Sexual risk behaviour and its correlates among adolescents in Mozambique: results from a national school survey in 2015

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ABSTRACT

The study aimed to assess the prevalence and correlates of sexual risk behaviours among adolescents in Mozambique. In the cross-sectional ‘Global School-Based Health Survey (GSBS)’, 1918 students aged 11–18 years from Mozambique responded to a questionnaire in 2015. More than half (57.4%) of the students ever had sex, 68.4% among boys and 45.8% among girls. Among students who ever had sex, 41.5% had early sexual debut (<14 years), 57.9% had multiple sexual partners, 25.0% had not used a condom and 42.0% had not used birth control at last sex, and 59.4% engaged in multiple sexual risk behaviour. In adjusted logistic regression analysis, alcohol use, school truancy, older age and male sex were associated with multiple sexual risk behaviours. A large number of adolescents in Mozambique reported sexual risk behaviours, emphasising the need for interventions.

KEYWORDS

Sexual behaviour; adolescents; health risk behaviour; Mozambique

Introduction

In the adolescent period sexual activity and sexual risk behaviours, such as unprotected sex, may be initiated (Bearinger, Sieving, Ferguson, & Sharma, 2007). In studies among adolescents in African countries, various sexual risk behaviours have been identified (Doyle, Mavedzenge, Plummer, & Ross, 2012). The prevalence of early sexual debut (<15 years) was 22% among girls and 17% among boys (15–19 years) in 2009 in Mozambique (UNICEF, 2019). The proportion of never-married 15–19 year-olds who had not used a condom at last sex was 56%, and multiple sexual partners was 35% among boys and 5% among girls in 2009 in Mozambique (Doyle et al., 2012). In 2011, the ‘Mozambique Demographic Health Survey (DHS)’ showed among female adolescents that 8% had used modern contraceptives (UNICEF, 2019). The teenage pregnancy prevalence in Mozambique of youth between 20 and 24 years of age was 40.2% in 2011 (UNFPA, 2013). The HIV prevalence was 6.5% among girls and 1.5% among boys in the 15–19 age group in 2009 in Mozambique (UNICEF, 2019).

Among adolescents in other African countries, in Ghana in 2012, 33.5% ever had sex, 73.8% had not used a condom at last sex, and 32.5% had multiple sexual partners (Kugbey, Ayanore, Amu, Oppong Asante, & Adam, 2018), in Namibia in 2004, 33.2% ever had sex and 17.1% had multiple sexual partners (Chinsembu, Siziya, Muula, & Rudatsikira, 2008), and 25.3% multiple sexual partners in 2013 (Peltzer & Pengpid, 2017), and in Uganda in 2003, 14.9% of boys and 7.9% of girls were sexually active in the past year, 22.7% had not used a condom at last sex, and 60.9% had multiple sexual partners (Twa-Twa, Oketcho, Siziya, & Muula, 2008). In a community survey among adolescents (15–19 years) in Uganda, Tanzania, Nigeria, Ghana, Eswatini, Ethiopia and Burkina Faso between 2015 and 2017, 25.9% ever had sex, and among sexually active early sexual debut (<15 years) was 21% among girls and 28% among boys, unprotected last sex was 46% among girls and 40% among boys, and 37% of girls reported to have been pregnant and 8% of boys had made someone pregnant (Berhane et al., 2020).

In 15 year-old school children across 30 countries in Europe, Israel and Canada, 27% had had sexual intercourse and 14% had not used the contraceptive pill or condoms at last sex (Nic Gabhainn, Baban, Boyce, & Godeau, 2009), and in a study among 15 year-olds in 10 European countries, the prevalence of sexual initiation was 18.8%, and among sexually active, 52.4% had >1 sexual partner, 14.7% did not or rarely used condoms and 3.0% were involved in pregnancy (Gambadauro, Carli, Wasserman, et al., 2018).

Although the prevalence figures of sexual behaviour may differ in different parts of the world, the associations between sexual and non-sexual risk behaviours, as well as the role of psychosocial modulators, may follow similar patterns across countries and cultures. As reviewed in Peltzer and Pengpid (2016, p. 406), ‘factors associated with sexual risk behaviour among adolescents (ever had sex, early sexual debut, no
condom use, and no contraceptive use), include, male sex, older age, substance use, psychological distress, school truancy, lack of parental and peer support.’

