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Factors associated with consistent condom use among senior secondary school female learners in Mbonge subdivision of rural Cameroon

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The aim of this study was to examine the factors associated with consistent condom use among senior secondary school female students in Mbonge subdivision of Cameroon within the parameters set by the Health Belief Model (HBM). The objective of the study was to report on the components of the HBM with statistically significant explanatory associations with consistent condom use during sexual intercourse to prevent human immune deficiency virus (HIV) transmission. A quantitative, correlational design was adopted, using self-administered questionnaires to collect data from 210 female students selected through disproportional, stratified, simple random sampling technique, from three participating senior secondary schools. Statistics were calculated using statistical package for social sciences (SPSS) version 20 software program. As many as 54.0% of the respondents reported having ever had sex, among whom only 29.6% reported using condoms consistently. Multinomial logistic regression analysis based on the components of the HBM show that perceived susceptibility to human immune deficiency virus/acquired immune deficiency syndrome (HIV/AIDS) (p = 0.023), perceived self-efficacy for condom use (p = 0.003) and the socio-demographic variables (p = 0.000) are the most significant factors associated with consistent condom use at the level p < 0.05.

Key words: Rural Cameroon, Mbonge subdivision, senior secondary school female students, consistent condom use, human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), health belief model (HBM).

INTRODUCTION

One of the current challenges on the prevention and control of human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) faced worldwide is among youths of age 15 to 24 years. Of the 34 million people living with HIV/AIDS (PLWHA) worldwide in 2010, almost 68% reside in sub-Saharan Africa (SSA), a region with only 12% of the world's population (United Nations Program on HIV/AIDS (UNAIDS), 2011). Here also, more than elsewhere, young people between the ages of 15 and 24 remain the most threatened, accounting for 62%

accounting for 62% of PLWHA, with young girls being at greater risk of infection than young boys (UNAIDS, 2006). Juveniles in Cameroon aged 15 to 24 comprise 21.5% of the total population, and the estimated HIV/AIDS prevalence rate in this group was 9.1% (United Nations Population Fund (UNFPA), 2005). In fact these youths are the future of Cameroon, and thus an important age group for the growth and prosperity of the country.

HIV/AIDS intensifies gender inequality. Nowhere is the epidemic's feminization more apparent than in SSA

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where it is reported that almost 60% of adults living with HIV are women, and 75% of young people infected are girls (UNAIDS, 2008). The biological make-up of the female genitalia coupled with the gender/structural constraints within which sex takes place thus exposes sexually active women to contracting the disease more than their male counterparts. Heterosexual transmission of HIV accounts for about 90% of new infections in Cameroon (Fonjong, 2001). Hence, young people are at risk of getting the disease as soon as they initiate sexual activity.

In Cameroon, 61% of PLWHA are women (National AIDS Control Committee, 2006), and the prevalence among women of reproductive age was 6.8% (Nussbaum, 2010). HIV/AIDS prevalence among females in villages in rural Cameroon is high (6.3%) (Nyambi et al., 2002). This can be attributed to the fact that rural Cameroonians often face lack of job opportunities, declining incomes, bad educational and medical infrastructures and poverty.

The condom is the single, most effective available technology to reduce the sexual transmission of HIV (Cates, 2001; Holmes et al., 2004). Although more than 90% of Cameroon's youths know that consistent condom use could prevent HIV infection (Rwenge, 2000), only 47% female youths used them at their previous high risk sexual encounters. This indicates a gap between knowledge and behaviours. Many Cameroonian youths engage in risky sexual behaviours such as having unprotected sexual intercourse which may lead to sexually transmissible infections (STIs), including HIV/AIDS (Arcand and Wouabe, 2010; Kongnyuy et al., 2008; Mosoko et al., 2009). Despite the risks, consistent condom use has remained fairly low (Van Rossem and Meekers, 2000).

Although rural settings comprise the majority of the country's population and in certain rural areas such as in the Southwest region where this study is conducted, HIV prevalence is more than the national rate (11.0%) (UNAIDS, 2005); little data on condom use and the factors that influence consistent use exists. It is against this back drop that we seek to examine the factors associated with consistent condom use among senior secondary school female learners in Mbonge rural town of Cameroon. We are not aware of any published studies that have reported on this subject.

