

HIV/AIDS knowledge, behaviour and beliefs among South African university students

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Abstract

Globally, South Africa has the highest prevalence of HIV/AIDS. In the absence of cure, prevention is the only available method to reduce HIV prevalence rates. This can only be obtained through behavioural change, which is associated with a good knowledge about HIV. The study aims to determine the knowledge, beliefs, behaviours and sources of HIV and AIDS information among university students at two tertiary institutions in South Africa. The study was a quantitative, cross-sectional, descriptive and comparative survey. Students from the Western Cape Province and the KwaZulu-Natal Province participated in the study. The main findings of the study were that although students had an adequate general knowledge on HIV/AIDS, both groups scored the lowest in the transmission modes of HIV. The media was the main source of HIV/AIDS information for students and university health care facilities need to be more proactive in informing students about the transmission of HIV/AIDS.

Keywords: HIV, AIDS, college students, knowledge, behaviour, South Africa.

Résumé

Globalement, l'Afrique du Sud dispose de la prévalence de VIH/sida la plus élevée au monde. En l'absence de remède, la prévention constitue l'unique méthode disponible permettant de réduire les taux de prévalence du VIH. Ceci ne peut être possible que par un changement de comportement, associé à de bonnes connaissances sur le VIH. L'étude vise à déterminer les connaissances, les croyances, les comportements et les sources des informations portant sur le VIH et le Sida chez les étudiants en université dans deux institutions tertiaires d'Afrique du Sud. L'étude consistait en une enquête quantitative, transversale, descriptive et comparative. Des étudiants de la province du Cap occidental et du KwaZulu-Natal ont pris part à cette étude. Les principales conclusions de l'étude étaient que bien que ces étudiants disposent de connaissances générales adéquates sur le VIH/Sida, ces deux groupes ont obtenu les résultats les plus faibles pour les questions relatives aux modes de transmission du VIH. Les médias constituaient la principale source d'informations sur le VIH/Sida pour les étudiants et les centres de santé de l'université doivent adopter un rôle plus proactif pour informer les étudiants sur la transmission du VIH/Sida.

Mots clés: VIH, Sida, étudiants en université, connaissances, comportement, Afrique du Sud.

Introduction

The number of newly infected young people in South Africa has stabilised at an extremely high rate (UNAIDS, 2008). This means that even though fewer new infections are occurring daily, the prevalence rates remain high. In South Africa, KwaZulu-Natal (KZN) has the highest HIV prevalence (39.5%) and the Western Cape (WC) has the lowest prevalence (16.9%) (Department of Health South Africa, 2010). Although the highest HIV prevalence falls within the 30 - 34-year age group (41.5%), the infection rate among the 20 - 24-year age group is still relatively high (26.6%) (Department of Health, 2010). In the context of South Africa, many 20 - 24-year-olds are likely to be attending universities. In addition, this is also the time when young people engage in explorative risky behaviours (Hancock, Mikhail, Nguyen & Bright, 1999; HEAIDS, 2009), such as experimenting with drugs and/or

alcohol and unsafe sexual practices which may increase the risk of contracting HIV. Against this backdrop it becomes critical that HIV/AIDS intervention strategies among university students are actively promoted and evaluated.

A modelling exercise conducted among the tertiary institutions of South Africa suggests that the HIV infection rate amongst undergraduate students was estimated at 22%, rising to 33% in 2005 (Kinghorn, 2000). Universities responded to the pandemic by developing the Higher Education AIDS and HIV programme or HEAIDS in 2000/2001 (HEAIDS, n.d.). Thus it is crucial for successful prevention strategies that we understand how knowledge can impact on the students' behaviours and beliefs with regard to HIV.

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Prevention and awareness programmes in place

There has been conflicting information regarding whether an adequate knowledge on HIV/AIDS is sufficient enough to promote behaviour change among the youth (Heeren, Jemmott, Mandeya & Tyler, 2007; Kelly, 2001). In many of these studies factors such as attitude and belief played a vital role in the decision making process of an individual (Herren *et al.*, 2007; Kelly, 2001). However, it could also be argued that this could also be as a result of students not having detailed knowledge on HIV/AIDS that was necessary for behavioural change (Hartell, 2005).