We have insufficient recent national data on sexual behaviour and its risk factors among school adolescents in Mozambique. Knowing the occurrence and factors associated with sexual behaviour and its risk factors among adolescents in Mozambique will help in informing intervention strategies targeting the delay of sexual initiation and promoting ‘safer sex’. Therefore, this secondary analysis aimed to estimate the prevalence and predictors of sexual risk behaviours among school-adolescents in Mozambique in 2015.

**Methods**

**Sample and procedure**

This study used secondary data analysis of a national sample of school adolescents in the 2015 Mozambique cross-sectional GSHS (WHO, 2019). The Mozambique GSHS dataset is publicly available for download at [https://www.who.int/ncds/surveillance/gshs/mozambiquedataset/en/](https://www.who.int/ncds/surveillance/gshs/mozambiquedataset/en/). ‘A two-stage cluster sample design was used to produce data representative of all Grade 8–12 students in Mozambique. At the first stage, schools were selected with probability proportional to enrolment size. At the second stage, classes were randomly selected and all students in selected classes were eligible to participate, and responded to a self-administered questionnaire after written consent was obtained’ (WHO, 2019). The World Health Organization and an ethics committee in Mozambique provided ethics approval (WHO, 2019).

**Measures**

The questionnaire use in shown in Table 1 (WHO, 2019). Sexual risk behaviour was assessed with