This study focuses on youths in the senior secondary schools, including a large proportion of the 15 to 24 year age group. As a group, secondary school learners are more accessible for research than their non-school going peers. This paper uses the main psychosocial concepts of the HBM, namely: perceived susceptibility, perceived severity, perceived benefit, perceived self-efficacy and socio-demographic variables as the theoretical perspective to examine, explain and predict factors associated with consistent condom use among senior secondary school female learners in Mbonge rural area of Cameroon (Bartholomew et al., 2006; University of Twente, 2010).

MATERIALS AND METHODS

A quantitative, correlational design was adopted in this study. The population refers to the entire set of cases about which the researcher would like to make generalisations and who met the sampling criteria. In this study, the accessible population included all the senior secondary school learners in Mbonge rural town of Cameroon; that portion of the target population to which the researcher had reasonable access (Burns and Grove, 2005). A disproportional, stratified, simple random sample was selected for this study. 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 (Brink et al., 2006). The school attendance registers of the learners were used as the sampling frame to select a sample of 210 grade 10 to grade 12 (form five to upper sixth) female learners from three senior secondary schools in Mbonge sub division of Cameroon.

The data were collected during the first term of 2012 by means of a self-administered questionnaire comprising items regarding socio-demographic characteristics and items relating to the major components of the HBM and condom use. A four-point Likert type scale was used to rate the responses using the following response categories: strongly agree, agree, disagree and strongly disagree (Babbie, 2005). The questionnaire was pretested 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).

During the pre-test, 10 learners who did not participate in the actual study completed the questionnaires. They required no assistance, understood the questions and needed approximately 15 min to complete the questionnaires. The final questionnaires were administered to 210 female learners from three senior secondary schools in Mbonge sub division 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 learners and to answer questions while they completed the questionnaires.

The reliability of the research instrument used for the study was tested using the coefficient alpha and by pre-testing the questionnaires. The following types of validity were also established: face validity, content validity, construct validity and criterion-related validity. This was ensured by constructing items to represent the different components of the HBM based on literature review. The questionnaires were also subjected to scrutiny by a statistician.

Permission to conduct this study was granted by the HIV/AIDS prevention Research Network, Cameroon (HIVPREC) an 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 schools. Participation was voluntary and informed written consent was obtained from each learner and her parents/guardians prior to data collection. A questionnaire was handed to each learner when she produced a 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 were analysed using statistical package for social sciences (SPSS) version 20. Data were summarized 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.

Model specification and estimation procedure

Multinomial logistic regression analysis was performed to examine the probability of using condoms consistently during sexual intercourse. Logistic regression does not require the predictors to be normally distributed, linearly related, or to have equal variances within each group. Logistic regression is especially useful when the distribution of responses on the dependent variable is expected to be non-linear with one or more of the independent variables (Agresti, 2007; Hosmer, 2000). The procedure gives rise to estimates of the likelihood of a certain event occurring, given a set of explanatory variables. The HBM was tested, drawing on it 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 senior secondary school female learners in rural Cameroon. The different modeling alternatives considered are:

1. Maintaining the assumptions of component of the HBM;
2. Integration of the components with high explanatory powers and significant levels [Integrated Value Mapping (IVM)].

Model estimation focused on mapping out the significant drivers of consistent condom use from a vector of consistently significant components suggested by the relevant theory underpinning the HBM.

During the regression analyses, 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 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.

MEASURES

Outcome (dependent) variable

Consistent condom use

The outcome variable for this study is consistent condom use during sexual intercourse as reported by the female learners. This measure was derived from the question:

"How often do you use a condom with a partner during sexual intercourse?".

The response options were: '1 = always', '2 = most of the time', '3 = seldom' and '4 = never.' This question was asked only to respondents who were sexually active.

Explanatory (independent) variables

Perceived susceptibility to HIV

This was constructed from two questions, each considered separately: 'HIV/AIDS is a serious threat in Cameroon,' and 'a healthy looking person can be HIV positive'. The coefficient alpha

