THE EXPLANATORY POWER OF FACTORS ASSOCIATED WITH THE PERCEIVED RISK OF CONTRACTING HIV AMONG SENIOR SECONDARY SCHOOL LEARNERS IN KUMBA, CAMEROON

E.E. TARKANG, D Litt et Phil graduate
Department of Health Studies
University of South Africa

D.M. van der Wal, D Litt et Phil
Department of Health Studies
University of South Africa
Corresponding author: vdwaldm@unisa.ac.za

V.J. Ehlers, D Litt et Phil
Department of Health studies
University of South Africa

ABSTRACT

This article reports on the knowledge, attitudes and perceptions relating to HIV/AIDS and condom use, and reported sexual behaviours among senior secondary school learners in Kumba, Cameroon. The goal of the study was to determine how at risk learners perceived themselves to be of contracting HIV/AIDS within the parameters set by the Health Belief Model (HBM). The objective of the article is to report on the components of the HBM with statistically significant explanatory associations with the outcome variable of how at risk respondents perceived themselves to be with regard to contracting the HI-virus.

A quantitative descriptive, exploratory and correlational research design was adopted, using a self-designed questionnaire for data collection. Respondents were selected through disproportional stratified simple random sampling resulting in 480 (240 male and 240 female) grade 10 to grade 12 learners from two participating secondary schools in Kumba, Cameroon. Descriptive and inferential statistics were calculated using the SPSS version 12 software program.

Logistic regression analysis indicated that demographic data and perceived barriers to condom use were the only two factors that had statistically significant relationships with the outcome variable at the level $p < 0.05$.

KEYWORDS: Auto Immune Deficiency Syndrome (AIDS), Cameroon, condom use, Health Belief Model (HBM), Human Immuno-Deficiency Virus (HIV), HIV knowledge/perceptions, senior secondary school learners

INTRODUCTION

Various strategies have been put in place to curb the global prevalence of HIV/AIDS, yet the disease continues to spread. Education is an important tool in reaching out to vulnerable groups, especially the sexually active and those inexperienced in the realm of sexual activity such as secondary school learners.

Today's youth is the largest in history with nearly half of the global population being younger than 25 years of age (UNAIDS, 2004:93). Their behaviours will determine the future of the HIV/AIDS pandemic. These behaviours will depend largely on their knowledge, perceptions and attitudes regarding HIV/AIDS.

More than two decades into the HIV/AIDS pandemic, many young people remain un-informed about sex and sexually transmitted infections (STIs). Although the majority have heard about AIDS, many do not know how HIV is spread and do not believe they are at risk (UNICEF/UNAIDS/WHO, 2002:6). Other reports indicated that only 32% of young people (aged 15–24) in Cameroon had comprehensive knowledge about HIV (UNICEF, 2009)

This article addresses the correlations among the various components of the Health Belief Model (HBM) with regard to HIV/AIDS-related knowledge, attitudes and perceptions, and sexual behaviours among senior secondary school learners in Kumba, Cameroon.

BACKGROUND TO THE STUDY

Since the discovery of the first HIV case in Cameroon in 1985, there has been a steady rise in the national prevalence rate. The prevalence of HIV/AIDS in Cameroon rose from 0.5% in 1987 to 2% in 1992, and 11.8% in 2002 (IMF, 2003:5). The HIV/AIDS rate decreased from 11.8% in 2002 to 6.9% in 2004, and remained at 6.9% till 2008 (CIA Cameroon, 2008:1). But Cameroon's Minister of Public Health (IRIN Cameroon, 2004:2), warned that the lower figures provided no grounds for complacency. UNICEF (2009) estimated an adult (age 25–49) prevalence rate of 5.3%; male youths (15–24) 1.6%; and female youths 3.9%.

These prevalence rates suggest that HIV prevention campaigns do not produce safer sexual behaviours, and that there is a built-up momentum of people living with HIV/AIDS. Such high levels of HIV prevalence imply that there is a likelihood of encountering an HIV-positive sexual partner. Young people entering their sexual prime should form a priority group for AIDS prevention because their behaviours will determine the future course of the HIV/AIDS pandemic.

