

Risky sexual behaviour of university students: Perceptions and the effect of a sex education tool

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Abstract

The increasing HIV incidence amongst people aged 15-24 years and the reported gaps in sex-education received at school and reported risky sexual behaviour in South Africa justifies the importance of this study. This study examines the risky sexual behaviour and perceptions among first-year students enrolled at Monash South Africa in South Africa. This four-phased mixed methods pilot study explored whether a sex-education intervention tool positively influenced risky sexual behaviour. Phase 1 used self-administered questionnaires to obtain quantitative and qualitative baseline data. In Phase 2 a sex-education intervention tool was designed to address identified gaps. In Phase 3 a prospective cohort of 12 mixed-gender students participated in the sex-education intervention sessions and was followed up a month later (Phase 4) to evaluate the effectiveness of the tool. Phase 1 participants (139) were between 18- 21 years. The level of sex-education knowledge amongst the participants was low and of a poor quality; this could be a result of poor preparation at school. The results suggest the necessity of sex-education programmes for university students considering the low proportion of students entering university with basic sex education. Of the 139 participants, 27 were identified with risky sexual behaviour and considered for an intervention. The intervention participants felt more able to be responsible for their behaviour after the intervention. The participants reported that the sex-education intervention tool influenced their risky sexual behaviour positively. This pilot intervention study can be adopted by universities interested in engaging their students about their sexual health and augmenting school-level interventions.

Keywords: University students, sex-education, intervention, sexual health, risky sexual behaviour.

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Introduction

Research indicates that the youth are a focal point in the global fight against the human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS) epidemic, with regards to reducing new infections and identifying opportunities for halting the transmission of HIV (Monasch & Mahy, 2006). In 2009 an estimated 890 000 new HIV infections and five million of the 33.4 million people living with HIV occurred among those aged 15-24 years

(UNAIDS|WHO, 2011). Reports have shown that 80% of the global youth population live in sub-Saharan Africa (UNAIDS|WHO, 2011).

The HIV-incidence among youth aged 15-24 years in South Africa was recorded at 1.5% in 2012. The HIV-incidence rate among female youth aged 15–24 was over four times higher than the incidence rate found in males in this age group (2.5% vs. 0.6%). Almost a quarter (24.1%) of all new HIV infections occurred in young females aged 15–24 years. The HIV prevalence rate in this age group was 7.1% in 2012 (Shisana et al., 2014). Research indicates that many youth exhibit high-risk sexual behaviour, despite them having sound knowledge about sexual-health risks (UNAIDS|WHO, 2011). Common contributing factors to the high prevalence of HIV and sexually transmitted infections (STIs), are the low level of perceived vulnerability in this age group; unprotected sex; use of drugs; excessive alcohol consumption; multiple concurrent partners; and lack of contraception and/or protection use (Monasch & Mahy, 2006; Visser, 2007; Warenius, Pettersson, Nissen, Hojer, Chishimba & Faxelid, 2007; UNAIDS|WHO, 2011).

The overall HIV prevalence is decreasing because of a reduction of the prevalence of HIV amongst the youth (Visser, 2007). This reversal in this group is most likely accomplished through the adoption of safer sexual behaviours, focusing on preventative interventions (Visser, 2007). Protective factors that could reduce the vulnerability of the youth are education; a supportive family; and good community and peer networks (Visser, 2007; Warenius *et al.*, 2007; UNAIDS|WHO, 2011).

In sub-Saharan Africa (2009) accurate knowledge on HIV was found to be poor among young men (33%) and women (26%) (UNAIDS|WHO, 2011). The Declaration of Commitment by the Joint United Nations Programme on HIV/AIDS (2001) was made to ensure commitment by governments that at least 95% of youth have access to information, education (including peer education and youth-specific HIV education), and services necessary to develop the life skills required to reduce their HIV infection vulnerability (Visser, 2007). The poor HIV-related knowledge among the youth of sub-Saharan Africa indicates a need to educate them about HIV prevention (Visser, 2007).