for this 2-item scale was 0.418. The response options were rated on a four-point Likert scale as '3 = strongly agree', '2 = agree', '1 = disagree' and '0 = 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: 'HIV/AIDS is a disease like any other', 'some traditional healers can cure AIDS', 'some antibiotic can cure AIDS' and 'Anti-Retroviral Therapy (ART) can cure AIDS'. The Cronbach's alpha for this 4-item scale was 0.474. 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 have confidence that I could refuse sex with my partner if he refuses to use condoms' and 'I feel confident that I can convince my partner(s) to use condoms during sexual intercourse'. This 2-item scale had a Cronbach's alpha of 0.572. 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: 'Should a condom slip off during sexual intercourse it will land up in my stomach,' 'Latex condoms cause itching', 'I am allergic to lubricants used in condoms' and 'I feel embarrassed to ask my partner to use condoms'. The Cronbach's alpha for this 4-item scale was 0.499. The response options were the same as for 'perceived self-efficacy and were coded in 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, and father's and mother's monthly incomes. Age was self-reported by respondents in years. Marital status was dichotomized as 'single' (index category) and 'married or cohabiting'. Academic profile was dichotomized as 'passed on merit' (index category) and 'promoted on trial or repeated'. House of residence was dichotomized as '5 rooms or more' (index category) and 'four rooms or less'. Religious affiliation was dichotomized as 'Christian' (index category) and 'others'. Father's and mother's monthly incomes were dichotomized 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. Condom use prevents sexual transmission of

HIV only when used correctly and consistently.

RESULTS

Descriptive statistics

The descriptive statistics of the explanatory and dependent variables are shown in Table 1. Most of the respondents (92.4%; n = 194) were 16 to 24 years old. Most respondents (93.3%; n = 194) were single, and all were senior secondary school female learners. Of the respondents, 98.0% were Christians. Most of the respondents (72.5%) passed their exams on merit and most of their fathers' and mothers' monthly incomes were less than 200 000XAF (51.7 and 76.2%, respectively). With respect to the different components of the HBM, perceived susceptibility to HIV/AIDS was quite high; 77.7% of the respondents perceived that HIV/AIDS is a serious threat in Cameroon, 87.8% perceived that a healthy looking person can be HIV positive. Perceived severity of HIV/AIDS was also high; 54.5% of respondents perceived that HIV/AIDS is a disease like any other, only 14.3% perceived that some traditional healers can cure AIDS, only 15.4% perceived that some antibiotics can cure AIDS, and only 18.8% perceived that ART can cure AIDS. The perceived effectiveness of using condoms to prevent HIV/AIDS was relatively high. Majority of the respondents 77.6% agreed that correct and consistent use of condoms during sexual intercourse can prevent HIV/AIDS.

Relatively fewer respondents perceived some barriers to condom use: 32.4% of the respondent agreed that should a condom slip off during sexual intercourse, it will land up in their stomach, 53.2% agreed that latex condoms cause itching, 36.2% agreed that they are allergic to lubricants used in condoms and 39.2% agreed that they feel embarrassed to ask their partners to use condoms. For perceived self-efficacy for condom use, about 75% of the respondents agreed that they have the confidence that they could refuse sex with their partners if they refuse to use condoms, while 67.7% agreed that they felt confident that they can convince their partner(s) to use condoms during sexual intercourse.

Of the respondents, 54.0% were sexually active, while only 29.6% of these sexually active respondents were using condoms consistently.

Model result

The HBM asserts that the motivation for people to take action to prevent a disease is based on how strongly they believed that they are susceptible to the disease in question; whether the disease would have serious effect on their lives if they contract it, whether the suggested health intervention is of value, whether the effectiveness of the treatment is worth the cost, which barriers they must overcome to institute and maintain specific behaviours, and whether they can successfully take the recommended action.

The level of significance of the various components of the HBM is explained by the p-values of the log-likelihood chi-square statistics (Table 2). If this p-value is discussed at alpha = 0.05, then perceived susceptibility to HIV/AIDS (p = 0.023), perceived self-efficacy for condom use (p = 0.003) and the socio-demographic variables (p = 0.000) have good significant levels (p < 0.05), thus denoting the adequate explanatory power of these components in explaining consistent condom use among female learners in rural Cameroon. Also according to the Pseudo-R square (Cox and Snell) values, these components explained between 19 to 82% of variation in consistent condom use. The IVM for these three components taken together remained very stable, with p = 0.000 (Table 2). The significant levels of the HBM components followed the same patterns as their explanatory powers, with socio-demographic variables having the highest explanatory power of 82.2% (Pseudo R-square = 0.822), followed by perceived condom use self-efficacy, 22.9% (Pseudo R-square = 0.229) and perceived susceptibility to HIV/AIDS, 19.4% (Pseudo R-square = 0.194). The IVM had the strongest explanatory power, 93.6% (Pseudo R-square = 0.936).