Cameroon's youths and HIV/AIDS

In 2008, the Cameroonian population was estimated to exceed 18 million. Over 54% of this population lived in urban areas (UNDP Cameroon, 2008). Almost 42% of the population was younger than 15 years of age (Cameroon, 2009:1; UCSF, 2009:1). Juveniles in Cameroon aged 15–24, comprised 21.5% of the total population (UNFPA, 2005:27) and the estimated HIV/AIDS prevalence rate in this group was 9.1% in 2005. Bongmba (2007:117) reported that 600 people are infected with HIV each day in Cameroon, the majority of them being within the 15–24 year age group. During 2000, the HIV prevalence among antenatal clinic (ANC) attendees was 10.8% (UNICEF/UNAIDS/WHO Cameroon 2006:4). The median HIV prevalence among young women aged 15–24 years was 11.9%. However, this rate was 20.2% among adolescents aged 15–19 years who had commenced childbearing in the urban areas.

In Cameroon, about 90% of HIV transmission occurs through heterosexual intercourse, with blood and mother-to-child transmission (MTCT) representing about 10%. The United States Agency for International Development (USAID, 2008) identified the median age for sexual debuts to be 16.4 years in Cameroon. However, Kongnyuy, Soskolne and Adler (2008:4) reported that 20.8% of their Cameroonian adolescent respondents had more than one life time partner, and 17.2% had more than one sexual partner during the 12 months preceding their study. It was also reported that young women in Cameroon's urban areas reported being unable to practise safer sex (Hattori & De Rose, 2008:309).

The sexual behaviours of youths in Cameroon, therefore, raise concerns for addressing the HIV/AIDS pandemic. Rwenge (2000:124–125) reported that more than 90% of his respondents mentioned that consistent condom use could prevent AIDS, but only 25% of them were using condoms. The World Health Organization (WHO, 2005:1) reported that in Cameroon, 47% of females and 57% of males of the same age group reported using condoms at their previous high risk sexual encounters. This indicates a gap between perceptions and the practical reality of their lives. Cheap condoms are readily available in Cameroon.

RESEARCH PROBLEM

The main research problem was that the Cameroonian youths' perceived risk of contracting HIV was unknown. The question in this regard, answered by the current study was specifically: "Which components of the HBM have a high explanatory power in relation to the outcome variable – respondents' perceived risk of contracting HIV?"

DEDUCTIVE HYPOTHESES

The single hypothesis addressed by this article relates to the outcome variable: How at risk of contracting HIV/AIDS did learners (from the two participating secondary schools in Kumba, Cameroon) perceive themselves to be. The deductive hypothesis was: There is a varying degree in the explanatory power of different components of the HBM in association with the outcome variable of respondents' perceived risk of contracting HIV.

THEORETICAL FRAMEWORK USED FOR THE STUDY

To answer the original research question, the HBM provided a conceptual framework on which this research was based. "The HBM is developed to provide a framework to explain why some people take specific actions to avoid illness, while others fail to protect themselves" (Polit & Beck, 2004:124).

Stanhope and Lancaster (2000:252) state: "The HBM is beneficial in assessing health protection or disease prevention behaviours. It is also useful in organising information about clients' views on the state of health and what factors may influence them to change their behaviours. The HBM provides organised assessment data about clients' abilities and motivation to change their health status. Health education programmes can be developed to better fit the needs of clients".

The HBM postulates that health-seeking behaviour (preventing HIV/AIDS by using condoms), is influenced by a person's perception of the threats posed by a health problem (the perceived risk of contracting HIV/AIDS), and the value associated with the actions aimed at reducing the threat (consistent condom use to prevent HIV).

The following assumptions, according to the University of Twente (2005:1), relate to the HBM and consequently to health-related actions that a person will take if that person: feels that a negative health condition can be avoided; has a positive expectation that by taking a recommended action, the negative health condition will be avoided; and believes that one can successfully take the recommended action.

Based on these HBM assumptions, it could be concluded that without learners' perceptions of HIV/AIDS being a threat, there could be no resultant preventative actions against HIV/AIDS (using condoms effectively). Therefore, the perceived risk of contracting HIV/AIDS is assumed to be the immediate antecedent of the consistent use of condoms to prevent HIV/AIDS. It is, therefore, hypothesised that: the higher a learner's perceived risk of contracting HIV/AIDS, the higher the learner's chances of implementing preventive measures.

In terms of the HBM's roots in value-expectancy theory, attitudes are developed and modified based on assessments about beliefs and values (Wikipedia, 2011). Sensitivity

to risks depends on factors other than knowledge of infection mechanisms; it also depends on behaviours, such as an individual's awareness of HIV/AIDS (its prevalence, the severity of its symptoms, its lethality) and their perceived general health status. Therefore, sensitivity to risk is explained by the components of the HBM.