The South African government and various non-governmental organisations utilise verbal and non-verbal communication to educate the South African public on HIV and AIDS. These prevention and awareness programmes fall broadly into the categories of information, education and communication, behavioural risk reduction and peer education (Harrison, Smit & Myer, 2000). On university campuses, HEAIDS developed and introduced structures to mobilise institutions to respond to the pandemic through their core functions of learning, research, management and community involvement (HEAIDS, n.d.). This was to be achieved through the continuum of HIV and AIDS interventions such as prevention, treatment, care and support (HEAIDS, n.d.).

In many universities, education and communication efforts for raising HIV and AIDS awareness still tend to be concentrated in the brief period of orientation at the start of the academic year (Dube & Ocholla, 2005; Kelly, 2003). Furthermore, no South African university had a compulsory course on HIV/AIDS (Dube *et al.*, 2005). This poses a problem because South African students attending universities are from diverse backgrounds, both culturally and socially. Thus their level of awareness and exposure to HIV and AIDS and other sexually transmitted diseases may vary.

There are few studies that have developed and tested HIV risk reduction strategies for university students in South Africa, and consequently the efficacy of such strategies is unknown (Herren *et al.*, 2007). This raises questions regarding the current 'trend' among the South African universities. The information obtained from new research on knowledge about sexual behaviour among the youth can provide an important baseline for the design of educational intervention strategies aimed at reducing transmission. In the light of this background, this study therefore explores the knowledge, behaviour and beliefs of university students in the highest and lowest HIV/AIDS affected provinces in South Africa in relation to HIV and AIDS.

Methods

The study utilised the quantitative research paradigm to determine the knowledge, beliefs, behaviours and sources of HIV/AIDS information among university students in the Western Cape (WC) and KwaZulu-Natal (KZN). A cross-sectional, descriptive and comparative survey was used. Ethical clearance was granted by the Senate Research Committee of the University of the Western Cape.

Study setting and sample size

The universities selected for the study were located in different provinces in South Africa namely KZN and the WC. Convenience selection was used to choose the respective universities. The sampling frame consisted of all students enrolled for the 2008 academic year. Assuming a 95% confidence and precision level = 0.5, the sample size calculated for the WC was 387 students, while the sample size for KZN was calculated to be 385 students. However, 500 students were targeted at each respective university and only students 18 years and older were allowed to participate in the study. The study sample was derived using a multi-stage sampling approach. The study sample utilised a disproportionate stratified sample at each institution. The faculties at each institution were randomly chosen through a list of all courses offered in the semester of data collection, using the ballot method. Thereafter cluster sampling was utilised to select the departments to participate in the study. Following the selection of the departments, simple convenience sampling was done to select the classes and students to participate in the study.

Data were collected through anonymous self-administered questionnaires. The instruments used in the study were the HIV-Knowledge questionnaire (Carey, Morrison-Beedy & Johnson, 1997) and Assessing AIDS-related Beliefs questionnaire (Brown & Bocarnea, 1991). In addition, the National College Students Health Risk Behavior survey from the Centers of Disease Control and Prevention (CDC) was used to assess the behaviours and sources of the HIV/AIDS information. The questionnaire was then piloted for validity and reliability at both universities and the necessary amendments were made to adapt the questionnaire to the South African population. To test for validity, 10 students who did not participate in the study were randomly selected at each university. A focus group was held in which the students scrutinised the questionnaires for face validity. The necessary amendments were then made and the procedure was repeated with a different group of students. The reliability of the questionnaire was tested utilizing the test retest method on 25 students at both universities. Repeatability analysis was undertaken using correlation analysis between the same questions at pre- and post-test stage. Data were analysed using SPSS version 15. Spearman's rank correlation analysis was used to assess the level of agreement between the two responses. For interval level data, Pearson's correlation coefficient was reported. A 95% level of confidence was used to assess statistical significance of the agreement. The results obtained from the pre- and post-tests of the overall questionnaire showed a correlation of more than 0.921, which indicated that the questionnaire was reliable.