The likelihood ratio test (Table 3) summarises the relationship between the predictors and the outcome variables for the IVM (components of the HBM with satisfactory explanatory powers and high significance perceived susceptibility to HIV/AIDS, perceived condom use self-efficacy and the socio-demographic factors).

The results as depicted in the table reveal that learners who perceived that HIV/AIDS is a serious threat in Cameroon are more likely to consistently use condoms; learners who felt confident that they can convince their partners to use condoms during sex are also more likely to consistently use condoms; learners whose fathers are higher income earners are also more likely to consistently use condoms; and learners who are Christians are less likely to use condoms during sex.

DISCUSSION

The majority of the respondents were among the age group hardest hit by HIV/AIDS (USAID, 2008). Single persons are predisposed to sexual temptations which might increase their vulnerability to STIs and HIV/AIDS (Nahamya and Elangwe, 2005). 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 learners have found themselves in casual relationships with men for financial gains. Women might therefore find it difficult to demand

Table 1. Characteristics of senior secondary school female learners in Mbonge, Cameroon.

Characteristic	Frequency	Percentage
Age group		
11-15	16/210	7.6
16-24	194/210	92.4
Marital status		
Single	194/208	93.3
Married or cohabiting	14/208	6.7
Academic profile		
Pass on merit	150/207	72.5
Promoted on trial or repeated	57/207	27.5
House of residence		
5 rooms or more	107/203	52.7
4 rooms or less	96/203	47.3
Religious Affiliation		
Christian	195/199	98.0
Others	4	2.0
Father's monthly income (in XAF)		
200 000 and above	85/176	48.3
Less than 200 000	91	51.7
Mother's monthly income (in XAF)		
200 000 and above	50/185	23.8
Less than 200 000	135	76.2
Perceived susceptibility to HIV/AIDS		
HIV/AIDS is a serious threat in Cameroon		
Agree	154/198	77.7
Disagree	44/198	22.3
A healthy looking person can be HIV positive		
Agree	180/205	87.8
Disagree	25/205	12.2
Perceived severity of HIV/AIDS		
HIV/AIDS is a disease like any other		
Agree	108/198	54.5
Disagree	90/198	45.5
Some traditional healers can cure AIDS		
Agree	29/204	14.3
Disagree	175/204	85.7
Some antibiotics can cure AIDS		
Agree	31/198	15.6
Disagree	167/198	84.4

Table 1. Contd.

Anti Retroviral Therapy (ART) can cure AIDS		
Agree	37/197	18.8
Disagree	160/197	81.2
Perceived benefit of condom use		
Correct and consistent condom use can prevent HIV/AIDS.		
Agree	153/197	77.6
Disagree	44/197	22.4
Perceived barriers to condom use		
Should a condom slip off during sex it will land up in my stomach		
Agree	58/179	32.4
Disagree	121/179	67.6
Latex condoms cause itching		
Agree	74/139	53.2
Disagree	65/139	46.8
I am allergic to lubricants used in condoms		
Agree	50/138	36.2
Disagree	88/138	63.8
I feel embarrassed to ask my partner to use condoms		
Agree	73/186	39.2
Disagree	113/186	60.8
Perceived condom use self-efficacy		
I have confidence that I could refuse sex with my partner if he refuses to use condoms		
Agree	147/196	75.0
Disagree	49/196	25.0
I feel confident that I can convince my partner(s) to use condoms during sexual intercourse		
Agree	130/192	67.7
Disagree	62/192	32.3
Sexual experience		
Have you ever had sexual intercourse with a male partner?		
Yes	108/200	54.0
No	92/200	46.0
Regularity of condom use		
How often do you use a condom with a sexual partner during sex?		
Always	32/108	29.6
Most of the time	33/108	30.6
Seldom	14/108	13.0
Never	29/108	26.8

Denominators may vary due to missing values.

condom use, as they become subordinates or dependent of mainly older men; women are also biologically prone to infection, and HIV is more easily transmitted from men to women than the reverse (UNAIDS, 1997).

