

HIV protective strategies among college students in Durban, South Africa

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Abstract

There is growing concern about the high level of HIV infection among young people in South Africa. The aim of the study is to examine the HIV protective strategies used by college students with specific emphasis on variations by race group. The data for the study come from a self-administrated survey that was conducted with 3 000 college students in Durban in order to understand the strategies they use to protect themselves against the risk of HIV infection. Overall, students perceived a far greater risk of pregnancy than HIV infection. The results show that abstinence is the most common protective factor among Indian and White students. Among African students, there is great concern about HIV but abstinence is less common. Among sexually active men and women, the majority report having more than one sexual partner (with the exception of Indian females). Female students among all groups were more likely than male students to report that they were faithful to their partners. In Africans the contrast is stark: 25% for women versus 6% for men. Condoms are the most commonly used method by students but are not used in every sexual encounter. Consistent condom use was highest among Indian males (46%) and lowest among White females (13.7%). More effort needs to be directed at promoting correct and consistent condom use in order to avoid the negative consequences associated with unprotected sexual intercourse including unwanted pregnancy and HIV/AIDS.

Keywords: HIV, protective strategies, sexual behaviour, South Africa.

Résumé

On observe des préoccupations croissantes quant au fort taux d'infection par le VIH chez les jeunes en Afrique du Sud. L'objectif de cette étude est d'étudier les stratégies de protection contre le VIH utilisées par les étudiants en hautes écoles en s'intéressant tout particulièrement aux variations entre les différents groupes raciaux. Les données utilisées dans cette étude sont issues d'un questionnaire auto-administré distribué à 3 000 étudiants en haute école à Durban, en vue de comprendre les stratégies utilisées par ces derniers pour se protéger du risque d'une infection par le VIH. Globalement, les étudiants percevaient le risque de grossesse comme étant nettement supérieur au risque d'une infection par le VIH. Les résultats indiquent que l'abstinence constitue le facteur de protection le plus commun chez les étudiants indiens et blancs. Chez les étudiants africains, le VIH constitue un sujet particulièrement préoccupant, mais l'abstinence est moins courante. Chez les hommes et femmes sexuellement actifs, la majorité d'entre eux indiquent avoir plus d'un partenaire sexuel (à l'exception des femmes indiennes). Tous groupes confondus, les étudiantes étaient plus susceptibles d'affirmer être fidèles à leur partenaire que les étudiants. Chez les Africains, le contraste est fort: 25% pour les femmes contre 6% pour les hommes. Les préservatifs constituent la méthode utilisée la plus couramment par les étudiants, mais ne sont pas utilisés à chaque rapport sexuel. L'utilisation régulière du préservatif était la plus élevée chez les hommes indiens (46%) et la moins élevée chez les femmes blanches (13.7%). Davantage d'efforts doivent être consacrés à la promotion d'un usage correct et régulier du préservatif afin d'éviter les conséquences négatives associées aux rapports sexuels non protégés, y compris les grossesses non désirées et le VIH/Sida.

Mots clés: VIH, stratégies de protection, comportement sexuel, Afrique du Sud.

Introduction

Some 17% of all people in the world living with HIV can be found in South Africa (UNAIDS, 2008). Over the past two decades, HIV prevalence has increased dramatically in South Africa (Department of Health, 2007), and the epidemic is now believed to be generalised in all sectors of the population (Shisana *et al.*, 2005). However, young people are most at risk as approximately 60% of all new infections currently occur in those aged 15 - 24 years (Lovelife, 2000). Recent survey data show that HIV prevalence in South Africa among 15 - 24 years was 10%, but was four times higher in young women than men: 17% versus 4%.

Prevalence was also substantially higher among Africans than non-Africans: 13% compared with less than 2% among other groups (Shisana *et al.*, 2005).