RESEARCH METHODOLOGY

Research design

To answer the research question and test the associated hypotheses, a quantitative, descriptive, explorative, and correlational design was adopted.

Population/sampling design

The population refers to the entire set of cases about which the researcher would like to make generalisations and who meet the sampling criteria (Burns & Grove, 2005:342; LoBiondo-Wood & Haber, 2002:242). For this study, the accessible population included all the senior secondary school learners in the city of Kumba, Cameroon; that portion of the target population to which the researcher had reasonable access (Burns & Grove, 2005:342; LoBiondo-Wood & Haber, 2002:242, 247; Polit & Beck, 2004:289-290).

A disproportional, stratified, simple random sample was selected for the current study (Burns & Grove, 2005:348; LoBiondo-Wood & Haber, 2002:249-250). Probability sampling was used because it increased the likelihood that all elements in the population would have an equal chance of being included in the sample (Brink, Van der Wal & Van Rensburg, 2006:126). The school attendance registers of the learners were used as the sampling frame to select the sample of 480 (240 male and 240 female) grade 10 to grade 12 learners from two participating secondary schools in Kumba, Cameroon.

Data collection method

The data were collected during the first term of 2010 by means of a self-designed questionnaire, comprising close-ended items regarding biographical characteristics of respondents and relating to the research topic. 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, 2005:485; LoBiondo-Wood & Haber, 2002:495).

The questionnaire was pre-tested on a simple randomly selected sample of 20 senior secondary school learners, who did not participate in the actual study (Burns & Grove, 2005:40; Polit & Beck, 2004:354). The reasons for pre-testing were to clarify instructions, relevancy, usability and completion time; to refine the instrument; and to intro-

duce modifications where necessary to enhance reliability and validity (Bless & Higson-Smith, 2000:52; De Vos, 2002:395-396; Mouton, 2001:103–104).

The final questionnaires were administered to a pre-selected sample of 480 senior secondary school learners in two participating secondary schools in Kumba.

Data analysis

The data were summarised by means of descriptive statistics including frequency tables, graphic presentations, and measures of central tendency and standard deviations. More advanced statistical analyses included the Chi square test (Babbie, 2005:435, 484; Burns & Grove, 2005:484, 525-532). The SPSS version 12 was used to analyse the data. The analyses with regard to the current study and the stated hypothesis involved multinomial logistic regressions and likelihood ratio tests.

Validity and reliability

A valid measuring instrument measures the concepts or constructs it claims to measure (Burns & Grove, 2005:755; LoBiondo-Wood & Haber, 2002:502).

Reliability refers to the consistency, constancy or dependability, accuracy and precision with which an instrument measures the attributes it is designed to measure (Burns & Grove, 2005:749; LoBiondo-Wood & Haber, 2002:499). Reliability of the research instrument was tested using the coefficient alpha, also known as Cronbach's alpha (Burns & Grove, 2005:320-321; LoBiondo-Wood & Haber, 2002:325-326), and by pre-testing the questionnaires. With regard to the analyses conducted in testing the set hypothesis, all calculations were accompanied by reliability coefficients as indicated in table 2.

ETHICAL CONSIDERATIONS

Permission and approval to conduct the current study were obtained from the Research and Ethics Committee of the University of South Africa, and the principals of the participating secondary schools. Participation was voluntary and informed written consent was obtained from respondents and their parents/guardians prior to data collection. Questionnaires were not linked to the signed informed consent in order to maintain anonymity. Human rights, anonymity (names were not used) 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 at each site.

RESEARCH RESULTS [PAST TENSE]

To establish how at risk respondents are, a multinomial logistic regression model is useful to model a categorical dependent variable (risk of contracting the HI-virus) as a function of one or more independent variables (NESUG18).

The respondents were asked to indicate the perceptions of their own risk of contracting HIV/AIDS. Twenty-four respondents failed to provide answers to this section. The results are depicted in table 1.

