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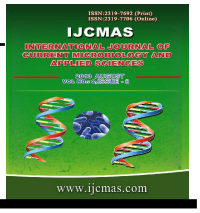

Original Research Article

Correlates of consistent condom use among secondary school Female Students in limbe urban city, Cameroon

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Keywords

Health Belief Model (HBM); HIV/AIDS; consistent condom use; female students; Cameroon.

A B S T R A C T

The objective of this study was to report on the components of the Health Belief Model (HBM) with statistically significant explanatory correlations with the outcome variable of consistent condom use to prevent HIV/AIDS among secondary school female students in Limbe urban city, Cameroon. A cross-sectional correlational design was adopted, using self-completion questionnaires to collect data from a representative sample of 210 female students selected through, stratified simple random sampling technique from three high schools. Statistics were calculated using SPSS version 20 software program. Perception of susceptibility to HIV/AIDS was quite high; perceived severity of HIV/AIDS was also quite high; perceived benefit of condom use was also quite high; perceived condom use self-efficacy was not quite high, while perceived barrier to condom use was quite high. Majority of the respondents, 56.2% reported having experienced sexual intercourse, of which only 27.4% reported using condoms consistently. Multinomial logistic regression analyses indicated that perceived barriers to condom use, (p=0.000), perceived condom use self-efficacy, (p=0.000) and socio-demographic variables, (p=0.000) were the most important correlates of consistent condom use. HIV/AIDS prevention programmes should aim at increasing young women's self-efficacy that they can use condoms consistently and also address strategies to overcome gender barriers to condom access and use.

Introduction

Sub-Saharan African (SSA) remains the region most heavily affected by HIV, accounting for 68% of all people living with AIDS/HIV. This region also accounts for 70% of all new HIV infections (UNAIDS, 2011). According to UNAIDS 2008 report on the Global AIDS epidemic, young people aged 15-24 account for 45% of all new HIV infection, and many young people still lack accurate information on how to avoid exposure to the virus. In SSA, 60% of adults living with AIDS/HIV are women and 75% of young people infected are girls (UNAIDS, 2008).

Cameroon has the highest AIDS/HIV prevalence of 5.3% in the Central and West African sub-region, and here about 90% of HIV transmission occurs through

heterosexual intercourse (UNAIDS, 2010). Here also, 61% of people living with AIDS/HIV are women (National AIDS Control Committee, 2006). Many Cameroonian youths engage in risky sexual behaviours, such as having sex with casual partners or having unprotected sexual intercourse, which may lead to unplanned pregnancies and STIs, including AIDS/HIV (Arcand and Wouabe, 2010; kongnyuy *et al.,* 2008; Mosoko *et al.,* 2000). Since there is presently no vaccine or cure for AIDS/HIV, only effective preventive measures can curb this pandemic, especially if these are adopted and sustained by young persons.

Correct and consistent condom use remains the most effective protection against HIV and other STIs for sexually active young adults (Cates, 2001; Holmes *et al.,* 2004; Trussell and Vaughan, 1999). Most Cameroonian youths know that consistent condom use prevents HIV (Rwenge, 2000). In addition cheap condoms are readily available in Cameroon. However, consistent condom use has remained fairly low (Rwenge, 2000; Van Rossem and Meekers, 2000). In a study by WHO, only 47% of female youths used condoms at their previous high risk sexual encounters (WHO, 2005). Among unmarried youth, only 16% of women reported frequently using condoms (Lagarde *et al.,* 2001; UNICEF, 2001). These percentages are lower than what would be necessary to curb the HIV/AIDS epidemic among young females aged 15-24 in Cameroon. Women in urban Cameroon reported low ability to refuse unprotected sex in their relationship with men (Hattori and DeRose, 2008), and Cameroonian women who carry condoms are stigmatised as sluts or prostitutes (Anne, 1999).

The literature has identified factors that affect condom use. For instance self-efficacy is a central concept (Ajzen, 2002), and is known to increase the likelihood of condom use (Baele *et al.,* 2001; Estrin, 1999; Meekers and Klein 2002a; Meekers and Klein, 2002b). Perceived effectiveness of condoms to prevent HIV is also an important determinant of condom use. Youths who perceived the benefit of condom use are more likely to use them regularly (Meekers and Klein, 2002a; Sheeran *et al.,* 1999). Risk perception is another factor affecting condom use. Increased awareness of the severity of the AIDS epidemic leads to increased condom use (Meekers and Klein, 2002a; Lugalla *et al.,* 2004).Youths who consider themselves susceptible to HIV infection are also more likely to use condoms regularly (Akwara *et al.,* 2003; Baele *et al.,* 2001; Estrin, 1999; Meekers and Klein, 2002a).