Early sexual debut increases the risk of unplanned pregnancy and exposure to sexually transmitted infections (including HIV). Young people who begin sexual activity early are more likely to have sex with high-risk partners or multiple partners and are less likely to use condoms than those who delay sexual initiation (WHO, 2004). Sexual debut in South Africa typically occurs at an early age and is often unprotected (Eaton *et al.*,

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2003; Hartnell, 2005). Some studies suggest that early sexual debut is not always followed by regular sexual involvement. A nationally representative survey in South Africa found that, of those young people who reported ever having had sex, 17% did not have sex in the past 12 months (Pettifor *et al.*, 2004). In addition, a national HIV prevalence survey found that most sexually active respondents reported that they had only one sexual partner (Shisana *et al.*, 2005). Recent reviews of sexual behaviour in South Africa found that multiple partnerships were reported more commonly by men than women (Eaton *et al.*, 2003; Hartnell, 2005; Shisana *et al.*, 2005). Most early studies reported relatively low condom use among young people in South Africa. These studies highlighted numerous barriers to condom use, including fear of partner's reactions/opposition, lack of confidence in the product, reduction in sexual pleasure, interruption of spontaneity and desire for more children (Dladla *et al.*, 2001; MacPhail & Campbell, 2001; Meedu & Peltzer, 1999). However, recent national surveys show that condom use is steadily increasing with more than half of young people reporting use at last sexual intercourse (SADHS, 2003; Shisana *et al.*, 2005).

In countries, like South Africa, where the epidemic is driven largely by heterosexual transmission, abstinence, mutual monogamy and condom use are three key strategies to prevent or reduce the likelihood of sexual transmission, the familiar ABC approach (Bessinger *et al.*, 2003). The ABC strategy is widely credited for bringing the HIV epidemic under control in Uganda (Genuis & Genuis, 2005). In Uganda the national HIV prevalence declined from 30% in 1992 to 5% in 2001 (Genuis & Genuis, 2005). Although increases in sexual abstinence have been highlighted as a primary cause of the decline in the risk of HIV infection, large increases have also been recorded in other aspects of sexual behaviour namely faithfulness and condom use (Singh *et al.*, 2003). The relative contribution of abstinence, fidelity and condom use in curbing HIV epidemics remains hotly contested.

For many years, the primary focus of risk reduction programs has been on condom use but some studies suggest that an exclusive focus on this component has not been entirely successful (Genuis & Genuis, 2005). A review of empirical evidence from developing countries suggests that the impact of condoms is limited by inconsistent use which provides little protection against HIV infection (Hearst & Chen, 2004). Emphasis on abstinence as a prevention strategy has increased in recent years but while it is a viable option for some young people it is an unrealistic expectation for others (Shelton *et al.*, 2004), especially in the context of high levels of gender-based violence. In addition, the emphasis on abstinence only is not appropriate for young people who are already sexually active (Stammers, 2005). Most recently, public health experts have been extolling the importance of B - be faithful or partner reduction (Shelton *et al.*, 2004; Cohen, 2004). However, it is often argued that someone who has delayed sex until marriage and is faithful to their partner but whose spouse is HIV-infected and has other sexual partners outside the marriage is in fact at high personal risk of HIV infection (Cohen, 2004). The rate of change in sexual partners is a key determinant in the spread of sexually transmitted infections (including HIV) (Shelton *et al.*, 2004). Shelton *et al.* (2004) argue that multiple

sexual partnerships are responsible for the global AIDS pandemic and reducing the number of sexual partners can significantly slow the spread of HIV.

The aim of this paper is to understand the behavioural strategies used by young people in South Africa in response to the high levels of HIV/AIDS, with specific emphasis on variations by racial group. Most small-scale studies in South Africa have focused disproportionately on the African sector of the population with scant consideration of the behaviour of Indians (i.e. people originally from South Asia) and Whites (i.e. people of European descent). Almost 79.6% of the population is African, 9.2% White, 8.8% Coloured and 2.4% Indian (Statistics South Africa, 2006). There is some emerging interest in studying variations in sexual behaviour by racial groups (Maharaj & Cleland, 2008). This study focuses on a particular population stratum where behavioural change is most likely to be occurring, namely college students. Students, of course, are far from typical of young people but they are of special importance. Innovative behaviour usually starts among the most educated and thus their views and behaviour should represent the vanguard of change. The key purpose of this paper is to document the extent to which protective strategies have been adopted in this elite sector of the population and how the relative importance of A, B and C varies between the three groups.