Table 1: Perception of risk of contracting HIV/AIDS (n = 456)

Variable	Category	Frequency	Percent	Cumulative percent
How at risk of contracting HIV/ AIDS are you?	Not at risk	159	34.9	34.9
	Small risk	62	13.6	48.5
	Moderate risk	41	9.0	57.5
	High risk	194	42.5	100.0
Total		456	100.0	

Model estimation focused on mapping the significant drivers of an individual's perception of risk of contracting HIV/AIDS from a vector of consistently significant components suggested by the relevant theory underpinning the HBM. The multinomial logistic regression model initially proposed by Wrigley (1985) was used. The dependent variable (perceived risk of contracting HIV/AIDS) remained the same for all the modelling alternatives (the various components of the HBM). For specific values of the independent variables (the various components of the HBM), the corresponding estimated p-value was the probability of the event that the respondents would mention that they are/ were at high risk of contracting HIV/AIDS. So the alternative values of the regressors could be used in the estimated component to predict the probability of respondents being at high risk of contracting HIV/AIDS.

Table 2 exhibits the findings of the multinomial logistic regression analysis for the independent or outcome value: "How at risk of contracting HIV do you perceive yourself to be?"

Table 2: Logistic regressions of the risk of contracting HIV/ADS (n = 480)

Model components	LR Chi-Square	df	p- val-ues	Pseudo R-Square (Cox and Snell)	Ex-plana-tory power of the model	Valid N out of 480	Reliability analysis	
							Alpha	N
1: Perceived susceptibil-ity to HIV/AIDS	72.132	63	0.202	0.197	19.7%	328	0.355	337
2: Perceived severity to HIV/AIDS	99.645	81	0.078	0.228	22.8%	385	0.5	400
3: Perceived barriers to condom use	326.194	162	< 0.001	0.807	80.7%	198	0.77	200
4: Perceived benefit of condom use	14.721	9	0.099	0.034	3.4%	430	–	–
5: Condom use self-efficacy	57.544	36	0.013	0.135	13.5%	397	0.487	408
6: Cues to action for condom use	44.692	36	0.152	0.118	11.8%	212	0.842	366
7: Modifying factors	420.118	288	< 0.001	0.852	85.2%	220	0.37	228
Integrated value map-ping (combination of all models)	335.994	387	0.971	0.906	90.6%	142	0.75	143
Integrated value map-ping (excluding compo-nents 1, 4, 5, 6)	214.280	276	0.998	0.895	89.5%	385	0.57	97

Scale reliability tests showed that the Cronbach alpha (α) was above 0.5 for most of the components of the HBM, including the Integrated Value Mapping (IVM).These alpha values are the best combinations of items for each component of the HBM. The three components with alpha values lower than 0.5 are: perceived susceptibility to HIV/AIDS ($\alpha = 0.335$); modifying factors ($\alpha = 0.370$); and perceived benefit of condom use (not calculable). Strong reliability coefficients could not be expected for the modifying factors because the principle of interitem correlations that could apply to other components could not be applied to the items that constitute this component. For instance, the principle of inter-item correlation could not be applied to the age of respondents and gender, or age of respondents and guardians' income.

According to LoBiondo-Wood and Haber (2002:324–326) as well as Polit and Beck (2004:421–422), a number of measurement situations can affect the coefficient alpha value. The alpha does not provide a very good estimate when the items making up the measurement scale are heterogeneous in their relationships with each other or when their number is small. The more items the instrument contains, the more accurate the alpha coefficient. Alpha values increase with the spread of variance of scores. Low reliability may also be due to the homogeneity of the sample in the current study. The alpha is also lower when a response with two possible answers was used. The alpha improves

when a Likert scale response option is used. The lower reliability observed in the components of perceived susceptibility to HIV/AIDS and modifying factors could be due to these characteristics.

The highest explanatory components that emerged from the current study's data analysis (see table 2) were: perceived severity of HIV/AIDS; perceived barriers to condom use; and modifying factors. Although researchers such as Taylor et al. (2007:5) found the overall explanatory power of the HBM to be low, the current research results identified two strong explanatory components, namely: modifying factors (85.2%) and perceived barriers to condom use (80.7%). Third in line was the factor "perceived severity of HIV/AIDS" at 22.8%.

