



## Psychosocial Predictors of Sexual Abstinence among Senior Secondary School Students in an Urban Setting in the Southwest Region of Cameroon

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### Abstract

**Background:** In the absence of a cure for HIV and AIDS, prevention remains the most effective strategy to eliminate the pandemic. Abstinence from sexual intercourse is, therefore, the primary prevention weapon among unmarried adolescents and young adults, especially the school-going ones. This study uses the main constructs of the Health Belief Model (HBM), as the theoretical framework to investigate the psychosocial predictors of sexual abstinence among senior secondary school students in an urban setting in the Southwest region of Cameroon

**Methods:** This study adopted a cross-sectional design, collecting data from a stratified random sample of 420 students in November 2016, using a pretested structured questionnaire, and analyzing them using SPSS version 20 software programme, using binomial logistic regressions at the level 0.05.

**Results:** Only 194 (46.2%) were abstaining from sex. Perceived susceptibility to HIV, perceived severity of HIV/AIDS, perceived benefits of sexual abstinence and perceived self-efficacy for sexual abstinence were not that high, 79.8%, 71.0%, 86.4% and 68.3% respectively. None of the above constructs of the HBM was a significant predictor of sexual abstinence. However, increasing age was significantly associated with an increased likelihood of sexual abstinence, OR=1.6 (95% CI 1.20-2.24, p=0.002).

**Conclusions:** Senior secondary school students in urban Cameroon were not practicing sexual abstinence. Interventions and strategies to increase sexual abstinence are highly recommended and should focus on increasing the perception of risk of contracting HIV, which is assumed to be the immediate antecedent of sexual abstinence, on overcoming barriers to sexual abstinence and on sexual abstinence negotiating skills, and should target adolescent students (10-19 years old).

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**Keywords:** Health Belief Model (HBM), HIV/AIDS, Senior secondary school students, Sexual abstinence, South-west region, Urban Cameroon.

**Received** Jun 30, 2017;

**Accepted** Aug 01, 2017;

**Published** : Aug 17, 2017

## Introduction

Sub-Saharan African (SSA) remains the region most heavily affected by HIV, accounting for 68% of all people living with HIV/AIDS (PLHIV). This region also accounts for 70% of all new HIV infections. In SSA, young people aged 15-24 account for half of all new HIV infections [1]. This implies that most men and women begin to have sex during teenage years. Therefore monitoring the sexual behaviours of this vulnerable age group is necessary in order to control the HIV/AIDS pandemic.

Cameroon has one of the highest HIV/AIDS prevalence in the Central and West African sub-region, of 4.3%. Juveniles in Cameroon aged 15-24 comprise 21.5% of the total population and the estimated HIV/AIDS prevalence rate among women in this group is 2.9% [2].

Indicators of sexual activities among young people in Cameroon have revealed that a substantial proportion of unmarried youths aged 15 to 24 years is sexually experienced, thus vulnerable to sexual risk behaviors which can expose them to sexually transmissible infections (STIs), including HIV/AIDS [3-5].

The adolescent environment today is quite different from that of previous generations. Young people are entering adolescence earlier and are more likely to spend more years in school than their parents [6]. Throughout the world, puberty is occurring at earlier ages while the age of marriage is generally rising. This combination of factors results in a longer time period for premarital sexual activity. Modern society is characterised by children who mature physically and sexually much earlier than previously. A younger age of menarche would seem to be an outcome of social changes in lifestyle, sexual attitudes and practices. This may result in a longer time period during which unmarried youths have the opportunities for sexual activity, often in a pattern of a series of multi-partner relationships [7, 8].

In the absence of a cure for HIV and AIDS, prevention remains the most effective strategy to eliminate the pandemic. Abstinence from sexual intercourse is, therefore, the primary prevention weapon among unmarried adolescents and young adults, especially the school-going ones. Abstinence is one of the elements promoted by major preventive

programmes that emphasise the ABC (abstain, be faithful, and use condoms) approach. Early sexual debuts can place adolescents at increased risks of unintended pregnancies, HIV/AIDS infection and other STIs. Youths who begin sexual activities early, appear more likely to have sex with high-risk partners and are less likely to use condoms [9, 10].