Perceived barriers to condom use,cues to action for condom use and demographic factors are also important factors that influence consistent condom use (Basen-Engquist, 1992; Bengel *et al.,* 1996; Edem and Harvey, 1995; Manderson *et al.,* 1997). These findings have important implications for the design of interventions to increase condom use among female students in urban Cameroon. No study has reported on the correlates of consistent condom use among female adolescents in an urban area in the Southwest region of Cameroon, which has an HIV prevalence of 11.0%, which is more than the national prevalence (UNAIDS, 2005).

The objective of this study is to determine correlates of consistent condom use among female students in Limbe urban city of Cameroon, using the main components of the Health Belief Model (HBM) viz:

perceived susceptibility to HIV/AIDS, perceived severity of HIV/AIDS, perceived benefit of condom use, perceived barriers to condom use, perceived condom use self-efficacy, cues to action for condom use and socio-demographic factors. The majority of youths in the secondary school fall within the age group hardest hit by HIV/AIDS, (15-24 years), and they are more accessible for research purposes than their non-school going counterparts.

Materials and Methods

A cross-sectional correlational study was conducted on 210 female students, using a self-reported questionnaire comprising items regarding socio-demographic characteristics and items relating to the major concepts of the HBM and condom use, to collect data.

The questionnaire was pretested on 10 students who did not take part in the actual study, to clarify instructions, relevancy, usability and completion time, to refine and introduce modifications where necessary and to ascertain reliability and validity (Bless and Higson-Smith, 2000). The following types of validity were established: face validity, content validity, construct validity and criterion-related validity. This was ensured by constructing items to represent the different components of the study, based on literature review. The reliability of the questionnaire was also tested using the coefficient alpha.

The questionnaires were distributed to a stratified simple random sample of 210 female students in three high schools in Limbe urban city of Cameroon during normal class periods with the permission of the principals and the co-operation of the teachers concerned. One research assistant was available to assist the students and to answer questions while they completed the questionnaires during a classroom period. To obtain the sample, the researcher used the school attendance registers of the students as a sampling frame. Data collection took place in October of 2012. The sample size of this study was determined using the formula for a single population proportion (Levy and Lemeshow, 1999).

Permission to conduct this study was granted by the HIV/AIDS Prevention Research Network, Cameroon (HIVPREC), a Non-governmental Organization (NGO) for the prevention of HIV/AIDS through formalized education, working in the South West region of Cameroon, and the principals of the three participating high schools. Participation was voluntary and informed written consent was obtained from each student and her parent/guardian prior to data collection. A questionnaire was handed to a student when she produced the signed consent form from a parent/guardian and from herself.

Anonymously completed questionnaires were kept in a separate container from the signed informed consent forms in order to maintain anonymity. Anonymity was also maintained by reporting the findings of the three schools combined and by not providing comparisons among the three schools. Confidentiality was maintained because only the researcher had access to the completed questionnaires, which were locked up. Subsequent to the acceptance of the research report, these would be destroyed.

Data analysis

Data were analysed using SPSS version 20. Data were summarised by means of

descriptive statistics including the frequency table. More advanced statistics included the chi square test at the 0.05 significant level, and the multinomial logistic regression test.

Measures

Outcome (dependent) variable
Consistent condom use

This measure was derived from the question:

"How often do you use a condom with a male partner during sexual intercourse?" The response options were: '1=always', '2=most of the time', '3=seldom', and '4=never'. Only the sexually active respondents responded to this question. Condom use prevents HIV only when used correctly and consistently.

Explanatory (independent) variables
Perceived susceptibility to HIV

This was constructed from two statements, each considered separately: 'HIV/AIDS really exist', and 'Youths are prone to HIV/AIDS'. The alpha reliability for this 2-item scale was 0.312. Response options were 'strongly agree', 'agree', 'disagree' and 'strongly disagree'. 'Strongly agree' and 'agree' were coded as the index category.