The level of significance of the various HBM components is explained by the p-values of the Chi-square statistics. If this p-value is discussed at alpha = 0.05, then perceived barriers to condom use, perceived condom use self-efficacy and modifying factors have significant levels (p < 0.05). Perceived barriers to condom use and modifying factors attained the highest stability with p < 0.001. The IVM for the entire HBM remained unstable with p = 0.971 (see table 1). The significant levels of the HBM components followed the same patterns as their explanatory powers, with modifying factors having the highest explanatory power of 85.2% (Pseudo R-square = 0.852) followed by perceived barriers to condom use, 80.7% (Pseudo R-square = 0.807), then perceived severity of HIV/AIDS, 22.8% (Pseudo R-square = 0.228), over the outcome variable (risk exposure to HIV/AIDS).

The IVM for the entire HBM had a strong explanatory power 90.6% (Pseudo R-square = 0.906). The explanatory power of the IVM was not improved when the components of perceived susceptibility to HIV/AIDS, perceived benefits of condom use, perceived condom use self-efficacy and cues to action for condom use, with the lowest explanatory powers were removed, 89.5% (Pseudo R-square = 0.895). These four components were not of high significance and should therefore not be given the same priority as perceived severity of HIV/AIDS; perceived barriers to condom use and modifying factors. The high explanatory power of modifying factors and perceived barriers to condom use indicate that demographic and psycho-social variables and perceived barriers to condom use were the major critical components in the HBM, unlike sensitisation as verified by the low explanatory powers of perceived susceptibility to HIV/AIDS and perceived severity of HIV/AIDS. This implies that learners were aware of the presence and severity of HIV/AIDS in their environment. Awareness of the benefits of condom use to prevent HIV/AIDS was not a major priority within the framework of the HBM (perceived benefit of condom use; perceived condom use self-efficacy and cues to action for condom use), unlike barriers to condom use, as explained by the higher explanatory power (80.7%) of this component and modifying factors as explained by its high explanatory power (85.2%). Learners were aware of the benefits of condom use to prevent HIV, and

their self-efficacy to use condoms was high. The focus, as depicted from the results of this study, should be on perceived barriers to condom use and modifying factors. Full summary statistics were then developed for perceived barriers to condom use and modifying factors to provide more information about these components of the HBM because they fit better in the HBM and have satisfactory explanatory powers over the outcome variable (perceived risk of exposure to HIV/AIDS). The lower the p-values, the more a component's item will contribute to the explanatory power of the component.

The likelihood ratio test (see tables 3 and 4) summarises the relationship between the predictors and the outcome variable for components of the HBM with those satisfactory explanatory powers that were calculated for the current study (perceived barriers to condom use and modifying factors). Table 3 indicates the likelihood ratio test for the items comprising perceived barriers to condom use.

Table 3: Perceived barriers to condom use: likelihood ratio tests

Effect	–2 Log Likeli-hood of Re-duced Model	Chi-Square	df	Sig.
Intercept	129.389	0.000	0	0.000
Condom use decreases sexual sensation, making sex less enjoyable for both partners	132.115	2.727	9	0.974
Condom use reduces the sexual urge	131.101	1.712	9	0.995
Condom use makes the partner feel untrusted	133.407	4.018	9	0.910
Should a condom slip off during sexual intercourse it will land up in the stomach of the female partner	134.084	4.695	9	0.860
Latex condoms cause itching	132.064	2.675	9	0.976
I am allergic to lubricants used in condoms	133.885	4.496	9	0.876
My parents/guardians support condom use	132.650	3.261	9	0.953
My partner supports condom use	144.023	14.634	9	0.101
Due to religious beliefs, I feel guilty using a condom	145.325	15.936	9	0.068
I feel embarrassed to buy condoms	130.941	1.552	9	0.997
I feel embarrassed to use condoms	141.661	12.273	9	0.198
I feel embarrassed to ask my partner to use condoms	132.381	2.993	9	0.965
I feel embarrassed to throw away condoms after use	135.996	6.607	9	0.678
I lack knowledge on correct condom use	137.192	7.803	9	0.554
Clinic staff members are unfriendly when handing out condoms	136.428	7.039	9	0.633
Distance to the nearest clinic to obtain condoms is far	130.968	1.580	9	0.997
Condoms are not available at the clinics	131.256	1.867	9	0.993
The environment is hygienic	135.597	6.208	9	0.719
Long waiting time exists at the clinics	130.313	0.925	9	1.000

Effect	-2 Log Likeli-hood of Re-duced Model	Chi-Square	df	Sig.
Condoms are too expensive to buy from the clinics	136.727	7.338	9	0.602
No specific time for young people to attend the clinics	135.526	6.137	9	0.726

Table 3 indicates that no item dominated the perceived barrier component, signifying that all the items in this component contributed equally to the synergistic action that determined the explanatory power of the component to the entire HBM model with regard to the current study. This implies that all the items under the perceived barrier component should be considered in programmes to curb the spread of HIV/AIDS among youths in Kumba, Cameroon.