In Cameroon, researches on HIV have been conducted among school-going and out-of-school youths [11-14]. However, none of them have focused on predictors of sexual abstinence. To design and implement effective prevention interventions, it is important to understand the predictors of sexual abstinence in relation to the social environments where a variety of psychosocial factors interact to influence sexual behaviours.

The Health Belief Model (HBM) theorizes that people's beliefs about whether or not they are at risk for a disease or health problem (HIV/AIDS), and their perceptions of the benefits of taking action to avoid it (abstaining from sexual intercourse), influence their readiness to take action (abstaining from sexual intercourse to prevent HIV/AIDS) [15, 16]. The HBM asserts that the motivation for people to take action to promote or prevent a disease is based on how strongly they believe that they are susceptible to the disease in question; whether the disease would have serious effects on their lives if they should contract it; whether the suggested health intervention is of value; whether the effectiveness of the treatment is worth the cost; which barriers people must overcome to institute and maintain specific behaviours; influence by another person close by, who may have been susceptible to the same disease, signaling the need for action [17, 18].

No study has been conducted in Cameroon on the psychosocial predictors of sexual abstinence among high school students. This paper uses the main constructs of the HBM, as the theoretical framework to investigate the psychosocial predictors of sexual abstinence among senior secondary school students in an urban setting in the Southwest region of Cameroon, in order to inform an HIV/AIDS prevention program among them.

In the current study it is hypothesized that high school students would abstain from sexual intercourse to prevent HIV, if they believe they are susceptible to HIV, if contracting the disease would have serious effects on

their lives, if sexual abstinence would be beneficial in preventing HIV transmission, if they could overcome potential barriers to sexual abstinence, and if they have confidence in their abilities to practice sexual abstinence.

## METHODS

### Study site

This study was conducted in Meme Division, the Southwest Region of Cameroon. Meme Division is among the six divisions in the Southwest region, with one urban and many semi-urban towns. Kumba, where the current study was conducted, is the only urban town and the administrative headquarters of Meme Division, and the economic capital of the Southwest region, thus making it one of Cameroon's wealthiest urban centers, which together with the availability of economic and social amenities, industries and political institutions, has resulted in a high population density. Administratively, the city is divided into three local government areas (Municipalities): Kumba I, Kumba II and Kumba III. With a total land area of 188.4 Km<sup>2</sup>, the total population of Kumba, a mixture of Christians and Muslims, was estimated at 166 000 inhabitants (51.2% males and 48.8% females) [19], the majority of whom are youths.

### Study design

The current study adopted a descriptive cross-sectional design, conducted towards the end of the first term (November 2016), among senior secondary school students.

### Population

In the current study, the accessible population included all the high school students in Kumba, Cameroon, that portion of the target population to which the researcher had reasonable access [20]. The inclusion criteria were high school students who were present and willing to participate in the study.

### Sampling

One high school was selected from each of the three Municipalities. The names of all the schools in each Municipality were written on pieces of paper, mixed, and one was picked at random. From the selected schools, respondents were recruited from senior classes: Form Five (Grade 10), Lower Sixth (Grade 11) and Upper Sixth (Grade 12) using a disproportional, stratified, random sampling technique

after they had signed an informed consent form. Participation in the current study was voluntary.

Probability sampling was used because it increased the likelihood that all the elements in the population would have an equal chance of being included in the sample [21]. The school attendance registers of the students were used as the sampling frame to select a sample of 420 grade 10 to grade 12 (Form five to Upper Sixth) students from the three randomly selected high schools (one from each local government area) in Kumba, Cameroon. The students were stratified at the different levels of study, namely Grade 10 (Form 5), Grade 11 (Lower Sixth) and grade 12 (upper 6th). After stratification, a disproportional simple random sample was obtained by selecting students randomly from the sampling frame until the intended sample size was attained.

### Sample size

The data for this study was part of the data set of a larger study, in which the sample size was calculated based on the proportion of students in Cameroon who manifested positive attitudes towards PLHIV, 52.5% [14] and therefore, the sample size was calculated using the formula for single population [22]. Thus the minimum sample size required for this study was 400. Adding a 5% non-response rate, gave a final sample size of 420.

