The role of motivation to learn and the effectiveness of a life skill based HIV/AIDS prevention communication program in Butterworth, the Eastern Cape, South Africa.

Bachelor thesis

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Date	14 January, 2010
By order of	AIESEC WSU Ibika campus
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Samenvatting

Ondanks de grote hoeveelheid van HIV/AIDS interventies die plaatsvinden in Zuid Afrika, is er nog steeds een vraag naar effectieve HIV/AIDS preventie voorlichtings programma's. Uit verscheidene studies blijkt dat programma's gebaseerd op HIV/AIDS gerelateerde 'life skills' een winst in kennis van HIV/AIDS kunnen veroorzaken en een verandering in seksueel risicovol gedrag. Het is belangrijk dat er ook aandacht wordt geschonken aan de motivatie om te leren over HIV/AIDS preventie, omdat zonder deze motivatie om te leren het programma minder effectief is. Het eerste doel van dit onderzoek was om de effectiviteit te bepalen van het ASK programma, een op 'life skills' gebaseerd HIV/AIDS preventie programma dat is uitgevoerd onder 11de klas studenten in het Transkei gebied in Zuid Afrika. Het tweede doel was om uit te zoeken welke variabelen; leeftijdsgroep, geslacht, attitude ten opzichte van HIV/AIDS preventie voorlichting, sociale norm ten opzichte van HIV/AIDS preventie voorlichting in hun school en self efficacy ten opzichte van het opelijk praten over HIV/AIDS, de motivatie om te leren over HIV/AIDS preventie zouden beïnvloeden. Het derde doel was om uit te zoeken of deze variabelen een effect hebben op de resultaten van het communicatie programma. In total hebben 678 leerlingen de test ingevuld die kennis van HIV/AIDS en SOA's en het ongeloof in mythen over HIV/AIDS en SOA's meette, waarvan 419 ook de vragenlijst hebben ingevuld die hun motivatie om te leren over HIV/AIDS preventie meette. De resultaten van dit onderzoek laten zien dat er een positief significant effect is van het communicatie programma op kennis van HIV/AIDS en SOA's en het ongeloof in mythen over HIV/AIDS en SOA's. De variabele attitude ten opzichte van HIV/AIDS preventie voorlichting voorspeld significant de motivatie om te leren over HIV/AIDS preventie. De resultaten suggereren dat een positieve attitude ten opzichte van HIV/AIDS preventie voorlichting, een hoge self efficacy ten opzichte van het openlijk praten over HIV/AIDS en een hoge motivatie om te leren over HIV/AIDS preventie een positief effect hebben op de resultaten van het communicatie programma voor kennis van HIV/AIDS en kennis van SOA's. Studenten ouder dan 17 jaar zijn een benadeelde groep als het aankomt op leren van het communicatie programma. Dit geld took voor mannen met een negatieve attitude ten opzichte van HIV/AIDS preventie voorlichting.

Summary

In spite of the large amount of HIV/AIDS interventions in South Africa, there is still a need for effective HIV/AIDS prevention education programs. Several studies indicate that programs based on the HIV/AIDS related life-skills can cause a gain in knowledge of HIV/AIDS and change sexual risk behavior. It is also necessary to give attention to the motivation to learn about HIV/AIDS prevention, in order to have an effect of the program. The first aim of this study was to assess the effectiveness of the ASK program, an on life skills based HIV/AIDS prevention communication program executed among grade eleven students in the Transkei area in South Africa. The second aim was to identify what variables age group, gender, attitude towards HIV/AIDS prevention education, social norm regarding HIV/AIDS prevention education in their school and self efficacy in regard to openly talking about HIV/AIDS could predict motivation to learn about HIV/AIDS prevention. The third aim was to find out whether these variables have an effect on the outcomes of the communication program. A total of 678 respondents filled in a questionnaire assessing knowledge of HIV/AIDS and STIs and unbelief in myths of HIV/AIDS and STIs, from which 419 also filled in a questionnaire that assessed their motivation to learn about HIV/AIDS prevention. The results of this study show that there is a positive significant effect of the communication program on basic knowledge of HIV/AIDS and STIs and on unbelief in myths of HIV/AIDS and STIs. The variable attitude towards HIV/AIDS prevention education significantly predicts motivation to learn about HIV/AIDS prevention. The results suggest that a positive attitude towards HIV/AIDS prevention education, high self efficacy in regard to openly talking about HIV/AIDS, and high motivation to learn about HIV/AIDS education have a positive effect on the results of the communication program for knowledge of HIV/AIDS and knowledge of STIs. Students older than 17 years are disadvantaged in learning from the communication program, and so are males with a negative attitude towards HIV/AIDS prevention education.

Introduction

Despite the worldwide attention for the Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) pandemic, the number of people living with HIV worldwide continued to grow in 2008, reaching an estimated 33.4 million. The total number of people living with the virus in 2008 was more than 20% higher than the number in 2000 (UNAIDS, 2009). Although the number of HIV infected people grows, the epidemic appears to have stabilized in most regions. Sub-Saharan Africa remains the most heavily affected region, accounting for 71% of all new HIV infections in 2008 (UNAIDS, 2009). In 2008 there were 22.4 million adults and children living with HIV, 1.9 million newly infected adults and children, and 1.4 million AIDS deaths. In South Africa, the HIV prevalence has stabilized at high levels since 2002, with the result that South Africa continues to have the largest number of people living with HIV globally, namely 5.7 million (UNAIDS, 2009; Shisana et al., 2009).

South Africa has a big cultural diversity. In 2009, less than one fourth of the population is white, colored or Asian, and over three fourths are black Africans (CIA, n.d.). There are a lot of different tribes like the Zulu, Xhosa, Sotho, and Tswana and a lot of different religions practiced: Christianity, traditional beliefs, Hinduism and, Islam. It is one of the world's major producers and exporters of gold, coal, diamonds, platinum, and vanadium (Encyclopeadia Britannica, 2009). But despite of these resources, South Africa has a distinct configuration of poverty due to its turbulent political history and the HIV/AIDS epidemic. The poverty rate is especially high amongst Africans and coloreds living in rural areas (Aliber, 2003), which is also shown by the Gini index. The Gini index is a commonly used measure for inequality in income distribution within a country, with 0 corresponding to complete equality and 1 to complete inequality. South Africa had a Gini index of 0.58 in 2000 and this figure has even increased to 0.65 in 2005. This makes South Africa the country with the second highest Gini index in the world (CIA, n.d.).

In 2000, more than two thirds of African South Africans lived in poverty, while poverty rates were much lower for Whites and Asians (Hoogeveen & Özler, 2005). In treating HIV-infection to delay onset of AIDS, which results in a longer life, this poverty rate also has an effect. Without economic resources you cannot pay the costs necessary for a healthy lifestyle and medicines, so these people will die sooner of AIDS (Aliber, 2003). In turn, this has an effect on the life expectancy at birth, which has declined from 2000 to 2009 from 56 to 49 years and the median age in 2009 is 24 years (CIA, n.d.). Income isn't the only thing that

has an unequal division among the South African population. In the former homelands in South Africa the mean unemployment rate approaches 75% (Hoogeveen & Özler, 2005), and the illiteracy rate (age 15 and over that cannot read and write) in South Africa is almost 14% (CIA, n.d.). Both factors have an effect on the prevalence of HIV/AIDS.