In South Africa various HIV preventive interventions have used diverse approaches over the last decade (Visser, 2007). Amongst the school-level interventions there have been: educational dramas; participative school-based programmes and HIV education accompanied by life skills training (Grunseit, 1997; Peltzer, 2003; Visser, 2007; Kirby, Laris & Rolleri, 2007; Agbemenu & Schlenk, 2011). These interventions have had varying effects on risky sexual behaviour (Visser, 2007). For instance, in developing countries it has been reported that education and behaviour-change programmes can contribute to

awareness and knowledge of HIV but have weak to moderate effects on the risky sexual behaviour of adolescent populations (Visser, 2007). School-based programmes have been the most common approach in South Africa, and are often short-term programmes that focus on raising awareness and providing information on HIV risk (Peltzer, 2003; Visser, 2007). Some contributing factors to the weak effect on sexual behaviour of school-based sex-education programmes are: teachers not feeling capable of and adequately resourced to teach the students; teachers being uncomfortable in talking to children about sex; and the lack of community support (Peltzer, 2003).

The purpose of sex education interventions is to facilitate the adoption of healthy behaviours but behaviour is dependent on a wide range of factors (Ajzen, 1991; Kemm, 2003). Research indicates that health and sex education should target those factors that influence behaviour among the youth: life skills; self-efficacy; attitudes; beliefs; and social norms (Ajzen, 1991; Kok, Van den Borne & Mullen, 1997; Koelen, Vaandrager & Colomer, 2001; Kemm, 2003). The South African high school life orientation curriculum has adopted a strategy to address these factors (Peltzer, 2003; UNESCO, 2009; Francis, 2010). It is imperative that all interventions are specifically developed to match the culture, age and sexual experience of participants and should address the underlying reasons for high-risk behaviour without forgetting the psychosocial and economic factors that have an impact on behavioural transformation (Kirby *et al.*, 2007; Francis, 2010). Effective behavioural transformation requires relevant sexual health education coupled with reasoning; problem-solving- and negotiation skills, which would aid the students in applying the knowledge to negotiate their sexual behaviour (Keselman, Kaufman, Kramer & Patel, 2004).

In 2007 South Africa's student participation rate – that is the proportion of 18- to 24-year olds in higher education – was only at 15.7% (Letseka, 2007). A large number of the non-participants were students from previously disadvantaged communities (Letseka, 2007). South Africa also experiences a high drop-out rate (estimated at 40%) amongst first-year university students (Letseka, 2007). Various factors contribute to this drop-out rate: financial difficulties; poor career choices; domestic problems; pregnancy and too much partying (Letseka, 2007). On average, 70% of these students were from low-income families (Letseka, 2007). Amongst these students who drop out, the return rate is low (16%). The high student drop-out and failure rates are a major problem in a country with limited state resources, a desperate shortage of high-level skills and a pressing need to raise income levels among the poor (Letseka, 2007). Considering that pregnancy is one of the contributors to drop-out rates, implementing a sex-education intervention tool at university level can be expected to address this important contributor. A further benefit might be a delay in sexual debut and a decrease in the incidence of HIV.

Current research that investigates the effectiveness of sex-education programmes in changing high-risk sexual behaviour is scarce (Visser, 2007). This study aimed to assess perceptions of the sex education and risky sexual behaviour among first-year students enrolled at Monash South Africa and to explore if knowledge obtained from a sex-education intervention tool would influence reported risky sexual behaviour.

The study setting was Monash South Africa campus in Johannesburg, South Africa with a student population of 3500 students (2012). The students originate mostly from South Africa and other African countries. The study comprised of four phases with mixed research methods. To ensure validity of the data especially in terms of the self-reported sexual behaviour the researcher emphasised to the participants the importance of completing the questionnaires honestly. The researcher assured the participants that their responses and identities would be kept confidential.

The objectives of the study were to assess the first-year university students' current perceptions of sex education and to identify the gaps in the students' knowledge. The study also explored whether a sex education intervention tool would decrease risky sexual behaviour by comparing the risky sexual behaviour of students who were and were not exposed to the sex-education tool.

Methodology

Study design

A mixed-methods pilot study that consisted of four phases (Figure 1).