Letters to obtain permission to conduct the study were delivered to the relevant authorities and selected heads of departments at the universities. Once permission was obtained the researcher coordinated a time with the lecturers to address the class and explain the study. Students were given an informed consent page to read through and the researcher addressed all queries. Students were then given a consent form to sign, which was detachable from the questionnaire for anonymity purposes. Students were allowed to withdraw at any stage. Completed questionnaires were captured on Microsoft Excel and exported to SPSS version 15 where the data were analysed. Descriptive data analysis as well

as inferential statistics was then carried out for each section of the survey. Non-parametric Mann-Whitney tests were used to compare median knowledge scores between the two university groups. Pearson's chi square tests and Spearman's tests were used to compare categorical variables between the two groups. In order to determine relationships between demographic factors and outcomes, multiple linear regression analysis was used to assess the strength and significance of the relationships whilst controlling for confounding due to other factors. A backwards model building approach was used with entry and exit probabilities set to 0.05 and 0.1 respectively. For binary outcomes, multiple logistic regression analysis was used with the same modelling approach.

Results

The study response rate from both universities was 66%. A total of 348 and 315 completed questionnaires were received from KZN and WC students respectively. The ages of the participants from both universities ranged from 17 to 40 years with a mean age of 21.07 (SD=3.194).

The mean age was statistically significantly different ($p=0.001$) between the universities with UKZN students being older. There was no statistical difference noted in gender proportions between the universities ($p=0.108$). With regard to various race groups, 30.8% of the total number of participants were coloured and 30.6% of the total group were Indian. The racial composition of the universities differed significantly ($p<0.001$). More whites and blacks were from KZN than WC, while more coloured students were from the WC (Table 1).

HIV/AIDS knowledge among university students

The results suggest that the majority of participants scored relatively high on HIV knowledge (Fig. 1). The highest score obtained in this section was 44 out of 45 (97.8%), whilst the lowest score was 10 out of 45 (22.2%). The median knowledge score was 34.98 (77.7%). Participants from both universities scored lowest in the transmission modes of HIV/AIDS category. Age was significantly associated with knowledge score ($p=0.006$). For every one year increase in age, the knowledge score went up by an average of 0.5%. Western Cape students had on average a 1.8% lower knowledge score than KZN students. However, after adjusting for age and gender this difference was not statistically significant ($p=0.089$). Males scores were on

average 2.6% lower than that of females, which was statistically significant ($p=0.023$).

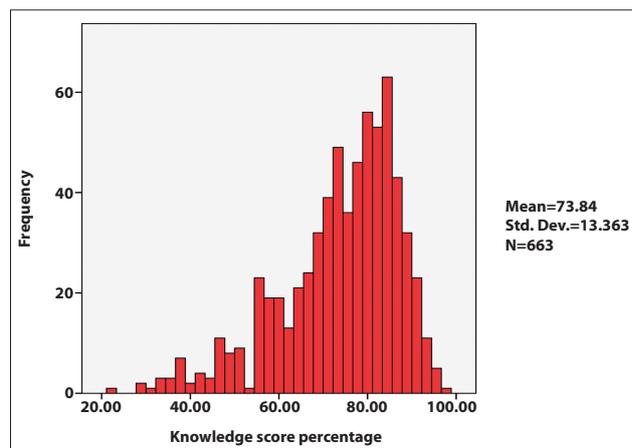


Fig. 1. Histogram of knowledge score percentage (N=663).

HIV/AIDS beliefs among university students

There was a significant difference between the two colleges in terms of beliefs ($p=0.042$). The WC students felt they were not at risk of contracting HIV; whereas KZN students were more likely to choose 'don't know'. Only age was significantly associated with belief ($p=0.008$). With every 1 year increase in age the odds of believing that they were at risk of contracting HIV increased by 1.069 times.

HIV/AIDS behaviours among university students

The results suggest that of the 47.7% ($n=316$) of respondents who stated that they have never engaged in sexual intercourse, 38.9% were female. Initial sexual experience among students that did engage in sexual activity usually occurred from 17 years of age onwards for both males (53%) and females (84%). There was also significant difference between the colleges in terms of age of first sexual encounters ($p=0.009$). The WC students were more likely to have had sex before the age of 18 whereas students from KZN were more likely to have had sex after the age of 18. Condom use among the students was slightly higher in WC than in KZN but the difference was not statistically significant ($p=0.066$).

