



Original Research Article

The relationship between self-efficacy and vulnerability to HIV infection among university student-teachers in Uganda and Tanzania

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The study examined the applicability of the social cognitive theory in investigating the relationship between self-efficacy and vulnerability to HIV infection among university student-teachers. The research participants involved a sample of 559 undergraduate university student-teachers in two universities, that is, 262 from Makerere University College of Education and External Studies in Uganda (MUCEES) and 295 from the Dar es Salaam University College of Education (DUCE) in Tanzania. They were subjected to two questionnaires, that is, a self-efficacy scale for HIV risk behaviours with items on condom purchase and usage efficacy, communication and confidence to avert pressures that can lead to sexual practice; and a vulnerability to HIV infection scale with items on comprehensive HIV knowledge and HIV-related behaviours. Results from the study show that there is an inverse/negative relationship between self-efficacy and vulnerability to HIV infection. However, the findings show that although the relationship between self-efficacy and vulnerability to HIV infection is inverse, it is not statistically significant ($p=0.663>0.05$). Hence, although an increase in self-efficacy leads to a decrease in vulnerability to HIV infection, it is not a significant factor in explaining vulnerability to HIV infection. These findings confirm the assertions and predictions of the social cognitive theory which argues that if young people have a high sense of self, they are able to practice behaviours that reduce their vulnerability to HIV infection, because people with high self-efficacy are more likely to view difficult tasks as something to be mastered rather than something to be avoided.

Key words: Self-efficacy, vulnerability, HIV, student-teachers, university, Uganda, Tanzania.

INTRODUCTION

Young adults in universities have become susceptible and vulnerable to HIV infection due to their low levels of self-efficacy. The overall prevalence of HIV in universities is estimated at 1.2%. Whereas this prevalence is lower than the national prevalence rates, it represents an increase from a prevalence of 0.6% in 2008 (East Africa Community /AMREF Lake Victoria Partnership Programme [EAC/EALP], 2010). Young people between the ages of 14 years and 25 years are the most vulnerable (World Health

Organisation [WHO], 2004), and they should therefore be at the center of the strategies to control HIV. Self-efficacy is the belief in one's capabilities to organise and execute the courses of action required to manage prospective situations. It is also a person's beliefs in his/her ability to succeed in a particular situation (Bandura, 1994). It is the confidence in one's ability to engage in a behaviour successfully (Kirby et al., 2011). Self-efficacy can have an impact on everything from psychological states to

behaviour to motivation (Bandura, 1977). Self-efficacy effects are particularly apparent, and compelling, with regard to behaviours affecting health (Kirby et al., 2007). This study examined the relationship between self-efficacy and both knowledge-based and behaviour-based vulnerability to HIV infection among university student-teachers.

According to Kirby et al. (2011), vulnerability or susceptibility is often specific to particular threats. HIV, though largely considered and perceived as a health issue and challenge, has been caused, manifested and suffered in ways beyond the health angle. One's evaluation of his/her self worth has contributed to the chances of catching it. Self-efficacy as a pillar of self concept is associated with reduced vulnerability to risks such as HIV infection. The university and tertiary social environment provides unique challenges to the students (Abional and Balogin, 2010). A thick coat of ignorance surrounds the disease in many African countries (EAC/EALP, 2010). HIV knowledge is an instrumental factor in HIV reduction. According to Kirby (2008), knowledge influences perceptions of risk, perceptions of behaviour control or self-efficacy, hence affecting the health goal of decreased rate of HIV.

Student-teachers are the future advocates of good behaviour (Nias, 1996). They uphold values and are perceived as people of great responsibility and must possess high self-efficacy. They are transmitters of values to the learners under their care and custodianship. They are expected to have adequate levels of self-efficacy to be able to protect themselves against HIV.

Young people engaging in risky sexual behaviour (such as not using condoms) remains a significant challenge in the country response. Comprehensive knowledge about HIV is also low-less than half of young people have adequate knowledge (Tanzania Ministry of Health, 2014). Young adults such as those in universities are lacking the necessary social skills such as self-esteem and self-efficacy to achieve behaviour change in these challenging times of several health dangers (UNICEF, 2009). Previous reports have found that university students in Africa comprise of a sexually active population (Rutherford et al., 2014). Several studies have been done on the contribution of environmental factors to HIV, like, Fox (2010) and Gillespies et al., (2007), but limited research can be found on the psycho-social factors such as self-efficacy that may increase this vulnerability. Also, most studies like the EAC/EALP (2010) which have researched about HIV in separate East African universities, have not been comparative like this one which compared university student-teachers in Uganda and Tanzania, on the basis of the impending harmonisation of universities in East Africa which might necessitate the resultant harmonisation of university policies, HIV policies inclusive. This study, unlike most which have focused on younger age groups, like adolescents, commercial sex workers and gays, as Ranguel et al. (2009) asserts, this study has focused on young adults, that is, those in universities as a vulnerable group.

Using a purely quantitative approach, the study was

guided by one major objective, that is, to investigate the relationship between self-efficacy as a psycho social factor and the vulnerability to HIV infection among university student-teachers. The accompanying hypothesis stated that there is a statistically significant relationship between self-efficacy and vulnerability to HIV infection. Theoretically, the study followed the Social cognitive theory which stresses that the stronger the perceived self-efficacy, the more active the coping efforts and those who persist in threatening conditions will eventually eliminate their inhibitions through corrective experience (Bandura, 1994; Bandura, 1986). People with high self efficacy are more likely to view difficult tasks as something to be mastered rather than something to be avoided (Kirby et al., 2011) If young people have a high sense of the self, they are able to practice behaviours that will reduce their vulnerability to HIV infection. Therefore, the aim of the study was to investigate the quantitative relationship between self-efficacy and vulnerability to HIV infection. The research hypothesis or this study stated that there is a statistically significant relationship between self-efficacy and vulnerability to HIV infection among university student-teachers in Uganda and Tanzania. The independent variable was self-efficacy while the dependent variable was vulnerability to HIV infection.

METHOD

Sample size (subjects) and sample selection

The participants for this study were 557 university student-teachers from both Uganda and Tanzania (262 from Makerere University School of Education and External Studies and 295 from the Dar es Salaam University College of Education). At Makerere University, the male participants were 46.2% while the females were 53.8%. At Dar es Salaam University College of Education, males were 66.8% while females were 33.2%. The age range for the participants was between 21 and 30 years

The universities were selected using purposive sampling, that is, the university teacher training colleges of the two largest public universities from both Uganda and Tanzania, to represent university teacher-trainees. Year three university student-teachers were selected on the assumption that they were in intimate relationships which provided a good backbone to test self-efficacy and vulnerability to HIV infection. The actual participants were selected using systematic random sampling which resulted into a sample size of 262 and 295 from Uganda (MUCEES) and Tanzania (DUCE) respectively.