Sample size

A statistician was consulted to verify the sample size of a minimum of 100 participants for Phase 1. Students younger than 18 years were excluded as parental consent to participate would be required. Returning first-year students were also excluded.

Ethical considerations

This study received written approval from the Student Research Ethics Committee of the Faculty of Health Sciences at the University of Pretoria, protocol number: S182/2011. Permission to conduct the study at Monash South Africa was obtained from the Deputy Pro Vice-Chancellor: Research.

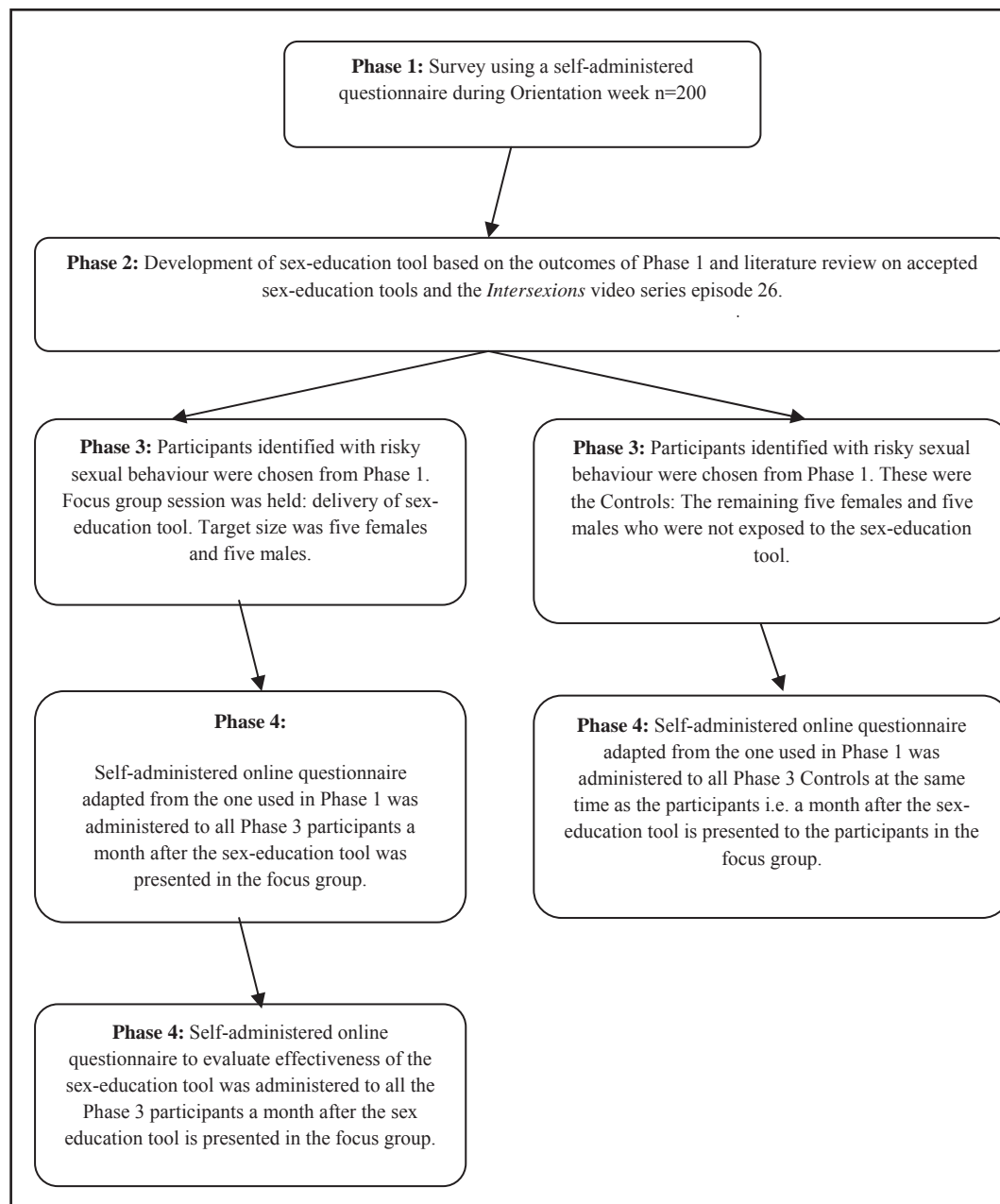


Figure 1: Study design flow chart

In Phase 1 a cross-sectional study used a self-administered questionnaire to generate baseline data. The questionnaire used adapted standardised sexuality measures and included questions to determine socio-demographic characteristics; knowledge of, attitudes towards and perceptions of sex education; the individual sexuality; and the risky sexual behaviour of the participants. The questionnaire consisted of 28 “yes” or “no” response closed-ended questions and five-point Likert-type questions (strongly agree to strongly disagree) and one question

where the students could write comments or questions. The questionnaire was based on the work of Davis, Yarber, Bauserman, Schree, Davis (1998) and Reddy et al. (2010). The questionnaire was not anonymous as the students were followed up in the subsequent phases of the study. However, the researcher was the only person who had access to the unique numbers. In this way overall anonymity was assured. The target sample size for the first phase was 100 students. Each participant received a participant information letter prior to signing a written consent form. Participants also completed a registration form which included their contact details prior to participation.

In Phase 2, the quantitative and qualitative data from Phase 1 were analyzed. A literature review of comprehensive sex-education tools was conducted (Braeken & Cardinal, 2008; UNESCO, 2009; Francis, 2010; UNFPA, 2010; Heeren, Jemmott, Mandeya & Tyler, 2012). The sex-education intervention tool was designed to aid in addressing the gaps identified in Phase 1 concerning the knowledge, attitudes and perceptions of the students about sex education. The risky sexual behaviours in the tool were pre-defined as: ever had sex (sexual intercourse was defined as vaginal intercourse), multiple sexual partners, use of alcohol before sex, use of drugs before sex, none or inconsistent use of condoms during sex, having being diagnosed with STIs and never having had a HIV test (Reddy *et al.