This research was conducted in high schools surrounding the oldest town (Butterworth) in the former Transkei area in the Eastern Cape. Almost all inhabitants in the Transkei area are black Africans from the Xhosa tribe. The Eastern Cape was already the poorest province in South Africa in 1995, when the poverty rate even increased from 49% in 1995 to 56% in 2000 (Hoogeveen & Özler, 2005). In 1970, Butterworth was the focal point of Transkeian industrial development. Most of these industries have now closed and the people who worked there are left behind in sprawling townships and squatter camps around the town, where unemployment is worryingly high (Rough Guide, 2008). As mentioned before, these factors have an effect on the prevalence of HIV/AIDS. According to household surveys conducted by the Department of Health (2009) the percentage of HIV prevalence among adults (aged 15-49) in the Eastern Cape increased with 5% from 2002 to 2008, with a prevalence of 15.2% in 2008. The prevalence of HIV in the Eastern Cape among young people (aged 15-24) was already 6.6% (Shisana et al., 2009).

The large proportion of people living with HIV, particularly in the young adult and adult populations, contributes to a situation where HIV infection risks are high and changes in sexual behavior are required to counter new infections. According to Shisana (2009), having more knowledge of various aspects of HIV/AIDS is a prerequisite for a changing sexual behavior. Inaccurate beliefs about HIV transmission undermine HIV prevention behavior. (Boer and Emons, 2004). According to a review of 10 school based sexual health interventions in Sub Saharan Africa, the level of knowledge about HIV changed positively after the intervention (Kaaya, Mukoma, Flisher & Klepp, 2002). This positive result was also shown in another review of school based sexual health interventions in sub-Saharan Africa, conducted by Paul-Ebhohimhen, Poobalan and Teijlingen (2006). An analysis of 19 communication programs also revealed a positive effect of these programs on knowledge of HIV/AIDS and HIV prevention behaviour (Kincaid, Parker, Schierhout, Connoly & Pham, 2008), and showed that exposure to more programs lead to better impact of the programs. These results show that sexual health programs increase knowledge about HIV/AIDS, and that the more sexual health programs they are exposed to, the more there knowledge will increase.

Unfortunately, the South African national HIV prevalence, incidence, behavior and communication survey (2008) shows that the level of correctly identifying ways to prevent sexual transmission of HIV has declined from 64.4% in 2005 to 44.8% in 2008 nationally among the population 15-49 years. Most likely, this number differs between regions in South Africa, due to inequality of education and illiteracy rate. This indicates that there is a need of promoting basic knowledge about HIV/AIDS, especially in underprivileged areas like the Transkei area.

AIDS education can impact on behavior by increasing students knowledge of HIV/ AIDS, self-esteem and life skills that can enhance safe sexual behavior (Visser, Schoeman & Perold, 2004). The Life Skills-based programs teach skills related to sexual behavior, and increase motivation and intention to change sexual risk behavior (Yankah & Aggleton, 2004). They try to obtain a change in lifestyle and social norms among young people, and develop cognitive and behavioral skills to safe sexual behavior (Visser, 2005). Skills teached within the field of HIV/AIDS education are for instance: condom and contraceptive use, the ability to obtain condoms and other preventive measures, and the ability to negotiate their correct use with sexual partners (Yankah & Aggleton, 2008). It appears in various studies that life skills-based education for HIV prevention causes a gain in knowledge of HIV/AIDS. It causes more positive attitudes towards matters concerning HIV/AIDS and provides skills necessary for HIV/AIDS prevention. Sometimes, at the longer term, life skills-based education can even cause changes in sexual risk behavior (Cheng et al., 2008; Yankah & Aggleton, 2008; Magnanai, MacIntyre, Karim, Brown & Hutchinson, 2005; Visser, 2005; Visser, Schoeman & Perold, 2004; Peltzer & Promtussananon, 2003).

That is why AIESEC launched the ASK program in Butterworth. The ASK program is a Life Skills-based HIV/AIDS prevention communication program (I will refer to the ASK program as a communication program). ASK stands for Answers, Solutions and Knowledge of HIV/AIDS. The communication program targets young people in secondary schools and the program seeks to create knowledge, awareness and behavioral change among the youth. The communication program is based on the 'Bridges of Hope' users guide. This users guide is part of a set of HIV/AIDS life skills training materials made by Labouchere (2003). Bridges of Hope works to clarify and promote the range of choices for people to minimize their risk of HIV infection, help people to plot their own course to a safer lifestyle, and introduce positive living approaches and techniques that help those living with HIV to stay healthy and live

longer. The program was adjusted to fit in the total of six hours that we had for the communication program (Table 1).

Table1. Content of the communication program.

	Topic	Explanation
Session 1: Introducing the communication program	Fill in the questionnaire	Pretest
	Imagine your future island	write key aims for future, visualization of achieving that future.
	Walking the bridges	bridge symbolizes good behavior (abstinence, being faithful and condomise), crocodiles and hippos in the water symbolizes barriers for good behavior
	nomination of peer educators	volunteers can leave their name
Session 2: Gender roles & sexual relationships	Icebreaker	write down everything related to sex and read it out loud
	Gender roles and stereotypes	write down stereotypes for the other gender on the blackboard, discuss about this and topics like: 'men can have more girlfriends, women can't'
	Power relationship	talk about who should bring condoms and who decides to have sex
	Peer pressure	game about peer pressure (telephone)
	Peer educators election	the class can decide (by voting) who will become their peer educator
Session 3: Living and stigma with HIV/AIDS	Icebreaker	write on the blackboard all words for penis and vagina
	HIV and AIDS in the body	explanation of how HIV and AIDS works in the body through a interactive game
	VCT	a student tells about its experience of VCT, why would/wouldn't you get tested
	Negative/positive result	what to do when you test negative, and what to do if you test positive (explain about living healthy and ARV's)
	Stigma's	discussion about stigma on HIV+ people
Session 4: STIs	Questions about STI	different types, symptoms, is there a cure, what happens when you don't treat it, how to protect yourself
	Condom demonstration	demonstrate how to put on a male and female condom
Session 5: Prevention and spread of HIV	Risk ranking game	Read out situations like 'having sex without a condom', students say if this is a very high risk, high risk, low risk, no risk
	Spread and prevention of HIV	peer educators performed a play about the ways to spread, not to spread and the prevention of HIV
	Questions for next week session	students can anonymously write down questions which we will answer next week
Session 6: Questions	Fill in questionnaire	posttest
	Answers	give answers to the questions from last week

For effective HIV/AIDS prevention education, it is necessary that students are motivated to learn (Hadera, Boer and Kuiper, 2007). The motivation to learn can be seen as the intention to perform behavior (Ajzen, 1991). The Theory of Planned Behaviour (TPB) (Ajzen, 1988) is a commonly used model to predict behavior. Several reviews (Godin and Kok, 1996; Ajzen, 1991; Armitage and Conner, 2001) conclude that the TPB is a useful model. The TPB proposes that behavior can be predicted by intention, and that intention is determined by attitude, subjective norms and perceived control. In this research, the desired behavior is participation in the ASK program, which should cause a gain in knowledge about