Design

The study was a cross sectional survey. It studied large numbers of respondents to represent university students in general, and it also studied the respondents at the same time. It was also a correlational study, that is, it aimed at

Table 1. Respondents Demographic Information (N=559)

Demographic Variable	Distribution (%)	
	DUCE (N=295)	MUCEES (N=262)
Age		
21-25	72.2	93.1
26-30	22	6.9
>30	5.8	0
Religion		
Catholic	40.3	35.9
Protestants	32.2	41.6
Moslem	22.4	12.2
Others	5.1	10.3
Sex		
Male	66.8	46.2
Female	33.2	53.8
Source of funding		
Government	91.5	17.2
Private	8.5	82.8
Accommodation		
On campus/hostels	11.5	7.6
Off campus	88.5	92.4

establishing the relationship between self-efficacy and vulnerability to HIV infection.

Data analysis

Data was analysed using both descriptive and inferential statistics. The descriptive statistics included the frequencies and percentages on each item of the self-efficacy and vulnerability to HIV infection instruments, while the inferential statistics included the Pearson product moment correlation coefficient for self-efficacy and vulnerability to HIV infection.

The demographic characteristics of the participants included age range, religion, sex, source of funding and accommodation. The demographic data was analysed using percentages and the findings are presented in Table 1.

Measures

Three questionnaires were used to collect data for this study. One was meant to collect data on the participants' demographic characteristics in terms of age, religion, sex/gender, source of funding and accommodation. The second questionnaire was the self-efficacy scale for HIV risk behaviours which contained ten (10) items on communication, sexual assertiveness, confidence to buy and use condoms and confidence to refuse to take alcohol and drugs, measured using a five point likert scale ranging from strongly disagree to agree. The third questionnaire consisted of 15 HIV knowledge-based items and 12 HIV behaviour-based items to measure vulnerability to HIV infection, with a binary (Yes/No) type of scale. The

knowledge-based questionnaire included items on causes, ways of transmission and prevention strategies for HIV, while the behaviour-based questionnaire included items on sexual activity, drug use, alcohol abuse, prostitution, rape, unprotected sex and homosexuality/lesbianism.

To test the reliability and level of appropriateness of the items, the instruments were subjected to two parallel pilot studies, one at Kyambogo University in Uganda and University of Dar es Salaam in Tanzania on a small sample of 50 participants who were intentionally not included in the final study. As a result of the two pilot studies, the questionnaires were refined in terms of grammar, time allocation, order/sequence of items and contextualisation. Validity was achieved by using statements of inquiry that were relevant to the study objectives and standardised instruments. The reliability for self efficacy was 0.753 on the ten items while that of vulnerability to HIV infection was 0.701 on 27 items.

RESULTS

Findings on self-efficacy

After subjecting the questionnaires to year three 262 student-teachers from Makerere University (MUCEES) and 295 student-teachers from Dar es Salaam University College of Education (DUCE), statistics were run to indicate how the participants in both universities scored on each of the items measuring self-efficacy. Responses that indicated strongly disagree and disagree were merged and represented by "disagree" while those that indicated strongly agree and agree were merged and represented by, "agree". NS represented the "not sure" responses.

On individual attribute basis, a total of 88.4% from DUCE and 87.4% from the MUCEES confirmed that they are confident to talk about sex with their sexual partners. However, 5.8% of DUCE respondents disagreed with the statement while only 5.8% of the same category were not sure about their confidence to talk about sex with their sexual partners. At the MUCEES, those not sure about confidently talking about sex with their partners were 5.7% while those that disagreed were only 6.9% in total. The average mean score for the DUCE on this item was 4.46 while that of the MUCEES was 4.44, both of which are high scores (compared to an expected minimum of 1 and maximum of 5). For both universities, the mean score on this attribute of self-efficacy was 4.45 which is indicative of a high self-efficacy. Therefore, going by the above findings, this suggests that most of the respondents are confident to talk about sex with their sexual partners.

Self-efficacy also tackled the attribute of the extent to which university student-teachers were able to easily refuse to have sex. Those who reported that they find it easy to refuse to have sex were a total of 195 respondents, that is, 66.1% from DUCE and 201 respondents, that is, 76.7% from MUCEES. Those who felt that discussing sex with their sexual partner was hard were a total of 13.9%

and 13.0% from DUCE and MUCEES respectively. However, 59, that is, 20% of the Tanzanians and 27, that is, 10.3% of the Ugandans were uncertain about their ability or potential to easily refuse to have sex. Therefore, the MUCEES student-teachers appear to have a higher self efficacy on the attribute of refusal to have sex than their Tanzanian counterparts at the DUCE. The total mean score on this item of self-efficacy was 3.95 which is indicative of a high a high score and high self-efficacy as far as refusal to have sex is concerned.

Another item under consideration under self-efficacy was the confidence to buy/purchase condoms in a drug store. From the observed frequencies, it was discovered that a total of 66.8% of the respondents from DUCE agreed that they can confidently buy condoms in a drug store compared to 65.7% from MUCEES. However, those who did not express confidence to purchase condoms, hence those with a low self-efficacy on this attribute were a total of 67, that is, 22.7% of DUCE student-teachers and 58, that is, 22.1% of the MUCEES student-teachers. Those respondents that seemed uncertain or not sure if they can confidently purchase condoms in a drug store were 10.5% and 8.0% Tanzanians and Ugandans respectively. The mean score for DUCE on this attribute was 3.72 while that of the MUCEES was 3.67, indicating that DUCE respondents were stronger on this attribute of self-efficacy than their MUCEES counterparts. The total mean score for both universities as far as the capability to purchase condoms was concerned was 3.70, hence a high mean score and high self efficacy. Purchasing condoms isn't enough in protecting oneself from HIV infection. Young adults must also have the willingness and skill to use them correctly whenever there is a need. On this item of self-efficacy, the willingness and skill to use condoms correctly stood at a total of 79.3% among student-teachers from the University of the DUCE, while at the MUCEES, this rate stood at 80.2%. Accordingly, the results on this construct appear to infer that the willingness and skill to use condoms correctly among university student-teachers in the two universities is high and almost the same the same. Those student-teachers that felt they cannot use condoms correctly if their partner wanted them to were 12.6% of the DUCE and 8.4% of MUCEES participants, while those that seemed unsure of this ability were only 15, that is, 5.1% of the respondents at the University of the DUCE and 7, that is, 2.7% of the respondents at the MUCEES. The almost similar strength in self-efficacy on this attribute is also evident in the mean scores for the two universities where the average for the DUCE was 4.15 while that of the MUCEES was 4.21. The total mean score for both universities was high, that is, 4.18 compared to the expected maximum mean score of 5. This meant that generally, university student-teachers in the two countries believe that they are capable of using condoms correctly.