| Table 1. Questionnaire items. |
|--------------------------------|
| Indicator                      | Item                                                      | Responses (coding scheme)                        |
| Sex                            | ‘What is your sex?’                                        | ‘Male, Female’                                   |
| Age                            | ‘How old are you?’                                         | ‘11 years old or younger to 18 years old’         |
| Hunger (proxy for socioeconomic status) | ‘During the past 30 days, how often did you go hungry because there was not enough food in your home?’ | ‘1 = never to 5 = always (coded 1 – 3 = 0 and 4–5 = 1)’ |
| Sexual behaviour                | ‘Have you ever had sexual intercourse?’                     | ‘Yes, No’ (coded yes=1, no=0)                     |
| Ever sex                       | ‘How old were you when you had sexual intercourse for the first time?’ | ‘11 years old or younger to 18 years old or older’ |
| Age of sexual initiation       | ‘During your life, with how many people have you had sexual intercourse?’ | ‘1 = never had sexual intercourse, 1 person to 6 or more people’ |
| Number of sex partners         | ‘The last time you had sexual intercourse, did you or your partner use a condom?’ | ‘1 = never had sexual intercourse, Yes, No, I do not know’ |
| Condom use                     | ‘The last time you had sexual intercourse, did you or your partner use any method of birth control, such as withdrawal, rhythm (safe time), birth control pills, or any other method to prevent pregnancy?’ | ‘1 = never had sexual intercourse, Yes, No, I do not know’ |
| Birth control use              | ‘During your life, how many times have you used amphetamines or methamphetamine (also called drogas injectaveis)?’ | ‘1 = never to 5 = 20 or more times (coded 1 = 0 to 2–5 = 1)’ |
| Substance use                  | ‘During the past 30 days, on how many days did you smoke cigarettes/use any tobacco products other than cigarettes, such as such as surumo?’ | ‘1 = never to 5 = 20 or more times (coded 1 = 0 and 2–5 = 1)’ |
| Current tobacco use            | ‘During the past 30 days, on how many days did you have at least one drink containing alcohol?’ | ‘1 = never to 5 = 20 or more times (coded 1 = 0 and 2–5 = 1)’ |
| Current alcohol use            | ‘During your life, how many times have you used marijuana (also called passo)?’ | ‘1 = never to 5 = 20 or more times (coded 1 = 0 and 2–5 = 1)’ |
| Cannabis use                   | ‘During your life, how many times have you used amphetamines or methamphetamine (also called drogas injectaveis)?’ | ‘1 = never to 5 = 20 or more times (coded 1 = 0 and 2–5 = 1)’ |
| Amphetamine use                | ‘During your life, how many times have you used (also called drogas injectaveis)?’ | ‘1 = never to 5 = 20 or more times (coded 1 = 0 and 2–5 = 1)’ |
| Psychological distress         | ‘How many close friends do you have?’                      | ‘1 = 0–4 = 3 or more (coded 1+ = 0, 0 = 1)’        |
| No close friends               | ‘During the past 12 months, how often have you felt lonely?’ | ‘1 = never to 5 = always (coded 1–3 = 0 and 4–5 = 1)’ |
| Loneliness                     | ‘During the past 12 months, how often have you been so worried about something that you could not sleep at night?’ | ‘1 = never to 5 = always (coded 1–3 = 0 and 4–5 = 1)’ |
| Anxiety                        | ‘During the past 12 months, did you ever seriously consider attempting suicide?’ | ‘1 = yes, No’                                    |
| Suicide ideation               | ‘During the past 12 months, did you ever seriously consider attempting suicide?’ | ‘1 = yes, No’                                    |
| Suicide attempt                | ‘During the past 12 months, how many times did you actually attempt suicide?’ | ‘1 = yes, No’                                    |
| Protective factors             | ‘During the past 30 days, on how many days did you miss classes or school without permission?’ | ‘1 = yes to 5 = always (coded 1–3 = 0 and 4–5 = 1)’ |
| School attendance              | ‘During the past 30 days, how often were most of the students in your school kind and helpful?’ | ‘1 = no to 5 = always (coded 1–3 = 0 and 4–5 = 1)’ |
| Peer support                   | ‘During the past 30 days, how often did your parents or guardians check to see if your homework was done?’ | ‘1 = no to 5 = always (coded 1–3 = 0 and 4–5 = 1)’ |
| Parental supervision           | ‘During the past 30 days, how often did your parents or guardians understand your problems and worries?’ | ‘1 = no to 5 = always (coded 1–3 = 0 and 4–5 = 1)’ |
| Parental connectedness         | ‘During the past 30 days, how often did your parents or guardians go through your things without your approval?’ | ‘1 = no to 5 = always (coded 1–3 = 0 and 4–5 = 1)’ |
| Parental bonding               | ‘During the past 30 days, how often did your parents or guardians really know what you were doing with your free time?’ | ‘1 = no to 5 = always (coded 1–3 = 0 and 4–5 = 1)’ |
questions on ever having had sexual intercourse, age of sexual debut, number of people having had sexual intercourse with in a lifetime, condom use at last sexual intercourse, and birth control use at last sexual intercourse. Individual sexual risk behaviours were defined as ever having had sex, early sexual debut (<14 years), having had two or more sexual partners in a lifetime, non-condom use at last sex and non-birth control use at last sex. A composite sexual risk behaviour measure included having sex, early sexual debut (<14 years), having had two or more sexual partners in a lifetime, and non-condom use at last sex; non-birth control use was excluded due to overlap with non-condom use at last sex, following previous studies (Carver, Dévieux, Gaston, Altice, & Niccolai, 2014). The psychological distress items (no close friends, loneliness, anxiety, suicidal ideation and suicide attempt) were summed, and grouped into 0 = 0, 1 = 1 single and 2–5 = 2 multiple (Pengpid & Peltzer, 2019, p. 409). The four items on parental or guardian support were summed, and classified into three groups, 0–1 low, 2 medium and 3–4 high support (Pengpid & Peltzer, 2019, p. 409).

Data analysis
Data analysis was performed using STATA software version 15.0 (Stata Corporation, College Station, TX, USA). Descriptive statistics was used to describe the sample. Sex differences in the proportion of variables were calculated with Pearson Chi-square statistics. Logistic regression was used on the whole sample to identify predictors of individual sexual risk behaviours (non-birth control use at last sex non-condom use at last sex, multiple sexual partners, early sexual debut, and ever had sex) and a composite measure of multiple sexual risk behaviour (at least two risk behaviours had to be present). Co-variates were included based on a previous review (Peltzer & Pengpid, 2016). Taylor linearisation procedures were utilised in all statistical operations in order to account for the sampling weight and the multi-stage design of the study. Missing cases were not included in the analysis. The level of significance was set at p < 0.05.