Perceived severity of HIV/AIDS

This measure was based on the degree of agreement with the following statements: 'The consequences of having HIV/AIDS are so serious that I may want to avoid them', and 'If I became HIV positive before finishing school it will interfere with the continuation of my schooling'. The Cronbach's alpha for this 2-item scale was 0.543. The response options were the same as for 'perceived susceptibility' and were coded in the same manner.

Perceived benefit of condom use

This measure was based on the degree of agreement with the following statement: 'Correct and consistent use of condoms during sexual intercourse could prevent transmission of HIV/AIDS'. The response options were the same as for 'perceived severity' and were coded in the same manner.

Perceived condom use self-efficacy

This measure was based on the degree of agreement with the following statements: 'I feel confident that I can discuss condom use with my partner(s)' and 'I feel confident that I can convince my partner(s) to use condoms'. The coefficient alpha for this 2-item scale was 0.731. The response options were the same as for 'perceived benefit' and were coded in the same manner.

Perceived barriers to condom use

This measure was based on the degree of agreement with the following statements: 'Condom use decreases sexual sensation, making sex less enjoyable for either partner', 'Condom use reduces sexual urge', 'Condom use makes partner feel untrusted' and 'I feel embarrassed to buy condoms'. This 4-item scale had a coefficient alpha of 0.570. The response options were the same as for 'perceived self-efficacy' and were coded in the same manner.

Cues to action for condom use

This measure was based on the degree of agreement with the following statements regarding information provided at the

condom access point: 'Demonstration on how to correctly use condoms is provided' and 'Information on sexual risk behaviour is provided'. This 2-item scale had a coefficient alpha of 0.739. 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 group, marital status, academic profile, house of residence, religious affiliation, social group affiliation, and father's and mother's monthly incomes.

Age was self-reported by respondents in years. Marital status was dichotomised as single, (index category)and 'married or cohabiting'. Academic profile was dichotomised as'passed on merit'(index category) and 'promoted on trial or repeated'. House of residence was dichotomised as'5 rooms or more'(index category) and '4 rooms or less'.

Religious affiliation was dichotomised as'Christian'(index category) and 'others'. Social group affiliation was categorized into either 'yes' (index category) or 'no'. Father's and mother's monthly incomes were dichotomised as'200 000XAF' and above' (index category) and less than '200 000XAF'.

Sexual experience

This was measured with the question: Have you ever had sexual intercourse with a male partner? With '1=yes' or'0= no' as response options.

Model specification and estimation procedure

In what follows, the HBM is tested drawing on its relevant theory and assumptions with regard to this study. The aim was to retain the assumptions of the model's application as much as possible and to assess the contributions of each component of the HBM and the various combinations of the components with regard to consistent condom use among secondary school female students in urban Cameroon.

The different modelling alternatives considered are: Maintaining the assumptions of each component of the HBM. Integration of the components with high explanatory powers and significant levels. Model estimation focused on mapping out the significant correlates of consistent condom use from a vector of consistently significant components suggested by the relevant theory underpinning the HBM. Multinomial logistic regression model (Agresti, 2007; Hosmer and Lemeshow, 2000) was used. During the regression analyses, the items under each component of the HBM were considered together.

The dependent variable 'regularity of condom use' remained the same for all the modeling alternatives (the major components of the HBM, and the integrated value mapping (IVM)). For specific values of the independent variables (the various components of the HBM and the IVM), the estimated value of P is the probability of the event that respondents mentioned that they used condoms consistently during sexual intercourse.

Result and Discussion

Descriptive

As depicted in table 1, most students, 92.4% were 16-24 years old. Most, 92.3% were single and all were secondary school students. All were female students. Of the respondents, 94.7% were Christians. Some respondents, 25.6% indicated that they did not pass their exams. This finding portrays a low level of academic aspiration. Majority of the students, 53.3% indicated that their fathers' monthly incomes were below 200.000 XAF (that is less than US $ 13.00 a day), while 73.2% indicated that their mothers' monthly income were less than US $ 13.00 a day.

Perception of personal susceptibility to HIV/AIDS was quite high, with most of the students, 95.6% believing that HIV/AIDS really exist, and 84.7% also believing that youth are prone to HIV/AIDS. The perceived severity of HIV/AIDS was also quite high. Most of the students, 89.7% believed that the consequences of having HIV/AIDS are so serious that they may want to avoid them, and 77.3% believed that if they became HIV positive before finishing school it will interfere with the continuation of their schooling.

The perceived benefit of condom use to prevent HIV/AIDS was also quite high, withmost of the respondents, 79.5% believing that correct and consistent condom use can prevent HIV/AIDS.