Sometimes, alcohol intoxication leads to impaired judgment and regrettable actions. One of the attributes of self-efficacy under the self efficacy study was the respondents' capability to refuse to take alcohol and drugs if friends enticed them to. From the observed scores, it was discovered that the majority have this capability, that is, a total of 83.1% from DUCE and 81.3% from MUCEES, an indication that those that responded in the affirmative were the same percentage for both universities. However, those who felt they cannot refuse to take alcohol and drugs amidst enticement from friends were a total of 12.9% from DUCE and 12.6% from MUCEES. Those not sure of this capability were 4.1% and 6.1% from DUCE and MUCEES respectively. The total mean score on this ability to refuse to take alcohol and drugs was high, that is, 4.27 out of the expected maximum mean score of 5.

In the face of the HIV pandemic, it is vital that young adults resist temptations to have sex, especially during alcohol intoxication. Among the Tanzanian university student-teachers at DUCE, a total of 64.8% reported that they can resist sex even when they are drunk, but this rate reduces by almost 8 percent if a respondent was from MUCEES which was represented by a total of 57.3%, implying that on the attribute of ability to resist sex under alcohol intoxication, DUCE respondents had a higher self-efficacy than their counterparts at MUCEES. On the other hand however, a total of 49, that is, 16.6% of the Tanzanian university student-teachers at DUCE and a total of 34, that is, 13% of the Ugandan university student-teachers at MUCEES disagreed and therefore indicated that avoiding and resisting sex is something difficult to achieve even when they are drunk. A considerable number of respondents were not sure if they could resist sex while drunk, that is, 18.6% from DUCE and 29.8% from MUCEES. The total mean score for DUCE was 3.88 while that of MUCEES was 3.79. The overall mean score on this ability to resist sex even when drunk was 3.84, that is, high self-efficacy.

Partners in intimate relationships should be able to talk about their past sexual relationships. As far as this attribute of self-efficacy was concerned, respondents from DUCE (a total of 78.7%) reported that they have this ability while those from the MUCEES with the same conviction were 72.4% in total. On the other hand, those who felt that talking about past sexual relationship was impossible were 35, that is, 11.9% from the University of the DUCE and 41, that is 15.7% from the MUCEES. Those that were not sure were 9.5% and 11.9% Tanzanians (DUCE) and Ugandans (MUCEES) respectively. From the indicative mean scores of the individual universities, it can be inferred that as far as confidence to talk about past sexual relationships, the DUCE student-teachers (mean score of 4.12) were higher on self-efficacy than their colleagues at MUCEES (mean score of 3.95). The total mean score for both universities was high (4.04).

The self-efficacy instrument also aimed at ascertaining if the respondents were aware that failure to use condoms increased their likelihood of getting HIV. A total of 56.2% of

the respondents from DUCE believed that if they did not use condoms, they were likely to get infected with HIV. From MUCEES, respondents that agreed with this fact were a total of 71.4%, hence, MUCEES respondents had a higher self-efficacy regarding their belief in the reality that if condoms were not used, they were likely to get HIV. However, those student-teachers that disagreed and indirectly indicated that they still stood a chance of surviving HIV infection without condom use were a total of 24.4% and 16.4% from DUCE and MUCEES respectively. A total of 19.3% of respondents at DUCE and 12.2% at MUCEES were not sure about their likelihood to get HIV if they do not use condoms. From the observed means of the different universities, it can be said that as far as admitting that failure to use condoms exposes one to a likelihood of HIV infection was concerned, the MUCEES university student-teachers had a higher self-efficacy (mean score of 3.91) than their colleagues at DUCE (mean score of 3.50). The total mean score for both universities on this attribute was 3.69 which is a high score, hence high self-efficacy.

Self-efficacy can also be characterised by the presence of confidence to demand for HIV testing before any sexual encounter/intercourse. Those respondents that agreed with this assertion were a total of 53.5% and 69.5% from DUCE and MUCEES respectively. This implies that MUCEES respondents were higher on this item than their Tanzanian respondents from DUCE. However, those university student-teachers who seemed to indicate that whether testing for HIV takes place or not, they can still have sex were a total of 75, that is, 25.5% from DUCE and 51, that is, 19.5% from MUCEES. The student-teachers that were not sure if they could demand for HIV testing before any sexual encounter were 21% from DUCE and 11.1% from MUCEES. The mean score on this attribute of self-efficacy at MUCEES was 3.90 compared to that of the DUCE of 3.49, both of which are high mean scores. The total mean score for both universities on this item was 3.68 which is considered a high score.

As a sign of self-efficacy, partners in intimate relationships should be able to easily talk to their partners about sexual partners. A total of 73.6% of the respondents from the DUCE agreed with this requirement compared to a total of 74.0% of the MUCEES respondents. About 12.5% of the DUCE respondents and 9.5% of the MUCEES respondents were not sure if they can freely talk about sexual partners with their current partner. However, those university students that seemed to indicate that they don't easily talk to their partners about sexual partners were 41, that is 13.9% in total from the DUCE and 43, that is, 16.5% in total from the MUCEES. The total mean score on this attribute of self efficacy for both universities was 3.94 which is a high score, hence high self efficacy on this particular attribute.

Therefore, the attributes that were the basis for predicting self-efficacy levels were: ability to: confidently talk about sex with sexual partner, easily refuse to have sex, confidently buy condoms in a drug store, use condom correctly, refuse to take alcohol and drugs, avoid and resist

sex even when drunk, confidently talk to partner about past sexual relationships, admit that they are likely to get HIV if they don't use condoms, go without sex until their partner has had HIV testing and easily talk to their partner about sexual partners. These findings are in Table 2.

Total self-efficacy

We also run total self efficacy quantities. These findings are presented in Table 3.

Table 3 shows the total self-efficacy, with students in MUCEES marginally reporting higher level of self-efficacy 40.1 (S.D=6.5 and median=6.1) compared to student teachers at DUCE whose average score was 39.4 (S.D=6.9 and median=41). Accordingly, the p-value of 0.24 implies that the mean difference of 0.7 (40.1-39.4) is insignificant at 5 percent level. It therefore follows that self-efficacy towards HIV related attitudes and behaviours is the same among student teachers in the two universities.