*, 2010). The sex-education intervention tool topics were: sex in general, sexual development and reproduction; sexual orientation and relationships; safer sex and male and female condom use; the benefits of abstinence; STIs and HIV/AIDS; and birth control and abortion (Kirby *et al.*, 2007; Braeken & Cardinal, 2008; UNESCO, 2009; Francis, 2010; UNFPA, 2010; Reddy *et al.*, 2010; Agbemenu & Schlenk, 2011; Heeren, Jemmott, Ngwane, Mandeya & Tyler, 2012).

In Phase 3, the defined criteria describing risky sexual behaviour were used to identify participants from Phase 1 who were selected to take part in Phase 3. Phase 3 comprised two sessions a month apart. A convenience sampling method was used to sample students who would participate in the third phase during which the sex-education intervention tool was presented. The participants from Phase 1 who reported that they had had sex before and had engaged in at least one of the other six pre-defined risky behaviours were considered for Phase 3. An email was sent to the participants identified to invite them to a focus group session. To increase the response rate text messages were also sent to the invited participants and they were required to confirm attendance. The target sample size in each group (focus group sessions and the control group) was a minimum of five females and five males. To increase the numbers of participants, the students were encouraged to invite their first-year student friends. Their eligibility regarding age and sexual behaviour was confirmed once they had completed the Phase 1 questionnaire prior to the session.

The sessions were designed to allow the students to feel comfortable to discuss personal issues and were therefore not structured. The sessions comprised mixed-sex groups of 12 participants facilitated by the researcher. Each participant signed a written consent form and completed a registration form for demographic details prior to participation.

The first session was a four-hour focus group discussion and sex-education presentation. At the beginning of the session the Phase 1 questionnaire was given to all the newly-recruited participants. Baseline data for the participants was synthesised from these questionnaires. Penis model demonstrations and activities to teach correct condom use, self-exploration discussions with an emphasis on self-efficacy and self-esteem and lastly avenues to follow for additional sexual and reproductive information and services were included in the session.