The perception of personal self-efficacy for condom use was not quite high: 65.9% of the respondents felt confident that they could discuss condom use with their partner(s) and 68.4% felt confident that they could convince their partner(s) to use condoms.

The perceived barrier to condom use was quite high. Most of the respondents, 61.6% believed that condom use decrease sexual sensation, making sex less enjoyable for either partner; 65.3% believed that condom use reduces sexual urge; 66.5% believed that condom use makes partner feel untrusted, and 65.5% felt embarrassed to buy condoms. Majority of the female students, 56.2% were sexually active and only 27.4% these sexually active students were using condoms consistently.

Correlates of consistent condom use

To assess the relative importance of the socio-demographic variables and the main components of the HBM we built nine models predicting consistent condom use. The level of significance of the various components of the HBM is explained by the P-values of the Chi square statistics. If these P-values are discussed at alpha= 0.05, then perceived barriers to condom use, (P=0.000); Perceived condom use self-efficacy, (P=0.000) and socio-demographic factors, (p=0.000) have significance levels. The IVM for these three components with very high significance level considered together, also had a high significance level and was thus very stable (P=0.000). The IVM for the entire HBM was not significant, and remained very unstable (P=0.999) (table 2).

The significance levels of the various HBM components followed the same patterns as their explanatory powers with regard to predicting consistent condom use, with socio-demographic factors having the highest explanatory power, 87.2% (pseudo R-square=0.872), followed by perceived barrier to condom use, 44.9% (pseudo R-square=0.449) and perceived condom use self-efficacy, 27.2% (Pseudo R- square=0.272).

Table. 1 Characteristics of female students in Limbe, Cameroon

Characteristics	Frequency	Percentage
Age group		
15 or less	16/210	7.6
16-24	194/210	92.4
Marital status		
Single	192/208	92.3
Married or cohabiting	16/208	7.7
Academic profile		
Passed on merit	154/207	74.4
Promoted on trial or repeat	53/207	25.6
Religious affiliation		
Christian	198/209	94.7
Others	11/209	5.3
Social group affiliation		
Yes	189/202	93.6
No	13/202	6.4
House of residence		
5 rooms or more	104 /203	51.2
4 rooms or less	99/203	48.8
Father's monthly income (in XAF)		
200 000 and above	83/178	46.7
Less than 200 000	95/178	53.3
Mother's monthly income (in XAF)		
200 000 and above	49/183	26.8
Less than 200 000	134/183	73.2
Perceived susceptibility to HIV/AIDS		
HIV/AIDS really exist		
Agree	195/202	96.5
Disagree	7/202	3.5
Youths are prone to HIV/AIDS		
Agree	155/183	84.7
Disagree	28/183	15.3
Perceived severity of HIV/AIDS		
The consequences of having HIV/AIDS are so serious that I may want to avoid them		
Agree	183/204	89.7
Disagree	21/204	10.3
If I became HIV positive before finishing school it will interfere with the continuation of my schooling		
Agree	153/198	77.3
Disagree	45/198	22.7
Perceived benefit of condom use		
Correct and consistent condom use can prevent HIV/AIDS		
Agree	155/195	79.5

Disagree	40/195	20.5
Perceived condom use self-efficacy		
I feel confident that I can discuss condom use with my partner(s)		
Agree	124/188	65.9
Disagree	64/188	34.1
I feel confident that I can convince my partner(s) to use condom during sex		
Agree	130/190	68.4
Disagree	60/190	31.6
Perceived barriers to condom use		
Condom use decreases sexual sensation making sex less enjoyable for either partner		
Agree	109/177	61.6
Disagree	68/177	38.4
Condom use reduces sexual urge		
Agree	113/173	65.3
Disagree	60/173	34.7
Condom use makes partner feel untrusted		
Agree	121/182	66.5
Disagree	61/182	33.5
I feel embarrassed to buy condoms		
Agree	110/173	63.5
Disagree	63/173	36.5
Cues to action for condom use		
Demonstration on how to correctly use condom is provided		
Agree	119/167	71.3
Disagree	48/167	28.7
Information on sexual risk behaviour is provided		
Agree	128/169	75.7
Disagree	41/169	24.3
Sexual experience		
Yes	113/201	56.2
No	88/113	43.8
Regularity of condom use		
Always	31/113	27.4
Most of the time	34/113	30.1
Seldom	19/113	16.8
Never	29/113	25.7