Risk factors such as age, gender, race and university were used to evaluate the sexual activity of students. This was investigated using

Table 1. Socio-demographic data of the students

	UKZN N=348 (52%)	UWC N=315 (48%)	TOTAL N=663 (100%)
Age	Mean=21.4 SD=3.2	Mean=20.7 SD=3.0	
Gender			
Male	94 (27%)	108 (34%)	202 (30.5%)
Female	254 (73%)	207 (66%)	461 (69.5%)
Race			
White	41 (11.8%)	27 (8.6%)	68 (10.3%)
African	107 (30.7%)	68 (21.6%)	175 (26.4%)
Coloured	12 (3.4%)	192 (61%)	204 (30.8%)
Indian	184 (52.9%)	19 (6%)	203 (30.6%)
Asian and other	4 (1.1%)	9 (2.9%)	13 (2%)

logistic regression analysis. The university attended was the only factor not associated with being sexually active. Risk for sexual activity increased with age. One year increase in age increased the risk of sexual activity by 1.3 times. Males were 2.7 times more likely than females to be sexually active. Black students were 1.8 times more likely than whites to be sexually active and Indians were 41% less likely than whites to have sex. Knowledge of HIV significantly increased the risk of being sexually active. As the knowledge score increased by one percent, the risk of being sexually active increased by 1.016 times.

There were no factors significantly associated with non-condom use at the last sexual encounter for students who stated they were sexually active. The median number of sexual partners for both universities was 1. However, the Mann-Whitney test yielded results that demonstrated there was a statistically significant difference regarding number of sexual partners between the students with WC students being more likely to have had more sexual partners than KZN students ($p=0.035$). Males were also found to be at a 3.3 times at higher risk than females of having two sexual partners, irrespective of race.

Sources of HIV/AIDS information among university students

In terms of receiving information about HIV/AIDS, television and billboards were most frequently mentioned (79.9%), followed by public service announcements on the radio (79%), and information from university health promotion programmes (71.9%).

Discussion

HIV/AIDS does not only affect the person infected by the virus. It has a ripple effect that goes beyond the affected family and has implications for health care and the economy of South Africa (Reddy, 2009). Despite the numerous campaigns to empower people about the virus, findings from the study suggest that misconceptions concerning the transmission of HIV which was identified over a decade ago (Friedland, Jankelowitz, De Beer, De Klerk, Khoury, Csizmadia, Padayachee, & Levy, 1991), are still rife. This suggests that although basic HIV knowledge has been acquired by students, detailed knowledge on the transmission of the disease is still lacking. This may be one of the associated factors that have led to the insignificant reduction in the transmission of HIV/AIDS in South Africa. There was also a correlation noted with research done in the 1990's (Friedland *et al.*, 1991; Galloway, 1999) and to a recent studies (Herren *et al.*, 2007; HEAIDS, 2008), where students who had a sound HIV/AIDS knowledge still engaged in unsafe sexual practices.

Age was significantly associated with an increase in knowledge and an increase in knowledge was significantly associated with an increase in sexual activity. This was interesting because even though students from KZN were older than WC students, the results demonstrated that there was no difference in terms of knowledge and sexual activity between the colleges. Western Cape students were however more likely to have more sexual partners. Sexually active students from both colleges could therefore be learning about protection only after they became sexually active. This is important because it illustrates that students might only be learning the finer details about the virus after a sexual encounter,

which could possibly be too late. An optimistic view would be that being older was also associated with an increase in knowledge along with sexual activity; the individuals could also be in monogamous relationships.

It can be argued that many WC students are engaging in 'high-risk' sexual behaviour, through earlier sexual encounters and on average more sexual partners. Despite this, WC students tended to be more optimistic about not contracting the virus. Ijadunola, Abiona, Odu and Ijadunola (2007) also found that students exhibited an 'optimism bias' behaviour despite being classified as being at 'high risk' of contracting the disease. This is concerning since feeling 'invincible' to the virus may be the reason that results did not show a higher condom usage amongst the more sexually active WC students. Supportive evidence also states that, the earlier the sexual encounter, the more likely the student will engage in persistent risky behaviours (Tapart, Aarons, Sedlar & Brown, 2001).