Table 3: Modifying factors (demographic variables): likelihood ratio tests

Effect	-2 Log likelihood of Reduced Model	Chi-square	df	Sig.
Intercept	< 0.001	< 0.001	0	< 0.001
Age group	85.852	85.852	12	< 0.001
Gender	5 400.794	5 400.794	3	< 0.001
Marital status	487.156	487.156	12	< 0.001
Grade level	< 0.001	< 0.001	6	1.000
Academic profile	< 0.001	< 0.001	9	< 0.001
Place of residence	< 0.001	< 0.001	12	1.000
Present residential area	< 0.001	< 0.001	9	< 0.001
Living with both parents	< 0.001	< 0.001	3	< 0.001
Living with brothers and sisters	4 808.490	4 808.490	3	< 0.001
Living with mother, brothers and sisters	0.059	0.059	3	0.996
Living with father, brothers and sisters	< 0.001	< 0.001	3	1.000
Living with grand parents	< 0.001	< 0.001	3	< 0.001
Living with relations or guardians	200.619	200.619	3	< 0.001
Living with others	< 0.001	< 0.001	3	< 0.001
Religious affiliation	0.010	0.010	15	1.000
Social club affiliation	0.001	0.001	3	1.000
Sports club affiliation	< 0.001	< 0.001	0	< 0.001
Church youth club affiliation	< 0.001	< 0.001	0	< 0.001
Other group affiliation	< 0.001	< 0.001	0	< 0.001
Father's highest qualification	1 300.825	1 300.825	21	< 0.001
Mother's highest qualification	0.066	0.066	21	1.000
Guardian's highest qualification	< 0.001	< 0.001	18	< 0.001
Breadwinner of your household	3.022	3.022	18	1.000
Father's source of income	145.463	145.463	18	< 0.001
Mother's source of income	0.001	0.001	18	1.000

Effect	-2 Log likelihood of Reduced Model	Chi-square	df	Sig.
Guardian's source of income	86.261	86.261	15	< 0.001
Father's monthly income in XAF	< 0.001	< 0.001	9	1.000
Mother's monthly income in XAF	0.009	0.009	9	1.000
Guardian's monthly income in XAF	< 0.001	< 0.001	9	1.000
Number of people in your household	< 0.001	< 0.001	18	1.000
Living place during school period	< 0.001	< 0.001	12	1.000

Analysis of the modifying factors (demographic and psycho social variables) suggested that the items in table 4, with a significance level of < 0.001, were the most significant determinants of risk perceptions of HIV/AIDS. All these components should be considered in designing any policy geared towards controlling risk exposure to HIV/AIDS.

RECOMMENDATIONS

The findings imply that modifying factors had the highest explanatory power. These items, acting in synergy, explain the perceived risk exposure with respect to HIV/AIDS better than the other HBM components. This component is followed by perceived barriers to condom use; perceived severity of HIV/AIDS; perceived benefits of condom use; perceived susceptibility to HIV/AIDS; condom use self-efficacy; and cues to action for condom use. This means that perceived risk exposure to HIV/AIDS can be better explained by modifying factors, followed by perceived barriers to condom use.

The combination of the three components with the highest explanatory powers and good reliability (modifying factors, perceived barriers to condom use and perceived severity of HIV/AIDS) have a strong explanatory power. This means that all these components should be considered in designing policies geared towards controlling risk exposure to HIV/AIDS.

CONCLUSION

The hypothesis: "There is a varying degree in the explanatory power of different components of the HBM in association to the outcome variable of respondents' perceived risk of contracting HIV" was partially supported by the research findings. The multinomial logistic regression model and resultant likelihood ratio test statistically identified those HBM components with the highest explanatory powers associated with the outcome variable of the study.

LIMITATIONS

The data collection took place at only two secondary schools, both located in predominantly Christian areas. Different results might have been obtained if data had also been collected from predominantly Muslim adolescents.

Only questionnaires were used to collect data. More in-depth data might have been obtained if individual interviews could have been conducted.

There can be no guarantee that learners who completed questionnaires had the same ideas as those who refused to do so.

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