Results
Characteristics of the sample and sexual behaviour
The overall (school and individual) study response rate was 80% (WHO, 2019). The sample consisted of 1918 in-going adolescents from Mozambique, with a median age of 15 years (IQR: 15–18). More than half (57.4%) of the students ever had sex, 68.4% among boys and 45.8% among girls. Among students that had been sexually active, 41.5% had early sexual debut (<14 years), 57.9% had multiple sexual partners, 42.0% had not used birth control at last sex, 25.0% had not used a condom at last sex, and 63.7% had engaged in multiple sexual risk behaviours. The proportion of having two or more sexual risk behaviours, multiple sex partners, sexual initiation, and early sexual debut was higher in boys than in girls (see Table 2).

Associations with sexual risk behaviour
In adjusted logistic regression analysis, male sex was associated with ever sex (AOR: 2.20, 95% CI: 1.54–3.14), early sexual debut (AOR: 4.48, 95% CI: 2.51–7.98), multiple sexual partners (AOR: 4.44, 95% CI: 3.16–6.25), non-condom use at last sex (AOR: 1.96, 95% CI: 1.08–3.53), non-birth control use at last sex (AOR: 2.28, 95% CI: 1.45–3.57), and multiple sexual risk behaviour (AOR: 4.53, 95% CI: 3.07–6.70). Compared to participants aged 14 years or less, participants 17 years or older were more likely to ever had sex (AOR: 4.46, 95% CI: 2.51–7.93), had multiple sexual partners

Table 2. Sample and sexual behaviour characteristics among adolescents in Mozambique, 2015.

| Study variable | All | Males | Females | p-value |
|----------------|-----|-------|---------|---------|
| Sociodemographic variables | 1918 |       |         |         |
| Age in years | 14 or less | 357 (29.4) | 172 (25.0) | 180 (32.9) | 0.050 |
| 15–16 | 691 (32.8) | 357 (39.8) | 334 (36.2) |       |         |
| 17 or more | 784 (37.8) | 457 (35.2) | 327 (40.9) |       |         |
| Hunger (mostly/ always) | 195 (11.3) | 107 (12.0) | 88 (10.5) | 0.518 |
| Sexual behaviour | Ever sex | 993 (57.4) | 599 (68.4) | 394 (45.8) | <0.001 |
| Early sexual debut (<14 years)* | 284 (41.3) | 227 (47.5) | 57 (29.0) | <0.001 |
| Multiple sexual partners* | 486 (57.9) | 361 (64.5) | 125 (43.8) | <0.001 |
| No condom use at last sex* | 197 (25.0) | 140 (26.7) | 57 (21.1) | 0.357 |
| No birth control use at last sex* | 282 (42.0) | 188 (44.0) | 94 (28.5) | 0.316 |
| Multiple sexual risk behaviour* | 544 (59.4) | 401 (68.4) | 143 (36.5) | <0.001 |
| Substance use | Current tobacco use | 83 (5.5) | 52 (5.8) | 31 (5.2) | 0.667 |
| Days drinking alcohol | 0 | 1538 (88.4) | 798 (87.5) | 693 (88.3) | 0.554 |
| 1 or 2 | 171 (8.3) | 88 (8.5) | 83 (8.7) |       |         |
| 3–10 | 66 (3.3) | 43 (3.9) | 23 (2.8) |       |         |
| Ever cannabis and/or amphetamine use | 35 (1.7) | 25 (2.2) | 10 (1.2) | 0.183 |
| Psychological distress | 0 | 965 (58.0) | 520 (62.1) | 445 (54.5) | 0.062 |
| 1 | 452 (25.9) | 234 (25.4) | 218 (26.3) |       |         |
| 2–5 | 269 (16.1) | 121 (12.5) | 148 (17.2) |       |         |
| Protective factors | School attendance | 1384 (75.4) | 706 (74.5) | 678 (76.8) | 0.291 |
| Peer support | 620 (33.3) | 330 (33.7) | 290 (32.7) | 0.765 |
| Parental support | Low | 668 (34.8) | 361 (37.0) | 307 (31.5) | 0.362 |
| Medium | 450 (26.1) | 238 (25.6) | 212 (23.0) |       |         |
| High | 608 (33.0) | 311 (34.7) | 297 (34.5) |       |         |