HIV/AIDS, which in the end leads to a reduction of sexual risk behavior. According to Ajzen (1991), intentions are an indication of how hard people are willing to try and how much of an effort they would like to put forth to learn about HIV/AIDS. Within this theory, attitude refers to the perceived positive and negative consequences of learning, subjective norms are the perceptions of (dis)approval of learning about HIV/AIDS from significant others which can be considered as their social norm and perceived control refers to people's perception of their ability to perform a given behavior which is also termed as self efficacy (Hadera et al., 2007). As a general rule it can be stated that the more positive the attitude and the subjective norm, and the greater the self efficacy, the stronger the intention or motivation to learn should be. Though, the relative importance of these factors can differ across behaviors (Ajzen, 1991). A study of Hadera, Boer and Kuiper (2007) indicated that the motivation to learn about HIV/AIDS was primarily related to social norms about the desirability of HIV/AIDS education (r. = .56) and not related to self efficacy to discuss HIV/AIDS in class (r. = .03).

The first aim of this study was to find out what the effects of the communication program are in increasing basic knowledge of HIV/AIDS and (Sexual Transmitted Infection) STIs and unbelief in myths of HIV/AIDS and STIs in participants of the communication program. Based on previous studies about school-based sexual health interventions (Kaaya et al., 2002; Paul-Ebhohimhen et al., 2006), the expectation was that the communication program would increase the amount of correct knowledge of HIV/AIDS and STIs, and decrease the belief in myths of HIV/AIDS and STIs.

The second aim of this study was to identify, by using the Theory of Planned Behaviour, what variables – age group, gender, attitude towards HIV/AIDS prevention education, social norm regarding HIV/AIDS prevention education in their school, and self efficacy in regard to openly talking about HIV/AIDS – could predict the dependent variable 'motivation to learn about HIV/AIDS prevention'. Resulting from the study of Hadera et al. (2007), motivation to learn is primarily related to social norms. Based on these findings' and findings' from Ajzen (1991), the expectation was that a positive social norm regarding HIV/AIDS prevention education in their school and a positive attitude towards HIV/AIDS prevention education would predict a stronger motivation to learn about HIV/AIDS prevention.

The third and last aim of this study is to find out whether the variables age group or gender in combination with the variables attitude towards HIV/AIDS prevention education, social norm regarding HIV/AIDS prevention education in their school, self efficacy in regard

to openly talking about HIV/AIDS, and motivation to learn about HIV/AIDS have an effect on the outcomes of the communication program. All students participate in the communication program, but they can differ on these variables. I want to find out if there is a specific group of students, according to these variables or a combination of these variables, that has less knowledge of HIV/AIDS and STIs and beliefs more in myths of HIV/AIDS and STIs after the communication program, then other students. This could be a disadvantaged group in regard to HIV/AIDS prevention programs

Methods

Study design and Setting

This study uses a quasi-experimental between subjects design. There were two groups, the pretest group and the posttest group. Both tests were conducted among all the grade eleven students from four schools in Butterworth, namely Lamplough High, Butterworth High, Msobomvu High and Vuli Valley High, though in the pretest 259 students participated and in the posttest 421 students. Some of the students participated in the pretest and the posttest but they weren't linked to each other. That is why the samples could be seen as two independent samples.

The pretest was conducted at the beginning of the first session of the communication program and the posttest at the beginning of the last session of the communication program. The communication program ran for six weeks. Every school received a one hour session every week, with a total of six hours per school for the whole program. We selected ten peer educators per school who would led two of the sessions from the communication program. The students could volunteer to become a peer educator and were chosen by their classmates. There were forty students to join the peer educator sessions. There were three peer educator sessions which lasted for three hours, with a total of nine hours. The first, second, third and sixth sessions from the communication program were led by 2 international students together with students from the university in Butterworth, the fourth and fifth session by peer educators from the high schools. The pretest and posttest were conducted in a classroom. The questionnaires were read out loud in English, but students could ask what it meant in Xhosa if they didn't understand the question. The questionnaires were filled in anonymously, but they were asked to fill in their gender and age.

Subjects

All the participating schools are located in Butterworth, Eastern Cape, South Africa. Butterworth High was the former white school which had about 100 students in grade eleven and which was located in the city center, the other schools had about 200 students in grade eleven and where located in the townships surrounding Butterworth. All the students were non-whites. They could all speak and understand English, but their native language was Xhosa. The study was conducted among all the grade eleven students from the four participating high schools. There were 259 respondents for the pretest and 421 for the posttest.

Measures

The pretest assessed the demographics gender and age, and the outcome measures knowledge of HIV/AIDS and STIs and unbelief in myths of HIV/AIDS and STIs. Their knowledge of HIV/AIDS was assessed with five multiple-choice items and ten yes or no items (Table 4). Their knowledge of STIs was assessed with four yes or no items (Table 5). Their unbelief in myths of HIV/AIDS was assessed with ten yes or no items (Table 6). And their unbelief in myths of STIs was assessed with six yes or no items (Table 7). The knowledge and myths questionnaire consisted of a total of thirty-five items. All items were based on the content of the program and a pilot test with open answer questions administered to grade eleven students from a not participating high school. The posttest also assessed the demographics gender and age, and consisted of the same outcome measure of knowledge and myths items, but was extended to assess the determinants of motivation to learn with a multi-item 5-point Likert scale.

The items were formulated based on the Theory of Planned Behaviour (Ajzen, 1991). The scale ranged from completely disagree (1) to completely agree (5) and assessed attitude towards HIV/AIDS prevention education, social norm regarding HIV/AIDS prevention education in their school, self efficacy in regard to openly talking about HIV/AIDS and motivation to learn about HIV/AIDS prevention. After factor-analyses there were fourteen items remaining. Attitude was assessed with seven items ($\alpha = .66$): 'It is a good idea to get HIV/AIDS prevention education in school', 'I think the peer education in my school was interesting', 'I learned a lot of new things from the peer education on HIV/AIDS in my school', 'The things the peer educators teached me were useful for my understanding of HIV/AIDS', 'It is good to get peer education about HIV/AIDS and learn more about

prevention', 'I like to get peer education about HIV/AIDS prevention in my school' and 'I liked the peer education I received in my school on HIV/AIDS prevention'. Social norm was assessed with one item, 'I think that my friends think that it is good to get HIV/AIDS education in school'. Self efficacy was assessed with one item, 'I have confidence to openly discuss sensitive matters like sex and HIV/AIDS education in my class'. Motivation to learn was assessed with 5 items ($\alpha = .60$): 'In the future, I would listen carefully when someone is telling about HIV/AIDS prevention in school', 'In the future, I would like to learn more about HIV/AIDS prevention in school', 'In the future, I would actively participate in peer education about HIV/AIDS in my school', 'In the future, I would go to the peer educators in my class when I have a question about HIV/AIDS' and 'In the future, I would participate in HIV/AIDS prevention activities in my school'.