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

No.	Model components	LR Chi-square	df	p-values	Pseudo R-square	N	Explanatory power of model (%)
1	Perceived susceptibility to HIV/AIDS.	39.715	24	0.023	0.194	184	19.4
2	Perceived severity of HIV/AIDS.	47.30	48	0.501	0.236	176	23.6
3	Perceived Benefit of condom use.	17.52	12	0.131	0.089	187	8.9
4	Perceived Barriers to condom use.	42.25	48	0.707	0.317	111	31.7
5	Perceived condom use self-efficacy.	47.135	24	0.003	0.229	181	22.9
6	Socio-Demographic variables.	246.555	104	0.000	0.822	143	82.2
7	Integrated value mapping (IVM): combination of components 1, 5 and 6	349.056	212	0.000	0.936	127	93.6

df = degree of freedom.

Religion could hamper the effective use of condoms for HIV prevention (Ehlers, 1999). 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). Adolescents with high academic aspirations are more likely not to jeopardize their academic careers by unwanted pregnancies and STDs, including HIV/AIDS, by not using condoms.

Table 1 reveals misconceptions regarding the cure of HIV/AIDS by some respondents. Such misconceptions revealed a gap in knowledge regarding the cure of HIV/AIDS among the female learners. HIV/AIDS has no cure. Such misconceptions could give rise to risky sexual behaviours among learners, with the belief that if they contract HIV/AIDS as a result of such risky sexual practices, they could be cured.

As the data revealed, some learners perceived certain barriers in using condoms. There should be no embarrassment in using or buying cond-oms. A condom can be bought or used at any age

any age. Insisting on condom use suggests that one knows how to take care of oneself. It also shows that one is aware of the benefits of condom use during sex. Condoms do not break or slip off during sex, unless they are being used incorrectly. To avoid a condom breaking, one needs to put it on carefully, ensuring there is no air bubble at the end and be careful of sharp nails, jewellery or teeth (Hirsch, 2007).

Most men and women should have no problems using condoms. The side effects that can occasionally occur include:

1. Allergy to latex condoms.
2. Irritation of the penis or vagina from lubricants with which some condoms are treated.

For people who may have an allergic skin reaction to latex, male and female condoms made of polyurethane are available (Hirsch, 2007).

The data revealed that some learners did not have the self-efficacy to use condoms effectively. According to the HBM, learners who perceived themselves to be susceptible to HIV/AIDS need to have the confidence that they can use condoms, before they could use condoms correctly and

consistently to prevent HIV/AIDS. Learners with low condom use self-efficacy might not use condoms consistently during sexual intercourse to prevent HIV/AIDS. We examined factors associated with consistent condom use among senior secondary school female learners in Mbonge rural town of Cameroon. This study demonstrated the utilization of the HBM for investigating factors associated with consistent condom use among senior secondary school female learners in Mbonge subdivision of Cameroon. Although the percentage of sexually active female learners who consistently used condoms during sexual intercourse was low (29.6%), there were significant associations between perceived susceptibility to HIV/AIDS, perceived condom use self-efficacy and socio-demographic factors and consistent condom use.

The concepts and relationships described within the HBM work synergistically to create a greater understanding of the phenomenon of interest, reducing or avoiding a disease condition (HIV/AIDS) and aimed to explain or predict health behaviours (Jones and Bartlett, 2010). The HBM has the premise that individuals will take action to prevent, control or treat a health problem if they

Table 3. Components of the IVM: likelihood ratio tests.

Effect	-2 Log Likelihood of reduced model	Chi-Square	df	Significance
Perceived susceptibility	-	-	-	-
HIV/AIDS is a serious threat in Cameroon	70.677	66.775	12	0
Perceived condom use self-efficacy	-	-	-	-
I feel confident that I can convince my partner(s) to use condoms during sex	93.492	89.59	12	0
Socio-demographic variables	-	-	-	-
Religious affiliation	100.841	96.939	20	0
Fathers' monthly incomes	94.066	90.164	12	0

df = degree of freedom.

perceive themselves to be susceptible to the health problem, if they perceive the problem to be severe in its nature and/or in its consequences, if they perceive that the action will benefit them and produce desirable outcomes, if they perceived few barriers to taking that action and if they believe in their ability to successfully take the recommended action to prevent, control or treat the health problem (Stout, 1997).