Denominators may vary due to missing values

Table.2 multinomial logistic regressions between explanatory variables and consistent condom use

No	Components of the HBM	LR Chi square	df	p-values	Pseudo R-Square (cox and snell)	N	Explanatory power of the model
1	Perceived susceptibility to HIV/AIDS	41.399	36	0.247	0.227	161	22.7%
2	Perceived severity of HIV/AIDS	36.541	36	0.444	0.184	180	18.4%
3	Perceived benefit of condom use	17.490	12	0.132	0.092	181.	9.2%
4	Perceived barriers to condom use	87.686	48	**0.000**	0.449	147	44.9%
5	Perceived condom use self-efficacy	55.344	24	**0.000**	0.272	174	27.2%
6	Cues to action for condom use	33.087	24	0.102	0.194	153	19.4%
7	Socio-demographic factors	283.713	160	**0.000**	0.872	138	87.2%
8	Integrated value mapping (IVM):combination of 4,5,& 7	316.650	232	**0.000**	0.950	106	95.0%
9	Integrated value mapping (IVM): all components of HBM	253.384	324	0.999	0.951	84	95.1%

df= degree of freedom

The IVM for perceived condom use self-efficacy, perceived barriers to condom use and socio-demographic factors considered together had the highest explanatory power, 95.0% (Pseudo R-square=0.950).

Female students who perceived that condom use decreases sexual sensation, making sex less enjoyable for either partner; who perceived that condom use makes partner feel untrusted, and who felt embarrassed to buy condoms, were less likely to consistently use condoms during sexual inter course. Students who felt confident that they can convince their partners to use condoms during sex, and who were of the older age group, were more likely to use condoms during sex. However, students with low socio-economic status were less likely to use condoms during sex.

Table.3 Components of the IVM-Likelihood Ratio Tests

Effect	**-2 Log Likelihood of Reduced Model**	**Chi-Square**	**df**	**Sig.**
Perceived barriers to condom use				
Condom use decreases sexual sensation, making sex less enjoyable for either partner	282.329	21.387	12	0.045
Condom use makes partner feel untrusted	288.629	27.687	12	0.006
I feel embarrassed to buy condoms	285.895	24.953	12	0.015
Perceived condom use self-efficacy				
I feel confident that I can convince my partner(s) to use condoms during sex	142.563	24.039	12	0.020
Socio-demographic variables				
Age group	275.767	64.719	36	0.002
House of residence	242.536	31.488	16	0.012
Fathers' monthly incomes	245.836	34.789	12	0.001

Majority of the female students were among the age group hardest hit by HIV/AIDS (USAID, 2008). Nahamya and Elangwe (2005) posit that single persons are predisposed to sexual temptations which might increase their vulnerability to STIs and HIV/AIDS. Gender inequality places women at a greater risk of being infected by HIV/AIDS. Women and young girls lack power over their bodies, and their sexual lives, social and economic inequalities increase their vulnerability for contracting and living with HIV/AIDS. With increasing levels of poverty in Cameroon, women especially female students have found themselves in casual relationships with men for financial gains. Women might therefore find it difficult to demand condom use, as they become subordinates or dependent of mainly oldermen; women are also biologically prone to infection, and HIV is more easily transmitted from men to women than the reverse (UNAIDS, 1997). Ehlers (1999) states that religion could hamper the effective use of condoms for HIV prevention. The Roman Catholic Church opposes condom use in favour of "direct contact" (Alsan, 2006; Bradshaw, 2003). This could have serious implications for spreading HIV. A high level of academic engagement has an influence on the age of sexual initiation and makes health education messages more meaningful

(Moore and Burton, 1999; mouton, 2001). Female students with high academic aspirations are more likely not to jeopardize their academic careers by unwanted pregnancies, STIs and HIV/AIDS, by not using condoms consistently.The female students in this study were of low socio-economic status (as depicted by their parents' monthly incomes). This status might push these female students into casual relationships with men for financial gains. They might find it difficult to demand condom use as they become dependent of these men economically. This act might expose them to HIV/AIDS infection.

The HBM has the premise that individuals will take action to prevent a health problem (HIV/AIDS) if they regard themselves to be susceptible to the condition, if the perceive the problem to be severe in its nature and/or consequences , if they perceive that the action (consistent condom use) will benefit them by reducing their susceptibility, if they perceive few barriers to taking that action (consistent condom use) and if they believe in their ability to successfully take the recommended action (consistent condom use) to prevent HIV/AIDS (Pender *et al.,* 2011; Stout, 1997).