Statistical analysis

First, to assess whether the communication program extends basic knowledge of HIV/AIDS and STIs and unbelief in myths of HIV/AIDS and STIs in participants of the program, the percentage items answered correct of the pretest and posttest were compared using a univariate analyses of variance (ANOVA). Then, in order to find out which variables (age, gender, attitude, social norm and self efficacy) predict motivation to learn, Pearson correlations were calculated. To determine the multivariate associations, these variables were entered into least squares regression analyses. To find out if there are disadvantaged groups, interaction effects between the demographic variables and the psychosocial variables of the motivation to learn on the outcomes of the posttest were analyzed by using a post hoc analyses. The factors that predict motivation to learn will be analyzed to find out what difference they make per question using a post hoc analysis of the posttest.

Results

Characteristics of the sample

Table 2. Characteristics of the sample

		pretest		posttest	
		n	**%**	**n**	**%**
gender	male	61	41,5	128	41,2
	female	86	58,5	183	58,8
agegroup	age < 17	78	58,2	159	55,2
	age > 17	56	41,8	129	44,8

The sample consisted of 259 students for the pretest and 419 students for the posttest. Among the pretest, 61 (41,5%) was male, and 86 (58,5%) was female, among the posttest, 128 (41,2%) was male and 183 (58,8%) was female (Table 2). Their age ranged between 12 and 26. Most of the participants (92,8%) were between sixteen and twenty years, 2,6% was between twelve and fifteen years and 4,6% was between twenty-one and twenty-six years. The median age was seventeen years. In order to measure the difference between young and old students we made two groups according to the median age, students younger than seventeen years and students older than seventeen years. Among the pretest, 78 (58,2%) was younger than seventeen, and 56 (41,8%) was older than seventeen, among the posttest, 159 (55,2%) was younger than seventeen, and 129 (44,8%) was older than seventeen (Table 2).

Effectiveness of the communication program

Table 3. Comparison between percentage of questions answered right with the pretest and percentage of questions answered right with the posttest per construct.

	Mean		**Percentage correct**		***p***	***F***
	pretest	**posttest**	**pretest**	**posttest**		
Knowledge of HIV/AIDS (range 1 – 15)	7,6	9,8	50	66	< 0,001	(1, 679) 91,6
Knowledge of STIs (range 1 – 4)	1,6	2,6	39	65	< 0,001	(1,521) 64,4
Unbelief in myths of HIV/AIDS (range 1 – 10)	8,3	9,6	83	96	< 0,001	(1 679) 251,1
Unbelief in myths of STIs (range 1 – 6)	5,2	5,5	86	92	< 0,001	(1, 679) 33,1

The univariate analyses of variance showed that there is a positive significant effect of the program on basic knowledge of HIV/AIDS ($p < .001$), knowledge of STIs ($p < .001$), unbelief in myths of HIV/AIDS ($p < .001$), and unbelief in myths of STIs ($p < .001$) (Table 3). The percentage answered correct on the posttest for unbelief in myths of HIV/AIDS and STIs is very high (96% and 92%), but the percentage answered correct on the posttest for knowledge of HIV/AIDS and STIs is still low (66% and 65%). To show the difference in percentage answered correct per item between the pretest and posttest, again a univariate analyses of variance was conducted.

Table 4. Comparison between percentage correct on the pretest and percentage correct on the posttest per item for knowledge of HIV/AIDS

Items about knowledge of HIV/AIDS	**Percentage correct**		***p***	***F***
	pretest	**posttest**		
How many people in Eastern Cape are infected with HIV? **	15	34	0,001	(1, 617) 27,5
HIV can be spread by having sex without a condom.	92	89	0,27	(1, 680) 1,2
HIV can be spread by blood to blood contact.**	5	76	0,001	(1, 680) 617,4
HIV can be spread by sharing needles.	70	73	0,36	(1, 680) 0,9
HIV can be spread by Parent to child transmission.	48	52	0,35	(1, 680) 0,9
Are HIV and AIDS the same thing? *	86	92	0,01	(1, 680) 7,3
You can protect yourself against HIV by using condoms.*	86	81	0,05	(1, 680) 4
You can protect yourself against HIV by being faithful.	51	58	0,07	(1, 680) 3,4
You can protect yourself against HIV by abstinence. *	64	75	0,004	(1, 680) 8,6
You can protect yourself against HIV by not sharing blades or needles. **	4	66	0,001	(1, 680) 404
How can you tell if somebody has HIV/AIDS? **	34	52	0,001	(1, 648) 22
What should you do if you are HIV positive? **	48	67	0,001	(1, 663) 23,5

Is there a cure for HIV/AIDS? **	78	90	0,001	(1, 680) 22,3
How long can you live if you have HIV?	53	55	0,6	(1, 639) 0,3
What percentage of babies born to HIV positive mothers has HIV? **	16	35	0,001	(1, 627) 26,9

* α < 0,05
** α < 0,001

For the items concerning knowledge of HIV/AIDS there was mostly a positive significant effect of the communication program, but not for all items (Table 4). There was a insignificant effect for the items: 'HIV can be spread by having sex without a condom', 'HIV can be spread by sharing needles', 'HIV can be spread by Parent to Child Transmission', 'You can protect yourself against HIV by being faithful', and 'How long can you live if you have HIV'.

Table 5. Comparison between percentage correct on the pretest and percentage correct on the posttest per item for knowledge of STIs.

Items about knowledge of STIs	**Percentage correct**		***p***	***F***
	pretest	**posttest**		
Strange discharge from a vagina or penis can be a symptom of an STI. **	70	86	0,001	(1, 680) 24,7
Abdominal pain can be a symptom of an STI. **	19	46	0,001	(1, 680) 53,7
Pain when peeing can be a symptom of an STI. **	6	57	0,001	(1, 680) 237,7
Warts or sores on a vagina or penis can be a symptom of an STI. *	62	70	0,04	(1, 680) 4,4

* α < 0,05
** α < 0,001

For all the questions concerning knowledge of STIs there was a positive significant effect of the communication program (Table 5).

Table 6. Comparison between percentage correct on the pretest and percentage correct on the posttest per item for unbelief in myths of HIV/AIDS.

Items about unbelief in myths of HIV/AIDS	**Percentage correct**		***p***	***F***
	pretest	**posttest**		
HIV can be spread by masturbation.	96	98	0,12	(1, 680) 2,4
HIV can be spread by mosquito bites. *	86	92	0,008	(1, 680) 7,1
HIV can be spread by kissing.	95	95	0,81	(1, 680) 0,1
HIV can be spread by toilet seats. *	95	98	0,04	(1, 680) 4,3
HIV can be spread by sneezing.**	48	90	0,001	(1, 680) 192,3
You can protect yourself against HIV by washing yourself after sex.	93	94	0,64	(1, 680) 0,2
You can protect yourself against HIV by not sharing toilets.	97	99	0,08	(1, 680) 3,1
You can protect yourself against HIV by avoiding people with HIV. *	95	98	0,04	(1, 680) 4,3
You can protect yourself against HIV by wearing gloves when touching blood.	95	97	0,1	(1, 680) 2,7
You can protect yourself against HIV by not kissing HIV positive people. **	38	96	0,001	(1, 680) 475,6

* α < 0,05
*** α < 0,001

There are two items concerning unbelief in myths of HIV/AIDS where the communication program showed a very strong significant effect, these are 'HIV can be spread by sneezing' and 'You can protect yourself against HIV by not kissing HIV positive people'. For some of the other items there was a positive significant effect of the communication program and for the items 'HIV can be spread by masturbation', 'HIV can be spread by kissing', 'You can protect yourself against HIV by washing yourself after sex', 'You can protect yourself against HIV by not sharing toilets' and 'You can protect yourself against HIV by wearing gloves when touching blood' there was no significant effect of the communication program (Table 6).