Bernardi (2002) stated that "the degree of perceived susceptibility to HIV seems to affect individuals' actual control in using condoms consistently during sex". Rosenstock (1990) who developed the HBM suggested that preventive action is more likely among those who feel vulnerable to a disease. This study reveals that female learners may not be motivated to use condoms consistently during sex when they fail to recognize their personal susceptibility to HIV/AIDS. The findings on perceived susceptibility corroborate other findings (Meekers and Klein, 2002).

We observed in this study that having self-efficacy in terms of having the confidence to convince one's partners to use condom during sexual intercourse increases a female learner's ability to consistently use condoms during sexual intercourse to prevent HIV/AIDS. Bandura (1994) suggested self-efficacy to be the most powerful tool to increase condom use among women. Therefore an important consideration in promoting condom use is the need to provide women with condom negotiation skills. The findings on self-efficacy corroborate other findings (Beaudoin, 2007).

Majority of the learners' parents were poor. Poverty could influence female learners' behaviors by reducing access to information about safe sex practices or by inhibiting their ability to put such information into practice. Low socioeconomic status has persistent negative effects on female sexual behaviors and also increases their risk of contracting HIV/AIDS.

The high explanatory powers of socio-demographic variables, perceived susceptibility to HIV/AIDS and perceived self-efficacy for condom use indicate that psychosocial variables and sensitization with regard to HIV/AIDS and condoms were the major critical components with regard to consistent condom use. This implies that female learners were not actually aware of their susceptibility to HIV/AIDS and the facts surrounding HIV transmission and prevention in their environment.

The log likelihood ratio tests suggest that the items in Table 3 with a significance level of $p < 0.05$ were the most significant predictors of consistent condom use. All these items should be considered in designing any policy geared towards increasing condom use among female learners in Mbonge, Cameroon.

The important point this study brings to the fore that the three components of HBM with the highest significant levels and explanatory powers namely: perceived susceptibility to HIV/AIDS, perceived condom use self-efficacy and socio-demographic variables are the main factors associated with consistent condom use among female students in rural Cameroon. The findings also implied that the combination of these three components with the highest explanatory powers and good reliability resulted in a synergistic effect on consistent condom use. Our findings suggest that HIV prevention programmes for female students should emphasise these three elements concurrently as a strategy to improve on the regularity of condom use. Such programmes should also measure female students' self-efficacy that they can use condoms consistently.

As depicted by the results of this study, health education messages that focus on the perceived severity of HIV/AIDS, the perceived benefits of condom use and the perceived barriers to condom use as a strategy to improve the regularity of condom use among female learners in rural Cameroon may be counterproductive.

HIV prevention education and condom promotion must overcome the challenges of complex gender and cultural factors. Young girls and women are regularly and repeatedly denied information about use and access to condoms. Often, they do not have the power to negotiate the use of condoms. Since most women aged 15 and above are sexually active in Cameroon (USAID, 2008), understanding and promoting change in individual behaviour for HIV prevention is necessary. Recent analysis of AIDS epidemic in Uganda has confirmed that

increased condom use was an important factor in the declined in HIV prevalence in the 1990s (Singh et al., 2003). The same results were obtained in Thailand, Cambodia and Brazil (UNAIDS et al., 2004).

In spite of the gender/structural constraints within which sex takes place in Cameroon, if women are able to insist/negotiate condom use with their partners, then it would enhance safe sex practices for both sexes. In this situation, women would benefit enormously in reducing their risk of contracting HIV/AIDS.

Conclusion

Although further investigation is still needed, the overall impression is that the study justifies the HBM as a useful model in understanding, explaining and predicting consistent condom use among female students in rural Cameroon. Perceived susceptibility to HIV/AIDS, perceived condom use self-efficacy and socio-demographic factors are important and direct determinants of consistent condom use.

LIMITATIONS

This study has several limitations. The sample size was small and the sample was homogeneous as it was limited to participants from only three senior secondary schools in Mbonge subdivision. The inclusion of more schools and learners will increase the sample size and provide a larger variety of respondents. The internal consistency of some of the HBM components was relatively low. Since the value of the Cronbach's alpha depends on the inter-correlation and the number of items (Sijtsma, 2009), the low Cronbach's alpha can be explained by the heterogeneity in HIV-related behaviours and the small number of items within each component of the HBM. The data collection took place in predominantly Christian areas of Cameroon. Different results may be obtained if data is collected from predominantly Muslim or male students. 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 respondent might have been bias in responding to these items. However, assurance of confidentiality and anonymity might have minimized this problem.

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