From the findings on self-efficacy, it can be said that the university student-teachers scored highest on confidence to talk about sex with sexual partner, potential to use condoms correctly if partner wanted, refusal to take alcohol and drugs even when enticed by friends and confidence to talk about past sexual experiences with sexual partners. However, the student-teachers scored lower on items regarding potential to refuse to have sex, confidently buying condoms in a drug store, avoid and resist sex even when drunk, assurance that failure to use condoms leads to HIV, potential to go without sex before partner HIV testing and talk to partner about sexual partners. These findings indicate that respondents can use condoms correctly, without having the confidence to buy them, which is more risky as far as HIV vulnerability is concerned. Hence the need for more training and sensitisation on self-efficacy, especially in behaviours that are HIV risky.

Findings on vulnerability to HIV infection

Before conducting any analysis for vulnerability to HIV infection, the research rendered it necessary to establish and explain the resultant descriptive statistics in terms of frequencies and percentages. The research instrument for vulnerability to HIV infection was binary, that is, the responses had to fall under either in the affirmative (YES) or in disagreement (NO).

Findings on knowledge-based vulnerability to HIV infection

The researcher established findings on items related to HIV comprehensive knowledge as a measure of vulnerability to HIV infection among university student-teachers. Table 4 present the frequencies and percentages on vulnerability to HIV infection, that is, knowledge-based vulnerability respectively

Table 4 represents the statistical outcomes on knowledge-based vulnerability (items 1-15) to HIV

Table 2. Frequencies and percentages on self-efficacy

		University				Mean Score		
		DUCE		MUCEES		DUCE	MUCEES	Total
		Freq	Percent	Freq	Percent			
1. I can confidently talk about sex with my sexual partner	D	17	5.8%	18	6.9%	4.46	4.44	4.45
	NS	17	5.8%	15	5.7%			
	A	261	88.4%	229	87.4%			
2. I can easily refuse to have sex	D	41	13.9%	34	13.0%	3.84	4.07	3.95
	NS	59	20.0%	27	10.3%			
	A	195	66.1%	201	76.7%			
3. I can confidently buy condoms in a drug store	D	67	22.7%	58	22.1%	3.72	3.67	3.70
	NS	31	10.5%	32	12.2%			
	A	197	66.8%	172	65.7%			
4. I can use a condom correctly if my partner wanted to	D	37	12.6%	22	8.4%	4.15	4.21	4.18
	NS	24	8.1%	30	11.5%			
	A	234	79.3%	210	80.2%			
5. I can refuse to take alcohol and drugs if friends enticed me to	D	38	12.9%	33	12.6%	4.29	4.26	4.27
	NS	12	4.1%	16	6.1%			
	A	245	83.1%	213	81.3%			
6. I can avoid and resist sex even when I am drunk	D	49	16.6%	34	13.0%	3.88	3.79	3.84
	NS	55	18.6%	78	29.8%			
	A	191	64.8%	150	57.3%			
7. I can confidently talk to my partner about our past sexual relationships	D	35	11.9%	41	15.7%	4.12	3.95	4.04
	NS	28	9.5%	31	11.9%			
	A	232	78.7%	189	72.4%			
8. If I don't use condoms, I am likely to get HIV	D	72	24.4%	43	16.4%	3.50	3.91	3.69
	NS	57	19.3%	32	12.2%			
	A	166	56.2%	187	71.4%			
9. I can go without sex until my partner has had HIV testing	D	75	25.4%	51	19.5%	3.49	3.90	3.68
	NS	62	21.0%	29	11.1%			
	A	158	53.5%	182	69.5%			
10. I can easily talk to my partner about sexual partners	D	41	13.9%	43	16.5%	3.97	3.90	3.94
	NS	37	12.5%	25	9.5%			
	A	217	73.6%	194	74.0%			

Table 3. Average level of Total self-efficacy

	University			p-value
	DUCE	MUCEES	Total	
Mean	39.4	40.1	39.7	
Std deviation	6.9	6.1	6.5	
Median	41	41	41	.240

infection. Knowledge-based vulnerability included knowledge questions and statements that sought to measure how much knowledge the respondents had about the nature, modes of transmission and causes of HIV, for lack of this knowledge was believed to increase vulnerability to HIV infection. The instrument had a binary/dichotomous scale where respondents were expected to answer Yes or No.

Regarding the item that stated that people can't get HIV by shaking hands, almost all respondents replied in the affirmative as shown by 96.6% and 98.1% from DUCE and MUCEES respectively, implying that on this attribute of knowledge-based vulnerability, student-teachers in the two universities were highly knowledgeable albeit the MUCEES

student-teachers had a slightly high percentage and hence scored higher hence had more knowledge on HIV, and therefore was less vulnerable to HIV infection than DUCE. The mean score for DUCE on this item was 0.03 while that of MUCEES was 0.02. The total mean score on this item for both universities was 0.03, meaning that as far as the knowledge attribute of people can't get HIV by shaking hands, the respondents were less vulnerable (expected scores between 0 and 1).

As far the item of whether or not HIV can't transmitted from mother to child during pregnancy was concerned, respondents who responded in the affirmative were 43.1% and only 38.9% from DUCE and MUCEES respectively. Those in disagreement with the statement were 56.9%

Table 4. Frequencies and Percentages on items relating to HIV knowledge as an indicator of vulnerability to HIV infection

		University				Mean		Total
		DUCE		MUCEES		DUCE	MUCEES	
		Freq	Percent	Freq	Percent			
1. People CANT get HIV by shaking hands	Yes	285	96.6%	257	98.1%	.03	.02	.03
	No	10	3.4%	5	1.9%			
2. HIV CANT be transmitted from mother to child during pregnancy?	Yes	127	43.1%	100	38.2%	.57	.62	.59
	No	168	56.9%	162	61.8%			
3. Can people reduce their chance of getting HIV by abstaining from having sexual intercourse?	Yes	264	89.5%	248	94.7%	.11	.05	.08
	No	31	10.5%	14	5.3%			
4. People CANT get HIV by sharing food with an infected person	Yes	277	93.9%	247	94.3%	.06	.06	.06
	No	18	6.1%	15	5.7%			
5. Can people get HIV by sharing needles for drug use with someone with HIV?	Yes	276	93.6%	255	97.3%	.06	.03	.05
	No	19	6.4%	7	2.7%			
6. People CANT get HIV through kissing	Yes	162	54.9%	77	29.4%	.45	.71	.57
	No	133	45.1%	185	70.6%			
7. Can the HIV virus be transmitted from mother to child during delivery?	Yes	285	96.9%	255	97.3%	.03	.03	.03
	No	9	3.1%	7	2.7%			
8. Can HIV be transmitted from mother to child through breastfeeding?	Yes	253	85.8%	233	88.9%	.14	.11	.13
	No	42	14.2%	29	11.1%			
9. there NO vaccine available to protect people from contracting HIV	Yes	215	72.9%	171	65.3%	.27	.35	.31
	No	80	27.1%	91	34.7%			
10. There NO cure for HIV currently	Yes	269	91.2%	244	93.1%	.09	.07	.08
	No	26	8.8%	18	6.9%			
11. Can people reduce their chance of catching HIV by using a condom each time they have sex?	Yes	253	85.8%	246	93.9%	.14	.06	.10
	No	42	14.2%	16	6.1%			
12. A mosquito CANT transmit HIV	Yes	285	96.6%	241	92.0%	.03	.08	.06
	No	10	3.4%	21	8.0%			
13. Can young people reduce their chance of getting HIV by having just one uninfected faithful sexual partner?	Yes	228	77.3%	209	79.8%	.23	.20	.22
	No	67	22.7%	53	20.2%			
14. People CANT get HIV through witchcraft	Yes	243	82.4%	243	92.7%	.18	.07	.13
	No	52	17.6%	19	7.3%			
15. Can a healthy looking person have HIV?	Yes	215	72.9%	244	93.1%	.27	.07	.18
	No	80	27.1%	18	6.9%			