Table 7. Comparison between percentage correct on the pretest and percentage correct on the posttest per item for belief in myths of STIs.

Items about unbelief in myths STIs	**Percentage correct**		***p***	***F***
	pretest	**posttest**		
Coughing can be a symptom of an STI.	96	96	0,91	(1, 680) 0
Head ache can be a symptom of an STI. *	94	98	0,01	(1, 680) 6,3
Fever can be a symptom of an STI. *	93	97	0,01	(1, 680) 6,4
No menstruation can be a symptom of an STI.	89	88	0,61	(1, 680) 0,3
Erection problems can be a symptom of an STI.	80	78	0,63	(1, 680) 0,2
Increase in sexual desire can be a symptom of an STI. **	63	94	0,001	(1, 680) 119,6

* $\alpha < 0,05$
** $\alpha < 0,001$

For one item concerning unbelief in myths of STIs, namely 'Increase in sexual desire can be a symptom of an STI', there was a very strong positive significant effect of the communication program. For some of the other items there was also a positive significant effect of the communication program, and for the items 'Coughing can be a symptom of an STI', 'No menstruation can be a symptom of an STI', and 'Erection problems can be a symptom of an STI' there was no significant effect of the communication program (Table 7).

Prediction of motivation to learn

Table 8. Correlations between age group, gender, and psychosocial variables, and the motivation to learn on the posttest.

	AGE	**GEN**	**ATT**	**NORM**	**EFF**	**LEARN**
Age group (AGE)	-					
Gender (GEN)	-0,24**	-				
Attitude (ATT)	-0,19**	0,08	-			
Social norm (NORM)	0,11	0,09	0,13*	-		
Self efficacy (EFF)	-0,04	0,1	0,27**	0,17**	-	
Motivation to learn (LEARN)	**-0,15***	**0,18****	**0,45****	**0,12***	**0,18***	-

* $\alpha < 0,05$
** $\alpha < 0,001$

Motivation to learn about HIV/AIDS prevention is most strongly correlated to attitude towards HIV/AIDS prevention education ($r = .45$, $p < .001$) (table 8). This means that students with a positive attitude towards HIV/AIDS prevention education have a better motivation to learn than students with a negative attitude towards HIV/AIDS prevention motivation. All other variables also have a significant correlation with motivation to learn about HIV/AIDS, but the amount of correlation was lower (ranging from $r = .12$ to $r = .18$). The variable age group has a negative correlation, which means that young students have a better motivation to learn than old students.

Table 9. Regression of age group, gender, and psychosocial variables on the motivation to learn about HIV/AIDS.

	β	**t**	***p***
Age group	- 0,04	-0,69	0,49
Gender	0,11	1,67	0,10
Attitude**	0,46	7,27	0,001
Social Norm	-0,04	-0,48	0,64
Self efficacy	0,1	1,48	0,14

* $\alpha < 0,05$
** $\alpha < 0,001$

To find out what the relative importance of age group, gender, and the psychosocial variables are on the motivation to learn about HIV/AIDS, a regression analyses was performed (Table 9). The motivation to learn about HIV/AIDS could be significantly predicted by the psychosocial determinants, F (5, 208) = 16.64, $p < .001$, $R^2 = .29$. The only significant independent predictor of the motivation to learn about HIV/AIDS was attitude towards HIV/AIDS prevention education (Table 9).

Motivation to learn and effectiveness of the communication program on the posttest

In the analyses below the effects of the demographic variables gender (male/female) and agegroup (younger than seventeen/older than seventeen) in combination with the psychosocial variables – attitude towards HIV/AIDS prevention education, social norm regarding HIV/AIDS prevention education in their school, self efficacy in regard to openly talking about HIV/AIDS and motivation to learn about HIV/AIDS prevention – are measured.

Table 10. Knowledge of HIV/AIDS among males en females for low vs. high attitude, social norm, self efficacy and motivation to learn .

	Male				**Female**				**Effect**		**Interaction**
	Low		**High**		**Low**		**High**		**gender**	**psychosocial variable**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**			
Attitude (low/high)	50	49	43	75	75	60	78	73	n.s.	p < 0,001	p < 0,05
Social norm (low/high)	25	65	72	63	29	61	132	68	n.s.	n.s.	n.s.
Self efficacy (low/high)	37	58	65	66	49	60	117	70	n.s.	p < 0,01	n.s.
motivation to learn (low high)	58	57	28	68	71	60	75	79	n.s.	p < 0,01	n.s.

% = percentage correct on the posttest

There is one significant interaction effect ($p < .05$) for the effect of gender and attitude towards HIV/AIDS prevention education (Table 10). The interaction effect suggests that males who have a negative attitude towards HIV/AIDS prevention education have a lower score on knowledge of HIV/AIDS than females who have a negative attitude towards HIV/AIDS prevention education. Their scores are almost the same for knowledge of HIV/AIDS when they both have a positive attitude towards HIV/AIDS prevention education. There is no significant effect of gender on knowledge of HIV/AIDS (Table 10). There is a significant effect of attitude ($p < .001$), self efficacy ($p < .01$) and motivation ($p < .01$) on the scores on the posttest for knowledge of HIV/AIDS (Table 10 and Table 11). This suggests that students with a positive attitude towards HIV/AIDS prevention education, a high self efficacy in regard to openly talking about HIV/AIDS or a high motivation to learn about HIV/AIDS prevention score better on the items about knowledge of HIV/AIDS than students with a negative attitude towards HIV/AIDS prevention education, a low self efficacy in regard to openly talking about HIV/AIDS or low motivation to learn about HIV/AIDS.

Table 11. Knowledge of HIV/AIDS among younger students and older students for low vs. high attitude, social norm, self efficacy and motivation to learn.

	Age < 17				Age > 17				Effect		Interaction
	Low		High		Low		High		gender	psychosocial variable	
	n	%	n	%	n	%	n	%			
Attitude (low/high)	48	61	74	75	63	53	41	74	n.s.	p < 0,001	n.s.
Social norm (low/high)	30	67	106	71	19	59	86	62	p < 0,05	n.s.	n.s.
Self efficacy (low/high)	40	63	98	73	38	54	70	66	p < 0,01	p < 0,001	n.s.
motivation to learn (low high)	64	64	62	74	57	55	28	64	p < 0,01	p < 0,01	n.s.

% = percentage correct on the posttest

There are no significant interaction effects for the effects of agegroup and psychosocial variables on knowledge of HIV/AIDS (Table 11). There is a significant effect (p <.05) of agegroup on knowledge of HIV/AIDS (Table 11). This suggests that students who are younger than 17 score better on the items about knowledge of HIV/AIDS than students who are older than 17.