The second focus group session (five hours) incorporated a summary from the first session and a continuation of the sex-education presentation that was complemented by the screening of *Intersexions* (season one episode 26). *Intersexions* is an episodic drama series with interrelated stand-alone episodes that follow the AIDS infection chain. Episode 26 was the final episode of the series that culminated in a summary of all the topics covered in all the previous episodes. The episode covered issues related to the determinants of HIV transmission; social norms and relationships; use of intoxicants before sex; disclosure of HIV status; stigma of HIV infection; multiple concurrent sexual partners; sexual networks and sexuality. An interview guide with ten guiding questions was used during this focus group session. The sessions involved interactive exercises, group discussions and personal-life experience-storytelling by the facilitator. The focus group sessions were audio recorded and subsequently transcribed by the researcher and a volunteer and merged into one transcription. Refreshments were provided and no compensation was given to the participants for participation.

In Phase 4, the prospective cohort that participated in Phase 3 was followed up a month after exposure to the sex-education intervention tool. Both the controls and participants from Phase 3 were encouraged to complete the online questionnaire that was a shortened version of the Phase 1 questionnaire (Davis *et al.*, 1998; Reddy *et al.*, 2010). The participants were encouraged to complete an additional researcher-designed online intervention evaluation questionnaire which was constructed using standardised sexuality-measures that covered their perceptions of the tool as well as their perceived benefit or changed behaviour as a result of being exposed to the tool (Davis *et al.*, 1998).

Data analysis

The data were double entered to check for data entry discrepancies. Descriptive statistics such as percentages were calculated to characterise the sample in terms of socio-demographic characteristics and theoretical and experimental variables. STATA 11 was used for data analysis. The qualitative data obtained from the Phase 1 questionnaire and the Phase 3 transcriptions was read and re-read to identify recurring concepts raised by the participants, Categories were formed from the recurring concepts and these categories were grouped to form minor and major themes. The themes that emerged were checked with the data received from Phase 1 for any contradictions. The analysis process continued until no new themes emerged. The mixed-methods approach and literature review offered opportunities for the triangulation of the data.

Results

A total number of 200 questionnaires were distributed and 139 questionnaires were returned, giving a response rate of 70%. Tables 1 and 2 outline the socio-demographic profiles and self-reported behaviours of the respondents at baseline.

Table 1: Demographic characteristics of participating students at baseline by gender (n=139).

Characteristic	Male (n=47) n(%)	Female (n= 92) n(%)
Age (years)		
18 – 19	24(52)	55(60)
20 – 21	23(48)	37(40)
Nationality		
South African	29(63)	54(59)
Other	18(37)	38(41)
South African		

In Phase 1 62% of the participants reported that they were comfortable with discussing sex-related issues. A minority (44%) of the participants, 24% males and 55% females, agreed that sexual intercourse should take place between two married people. Most (42%) had received their sex education from school as opposed to TV (24%), home (16%), friends (12%), community facilities (3%) and other (3%). Interestingly 73% viewed the quality of the sex education received at school as good.

Knowledge of the different forms of sex was poor with 59% (females 61%, males 55%) of the participants reporting that sex was only vaginal (not oral, anal or masturbation). The participants who desired to have sex for the first time after marriage were 33% females compared to 18% males. The average age for sexual debut was 16 years. Amongst the 53% of participants who were in relationships,

37% reported having sexual intercourse. Of all the participants, 57% were concerned about contracting HIV.

Table 2: Social characteristics and self-reported sexual behaviours of participating students at baseline by gender (n=139).