Research on South African youth indicated that females have a higher HIV prevalence than males although males have more sexual partners than females in the same age group (Pettifor, Rees, Steffenson, Hlongwa-Madikizela, Macphail, Vermaak, & Kleinschmidt, 2004). This was consistent with findings in this study that suggested that males were found to be sexually active at an earlier age and nearly three times more likely to be sexually active than females. According to Pettifor *et al.* (2004), a difference in reported partners among the genders is common. Possible explanations are that males tend to over-report and females under-report sexual experiences (Pettifor *et al.*, 2004). The findings indicate that other factors besides knowledge and awareness need to be considered to explain the high incidence amongst females. Peer pressure, lack of self-confidence, the anatomical design of a female and sexual coercion is just a few factors that have been highlighted in literature (Pettifor, Kleinschmidt, Levin, Rees, Macphail, Hlongwa-Madikizela, Vermaak, Napier, Stevens & Padian, 2005). To address these issues, literature has suggested interventions that should develop negotiations and decision-making skills especially among girls as they are more vulnerable to being infected (Harrison *et al.*, 2000).

South Africa is a country enriched with diversity and culture. Even though there was no association between race and knowledge in this study, black male students were more likely to be sexually active than any other race group. South African studies have shown that HIV was most prevalent in the black population (Pettifor *et al.*, 2004, HEAIDS 2009) and that their cultural background has an impact on sexual decisions (Odu *et al.*, 2008). Culture is an important issue that is often mentioned but seldom incorporated into the understanding of statistical patterns. James, Reddy, Ruiters, McCauley and van den Borne (2006) argued that HIV/AIDS education should also start incorporating content to address a wider age group and different cultures by making the intervention context specific for behavioral changes to occur. The results from this study and associated literature (Pettifor *et al.*, 2004; Odu *et al.*, 2008; James *et al.*, 2006) indicate that urgent and immediate strategies need to be implemented for behavioural change.

The media is a critical medium to disseminate information. However, formal education on HIV and AIDS is necessary since

the information transmitted via the media may be limited and/or open to misinterpretation. The reality is that this is where majority of the students received their information, which needs to be addressed considering a student spends on average 8 hours per day on campus. The explanation for this is that despite the campus interventions, it probably does not cater for all levels of students. Students thus overlook it and continue making uninformed decisions.

Conclusion

The findings suggest that having an adequate knowledge of HIV/AIDS is not sufficient enough to promote behaviour change among South African university students. Although KZN has the highest HIV prevalence in South Africa, there was no difference noted in knowledge scores between the colleges. This is concerning because the lack of constant exposure to information concerning the disease makes students more susceptible to the virus. Students from the selected KZN University appear to be making a concerted effort to protect themselves against HIV infections as compared to WC students. However, there are many campuses under the KZN and WC umbrella which should also be considered along with the history of the university and the socio-demographics of the students. It is evident that campuses need to provide ongoing and in-depth information, that focus on viral transmission modes in order for students to make informed decisions on safe sexual practices. This study also suggests that HIV and AIDS programmes should focus on cultural complexities involved in beliefs since cultural practices may also place students at risk of contracting the virus. Females are key role players in reducing the HIV prevalence, thus their role should be acknowledged and complemented in all spheres of society. This process can be facilitated by structuring an undergraduate HIV/AIDS and gender empowerment programme at higher education institutions. This programme should be examinable and cater for all levels of students regardless of their social and cultural background. This will hopefully ensure that our next tertiary educated generation is protected, which will strengthen our great nation.

Acknowledgements

I would like to acknowledge the support of the Young Researchers Initiative at the Health Economics and HIV/AIDS Research Division (HEARD) at the University of KwaZulu-Natal. In addition, Prof. Ronelle Carolissen is thanked for her support and mentorship in writing this paper. All analyses and views remain my own.

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