Table 12. Knowledge of STIs among males and females for low vs. high attitude, social norm, self efficacy and motivation to learn.

	Male				Female				Effect		Interaction
	Low		High		Low		High		gender	psychosocial variable	
	n	%	n	%	n	%	n	%			
Attitude (low/high)	67	49	52	77	81	61	87	70	n.s.	p < 0,001	p < 0,01
Social norm (low/high)	32	62	90	65	34	59	144	67	n.s.	n.s.	n.s.
Self efficacy (low/high)	50	59	77	64	55	60	128	68	n.s.	p < 0,05	n.s.
motivation to learn (low high)	69	54	36	65	78	61	85	62	n.s.	n.s.	n.s.

% = percentage correct on the posttest

There is a significant interaction effect (p < .01) for the effect of gender and attitude towards HIV/AIDS prevention education on knowledge of STIs (Table 12). The interaction effect suggests that males who have a negative attitude towards HIV/AIDS prevention education have a lower score on knowledge of STIs than females who have a negative attitude towards HIV/AIDS prevention education. Their scores are almost the same on knowledge of STIs when they both have a positive attitude towards HIV/AIDS prevention education. There is no significant effect of gender on knowledge of STIs (Table 12). There is a significant effect of attitude (p < .001), self efficacy (p < .05) on the scores on knowledge of STIs (Table 12 and Table 13). This suggests that students with a positive attitude towards HIV/AIDS prevention education or a high self efficacy in regard to openly talking about HIV/AIDS score better on the posttest on the items about knowledge of STIs than students with a negative attitude towards HIV/AIDS prevention education or a low self efficacy in regard to openly talking about HIV/AIDS.

Table 13. Knowledge of STIs among younger students and older students for low vs. high attitude, social norm, self efficacy and motivation to learn.

	Age < 17				Age > 17				Effect		Interaction
	Low		High		Low		High		gender	psychosocial variable	
	n	%	n	%	n	%	n	%			
Attitude (low/high)	59	60	83	74	74	57	49	73	n.s.	p < 0,001	n.s.
Social norm (low/high)	41	63	116	71	21	62	105	64	n.s.	n.s.	n.s.
Self efficacy (low/high)	51	60	107	73	46	58	83	67	n.s.	p < 0,01	n.s.
motivation to learn (low high)	73	64	73	69	66	55	36	59	p < 0,05	n.s.	n.s.

% = percentage correct on the posttest

There are no significant interaction effects for the effect of agegroup and psychosocial variables on knowledge of STIs (Table 13). There is no significant effect of agegroup on knowledge of STIs (Table 13).

Table 14. Unbelief in myths of HIV/AIDS among males and females for low vs. high attitude, social norm, self efficacy and motivation to learn.

	Male				Female				Effect		Interaction
	Low		High		Low		High		gender	psychosocial variable	
	n	%	n	%	n	%	n	%			
Attitude (low/high)	67	95	52	97	81	96	87	95	n.s.	n.s.	n.s.
Social norm (low/high)	32	97	90	95	34	94	144	96	n.s.	n.s.	n.s.
Self efficacy (low/high)	50	95	77	96	55	98	128	95	n.s.	n.s.	p < 0,05
motivation to learn (low high)	69	95	36	94	78	60	85	94	n.s.	n.s.	n.s.

% = percentage correct on the posttest

There is a small significant interaction effect ($p < .05$) for the effect of gender and self efficacy in regard to openly talking about HIV/AIDS on unbelief in myths of HIV/AIDS (Table 14). The effect suggests that females with a low self efficacy in regard to openly talking about HIV/AIDS have higher scores on unbelief in myths of HIV/AIDS than females with a high self efficacy in regard to openly talking about HIV/AIDS, while males with a low self efficacy in regard to openly talking about HIV/AIDS have lower scores on unbelief in myths of HIV/AIDS than males with a high self efficacy in regard to openly talking about HIV/AIDS. There is no significant effect of gender on unbelief in myths of HIV/AIDS (Table 14) and there is no significant effect of the psychosocial variables on unbelief in myths of HIV/AIDS (Table 14 and Table 15).

Table 15. Unbelief in myths of HIV/AIDS among younger students and older students for low vs. high attitude, social norm, self efficacy and motivation to learn.

	Age < 17				Age > 17				Effect		Interaction
	Low		High		Low		High		gender	psychosocial variable	
	n	%	n	%	n	%	n	%			
Attitude (low/high)	59	96	83	96	74	50	49	94	n.s.	n.s.	n.s.
Social norm (low/high)	41	96	116	96	21	94	105	95	n.s.	n.s.	n.s.
Self efficacy (low/high)	51	97	107	95	46	60	83	94	n.s.	n.s.	n.s.
motivation to learn (low high)	73	97	73	94	66	94	36	92	n.s.	n.s.	n.s.

% = percentage correct on the posttest

There are no significant interaction effects for the effect of agegroup and psychosocial variables on unbelief in myths of HIV/AIDS (Table 15) and there is no significant effect of agegroup on unbelief in myths of HIV/AIDS (Table 15).

Table 16. Unbelief in myths of STIs among males and females for low vs. high attitude, social norm, self efficacy and motivation to learn.

	Male				Female				Effect		Interaction
	Low		High		Low		High		gender	psychosocial variable	
	n	%	n	%	n	%	n	%			
Attitude (low/high)	67	93	52	90	81	93	87	91	n.s.	n.s.	n.s.
Social norm (low/high)	32	90	90	92	34	93	144	92	n.s.	n.s.	n.s.
Self efficacy (low/high)	50	92	77	91	55	92	128	92	n.s.	n.s.	n.s.
motivation to learn (low high)	69	91	36	89	78	93	85	90	n.s.	n.s.	n.s.

% = percentage correct on the posttest

There are no significant interaction effects for the effect of gender and psychosocial variables on unbelief in myths of STIs (Table 16). There is no significant effect of gender on unbelief in myths of STIs (Table 16) and there is no significant effect of the psychosocial variables on unbelief in myths of STIs (Table 16 and Table 17).

Table 17. Unbelief in myths of STIs among younger students and older students for low vs. high attitude, social norm, self efficacy and motivation to learn.

	Age < 17				Age > 17				Effect		Interaction
	Low		High		Low		High		gender	psychosocial variable	
	n	%	n	%	n	%	n	%			
Attitude (low/high)	59	90	83	91	74	94	49	90	n.s.	n.s.	n.s.
Social norm (low/high)	41	91	116	91	21	91	105	93	n.s.	n.s.	n.s.
Self efficacy (low/high)	51	89	107	92	46	95	83	90	n.s.	n.s.	p < 0,05
motivation to learn (low high)	73	92	73	89	66	91	36	91	n.s.	n.s.	n.s.