Characteristic	Male %, (N)	Female %, (N)	Total %, (N)
Previous school had sex education			
Yes	76 (36)	81 (75)	100(111)
No	24 (11)	19 (17)	100 (28)
Total:	100(47)	100(92)	100(139)
Ever had sexual intercourse			
Yes	47 (22)	39 (36)	100 (58)
No	41 (20)	43 (40)	100 (60)
No response	12 (5)	18 (16)	100 (21)
Total:	100(47)	100(92)	100(139)
Sexual partners in the past 12 months			
None	45 (21)	62 (57)	100 (78)
One partner	26 (12)	29 (26)	100 (38)
Two partners	10 (5)	4 (4)	100 (9)
Three to five partners	7 (3)	1 (1)	100 (4)
More than five partners	4 (2)	0 (0)	100 (2)
Don't know how many partners	8 (4)	4 (4)	100 (8)
Total:	100(47)	100(92)	100(139)
Used condom every time when having sex in the past 3 months			
Yes			
No	51 (6)	53 (25)	100 (31)
Total:	49 (7)	47 (23)	100 (30)
	100(13)	100(48)	100 (61)
Substance use before having sex			
None	59 (28)	81 (75)	100(103)
Alcohol	37 (17)	18 (16)	100 (33)
Drugs	2 (1)	0 (0)	100 (1)
Both	2 (1)	1 (1)	100 (2)
Total:	100(47)	100(92)	100(139)
Participant has gone for HIV counselling and testing in past 12 months			
Yes	41 (19)	42 (39)	100 (58)
No	59 (28)	58 (53)	100 (81)
Total:	100(47)	100(92)	100(139)
Participant's partner has gone for HIV counselling and testing in past 12 months			
Yes	27 (13)	34 (31)	100 (44)
No	31 (15)	30 (28)	100 (42)
No partner	42 (19)	36 (33)	100 (53)
Total:	100(47)	100(92)	100(139)
Diagnosed with a STI in past 12 months			
Yes	11 (5)	3 (3)	100 (8)
No	89 (42)	97 (89)	100(131)
Total:	100(47)	100(92)	100(139)

Knowledge of emergency contraceptive use was poor; the participants reported that the emergency contraceptive pill can be taken 24 hours (41%), 48 hours (22%) and 72 hours (37%) after unprotected sex, the correct answer being after 72 hours. The understanding that STIs increase the transmission of HIV was reported at 87% (92% females, 78% males). Of the 139 participants 27 were identified who met the risky sexual behaviour criteria to participate in Phase 3.

Further information requested by participants

Requests were received from the students as part of the Phase 1 questionnaire. Common themes arose and these were taken into account in the design of the sex-education intervention tool. The themes identified by the participants were STIs, HIV infection, birth control and pregnancy.

STIs and HIV infection:

“I want to know more about symptoms of STIs and what will happen if you keep it untreated or half treated for a very long time.” (Boy1).

“I would like to know more about STIs, the symptoms, how they are treated, etc. Which is the most student or youth friendly place where you can go, because often we become ashamed or afraid to report abnormalities?” (Girl1).

“What are the chances of getting infected with HIV if you sleep with someone who is HIV positive when using a condom?” (Girl2).

“How really does a person get an infection?” (Girl3).

Birth control and pregnancy:

“Which between contraceptive pill and injection is more reliable?” (Girl4).

“While having sex what is the probability of falling pregnant if the condom comes off the penis? What is the number of times the male is allowed to ejaculate in a condom during sex? What can happen if the male is unaware that he has ejaculated?” (Girl5).

“When is it the right time to have sex or is it good to have sex before marriage to check if your partner can give birth?” (Boy2).

These responses suggest that there is a need for basic sex education for the first-year students even though they had received sex education at high school (UNAIDS|WHO, 2011). These findings further support the literature that report on contributing factors other than receiving good sex education that play a role in risky sexual behaviour among students and these were considered and incorporated into the sex-education intervention tool (Visser, 2007).

Baseline data of the participants

Eight (67%) of the focus group intervention participants had taken part in Phase 1; while four (33%) had been invited by the Phase 1 participants. Table 3 summarises key participant data.