### Data collection instrument/data collection technique

Data were collected by a self-administered anonymous questionnaire during a normal class period in November 2016. The questionnaire was pretested on a convenience sample of 20 senior secondary school students who did not take part in the actual study. The reasons for pre-testing were to clarify instructions, relevance, usability and completion time; to refine the instrument, and to introduce modifications where necessary to enhance reliability and validity. The pre-tested standard questionnaires with both open and close-ended questions were administered to respondents. The final pretested questionnaires with both open and closed-ended questions were administered to a sample of 420 senior secondary school students in the three participating senior secondary schools in Kumba, in English, which was their first language. The questionnaire collected data on the socio-demographic

characteristics of the respondents, and on the predictors of sexual abstinence. Previous studies guided the development of the questionnaires [23, 24]. The students were closely supervised by four (2 male and 2 female) research assistants of the same age group as the respondents, while filling in the questionnaires. The completed questionnaires were checked by the research assistants for errors and missing data before the respondents were allowed to go. Anonymously completed questionnaires were kept in a separate container from the signed informed consent forms in order to maintain anonymity.

### **Ethical considerations/informed consent**

Ethical clearance was obtained from the Institutional Review Board (IRB) of the Faculty of Philosophy, Religious and Social Studies of the Cameroon Christian University. Permission was also sought from the Principals of the participating schools. Participation was voluntary and written consent was obtained from respondents 18 years and above. For those below 18 years, a school administration signed their consent forms as a legal guardian while they gave verbal assent to participate.

We visited the school campuses during school hours. Therefore obtaining consent from the parents or guardians of the students was not possible because the study was conducted towards the end of the first term and it would not have been possible to get all parents/guardians of the participants. In addition, because the respondents were targeted at schools it was more feasible for the administrative staff of each school to stand as legal guardians for informed consent purposes. This was considered because during school hours anything that happened or was happening to the students was under the control of the school administration and thus authorization to participate in the survey was obtained from the school administration after they went through the questionnaire.

Human rights, anonymity and confidentiality were maintained throughout the study. The design of the questionnaire took into consideration the sensitivity of the topic of the research and respondents were also briefed on this issue before data collection commenced.

### **Measures**

#### ***Outcome (dependent) variable: sexual abstinence***

This was measured with the following question: 'Have you ever had sexual intercourse before?' The response options were '0=No' (reference category) and '1=yes'.

#### ***Predictor (independent) variables: constructs of the HBM***

*Perceived susceptibility to HIV:* This was measured based on the response to the following question: 'Are youths prone to HIV/AIDS?' The response options were categorized into '1=yes' and '0=no', which was coded as the index category.

*Perceived severity of HIV/AIDS:* This measure was based on the response to the following question: 'If you become HIV positive, would it interrupt your schooling?' The response options were the same as for 'perceived susceptibility' and were coded in the same manner.

*Perceived benefit of sexual abstinence:* This was measured based on the response to the following question: 'Can HIV be prevented by sexual abstinence?' The response options were the same as for 'perceived severity' and were coded in like manner.

*Perceived barriers to sexual abstinence:* This measure was based on the responses to the following questions each considered separately: 'Can sexual abstinence make a partner feel untrusted?' And 'Are your peers sexually active?' The response options were the same as for 'perceived benefit' and were coded in the same manner.

*Perceived self-efficacy for sexual abstinence:* This measure was based on the response the following question: 'Are you confident in your ability to refuse sexual intercourse?' The response options were the same as for 'perceived barriers' and were coded in the same manner.

*Socio-demographic variables:* The following socio-demographic variables were included in the study: age, categorized into two groups (10-19 and 20-24 years), marital status, categorized into three groups (single, married and others), Gender, categorized into two groups (Male and Female) and Grade level categorized into three groups (Form five, Lower Sixth and Upper Sixth).

*Perception of risk of contracting HIV:* This was measured with the following question: 'How at risk of contracting HIV are you?' The response options were '0=not at risk (reference category)' and '1=at risk'.

### Data analysis

Frequencies, percentages and binomial logistic regression were performed using SPSS version 20 software program at the level 0.05, to examine the likelihood of abstaining from sexual intercourse.

Binomial logistic regression predicts the probability that an observation falls into one of two categories of a dichotomous dependent variable based on one or more independent variables that can be either continuous or categorical. The procedure gives rise to estimates of odds of a certain event occurring (sexual abstinence), given a set of explanatory variables (psychosocial and demographic factors).