*Of sexually active.
Sociodemographics

| Variable          | Ever had sex (N = 1168) AOR (95% CI) | Early sexual debut (N = 1201) AOR (95% CI) | Multiple sexual partners (N = 1232) AOR (95% CI) |
|-------------------|--------------------------------------|------------------------------------------|-----------------------------------------------|
| Sex               |                                      |                                          |                                               |
| Female            | 1 (Reference)                       | 1 (Reference)                            | 1 (Reference)                                 |
| Male              | 2.20 (1.54, 3.14)**                 | 4.48 (2.51, 7.98)**                     | 4.44 (3.16, 6.25)**                           |
| Age in years      |                                      |                                          |                                               |
| 14 or less        | 1 (Reference)                       | 1 (Reference)                            | 1 (Reference)                                 |
| 15–16             | 1.97 (1.19, 3.26)**                 | 1.06 (0.60, 1.87)                       | 3.16 (1.83, 5.45)**                           |
| 17 or more        | 4.46 (2.51, 7.93)**                 | 0.71 (0.35, 1.46)                       | 6.53 (3.33, 12.85)**                          |
| Experience hunger | 0.85 (0.49, 1.48)                   | 0.96 (0.45, 2.06)                       | 0.96 (0.49, 1.89)                             |
| Substance use     |                                      |                                          |                                               |
| Current tobacco use | 3.46 (0.82, 14.65)              | 1.11 (0.33, 3.80)                       | 1.00 (0.38, 2.64)                             |
| Current alcohol use | 2.88 (1.39, 5.98)**             | 1.37 (1.21, 4.66)*                      | 2.11 (1.34, 3.32)**                           |
| Ever cannabis and/or amphetamine use | 5.84 (0.80, 42.39)        | 2.83 (1.26, 6.38)*                      | 1.23 (0.42, 3.61)                             |
| Psychological distress |                                      |                                          |                                               |
| 0                 | 1 (Reference)                       | 1 (Reference)                            | 1 (Reference)                                 |
| 1                 | 1.33 (0.98, 1.79)                   | 1.20 (0.81, 1.79)                       | 0.78 (0.52, 1.17)                             |
| 2–5               | 1.66 (0.86, 3.20)                   | 1.34 (0.67, 2.71)                       | 0.86 (0.50, 1.50)                             |
| Protective factors |                                      |                                          |                                               |
| School attendance | 0.72 (0.52, 1.00)                   | 0.68 (0.45, 1.04)                       | 0.64 (0.43, 0.95)**                           |
| Peer support      | 0.75 (0.51, 1.09)                   | 1.01 (0.58, 1.77)                       | 1.05 (0.72, 1.54)                             |
| Parental support  |                                      |                                          |                                               |
| Low               | 1 (Reference)                       | 1 (Reference)                            | 1 (Reference)                                 |
| Medium            | 1.06 (0.74, 1.53)                   | 1.16 (0.70, 1.93)                       | 1.02 (0.70, 1.49)                             |
| High              | 0.93 (0.71, 1.22)                   | 0.89 (0.58, 1.39)                       | 1.01 (0.64, 1.58)                             |

AOR = Adjusted Odds Ratio; ***P < 0.001; **P < 0.01; *P < 0.05.
(last sex), non-condom use (last sex), multiple sexual partners, early sexual debut, and ever had sex. Similar results were shown in previous investigations (Carver et al., 2014; Chinsembu et al., 2008; Kugbey et al., 2018; Mmari & Blum, 2009; Peltzer & Pengpid, 2016; Twa-Twa et al., 2008), which may support the case of sexual risk intervention programmes targeting male adolescents at an earlier age than their female counterpart. Unlike in former research (Sanchez et al., 2013), this study showed a non-association between frequent hunger experience (or lower socioeconomic status) sexual risk behaviours. A possible explanation for this finding is that the prevalence of mostly or always experiencing hunger was low and the concept of socioeconomic status is assessed more comprehensively in other studies, such as including education of the household head and a list of household possessions (Sanchez et al., 2013).