from DUCE and 61.8% from MUCEES. The explanation for the higher frequency in the reverse could be that whereas it is generally believed that HIV can't be transmitted from mother to child during pregnancy, there are certain conditions that could lead to this unwanted outcome, like placenta problems, accidents to the expectant mother, and the like. Such considerations may have influenced the outcome of this finding. Whereas the average score for both universities was just above average (0.59), it should be noted that respondents from MUCEES had a higher average score on this item than their counterparts from DUCE, hence the former were less vulnerable to HIV infection than the latter.

Still in the analysis of the results in Table 5, most of the student-teachers from the DUCE, that is, 89.5% and MUCEES, that is, 94.7% were aware that people can reduce their chances of getting HIV by abstaining from having sexual intercourse. This was also the case among 89.5% of the student-teachers at DUCE. However, the student-

teachers who seemed unaware of this fact were 31, that is, 10.5% from the DUCE and 14, that is, 5.3% from MUCEES. On this knowledge-based attribute of HIV vulnerability, the MUCEES respondents scored lower with a mean score of 0.05 compared to 0.11 for DUCE. The total mean score for both universities was 0.08 and the assumption was that high HIV knowledge reduces vulnerability to HIV infection.

The other knowledge item sought to determine whether participants in this research were aware that people can't contract HIV by sharing food with an infected person. The outcome of the analysis indicated that a significantly large percentage of the Tanzanian respondents, that is, 277 respondents (93.9%) and their counterparts from Uganda, that is, 247 respondents (94.3%) agreed that HIV can't be transmitted through sharing food. However small the percentage was of respondents who still think that sharing food can transmit HIV, that is, 6.1% and 5.7% of DUCE and MUCEES student-teachers respectively, it is indeed disturbing that some young adults still hold such

Table 5. Frequencies and Percentages on HIV-related behaviour as an indicator of vulnerability to HIV infection

		University				DUCE	MUCEES	Total
		DUCE		MUCEES				
		Freq	Percent	Freq	Percent			
16. Have you ever had sexual intercourse?	No	27	9.2%	32	12.2%	.88	.89	.89
	Yes	268	90.8%	230	87.8%			
17. Have you ever had sex with a person of the same gender?	No	256	95.5%	220	95.7%	.04	.04	.04
	Yes	12	4.5%	10	4.3%			
18. Have you ever been forced to have sex against your will?	No	215	80.2%	165	71.7%	.20	.28	.24
	Yes	53	19.8%	65	28.3%			
19. Have you had sexual intercourse in the last six months?	No	48	17.9%	58	25.2%	.82	.75	.79
	Yes	220	82.1%	172	74.8%			
20. I have NOT tested for HIV in the last six months	No	122	41.4%	168	64.1%	.59	.36	.48
	Yes	173	58.6%	94	35.9%			
21. I and my sexual partner HAVE NOT tested for HIV together in the last six months	No	80	27.1%	93	35.5%	.73	.65	.69
	Yes	215	72.9%	169	64.5%			
22. I Do NOT respect the virtue of virginity	No	221	74.9%	201	76.7%	.25	.23	.24
	Yes	74	25.1%	61	23.3%			
23. Do you take alcohol when you go out with your partner?	No	236	80.0%	191	72.9%	.20	.27	.23
	Yes	59	20.0%	71	27.1%			
24. Ever had sex after drinking alcohol?	No	203	75.7%	176	76.5%	.24	.23	.24
	Yes	65	24.3%	54	23.5%			
25. Have you ever made someone pregnant/been pregnant?	No	166	61.9%	170	73.9%	.38	.26	.33
	Yes	102	38.1%	60	26.1%			
26. Do you sometimes have sex in exchange for gifts and money?	No	216	80.6%	205	89.1%	.19	.11	.15
	Yes	52	19.4%	25	10.9%			
27. Do you take drugs?	No	278	94.2%	243	92.7%	.06	.07	.06
	Yes	17	5.8%	19	7.3%			

sentiments and wrong information about the ways of HIV transmission. The average score for both universities was 0.06, hence high HIV knowledge and low vulnerability.

Sharing needles and its possible contribution to HIV infection was also investigated. According to the statistical findings, 93.6% of the respondents from the DUCE agreed that people can get HIV by sharing needles for drug use with someone infected with HIV. This is compared to 97.3% of the respondents from MUCEES. On this HIV knowledge attribute, MUCEES scored lower (mean score of 0.03) than DUCE (mean score of 0.06). The mean score for both universities was 0.05, hence a high HIV knowledge level and low vulnerability to HIV infection.

Kissing has been advanced as a safe practice as far as HIV infection is concerned. However, results from the research show that respondents from DUCE who agreed that people can't get HIV through kissing were only 54.9% (just above average) compared to 29.4% from MUCEES. From the former, that is, DUCE, 45.15% consider kissing as unsafe in HIV transmission and the majority of MUCEES respondents, that is, 70.6% believe that people can get HIV through kissing. This unexpected statistical finding can be explained by the fact that the respondents could have thought deeper about the circumstances that might surround kissing that

may make it unsafe in terms of HIV transmission, for example, if a partner has wounds and bleeding gums, a fact that wasn't taken care of by this item of the knowledge-based vulnerability instrument. Nevertheless, the Tanzanian respondents scored higher on this HIV knowledge attribute (.45 compared to 0.71). In this particular item, the lower the mean meant more HIV knowledge and less vulnerability.