Table 3: Socio-demographic characteristics and self-reported sexual behaviours of students participating in Phase 3 before exposure to the sex-education intervention tool

Variables	% (N)
Male	50 (6)
Female	50 (6)
Total:	100 (12)
Age 18 – 19 years	50 (6)
Age 20 – 21 years	50 (6)
Total:	100 (12)
Nationality:	
South African	67 (8)
Other	33 (4)
Total:	100 (12)
Previous school had sex education	
Yes	87 (10)
No	13 (2)
Total:	100 (12)
Ever had sexual intercourse	
Yes	100 (12)
Sexual partners in the past 12 months	
None	40 (4)
One	20 (3)
Two	13 (2)
Three to five	27 (3)
Total:	100 (12)
Used condom every time when having sex in the past 3 months	
Yes	20 (2)
No	80 (10)
Total:	100 (12)
Substance use before having sex	
None	73 (9)
Alcohol	27 (3)
Drugs or Both	0 (0)
Total:	100 (12)
Participant has gone for HIV counselling and testing in past 12 months	
Yes	67 (8)
No	33 (4)
Total:	100 (12)
Partner has gone for HIV counselling and testing in past 12 months	
Yes	33 (4)
No	21 (3)
I don't know	27 (3)
No partner	19 (2)
Total:	100 (12)
Diagnosed with a STI in past 12 months	
Yes	13 (2)
No	87 (10)
Total:	100 (12)

Further concerns that the participants raised during the session were, cervical and prostate cancer, the benefits of circumcision and same-sex relationships, which were topics included in the second focus group.

Implementation of the sex-education intervention tool

During the focus group sessions the participants reported that their challenges were issues such as peer pressure; independence while living on campus; media influence; inability to set priorities; teenage pregnancy; sex; alcohol and drugs. All the participants mentioned that their expectations of the sex education at school were not met as the details presented were inadequate and that many students are disinterested in sex education. The participants shared that they would rather have a sex-education programme that involves them and is relevant. This relevance includes delivery methods, spiritual and moral aspects; discussion of multiple sexual partners; and covers the alternatives to abstinence. The participants were in agreement on the contributing factors to risky sexual behaviour being peer pressure, alcohol and drug use, low self-esteem and pressure from partners. Positive responses were given after delivery of the sex-education intervention tool. The participants appreciated viewing the *Intersexions* episode and the in-depth PowerPoint presentation. They believed that the session would benefit other students; however the number of sessions should increase.

Evaluation of the sex-education intervention tool

There were six respondents in the control group (2 males and 4 females) and 12 participants (6 males and 6 females) in the sex-education intervention group. South Africans accounted for 67% (n=4) of the controls and 67% (n=8) of the participants. The basic knowledge of the different forms of sex among the participants in the control group was reported as: vaginal (n=11; 92%) anal (n=7; 58%) oral (n=9; 75%) and masturbation (n=4; 33%), while the control were: vaginal (n=6; 100%), anal (n=2; 33%), oral (n=3; 50%) and masturbation (n=1;17%). Both groups reported the same use of intoxicants before sexual intercourse (n=1 controls and n=2 participants; 17%).

The control group reported a higher percentage of condom use at their last sexual encounter (n=4; 67%) compared to participants (n=5; 42%). The risky sexual behaviour of the participants decreased compared to the controls, as 9 (75%) participants had no or one sexual partner compared to a low 3 (50%) of the controls.

Ten out of the 12 sex-education intervention participants completed the online questionnaire one month after the second session (Table 4).

Table 4: Evaluation of the sex-education intervention tool one month post intervention (n=10).

Variables	% (N)
Male 18 – 19 years	10 (1)
Male 20 – 21 years	30 (3)
Female 18 – 19 years	30 (3)
Female 20 – 21 years	30 (3)
Total:	100 (10)
The facilitator was enthusiastic about teaching the course.	
Strongly agree	90 (9)
Agree	10 (1)
Total:	100 (10)
The facilitator encouraged me to think about my own values concerning sex.	
Strongly agree	70 (7)
Agree	30 (3)
Total:	100 (10)
As a result of the sex education sessions, do you feel you have greater understanding of STIs?	
Strongly agree	70 (7)
Agree	30 (3)
Total:	100 (10)
As a result of the sex education sessions, do you feel you have greater understanding of the probability of becoming or making someone pregnant?	
Strongly agree	60 (6)
Agree	30 (3)
Neutral	10 (1)
Total:	100 (10)
As a result of the sex education sessions, do you feel you have greater understanding of the effectiveness of different birth control methods?	
Strongly agree	50 (5)
Agree	30 (3)
Neutral	20 (2)
Total:	100 (10)
As a result of the sex education sessions, do you feel you have greater understanding of abstinence as an alternative to sexual intercourse?	
Strongly agree	50 (5)
Agree	40 (4)
Strongly disagree	10 (1)
Total:	100 (10)
As a result of the sex education sessions, do you feel you have greater ability to be responsible for your own behaviour?	
Strongly agree	80 (8)
Agree	20 (2)
Total:	100 (10)
As a result of the sex education sessions, do you feel you have greater ability to discuss sexual behaviour with your potential partner?	
Strongly agree	80 (8)
Agree	10 (1)
Disagree	10 (1)
Total:	100 (10)
As a result of the sex education sessions, do you feel you have greater ability to express your desire to use condoms in order to avoid unplanned pregnancy and/or transmission of STIs?	
Strongly agree	70 (7)
Agree	20 (2)
Neutral	10 (1)
Total:	100 (10)