In agreement with a number of previous studies (Carver et al., 2014; Chinsembu et al., 2008; Kugbey et al., 2018; Mmari & Blum, 2009; Peltzer & Pengpid, 2016; Siziya, Muula, Kazembe, & Rudatsikira, 2008), this survey showed that drug and alcohol use increased the likelihood of engaging in sexual risk behaviours, calling for reproductive and sexual health programmes to integrate alcohol and drug use (Page & Hall, 2009; Peltzer & Pengpid, 2016). Unlike in previous investigations (Kugbey et al., 2018; Page & Hall, 2009; Peltzer, 2010; Peltzer & Pengpid, 2016), psychological distress was in this study not associated with single and multiple sexual risk behaviours. A possible explanation for the non-significant association between psychological distress and sexual risk behaviours may be related to how psychological distress was measured, namely in this study with internalising symptoms (loneliness, no close friends, suicidal ideation and attempt), while in a study among European adolescents externalising symptoms, such as hyperactivity and conduct, was positively associated with sexual initiation (Gambadauro, Carli, Hadlaczky, et al., 2018). In addition, the strength of the associations between sexual risk taking and psychological problems varies depending on factors such as the severity of the symptoms and the sex of the pupil (Gambadauro, Carli, Hadlaczky, et al., 2018).

School attendance was found to be protective against having multiple sexual risk behaviours and multiple sexual partners, which is consistent with previous research findings (Mmari & Blum, 2009; Peltzer & Pengpid, 2016). Interventions preventing school truancy and promoting school attendance may also be beneficial in sexual risk behaviour reduction. Partially in agreement with former research studies (Carver et al., 2014; Mmari & Blum, 2009; Page & Hall, 2009; Peltzer & Pengpid, 2011), this survey showed that parental support was protective against non-birth control and non-condom use. There is an increased need for comprehensive sexual and reproductive health education in secondary school and peer-led programmes in Mozambique (Miedema & Oduro, 2017).

### Limitations of the study

The GSHS only includes adolescents that attend school, excluding out-of-school youth. Adolescents who have dropped out of school may be more vulnerable to sexual risk behaviour. The GSHS Mozambique

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### Table 4. Associations with non-condom use and non-birth control use at last sex and multiple sexual risk behaviours.

| Variable                      | Non-condom use (N = 1219) AOR (95% CI) | Non-birth control use (N = 1143) AOR (95% CI) | Multiple sexual risk behaviours (N = 1118) AOR (95% CI) |
|-------------------------------|----------------------------------------|-----------------------------------------------|--------------------------------------------------------|
| **Sociodemographics**         |                                        |                                               |                                                        |
| Sex                           |                                        |                                               |                                                        |
| Female                        | 1 (Reference)                          | 1 (Reference)                                 | 1 (Reference)                                          |
| Male                          | 1.96 (1.08, 3.53)*                     | 2.28 (1.45, 3.57)**                           | 4.53 (3.07, 6.70)**                                    |
| Age in years                  |                                        |                                               |                                                        |
| 14 or less                    | 1 (Reference)                          | 1 (Reference)                                 | 1 (Reference)                                          |
| 15–16                         | 1.50 (0.74, 3.05)                      | 1.78 (1.00, 3.17)                             | 1.98 (1.19, 3.29)**                                    |
| 17 or more                    | 2.23 (1.07, 4.66)*                     | 3.14 (1.72, 5.72)**                           | 3.25 (1.75, 6.04)**                                    |
| Experience hunger             |                                        |                                               |                                                        |
| Substance use                 |                                        |                                               |                                                        |
| Current tobacco use           | 1.50 (0.50, 4.45)                      | 2.54 (0.95, 6.81)                             | 1.28 (0.39, 4.17)                                      |
| Current alcohol use           | 1.63 (1.01, 2.64)*                     | 1.92 (1.21, 3.04)**                           | 2.25 (1.20, 4.23)*                                    |
| Ever cannabis and/or amphetamine use | 0.72 (0.29, 1.75) | 1.05 (0.20, 5.49)                             | 1.91 (0.93, 3.94)                                      |
| **Psychological distress**    |                                        |                                               |                                                        |
| 0                             | 1 (Reference)                          | 1 (Reference)                                 | 1 (Reference)                                          |
| 1                             | 1.12 (0.69, 1.81)                      | 0.76 (0.48, 1.19)                             | 1.00 (0.70, 1.43)                                      |
| 2–5                           | 0.91 (0.49, 1.69)                      | 1.11 (0.59, 2.09)                             | 0.99 (0.52, 1.88)                                      |
| **Protective factors**        |                                        |                                               |                                                        |
| School attendance             | 0.97 (0.61, 1.52)                      | 0.87 (0.54, 1.41)                             | 0.65 (0.45, 0.98)*                                    |
| Peer support                  | 1.09 (0.58, 2.03)                      | 0.90 (0.63, 1.29)                             | 0.99 (0.64, 1.53)                                      |
| **Parental support**          |                                        |                                               |                                                        |
| Low                           | 1 (Reference)                          | 1 (Reference)                                 | 1 (Reference)                                          |
| Medium                        | 0.78 (0.40, 1.53)                      | 0.98 (0.68, 1.41)                             | 1.08 (0.66, 1.76)                                      |
| High                          | 0.44 (0.22, 0.89)**                    | 0.57 (0.38, 0.87)**                           | 0.82 (0.57, 1.18)                                      |