To estimate the odds ratios (OR), we built different models predicting sexual abstinence, using the main constructs of the HBM and the socio-demographic variables. To assess the predictive utility of each construct of the HBM as a whole model, that is how individuals with various combinations of health beliefs are more or less likely to abstain from sexual intercourse, each component of the HBM was entered into the model one at a time. The level of significance of all the statistical tests was 5%.

## Results

### Socio-demographic characteristics

The majority of the students, 325 (77.4%) were within the adolescent age group (10-19) and most, 391 (93.1%) were single Table 1.

### Psychosocial predictors of sexual abstinence

Only 194 (46.2%) were abstaining from sex. The perception that youths are prone to HIV (perceived susceptibility) was high, 335 (79.8%); most, 298 (71.0%) perceived that if they should contract HIV, it will interrupt their schooling (perceived severity); most, 363 (86.4%) perceived that sexual abstinence can prevent HIV transmission (perceived benefit); only 196 (46.7%) perceived that their peers are sexually active

and 253 (60.2%) perceived that abstinence makes partner feel untrusted (perceived barriers); a slight majority, 287 (68.3%) felt confident that they can refuse sexual intercourse (perceived self-efficacy) and only 224 (53.3%) perceived that they are at risk of contracting HIV (Table 2).

Increasing age was significantly associated with an increased likelihood of sexual abstinence, OR=1.6 (95% CI 1.20-2.24, p=0.002). None of the psychosocial constructs of the HBM was significantly associated with sexual abstinence. However, perception that youths are prone to HIV (perceived susceptibility) was associated with an increased likelihood of sexual abstinence, OR=1.1 (95% CI 0.78-1.63, p=0.52); perception of the severity of HIV/AIDS was associated with an increased likelihood of sexual abstinence, OR=1.2 (95% CI 0.87-1.63, p=0.33); the perception by students that their peers are sexually active was associated with a reduced likelihood of sexual abstinence, OR=0.95 (95% CI 0.74-1.23, p=0.72); and the perception of being at risk of contracting HIV was associated with an increased likelihood of sexual abstinence, OR=1.2 (95% CI 0.96-1.40, p=0.14) (Table 3).

## Discussion

Behavioural, physiological and sociocultural factors make young people more vulnerable to HIV infection than adults [25]. Adolescence is a time when young people naturally explore and take risks in many aspects of their lives, including sexual relationships. Those who are sexually active may change partners frequently, and have more than one partner at the same time or may engage in unprotected sexual intercourse. All these behaviours increase their risk of contracting HIV.

Full knowledge of the options available to adolescents for the prevention of HIV/AIDS infection, from abstinence to safer sex, is important in empowering young people, influencing the choices they make about sex, and preventing new HIV infections. Abstinence programmes focus exclusively on abstaining from sexual activity until marriage [26].

The current study investigated the psychosocial predictor of sexual abstinence among high school students in an urban setting in the Southwest region of

Cameroon, using the Health Belief Model (HBM) as the conceptual framework. The findings revealed that up to 46.2% of the respondents were abstaining from sex, which is, however, lower than that obtained from previous studies among high school students in Kumba, Cameroon, 47.7% [23], in Tiko, Cameroon, 56.3% [11], in Fako Division, Cameroon, 58.6% [14]. This result

government provides \$ 100 million a year for abstinence-only education. School youth programmes and media campaigns that receive this funding are required to teach that sexual activity outside of marriage is likely to have harmful psychological and physical effects [28]

Research suggests that people are more likely to hear and to personalize messages and thus to change their attitudes and behaviours if the Messenger is a peer and faces the same concerns and pressures as they do [29]. Studies have demonstrated that peers influence youth's health behaviours, not only with regard to sexuality but also with regard to violence and substance use [30, 31]. Peer education draws on the credibility that young people have with their peers, leverages the power of role modeling and provides flexibility in meeting the diverse needs of today's youth. Peer education can support young people in developing

**Table 1.** Socio-demographic characteristics of the study population

Characteristics	Number	Percentage
<b>Age Group</b>		
10-19	325	77.4
20-24	95	22.6
<b>Gender</b>		
Male	215	51.2
Female	205	48.8
<b>Marital Status (n=405)</b>		
Single	391	93.1
Married	9	2.1
Others	20	4.8
<b>Grade level</b>		
Form five	144	34.3
Lower Sixth	135	32.1
Upper sixth	141	33.6

implies that despite the Health Promotion Interventions that have taken place at various levels in Cameroon [27], the percentage of youths engaging in sexual intercourse keeps increasing. This calls for concerted efforts from stakeholders in changing the health promotion strategies targeted at high school students in the Southwest region of Cameroon that would empower them to abstain from sexual intercourse until marriage.