% = percentage correct on the posttest

There is a significant interaction effect ($p < .05$) for the effect of agegroup and self efficacy on unbelief in myths of HIV/AIDS (Table 17). The effect suggests that older students with a low self efficacy in regard to openly talking about HIV/AIDS have higher scores on unbelief in myths of STIs than older students with a high self efficacy in regard to openly talking about HIV/AIDS, while younger students with a low self efficacy in regard to openly talking about HIV/ADS have lower scores on unbelief in myths of STIs than younger students with a high self efficacy in regard to openly talking about HIV/AIDS. There is no significant effect of agegroup on unbelief in myths of STIs (Table 17).

The effect of a positive or negative attitude towards HIV/AIDS prevention education per item

According to the correlation, regression, and post hoc analyses above, the variable that has the strongest effect on the scores of knowledge of HIV/AIDS and STIs is the variable attitude towards HIV/AIDS prevention education. To go into this effect a little further, I have analyzed the effects of attitude towards HIV/AIDS prevention education per item on the scores of knowledge of HIV/AIDS and knowledge of STIs.

Table 18. Difference in negative and positive attitude on the percentage correct for the items about knowledge of HIV/AIDS on the posttest.

	negative attitude (% correct)	**positive attitude (% correct)**	***p***	***F***
How many people in Eastern Cape are infected with HIV?	0,30	0,39	0,08	(1, 362) 3,1
HIV can be spread by having sex without a condom. *	0,84	0,93	0,01	(1, 387) 6,4
HIV can be spread by blood to blood contact.**	0,66	0,86	0,001	(1, 387) 21,2
HIV can be spread by sharing needles. **	0,65	0,81	0,001	(1, 387) 13,9
HIV can be spread by Parent to child transmission. **	0,42	0,61	0,001	(1, 387) 14
Are HIV and AIDS the same thing?	0,89	0,94	0,09	(1, 387) 2,9
You can protect yourself against HIV by using condoms. *	0,75	0,85	0,02	(1, 387) 5,9
You can protect yourself against HIV by being faithful. **	0,47	0,70	0,001	(1, 387) 23
You can protect yourself against HIV by abstinence. **	0,66	0,82	0,001	(1, 387) 12,4
You can protect yourself against HIV by not sharing blades/needles. **	0,56	0,73	0,001	(1, 387) 12,1
How can you tell if somebody has HIV/AIDS? **	0,42	0,61	0,001	(1, 376) 14,1
What should you do if you are HIV positive? **	0,55	0,75	0,001	(1, 383) 17,6
Is there a cure for HIV/AIDS?	0,89	0,92	0,35	(1, 387) 0,9
How long can you life if you have HIV?	0,53	0,59	0,26	(1,395) 1
What percentage of babies born to HIV positive mothers has HIV? **	0,26	0,43	0,001	(1, 367) 11,7

* $\alpha < 0,05$
** $\alpha < 0,001$

For knowledge of HIV/AIDS the items ‘Are HIV and AIDS the same thing’, ‘Is there a cure for HIV/AIDS’ and ‘How long can you life if you have HIV’ don’t show a significant effect of attitude towards HIV/AIDS education prevention (Table 18). All other items show a positive significant effect of attitude towards HIV/AIDS education prevention on the scores on knowledge of HIV/AIDS. This suggests that students with a positive attitude towards HIV/AIDS prevention education have a better score on knowledge of HIV/AIDS than students with a negative attitude towards HIV/AIDS prevention education.

Table 19. Difference in negative and positive attitude on the percentage correct for the items about knowledge of STIs on the posttest.

	negative attitude (% correct)	**positive attitude (% correct)**	***p***	***F***
Strange discharge from a vagina or penis can be a symptom of an STI. *	0,82	0,90	0,02	(1, 387) 5,6
Abdominal pain can be a symptom of an STI. **	0,33	0,57	0,001	(1, 387) 22,4
Pain when peeing can be a symptom of an STI. **	0,45	0,67	0,001	(1, 387) 19,9
Warts or sores on a vagina or penis can be a symptom of an STI. **	0,61	0,75	0,001	(1, 387) 8,7

* $\alpha < 0,05$
** $\alpha < 0,001$

For knowledge of STIs all items show a significant effect of attitude (Table 19). This suggests that students with a positive attitude towards HIV/AIDS prevention education have a better score on knowledge of STIs than students with a negative attitude towards HIV/AIDS prevention education.

Discussion

The first aim of this study was to find out what the effects of the communication program are in increasing basic knowledge of HIV/AIDS and STIs and decreasing belief in myths of HIV/AIDS and STIs in participants of the communication program. The second aim was to find out which of the variables gender, agegroup, attitude towards HIV/AIDS prevention education, social norm regarding HIV/AIDS prevention education in their school, and self efficacy in regard to openly talking about HIV/AIDS could predict motivation to learn about HIV/AIDS prevention. The third aim was to find out whether these variables had an effect on the outcomes of the communication program.

The results of this study indicate that overall, the communication program had a positive significant effect on knowledge of HIV/AIDS and STIs and unbelief in myths of HIV/AIDS and STIs. Motivation to learn about HIV/AIDS prevention can significantly be predicted by attitude towards HIV/AIDS prevention education. There were some psychosocial variables that had an significant effect on the percentage of items answered correct off knowledge of HIV/AIDS and STIs. These were: a positive attitude towards HIV/AIDS prevention education, high self efficacy in regard to openly talking about HIV/AIDS, and high motivation to learn about HIV/AIDS education. The demographic variable agegroup causes an effect on the percentage of items answered correct for knowledge of HIV/AIDS, whereby students younger than 17 years have higher scores than students older than 17 years. There were also three combinations of variables that caused interaction effects on the percentage of items answered correct for knowledge of HIV/AIDS and STIs and for unbelief in myths of HIV/AIDS and STIs. The first interaction suggests that males with a negative attitude towards HIV/AIDS prevention education have lower scores than other students for knowledge of HIV/AIDS and STIs. The second interaction suggests that females with a low self efficacy in regard to openly talking about HIV/AIDS have higher scores on unbelief in myths of HIV/AIDS than females with a high self efficacy in regard to openly talking about HIV/AIDS, while this effect is opposite for males. The third interaction suggests that older students with a low self efficacy in regard to openly talking about HIV/AIDS have higher scores on unbelief in myths of STIs than older students with a high self efficacy in regard to openly talking about HIV/AIDS, while this effect is opposite for younger students. The last two interaction effects are very small and not plausible. The big amount of participants is probably the reason that the interaction effects did turn out to be significant.

The findings about the positive effect of the communication program were in line with the expectations. The communication program about HIV/AIDS prevention increases knowledge of HIV/AIDS and STIs and decreases belief in myths of HIV/AIDS and STIs. Though, there were some items that did not show a significant effect of the communication program. The insignificant effect for the items 'HIV can be spread by having sex without a condom', 'HIV can be spread by masturbation', 'HIV can be spread by kissing', 'You can protect yourself against HIV by washing yourself after sex', 'You can protect yourself against HIV by not sharing toilets', 'You can protect yourself against HIV by wearing gloves when touching blood', 'Coughing can be a symptom of an STI', and 'No menstruation can be a symptom of an STI', were probably caused by the high percentage correct on the pretest, which indicates that most students already knew the correct answer before the communication program. The insignificant effects of the items 'HIV can be spread by sharing needles', 'HIV can be spread by Parent to Child Transmission', 'You can protect yourself against HIV by being faithful', 'How long can you live if you have HIV', and 'Erection problems can be a symptom of an STI' indicated that the communication program didn't adequately covered these topics. During the three peer educator sessions with a few grade eleven students and the student instructors from the university these topics caused a lot of discussion. This discussion probably caused vagueness about these topics for the student instructors, which made it difficult to transfer the correct information on to the grade eleven students during the program sessions.