The knowledge-based vulnerability also sought to approximate if HIV can be transmitted from mother to child during delivery. Those who answered in the affirmative from DUCE were 285 respondents (96.9%) and 255 respondents (97.3%) from MUCEES. However, 3.1% of the Tanzanian university student-teachers and 2.7% of those from Uganda felt that there is a possibility that HIV can be transmitted from mother to child during delivery. This response could be because there are certain rare but possible circumstances under which this might happen, for example, if the expectant mother doesn't deliver her baby at a proper health facility under the custodian ship and care of qualified midwives and other professionals in the prevention of mother to child transmission of HIV. From the observed mean scores, it is seen that student-teachers from both had high HIV knowledge on this item, hence low

vulnerability as shown by the total mean score of 0.03 for both universities. Another attribute tested under knowledge-based vulnerability sought to find out whether HIV can be transmitted from mother to child through breast feeding and the outcome of the analysis showed that 85.8% of the student-teachers from DUCE said Yes and those who felt it wasn't possible were only 14.2%. At MUCEES, those that believe that breastfeeding can transmit HIV from mother to child were 88.9% and those that disagreed were only 11.1%. Generally, breastfeeding is believed to be a safe practice in the prevention of HIV transmission from mother to child. However, the statistical outcome on this attribute seems to mean that according to the respondents, there might be conditions under which breastfeeding becomes unsafe, for example, if the nursing mother is not on anti retro viral therapy, has blood in her milk due to some infections and cracked breast nipples. Nevertheless, this led to a mean score of 0.14 and 0.11 for DUCE and MUCEES respectively. The former was weaker on this item than the latter but generally, there was low vulnerability since the total mean score for both universities was 0.13.

The knowledge-based vulnerability also tested whether or not the respondents believed or knew that there was no vaccine available to protect people from contracting HIV. The truth of the matter is that currently, there is no vaccine against HIV infection, though many trial vaccines are being done, but with no conclusive one confirmed to protect humans from this deadly virus. Those that agreed were 72.9% and 65.3% from DUCE and MUCEES respectively, implying that Tanzanian respondents had more knowledge on this item and therefore less vulnerability to HIV infection. The mean score for the DUCE on this item was 0.27 while that of MUCEES was 0.35. The total mean score for both universities was 0.31.

A total of 91.2% of the respondents from DUCE agreed that there no cure for HIV currently compared to 93.1% from MUCEES. It was surprising to discover that a certain percentage of the respondents, however small, believe there is a cure for HIV. What the researcher is not certain about, since the instrument didn't not indicate for the respondents to show what this cure is, is if this cure is modern or traditional medicine. The mean score for both universities on this attribute of knowledge-based HIV vulnerability was 0.92, that is, high HIV knowledge , hence low vulnerability to HIV infection.

In the same vein, 93.9% of the Ugandan respondents agreed that people can reduce their chances of getting HIV by using a condom each time they have sex, compared to 85.8% from Tanzania. However, some university student-teachers do not seem to believe that condoms play an instrumental role in HIV prevention, that is, 42 (14.2%) and 16 (6.1%) of the Tanzanian and Ugandan university student-teachers respectively. On this attribute, it is clear that the Ugandan respondents had higher HIV knowledge than their colleagues from Tanzania because the former had high HIV-related knowledge than the former. The mean score for the respondents at DUCE was 0.14 while that of MUCEES was 0.06, and a total mean score of 0.10 for both

universities, hence high HIV knowledge and low HIV vulnerability.

Regarding whether a mosquito can transmit HIV, 96.6% of the respondents from DUCE reported that HIV can't be transmitted by mosquitoes while respondents from MUCEES with the same view were 92.0%, meaning that the Tanzanian respondents scored higher and appeared less vulnerable to HIV infection than the Ugandan respondents. There was however a small percentage who felt that mosquitoes can transmit HIV, that is, 3.4% and 8.0% from DUCE and MUCEES respectively. The mean score for both universities was 0.06 which means that the respondents' knowledge was high, hence low HIV vulnerability.

Also, regarding whether young people can reduce their chances of getting HIV by having just one uninfected partner who has no other sexual partner, 77.3% and 79.8% agreed from the University of DUCE and MUCEES respectively. The MUCEES had a higher score on this item than the DUCE (mean score of 0.80 compared to 0.77). On the whole, the mean for both universities was 0.22 which means high HIV knowledge and less vulnerability to HIV infection. It was indeed relieving to discover that the university student-teachers were aware of the importance of having one uninfected partner as a way of safeguarding oneself for possible infection.

A total of 82.9% student-teachers agreed that people can't get HIV through witchcraft at DUCE compared to MUCEES's score of 92.7%. But the study being an African setting, it was very surprising that a small fraction of the study population felt there is a chance that HIV can be attributed to witchcraft, that is, 52 (17.6%) of the Tanzanians and 19 (7.3%) of the Ugandans. This implies that respondents at DUCE have a higher potential of attributing HIV partly to witchcraft than respondents at MUCEES since 17.6% respondents from Tanzania believed otherwise compared to 7.3% of their Ugandan counterparts. The mean score for both universities on this attribute was 0.13, marking low vulnerability to HIV infection due to high HIV knowledge.

It should be noted that about 72.9% of the student-teachers from DUCE confirmed that a healthy looking person can have HIV while those with the same view from MUCEES were 93.1%, hence MUCEES respondents had more knowledge on HIV particularly on this attribute. However, a considerable figure of 80 (27.1%) and 18(6.9%) from Tanzania and Uganda respectively indicated otherwise and therefore believed that it is not possible that a healthy looking person can have HIV? This is a worrying statistic because judging HIV from physical manifestations of good or bad health can be a dangerous conviction and can contribute to HIV vulnerability. The mean score of 0.07 compared to 0.27 for the MUCEES and DUCE respectively indicates that on this particular attribute of knowledge-based HIV vulnerability, the Ugandan university student-teachers had higher HIV knowledge than their colleagues from Tanzania. The mean score for both universities was 0.18 hence high HIV knowledge and low vulnerability to HIV infection.

Therefore, HIV related knowledge as a determinant of vulnerability to HIV infection was determined or marked by items guided by knowledge of the causes, ways of transmission, symptomatic characteristics and ways of prevention.

Findings on behaviour-based vulnerability to HIV infection

The second attribute of vulnerability to HIV infection was that which dealt with HIV-related behaviour, (items, 16-27) whose observed scores are shown in the Table 5.

Table 5 represents the findings on behaviour-based vulnerability to HIV infection, that is, behaviours that may increase or decrease this vulnerability.

Respondents from DUCE who reported that they have ever had sexual intercourse were 90.8% while those from MUCEES were 87.8%, implying that the Tanzanian (DUCE) respondents were more sexually active and hence more vulnerable to HIV infection as a result, than their Ugandan (MUCEES) counterparts. Only a small percentage of the university student-teachers reported that they had never had sexual intercourse, that is, 27 (9.2%) of the Tanzanians at DUCE and 32 (12.2%) of the Ugandans at MUCEES. From the observed mean scores on this item, it is indicative that both universities scored a mean of 0.89 which indicates that generally, they are all sexually active hence vulnerable to HIV too.