In practice, however, abstaining from sex tends to be less effective than condom use and being faithful to one partner in the prevention of HIV transmission because complete abstinence requires strong motivation, self-control and commitment. Many questions about sexual abstinence remain unanswered: How can it be encouraged? How should it even be defined? Controversy surrounds programmes that promote abstinence as the only means of protection against HIV/AIDS, and the effectiveness of such programmes is still unknown.

Abstinence promotion has become the main approach of the government of the United States to preventing adolescent HIV infection, where the

**Table 2.** Sexual experience and predictors of sexual abstinence

Predictors	Yes (Number)	Yes (Percentage)
Ever had sexual intercourse before	226	53.8
Youths are prone to HIV	335	79.8
If I am HIV positive it will interrupt my schooling	298	71.0
HIV can be prevented by abstaining from sex	363	86.4
Abstinence makes partner feel untrusted	253	60.2
My peers are sexually active	196	46.7
At risk of contracting HIV	224	53.3
Confidence to refuse sexual intercourse	287	68.3

**Table 3:** Odds Ratios (OR) of sexual abstinence from the logistic regression models

Effect	Odds Ratios (OR)	Confidence interval (CI)	Wald	P-value
<b>Perceived Susceptibility</b>				
Youths are prone to HIV/AIDS	1.129	(0.783-1.627)	0.422	0.516
<b>Perceived severity</b>				
If I become HIV positive, it will interrupt my schooling	1.141	(0.873-1.490)	0.935	0.334
<b>Perceived benefit of sexual abstinence</b>				
Sexual abstinence can prevent HIV transmission	0.759	(0.542-1.100)	2.121	0.145
<b>Perceived barriers to sexual abstinence</b>				
Abstinence makes partner feel uncomfortable	1.288	(0.986-1.683)	3.439	0.064
My peers are sexually active	0.954	(0.737-1.234)	0.130	0.719
<b>Perceived condom use self-efficacy</b>				
I feel confident that I can abstain from sex	0.801	(0.601-1.069)	2.266	0.132
<b>Perception of risk of contracting HIV</b>				
How at risk of contracting HIV are you	1.157	(0.956-1.401)	2.233	0.135
<b>Age group</b>	<b>1.64</b>	<b>(1.203-2.241)</b>	<b>9.761</b>	<b>0.002</b>
<b>Gender</b>	1.072	(0.634-1.815)	0.068	0.794
<b>Grade level</b>	0.993	(0.693-1.421)	0.002	0.968
<b>Marital status</b>	0.940	(0.550-1.608)	0.051	0.822

positive group norms and in making healthy decisions about sex [32].

Youth peer education is a widely used method to prevent HIV/AIDS and improve the reproductive health of young people. It is an approach in which young people inform other young people about HIV/AIDS and other health-related subjects. It is believed that trained peer educators are a more credible source of information for some youths than adult educators as they communicate in readily understandable terms and serve as positive role models [32].

The HBM asserts that the motivation for people to take action to promote or prevent a disease is based on how strongly they believe that they are susceptible to the disease in question; whether the disease would have serious effects on their lives if they should contract it; whether the suggested health intervention is of value; whether the effectiveness of the treatment is worth the cost; which barriers people must overcome to institute

and maintain specific behaviours; influence by another person close by, who may have been susceptible to the same disease, signaling the need for action [15, 16].

In the current study it was hypothesized that high school students would abstain from sexual intercourse to prevent HIV, if they believe they are susceptible to HIV, if contracting the disease would have serious effects on their lives, if sexual abstinence would be beneficial in preventing HIV transmission, if they could overcome potential barriers to sexual abstinence, and if they have confidence in their abilities to practice sexual abstinence.

The findings of the current study revealed that perceived susceptibility to HIV, perceived severity of HIV/AIDS, perceived benefits of sexual abstinence and perceived self-efficacy for sexual abstinence were not that high, 79.8%, 71.0%, 86.4% and 68.3% respectively (Table 2). None of the above constructs of the HBM was a significant predictor of sexual abstinence

among the high school students (Table 3). So many reasons could be put forward to explain this.