One of the participants answered “not applicable” to the question whether they understood the probability of becoming or making someone pregnant as she was a lesbian. The participants (n=2; 20%) were neutral regarding their possible improved understanding of the effectiveness of different birth control methods, as they had learnt about birth control at school and thought that not all methods were covered in the sessions. All the participants agreed that they felt a greater ability to be responsible for their behaviour. After the session, one participant still felt unable to discuss sexual behaviour with a potential partner. A positive outcome was that 90% (n=9) of the participants responded that they felt that they had a greater ability to express their desire to use condoms.

Discussion

The results from all the phases of the research reveal that there is a need to implement suitable sexual health promotion programmes for university students. Interventions to increase basic sexual health knowledge and safer sex are important and should not be left solely to the school system. The students were open to discussing issues pertaining to sex, but they needed a knowledgeable, reliable and open-minded peer as a source. The openness and readiness of the students can be used as leverage to implement sex-education interventions at the university. The participants welcomed the idea of peer educators and peer education which has proven to be successful elsewhere (Visser, 2007). A peer-educator focused intervention can contribute towards changing group norms on campus (Heeren *et al.*, 2012).

The findings of this study suggest that despite a high percentage of the participants having received sex education at school and the perceptions of the quality of this education being good, they still engaged in risky behaviour. This finding supports the literature that reports contributing factors other than receiving good sex education that play a role in risky sexual behaviour among students (Visser, 2007; Kirby *et al.*, 2007; Francis, 2010). Risky sexual behaviour forms a significant part of campus life. The presentation of the *Intersexions* episode 26 as part of the intervention tool proved very successful. The screening allowed for the participants to be able to form their own opinions on various topics which are open for discussion using anonymous TV characters. The participants also reported a positive impact of the intervention tool in their ability to make safer sexual behavioural choices. Creative strategies on increasing condom use amongst university students should be explored in future sex education interventions. The findings of this study support other risky sexual behaviour intervention studies carried out among the youth at university level in South Africa (Reddy *et al.*, 2010; Heeren *et al.*, 2012).

The reported risky sexual behaviour of the first-year students in the study indicates the importance for their needs and experiences to be considered by the

university early in their studies. Regular exposure to a sex-education tool for all the students should be considered by the university. Open forums where perceptions and concerns may be shared and addressed should be considered by universities. Comprehensive sex education gives youth the tools they need to feel more confident in making informed decisions about their sexuality and to develop healthier relationships, considering that the first year at university is the first time for many students to be independent and decisions made at this stage impact on adulthood. Students can then be empowered to develop their own values and attitudes and recognise their sexual rights.

This was a pilot study and the sample size was small. The extent of under-reporting or over-reporting of behaviours on the questionnaires cannot be determined, although measures described in this study demonstrate that the data is of acceptable quality and validity. Only full-time students who were over 18 years at the university were sampled and the data is therefore not representative and generalisable to the general population aged 15-24 years.

The need for further sex-education programmes that will engage South African university students should be conducted. There is a need for the university to facilitate the implementation of a structured campus programme that would help reduce the sexual risk behaviours among students.

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