Respondents were also asked if they have ever had sexual intercourse with a person of the same sex/gender (homosexuality for males and lesbianism for females). Contrary to the performance on the former item, the majority of the respondents from both universities reported in the reverse, that is, 95.5% of DUCE respondents said No while those from MUCEES with the same negative view were 95.7%. On this item therefore, the results imply that the respondents were less vulnerable since to a larger extent, they were not involved in this type of sexual behaviour. The mean score on this particular item in both universities was 0.04, meaning low involvement in homosexual and lesbian activities hence low vulnerability to HIV infection.

A total of 80.2% of the respondents from DUCE reported that they have never had sex against their will while those at MUCEES with the same experience were 71.7%. This means that rape was a rare experience in their lives, though this unfortunate experience was evident among 28.2% of the Ugandan respondents and 19.8% of those from Tanzania have ever been raped or defiled (forced to have sex against their will), a statistic the researcher found disturbing. However, the overall mean for both universities on this item was 0.79 which is considered high, hence low cases of forced sex, hence low vulnerability to HIV infection.

Also, the respondents were expected to respond to the question of whether they had ever had sexual intercourse in the last six months. Strange but true was the outcome that showed that in the last six months, 82.1% of the student-teachers from DUCE and 74.8% of MUCEES

respondents had had sex in the last six months, which marks a recency factor in sexual activity. This indicates that on the whole, they are currently sexually active. However, about 17.9% and 25.2% of the Tanzanian and Ugandan university students respectively had not had sexual intercourse in the last six months. The observed scores indicate that more Tanzanian university students had had sexual intercourse in the last six months than those from Uganda, indicating that on this attribute, the former were more vulnerable to HIV infection than the latter. The mean score on the item in both universities was 0.79 which increases vulnerability to HIV infection especially if precautionary measures are not taken.

Another expected marker of HIV vulnerability was HIV testing. It was assumed that those who had the habit of testing themselves for HIV were less vulnerable than those who didn't. From DUCE, only 41.4% had tested for HIV in the last six months compared to 64.1% from MUCEES. This implies that MUCEES respondents, for some reason, have tested for HIV more than the respondents from DUCE, making the former less vulnerable than the latter. It was quite worrying to discover that a good percentage, that is, 58.6% from DUCE and 35.9% from MUCEES admitted to not having tested for HIV in the last six months, a statistic which indicates that as they went about their normal activities and even indulged in sexual activity, they were not aware of their current HIV status, hence they were highly vulnerable, since knowledge of HIV status is supposed to influence one's precautionary behaviour against possible infection.

HIV testing should be done as a couple and hence, respondents were also asked to report whether they had tested for HIV with their partner/s in the last six months. A total of 72.9% of student-teachers from DUCE and 64.5% from MUCEES, which represents the majority of the respondents, confirmed that they had not carried out joint HIV testing, implying high vulnerability to HIV on this particular attribute. Joint HIV testing is a necessary step towards safeguarding oneself against infection, hence individual testing alone is useless if not accompanied by joint testing. However, 27.1% of the student-teachers at DUCE and 35.5% at MUCEES reported in the affirmative as far as joint HIV testing is concerned. The total mean score for lack of joint HIV testing was 0.69 which is high hence increased vulnerability to HIV infection.

Virginity as a virtue represents abstinence from sex and as a strategy for lowering one's vulnerability to HIV. Respondents from DUCE who reported that they do not respect the virtue of virginity were 25.1% while those from MUCEES with the same inclination were 23.3%. Disrespect for this virtue or low score on it implies increased vulnerability to HIV. A total of 74.9% of the DUCE respondents reported that they respect the virtue of virginity, compared to their counterparts from MUCEES (76.7%). It should be noted that respect for such a virtue may not necessarily translate into being virgins since the same respondents reported to already being sexually active so this respect for the virtue of virginity simply remains

theoretical. However, the average score for this item in both universities was 0.24, meaning high respect for virginity, hence low vulnerability to HIV infection.

Alcohol consumption has been known to impair thinking, judgment and decision making. Respondents were asked if they are in the habit of taking alcohol when they go out with their partner. Results show that 20% and 27.1% from DUCE and MUCEES respectively responded in the affirmative while the majority (80% and 72.1% from DUCE and MUCEES respectively). This statistical outcome may not necessarily be because they fear to contract HIV as a result of behaviours that might accompany alcohol intoxication, but due to religious, economic and social reasons. Most religions do not condone alcohol consumption and also, economic strains may not favor this behaviour since this would necessitate money which the university students might not have at their disposal. But judging from the observed individual universities' mean scores, it is evident that the mean score for both universities on this item was 0.23 meaning the rate of alcohol consumption on dates was low, hence low vulnerability to HIV infection.

Respondents were also asked if they have ever had sex after taking alcohol. A total of 75.7% from DUCE disagreed while those with the same negative view at MUCEES were 76.7%. This implies that the minority, that is, 24.3% from the university of DUCE and 23.5% from MUCEES were the only ones who have ever had sex after drinking alcohol. The average score for both universities was 0.24 meaning a low rate of post-alcohol consumption sexual encounters in both universities, hence low vulnerability to HIV infection.

Tanzanian university student-teachers who have ever been pregnant or have impregnated their girlfriends were 38.1% while the Ugandans in the same category were 26.1%. The majority of the respondents had not yet fallen victim to this consequence, that is 61.7% and 73.9% for DUCE and MUCEES respectively. The total mean score on this item in both universities was 0.33, meaning the minority of the respondents do not fall in the category of early/unintended pregnancies, hence lower vulnerability to HIV since the act and environment that leads to pregnancies is the same, that is, unprotected sex.

It should also be noted that 19.4% of the respondents from Tanzania reported that they have ever had sex in exchange for money. This act of prostitution was also evident among 10.9% of the respondents from MUCEES, showing that on this item, DUCE respondents were more vulnerable to HIV infection since their score was higher than their MUCEES counterparts. It was relieving to discover that the majority of respondents in both universities were not in the practice of exchanging sex for money and gifts, that is, 80.6% and 89.1% from the DUCE and MUCEES respectively, hence low vulnerability to HIV infection on this aspect of prostitution.

Lastly, the respondents were asked if they take drugs. Only 5.8% and 7.3% from DUCE and MUCEES respectively answered in the affirmative. However, the majority of the university student-teachers reported not to have been involved in drug use, that is, 94.2% from the DUCE and

92.7% from MUCEES. This led to the mean score of 0.06, hence low drug consumption and low vulnerability to HIV infection.

