respondents had no family support and had no appreciation of consequences of early sex. This result confirms the studies of Khoza (2004) and Thomas (2009) stressing that adolescents having unprotected sex are more likely to have early sexual debut.

From Table 2, importance of religion in shaping adolescents sexual behaviour accounted for 64.2% with the rest indicating that religion will not shape their sexual behaviour. Although there is a moderate positive significant relationship between sexual behaviour and religiosity, Malinakova et al. (2019) revealed that high spirituality only protects adolescents from HRB if combined with RA. In a similar study, (Sinha et al., 2007), the youth who perceive religion as important got themselves active in religious worship and
activities and further showed that perceived importance of religion as well as participation in religious activities were associated with reduced risk behaviour in the areas of smoking, alcohol use, truancy, sexual activity, marijuana use and depression.

School type had a significant association with sexual behaviour thus whether the school was government or private with 80.3% of the adolescents confirming that school type has a bearing on sexual behaviour. The Cramer’s V (0.764) showed a positive relationship between sexual behaviour of the adolescents and the school type. Although most of these adolescents were in government schools, sex education seems to be failing as more than half of these adolescents practiced risky behaviour. This aligns with a study by Rashid and Mwale (2016), in which the authors asserted that sex education is failing to impact schooling youth’s behaviour due to cultural and personal factors. Asiseh et al. (2017) suggested that policies and interventions to address health risk behaviour should not be limited to school setting since on its own it cannot positively impact adolescent behaviour. From Table 2, access to health service was significant with 135 of the sample agreeing to the need of accessing adolescent friendly health service. However, 221 had no access to health service and appreciation of consequences of irresponsible sexual behaviour, 76% of the 221 had not visited any adolescent friendly health service though they were sexually active and having unprotected sex.

Protective factors were cross tabulated with Substance use (Table 3). The protective factors; family, religion, school type and health service were significant to substance use. Apart from access to health service which recorded a strong positive significant relationship to the use of substance, with a Cramer’s V of 0.694. The remaining factors reported a weak positive relationship with each recording Cramer’s V of 0.392, 0.252, 0.477 for school type, religion and family respectively. The results of this study is not unexpected as Clark and Youenn (2003) found that substance use was correlated with the behaviour of peer groups: others in the same school year; others one school year higher than the individual in the same school, and the individual, friends-peer group effects are the strongest within sexes. This is to say adolescents are more likely to indulge in substance abuse as a result of their peers than the listed protective factors. Misuse of substances such as alcohol and drugs is a growing problem in Ghana and this call for the health services intervention to resolve the problem by urgently improving access to health service as means of improving adolescent’s behaviour.

On the ranking of the protective factors by adolescents (Table 4) the highest mean rank of 3.38 and 2.27 as the lowest mean rank were obtained. A mean score of 3.38, which was ranked first implied that the entire respondents agreed to the fact that there is the need for adolescent to access adolescent friendly health service.

Family support/influence had a mean score of 2.91, which was ranked a second major concern for the respondents. Alluding to the fact that family connectedness with adolescents can shape the future of the adolescent positively or negatively.

The third ranked theme was the type of school attended by the adolescent whether, a government school or private school which had a mean score of 2.68. Education plays a critical role in transforming adolescent, which is supposed to benefit the society. Religion affiliation was the very least of the ranking with a mean score of 2.27.

Two out of the four explanatory variables included in Model 1 were significant as family support and access to health services. This provided an evidence for rejecting the null hypothesis that family support and access to health services have insignificant effect on adolescent sexual behaviours. This means that these explanatory variables must be given utmost consideration in any decision aim at preventing risky behaviours of adolescent in terms of sexual behaviour. The results align with Brooks et al. (2012) stressing that parental involvement in decision-making about leisure time was related to lower engagement in health risk behaviour. On the other hand, the study affirmed that a weaker sense of family belonging was associated with increased risk behaviour. It can be concluded that family
supports and outreach programmes and in-house activities of health services to a greater degree serve as a protective factors on adolescent sexual behaviour than religion and school activities.

All the four explanatory variables had positive coefficients in Model 2 that is they move in the same direction. This might be explain that constantly working on how the family must build a better relationships with their children, religion inculcating the right moral and behavioural attitude in the minds of the adolescents, schools educating the adolescents to be responsible and avoiding social vices with the support of the health services would to a greater extent prevent risky behaviour of adolescents. Out of the four explanatory variables only access to health services was significant on substance abused by adolescents. The results disagree with the assertion of CDC (2009) stressing that adolescents connections with their schools will make them less likely to engage in adolescent risky behaviour. Interestingly, Asiseh et al. (2017) stated that parental consumption of alcohol increases the adolescent probability of doing the same irrespective of the gender in a study on student substance abused within the Ghanaian context.

5. Conclusion
Adolescence is an important transition from childhood to adulthood. A number of risky behaviours are experimented during this period. Taking risks are fairly common in adolescence, these risky behaviours can be associated with serious, long-term and can cause life-threatening consequences when adolescent engages in more than one harmful behaviour. This study contributes to the discussion on how to reduce or eliminate avoidable risky behaviour by adolescents in a rural community in Ghana.

Descriptive analysis of data collected in the three secondary schools revealed that significant majority of the adolescent never visited an adolescent health friendly centre and never used condom during sexual intercourse. This brings untold emotional and financial problems to the family and the society when a child with a potential great future suffers because of this.

The results of the cross-tabulations with the chi-squared indicated that all the protective factors were significant based on the comparison between the values of chi-squared and critical values on sexual behaviour and substance used on the four protective factors. The association between sexual behaviour and the four protective factors suggest that access to health services and family support/ influence and religiosity had the better association while family support had a very strong positive correlation coefficient with sexual behaviour. Again, the association between substance use and the four protective factors suggest that visitation to health service centres had a better and positive association with substance use while school type, family support/influence and religiosity had negative association with substance use. Similarly, apart from health services and substance use which had a moderate positive correlation the rest had a weak positive correlation.

The association between protective factors on sexual behaviour and substance used ranked access to health services, family support, school attended and religiosity in that order as protective shield for adolescent in dealing with risky behaviour. The regression analysis found that family and health services were positively significant on sexual behaviour whereas health services were positively significant on substance abused on adolescent risky behaviours.

The more protective factors are increased, and risk factors reduced the more likely unhealthy behaviour and its associated problems can be prevented. Tackling the situation needs a concerted, holistic and broad-based effort from all stakeholders hence the study prescribes that families, schools, religious bodies, health centres and communities all need to work together to create an environment that will facilitates healthy development of children and adolescent as these will serve as a protective shield against a range of risky behaviour to better improve the wellbeing of adolescents. The more protective factors are increased and risk factors reduced the more likely unhealthy behaviour and its associated problems can be prevented.

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