AOR = Adjusted Odds Ratio; ***P < 0.001; **P < 0.01; *P < 0.05.
was cross-sectional by design, which precludes causative inferences between study variables. Further, the self-reported data collection may have led to biased responses, in particular regarding sensitive issues, such as sexual behaviour. The GSHS does not provide a definition of ‘sexual intercourse’, and therefore it is possible that some students misinterpreted the meaning, but the same question is used in various other surveys among adolescents (e.g. Gambadauro, Carli, Wasserman, et al., 2018).

Conclusion

More than half of the students ever had sex, had multiple sexual partners, and multiple sexual risk behaviours. Sexual risk behaviours were higher in students who engaged in substance use, were older, were male and were absent from school. Taking the identified factors associated with sexual risk behaviours into account, will be important in the design and scaling up of sexuality and reproductive health education among school adolescents in Mozambique.

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

Bearinger, L. H., Sieving, R. E., Ferguson, J., & Sharma, V. (2007). Global perspectives on the sexual and reproductive health of adolescents: Patterns, prevention, and potential. The Lancet, 369, 1220–1231.
Berhane, Y., Canavan, C. R., Darling, A. M., Sudfeld, C. R., Vual, S., Adanu, R., ... Fawzi, W. W. (2020). The age of opportunity: Prevalence of key risk factors among adolescents 10–19 years of age in nine communities in sub-saharan Africa. Tropical Medicine & International Health, 25(1), 15–32. https://doi.org/10.1111/tmi.13399
Carver, J. W., Dévieux, J. G., Gaston, S. C., Altice, F. L., & Niccolai, L. M. (2014). Sexual risk behaviors among adolescents in Port-au-Prince, Haiti. AIDS and Behavior, 18, 1595–1603.
Chinsembu, K. C., Siziya, S., Muula, A. S., & Rudatsikira, E. (2008). Prevalence and social correlates of sexual intercourse among school-going adolescents in Namibia. SAHARA J: Journal of Social Aspects of HIV/AIDS, 5(3), 129–135.
Doyle, A. M., Mavedzenge, S. N., Plummer, M. L., & Ross, D. A. (2012). The sexual behaviour of adolescents in sub-Saharan Africa: Patterns and trends from national surveys. Tropical Medicine and International Health, 17(7), 796–807. https://doi.org/10.1111/j.1365-3156.2012.03005.x
Gambadauro, P., Carli, V., Hadlaczyk, G., Sarchiapone, M., Apter, A., Balazs, J., ... Wasserman, D. (2018). Correlates of sexual initiation among European adolescents. PloS one, 13(2), e0191451. https://doi.org/10.1371/journal.pone.0191451
Gambadauro, P., Carli, V., Wasserman, C., Hadlaczyk, G., Sarchiapone, M., Apter, A., ... Wasserman, D. (2018). Psychopathology is associated with reproductive health risk in European adolescents. Reproductive Health, 15(1), 186. https://doi.org/10.1186/s12978-018-0618-0
Kugbey, N., Ayanore, M. A., Amu, H., Oppong Asante, K., & Adam, A. (2018). International note: Analysis of risk and protective factors for risky sexual behaviours among school-aged adolescents. Journal of Adolescence, 68, 66–69. https://doi.org/10.1016/j.adolescence.2018.06.013