Total vulnerability to HIV infection

The researcher also established and analysed the total vulnerability to HIV infection scores in terms of mean, median, standard deviation and p value. The total vulnerability to HIV infection in both universities is presented in the Table 6 .

Table 6 shows the total vulnerability to HIV infection. In relation to Total knowledge-based vulnerability (items 1-15) the mean for this attribute was 2.7 (S.D=1.6 and median=2) at DUCE. For students at MUCEES, the mean score on knowledge-based vulnerability to HIV infection was 2.5 (S.D=1.4 and median=2) Although students at MUCEES on average had higher HIV related knowledge which was however insignificant (.252>.05), one tentative conclusion that can be derived from the two values on this construct is that HIV related knowledge was generally high in the two universities and this was expected to translate into low vulnerability to HIV infection. Therefore, from the observed means, it is safe to conclude that there was a marginal difference between the knowledge based vulnerability to HIV infection between respondents from the two countries, where MUCEES respondents were more knowledgeable on HIV related issues and less vulnerable than the respondents at DUCE. The total mean score on knowledge based vulnerability to HIV infection for both universities was 2.6 (S.D=1.5 and median=2.0), which meant that on the whole, the respondents in both countries had high HIV related knowledge hence low vulnerability to the scourge.

In terms of behaviour-based vulnerability to HIV infection (items 16-27), the average score for DUCE was 4.3(S.D=1.8 and median=4.0) while that of MUCEES was 4.2(S.D=1.9 and median=5.0) with a p-value of .344 which was less than the level of significance (0.05). This suggests that behavioural based vulnerability is the same among students in the two universities.

Looking at the total average score on items relating to vulnerability to HIV infection (both knowledge-based and behaviour-based) the level of vulnerability appeared to be the same (.346>0.05) for MUCEES students and their counterparts at DUCE. This is because the average score on the index of vulnerability was 7.0 for both universities implying that the level of vulnerability to HIV infection was low.

Correlation between self-efficacy and vulnerability to HIV infection

The study was aimed at establishing the relationship between self-efficacy and vulnerability to HIV infection among university student-teachers. The correlation findings are presented in Table 7.

The relationship between self-efficacy and vulnerability

Table 6. Total Vulnerability to HIV infection

University		Total knowledge vulnerability	Behaviour based vulnerability	Index of vulnerability to HIV
DUCE	Mean	2.7	4.3	7.0
	Std. Deviation	1.6	1.8	2.4
	Median	2	4	7
MUCEES	Mean	2.5	4.5	7.0
	Std. Deviation	1.4	1.9	2.4
	Median	2	5	7
Total	Mean	2.6	4.4	7.0
	Std. Deviation	1.5	1.9	2.4
	Median	2	4	7
p-value		.252	.344	.346

Table 7. Correlation between self-efficacy and vulnerability to HIV infection

		Total vulnerability	Total self efficacy
Total vulnerability	Pearson Correlation	1	-0.019
	Sig. (2-tailed)		0.663
	N	557	557
Total self efficacy	Pearson Correlation	0.019	1
	Sig. (2-tailed)	0.663	
	N	557	557

to HIV infection was the focus of the third objective. The index on self-efficacy was computed by summing up items 1 to 10 and was correlated with the index of vulnerability to HIV infection, that is, items 1 to 27. From the findings, self-efficacy is negatively/inversely related to vulnerability to HIV infection ($r=-0.019$, $n=557$ and $p=0.663$) which is indicative of a very small correlation. The correlation/relationship implies that total self-efficacy and total vulnerability to HIV infection are inversely related, that is, student-teachers with higher self-efficacy were less likely to be vulnerable to HIV infection. However, this relationship has been found to be statistically insignificant (0.663 is greater than 0.05). Hence, self-efficacy is not a significant factor in explaining vulnerability to HIV infection. This led to the acceptance of the null hypothesis that stated that there is no statistically significant relationship between self-efficacy and vulnerability to HIV infection.

DISCUSSION

In this study, we hypothesised that among university student-teachers in Uganda and Tanzania, there is a statistically significant relationship between self-efficacy and vulnerability to HIV infection, an alternative hypothesis against which the correlation findings were tested. The research findings revealed that although this relationship was inverse/negative, it was not to a statistically significant

extent. The Pearson product moment correlation coefficient analysis revealed that self-efficacy, which was marked by items related to HIV risk behaviours, had a negative ($r=-0.019$) relationship with vulnerability to HIV infection, which was marked by both HIV knowledge and HIV-related behaviours. This led to the rejection of the alternative hypothesis and acceptance of the null hypothesis. This also means that an increase in self-efficacy is related to a reduction in vulnerability to HIV infection.

These findings are parallel to related studies conducted by Rapelang et al., (2013), Bryan et al., (2004), Dilorio et al., (2000), Hendrickx et al. (2008), Outlaw et al. (2010) and Naar-King et al., (2006) who link self-efficacy and vulnerability through communication, assertive communication, assertive behaviour, intention to use condoms, readiness to practice safe sex and negotiation to delay sexual intercourse. According to Schwarzer(2008), self-efficacy influences choices affecting health, how people set their goals, prevents relapse of unhealthy behaviour and leads to the adoption of positive behaviours that prevent HIV infection in the long run. However, these findings contradict those done by Forsyth and Carey (1998) who argue that self-efficacy is counterproductive in HIV prevention since there is mixed evidence for its effect on sexual behaviour. They argue that self-efficacy is an individual attribute and how an individual puts it to use is relative. From this assertion, it can be argued that self-efficacy may lead to elevated levels of confidence to the extent of undermining possible factors that lead to HIV.

However, this should not erase the already existing inverse relationship established by this study which might emanate from the resultant precautionary conduct among high self-efficacy individual. This conduct may include HIV testing, protected sex, open communication and responsibility towards the direction that the relationship takes. With self-efficacy, every individual player in the relationship is a vital decision maker and implementer, who is alert to the negative outcomes of irresponsible sexual behaviour, while embracing the relationship's benefits of companionship.

Conclusions and Recommendations

In this paper, we have discussed the relationship between self-efficacy and vulnerability to HIV infection. The student-teachers at MUCEES were found to have a higher self-efficacy than their counterparts at DUCE. On average, in both universities, the subjects were found to be high on this attribute. It was also established that there is an inverse relationship between self-efficacy and vulnerability to HIV infection. This calls for training of university students in self-efficacy skills and in both interpersonal (social) and intrapersonal (individual) life skills. An improvement in self-efficacy would guarantee a reduction in vulnerability to HIV infection.

Competing interests

The authors declare that they have no competing interests

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