The concepts and relationships within the HBM work synergistically to create a greater understanding in explaining and predicting consistent condom use to prevent HIV/AIDS (Bartholomew *et al.,* 2006; University of Twenty, 2010).

In accordance with other reports (Baele *et al.,* 2001; Bengel *et al.,* 1996;Estrin, 1999; Manderson *et al.,* 1997; Meekers and Klein, 2002a; Meekers and Klein 2002b), this study identifiedperceived barriers to condom use, perceived condom use self-efficacy and socio-demographic factors as the most important correlates of consistent condom use among female students in urban Cameroon. The items in table 3 with a significance level of $p<0.05$ were the most significant correlates of consistent condom use, and as such should be the main focus in programmes aimed at increasing condom use among female adolescents in urban Cameroon.

The findings of this study however contradicted that of (Lugalla *et al.,* 2004) who report perceived severity of HIV/AIDS as an important correlate of consistent condom use; that of (Sheran *et al.,* 1999) who report perceived benefit of condom use as an important correlate of condom use; and that of (Akwara *et al.,* 2003) who report perceived susceptibility to HIV/AIDS as an important correlate of condom use.

The three components of the HBM with high significance level, (perceived barriers to condom use, perceived condom use self-efficacy and socio-demographic factors) were the major critical components of the HBM with regard to this study, unlike sensitisation as verified by the low significance level of perceived susceptibility to HIV/AIDS, perceived severity of HIV/AIDS and perceived benefit of condom use.

This implies that female students were aware of the presence and severity (threat) of HIV/AIDS in their environment. Awareness of the benefits of condom use to prevent HIV/AIDS was not also a major priority within the framework of the HBM. Female students were aware of the benefit of condom use. The focus as depicted from the results of this study should be on perceived barriers to condom use, perceived condom use self-efficacy and socio-demographic factors.

These three components of the HBM, acting in synergy, explain consistent condom use to prevent HIV/AIDS better than the other components and better than the three components considered separately. These three components of the HBM predict consistent condom use collectively, resulting in a synergistic effect on consistent condom use.

Our findings suggest that AIDS prevention programmes to promote condom use for females in urban Cameroon should emphasise these three components of the HBM concurrently. HIV/AIDS education messages that focus on perceived susceptibility to HIV/AIDS, perceived severity of HIV/AIDS and perceived benefits of condom use as a means of inducing and maintaining consistent condom use, may be counterproductive as shown in the analyses.

HIV/AIDS prevention programmes should aim at increasing young women's self-efficacy that they can use condoms consistently and address how to overcome barriers in negotiating condom use. HIV/AIDS education messages that focus on the threat of AIDS as a means of inducing condom use may be counterproductive. The study also suggests that AIDS prevention programmes in urban Cameroon should overcome gender barriers to condom use. Ways should be found to reduce the negative connotation associated with women's insistence on condom use.

Bandura (1994) suggests self-efficacy to be the most powerful tool to increase safe sexual practice among women. Therefore, an important consideration in promoting safe sexual practices is the need to provide women with condom negotiation skills.

The overall impression is that the study has justified the HBM as a useful model in understanding, explaining and predicting consistent condom use to prevent HIV/AIDS among female students in urban Cameroon. The premise that female students in urban Cameroon will use condoms consistently to prevent HIV/AIDS if they perceive themselves to be susceptible to HIV/AIDS, if they perceive HIV/AIDS to be severe in its nature and/or consequences, if they perceive condoms to be effective in preventing HIV/AIDS, if they perceive fewer barriers to condom use and if they believe in their ability to successfully use condoms, is supported by the research findings using the multinomial logistic regression model to establish statistically those components of the HBM (as defined by the items included in the self-completion questionnaire) with the highest explanatory powers in association with consistent condom use (perceived barriers to condom use, perceived condom use self-efficacy and socio-demographic variables).

In addition, because most of the items in the questionnaire elicit self-reported information on sensitive issues such as condom use and HIV/AIDS, the respondents might have been bias in responding to these items. However assurance of confidentiality and anonymity might have minimized this problem. The sample size was small and homogeneous, and as such the findings may not be generalized.

Competing interests

The author declares that he has no competing interests.

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