Even though the results of this study show that the communication program increases knowledge of HIV/AIDS and STIs and unbelief in myths of HIV/AIDS and STIs, the percentage of items answered correct about knowledge of HIV/AIDS and STIs was still low after the communication program (66% and 65%). These findings seem to be in line with findings from Shisana et al. (2009) concerning correct knowledge about prevention of sexual transmission of HIV. According to Kincaid et al. (2009) exposure to more programs lead to better impact of the programs, so there is still a need for more HIV/AIDS prevention education programs in the Transkei area.

For unbelief in myths of HIV/AIDS and STIs the percentage of items answered correct was already high before the communication program (83% and 86%). When this finding is compared with other studies, it seems that belief in myths is decreasing over time. For instance, Nicoll et al. (1993) says that myths surrounding HIV/AIDS are numerous and

popular in Africa and the study of Boer and Emons (2004) shows that only 74% of the participants in their study didn't held any inaccurate beliefs about HIV transmission.

However, there were some items for unbelief in myths of HIV/AIDS and STIs that did show a significant effect of the communication program. These items were 'HIV can be spread by sneezing', 'You can protect yourself against HIV by not kissing HIV positive people', and 'Increase in sexual desire can be a symptom of an STI'. Before the communication program there were a lot of learners that believed in these myths, and afterwards most of them didn't believed in these myths anymore. The pilot study showed that most of the students thought that HIV could be easily spread through the mouth because of bleeding tissue, and that an increase in sexual desire could be a symptom of an STI. Because of this knowledge, the student instructors explicitly mentioned that HIV couldn't be spread by sneezing and kissing and that an increase in sexual desire isn't a symptom of an STI.

Though, one reason for the high scores on the items about myths of HIV/AIDS and STIs could be the mode of questioning. Unbelief in myths of HIV/AIDS and STIs was only measured with yes or no items, while knowledge of HIV/AIDS and STIs was partly measured with multiple choice items. With yes or no items you have a fifty percent chance to choose the right answer, while this percentage is lower for the multiple choice items.

The finding that only attitude towards HIV/AIDS prevention education significantly predicts motivation to learn about HIV/AIDS prevention was not completely in line with the expectations. Social norm regarding HIV/AIDS prevention education in their school did not predict motivation to learn. These findings contradict the study of Boer and Mashamba (2005). It indicates that social norm regarding HIV/AIDS prevention education in their school was not an important barrier for the motivation to learn about HIV/AIDS prevention. One explanation for the absence of this effect could be that motivation to learn is an intrinsic variable, while social norm is more an extrinsic variable. Another explanation lies in one of the limitations of this research, namely that social norm regarding HIV/AIDS prevention education in their school was measured with one item.

There weren't any expectations about the effects of gender and agegroup, and the psychosocial variables -attitude towards HIV/AIDS prevention education, social norm regarding HIV/AIDS prevention education in their school, self efficacy in regard to openly talking about HIV/AIDS, and motivation to learn about HIV/AIDS prevention- on the outcomes of the communication program. Though, it is remarkable that younger students have more knowledge of HIV/AIDS than older students after the communication program. This

effect could be explained by the South African school system. Students have to do a test to pass grade eleven and to start their final year. If they fail this test, they have to do grade eleven again and this can go on forever. Students can also quit school for a couple of years, for instance when they are not motivated or when they have to help their parents, and go back to the grade where they got off when they return. The older students are usually underprivileged students which can cause lower outcomes of the communication program in knowledge of HIV/AIDS. You could say that these students are a disadvantaged group in regard to communication programs for HIV/AIDS prevention.

It is also remarkable that the negative effect of a low attitude towards HIV/AIDS prevention education is stronger for males than for females for their knowledge of HIV/AIDS and STIs, although there is no separate effect of gender. This could indicate that males with a low attitude towards HIV/AIDS education prevention are a disadvantaged group in regard to HIV/AIDS prevention programs. To prevent this from happening in the future, a communication program for HIV/AIDS prevention should pay extra attention to these disadvantaged groups.

There were some limitations of this study. I assumed that the variables of motivation to learn about HIV/AIDS prevention had a moderating effect on the outcomes of the communication program. Though, the items that measured the student's motivation to learn about HIV/AIDS prevention were only assessed in the posttest. If they were also measured in the pretest, they could have been compared to each other. Now, the items that measured the variables of motivation to learn about HIV/AIDS prevention show differential effects on the outcomes of the communication program.

In addition, the results would have had more impact if the study would have been a within subject design. The size of the pretest group is much smaller than the size of the posttest group (259 and 419 respectively). This could have interfered with the effects of the communication program. Also, the study was conducted without a control group, which makes the results less valid. It is possible that the change in knowledge was caused by a confounding variable. With regard to the items about knowledge of HIV/AIDS, knowledge of STIs, unbelief in myths of HIV/AIDS and unbelief in myths about STIs, the mode of questioning should have been more similar. Knowledge of HIV/AIDS and STIs was assessed with multiple choice items and yes or no items, while unbelief in myths of HIV/AIDS and STIs was assessed with only yes or no items. For the yes or no items there is a fifty percent chance of answering them right, for the multiple choice items this percentage is lower.

Finally, the study was conducted among a sample of non-white students in grade eleven, from the Xhosa tribe, who live in the city centre or in townships surrounding the city Butterworth, in the Transkei area. This means that the results of this study may not be representative of all students in South Africa, because of the cultural diversity and inequality between groups that should be taken into account, and the limited age span.

The results of this study consistently suggest that the communication program was effective in increasing knowledge of HIV/AIDS and STIs and decrease belief in myths of HIV/AIDS and STIs and that a positive attitude towards HIV/AIDS prevention education can predict high motivation to learn about HIV/AIDS prevention. A high or low social norm regarding HIV/AIDS prevention education in their school could not predict high or low motivation to learn about HIV/AIDS prevention. Further, this study suggests that a positive attitude towards HIV/AIDS prevention education, high self efficacy in regard to openly talking about HIV/AIDS, and high motivation to learn about HIV/AIDS education have a positive effect on the results of the communication program for knowledge of HIV/AIDS and knowledge of STIs. Students older than 17 years are disadvantaged in learning from the communication program, and so are males with a negative attitude towards HIV/AIDS prevention education.

Based on this study it can be concluded that there is still a need for communication programs about HIV/AIDS prevention in the Transkei area, and that a communication program is an effective way of increasing knowledge of HIV/AIDS and STIs and decreasing belief in myths of HIV/AIDS and STIs. It can be recommended that these communication programs should trigger a positive attitude towards HIV/AIDS education from their participants, to increase motivation to learn about HIV/AIDS prevention. At last, the communication program should pay extra attention to involve participants older than seventeen and males with a negative attitude towards HIV/AIDS prevention education.

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