Going by the assumptions of the HBM, for high school students to abstain from sexual intercourse to prevent HIV transmission, they must first see themselves as susceptible to the infection [17, 18]. The low perceived susceptibility as revealed from the current study implies that the high school students might not see the need to abstain from sexual intercourse since they do not see themselves as susceptible to HIV/AIDS.

Also going by the tenets of the HBM [17, 18] for high school students to abstain from sexual intercourse to prevent HIV transmission, they must perceive that contracting the disease would have serious effects on their lives. However, the low perceived severity of HIV/AIDS, 71.0% may mean that the students would not see the need to abstain from sexual intercourse since they do not perceive HIV/AIDS as being serious.

The HBM assumes that for high school students to abstain from sexual intercourse, they must perceive sexual abstinence as beneficial in preventing HIV transmission [17, 18]. However, the perceived benefit of sexual abstinence as manifested by the respondents in the current study, is not adequate enough to motivate them to practice it.

According to the assumptions of the HBM, for high school students to abstain from sexual intercourse, they must have confidence in their ability to practice sexual abstinence [17, 18]. The low perceived self-efficacy for sexual abstinence as demonstrated by the respondents in the current study, 68.3%, implies that the students do not have confidence in their ability to practice sexual abstinence, and as such might not practise it to prevent HIV transmission.

The HBM generally assumes that for students to practice sexual abstinence, they must perceive HIV/AIDS as a real threat [15, 16]. The low perception of risk of contracting HIV manifested by the respondents in this study, (53.3%) implies that the students might not practise sexual abstinence since they do not see themselves at risk of contracting HIV.

These findings call for health promotion programs and interventions to increase the perceived susceptibility to HIV, perceived severity of HIV/AIDS, perceived benefits of sexual abstinence and the

perception of risk of contracting HIV. Interventions and programmes to equip students with condom negotiation skills are also recommended.

The study also revealed that the students perceived some barriers to sexual abstinence, as 60.2% perceived that sexual abstinence makes a partner feel untrusted and 46.7% perceived that their peers are sexually active. These barriers might prevent students from abstaining from sexual intercourse [33]. According to the assumptions of the HBM, for students to practice sexual abstinence, they have to overcome these barriers [15, 16]. Therefore, strategies to overcome barriers to sexual abstinence targeted at high school students are strongly recommended.

The current study revealed that age was a significant predictor of sexual abstinence, with students in the older age group (20-24) more likely to abstain from sexual intercourse (OR=1.64,  $p=0.002$ ). So programmes and interventions to bring about behaviour change, especially sexual abstinence among senior secondary school students in urban Cameroon should focus more on adolescents (10-19 years), which coincides with the age group hardest hit by HIV/AIDS [1].

The current study had some limitations. Firstly, given that it was conducted in one region of the country, it may not be generalised to other entire country. Secondly, due to the cross-sectional nature of the study, cause-effect relationships may not be ascertained. Also, HIV/AIDS and sexual behaviours are very sensitive issues and could limit free expression of the high school students used in the study. Assurance of confidentiality and anonymity of the responses and the presence of research assistants during data collection to answer possible questions raised by the respondents, minimised these limitations.

Based on the results of the current study, the hypothesis that that high school students would abstain from sexual intercourse to prevent HIV, if they believe they are susceptible to HIV, if contracting the disease would have serious effects on their lives, if sexual abstinence would be beneficial in preventing HIV transmission, if they could overcome potential barriers to sexual abstinence, and if they have confidence in their abilities to practice sexual abstinence is rejected at the level 0.05.



## Conclusion

Results from the current study revealed that senior secondary school students in urban Cameroon were not practicing sexual abstinence. Interventions and strategies to increase sexual abstinence are highly recommended and should focus on increasing the perception of risk of contracting HIV, which is assumed to be the immediate antecedent of sexual abstinence, on overcoming barriers to sexual abstinence and on sexual abstinence negotiating skills, and should target adolescent students (10-19 years old).

## Competing interests

The authors declare that they have no competing interests

## Acknowledgement

We acknowledge the staff of the HIV/AIDS Prevention Research Network Cameroon (HIVPREC) for collecting data for the current study.

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