Miedema, E., & Oduro, G. Y. (2017). Sexuality education in Ghana and Mozambique: An examination of colonising assemblages informing school-based sexuality education initiatives. In L. Allen, & M. L. Rasmussen (Eds.), The Palgrave handbook of sexuality education (pp. 69–93). London: Springer.
Mmari, K., & Blum, R. W. (2009). Risk and protective factors that affect adolescent reproductive health in developing countries: A structured literature review. Global Public Health, 4, 350–366.
Nic Gabhaimh, S., Baban, A., Boyce, W., Godeau, E., & HBSC Sexual Health Focus Group (2009). How well protected are sexually active 15-year olds? Cross-national patterns in condom and contraceptive pill use 2002-2006. International Journal of Public Health, 54(suppl 2), 209–215.
Page, R. M., & Hall, C. P. (2009). Psychosocial distress and alcohol use as factors in adolescent sexual behavior among sub-Saharan African adolescents. Journal of School Health, 79, 369–379.
Peltzer, K. (2010). Early sexual debut and associated factors among in-school adolescents in eight African countries. Acta Paediatrica, 99, 1242–1247.
Peltzer, K., & Pengpid, S. (2011). Prevalence and social correlates of sexual intercourse among school-going adolescents in Thailand. The Scientific World Journal, 11, 1812–1820. doi:10.1101/2011/532109
Peltzer, K., & Pengpid, S. (2016). Risk and protective factors affecting sexual risk behaviour among school-aged adolescents in Fiji, Kiribati, Samoa, and Vanuatu. Asia Pacific Journal of Public Health, 28(5), 404–415. doi:10.1177/1010539516650725
Peltzer, K., & Pengpid, S. (2017). Lifestyle and mental health among school-going adolescents in Namibia. Journal of Psychology in Africa, 27(1), 69–73.
Pengpid, S., & Peltzer, K. (2019). Leisure-time sedentary behavior is associated with psychological distress and substance use among school-going adolescents in five Southeast Asian countries: A cross-sectional study. International Journal of Environmental Research and Public Health, 16(12), 2091.
Sanchez, Z. M., Nappo, S. A., Cruz, J. I., Carlini, E. A., Carlini, C. M., & Martins, S. S. (2013). Sexual behavior among high school students in Brazil: Alcohol consumption and legal and illegal drug use associated with unprotected sex. Clinics, 68(4), 489–494.
Siziya, S., Muula, A. S., Kazembe, L. N., & Rudatsikira, E. (2008). Harmful lifestyles’ clustering among sexually active in-school adolescents in Zambia. BMC Pediatrics, 8, 6.
Tw-Twa, J. M., Oketch, S., Siziya, S., & Muula, A. S. (2008). Prevalence and correlates of condom use at last sexual intercourse among in-school adolescents in urban areas of Uganda. East African Journal of Public Health, 5(1), 22–25.
UNFPA Moçambique. (2013). Graavidez na Adolescência - Desafios e Respostas de Moçambique: Suplemento do
Relatório sobre a Situação da População Mundial – 2013
Gravidez na Adolescência Moçambique. https://mozambique.unfpa.org/sites/default/files/pub-pdf/SWOP_Suplemento_PAGINACAOFINAL0312134.pdf.
UNICEF Moçambique/UNICEF. (2019). Adolescent & social norms situation in Mozambique. Retrieved June 3, 2019, from https://www.unicef.org/mozambique/en/adolescent-social-norms.
World Health Organization (WHO). (2019). Global school-based student health survey (GSHS). Retrieved May 20, 2019, from https://www.who.int/ncds/surveillance/gshs/en/.