The context

The study was conducted in the coastal city of Durban located in the province of KwaZulu-Natal, one of the most populous in South Africa. According to the 2006 national HIV survey, 39.1% of women attending state antenatal clinics in the province were HIV-positive (Department of Health, 2007). Durban has an estimated population of approximately 3.5 million and contains almost a third of the population of KwaZulu-Natal. It consists of diverse groups from a range of historical backgrounds. Africans constitute the largest sector of the population (65%) followed by Indians (21%), Whites (11%) and Coloureds or mixed race (3%) (eThekweni Municipality, 2004).

Methods

The data for the study were obtained from a structured self-completed questionnaire survey administered to college students at all three public tertiary institutions in the city of Durban. The advantage of self-completed questionnaires is that they are highly effective for a target population that is well educated. The use of self-completed questionnaires may offer a greater feeling of anonymity and as a result encourage reporting of sensitive information (Judd *et al.*, 1991).

In total, the sample consisted of 3 000 college students: 43% were men and 57% were women. Purposive sampling was conducted in order to ensure that respondents were almost equally divided between all three public tertiary institutions in Durban. In addition, selection of classes at each of the three public tertiary institutions was such as to ensure that students from different faculties were included in the survey including science and engineering, humanities and social science. The self-completed survey questionnaire covered, among other topics, demographic characteristics, number of sexual partners, sexual practices, condom use and experience of sexually transmitted

infections. The survey was facilitated by trained researchers who first obtained consent from the relevant authorities in the various institutions to conduct the study, arranged a suitable time in consultation with the lecturer and administered the questionnaire to students. The questionnaire was piloted in a random sample ($N=50$) drawn from the same subgroup of students to be surveyed in the main study and subsequently amended. The questionnaires were distributed at the end of lectures with the permission of the lecturers. The study only included those students who were available on the day of the survey. First, respondents were briefed about the purpose and methods of the research as well as the contents of the questionnaire. All respondents were assured of confidentiality and anonymity. To ensure privacy and maintain confidentiality no identifying information was obtained from respondents. In each case, respondents were asked to put the questionnaire in an envelope provided and hand it back to the researcher. The response rate for the survey was approximately 80%. Students cited time constraints as the main reason for non-participation. On average, each questionnaire took approximately 15 - 20 minutes to complete.

The data from the survey were analysed using SPSS. Descriptive analysis was conducted to identify racial differences in condom attitudes and use which are summarised in tabular form, with application of chi-square tests to determine statistical significance by gender. Logistic regression was used to analyse the determinants of condom use. In this model, the dependent variable is condom use at last sexual encounter in the past 12 months. For each observation, the dependent variable takes the value of '1' if the respondent reports using condoms at last sex and '0' otherwise. The selection of measures that influence condom use draws on empirical research and individual models used to explain and predict behavioural change. Logistic regression was also conducted to determine the association between students ever reporting a sexual transmitted infection (STI) by lifetime number of sexual partners and consistent condom use. Ethical approval for the study was obtained from the University of KwaZulu-Natal ethics committee.

Results

The majority of the sample (75%) was African. Durban has a relatively large Indian population compared to the rest of South Africa and they constituted 17% of the total sample. Six per cent of the sample was White, while the remainder was Coloured. Because the number of Coloured respondents was small, this group has been excluded from the analysis. The ages of respondents ranged from 17 to 24 years. Only 13% were employed part-time or full-time in addition to their studies and only 3% were married or cohabiting.

Fig. 1 provides a summary of sexual behaviour and risk among young men and women of the three racial groups. All respondents were classified into one of four categories, ordered in terms of increasing risk. The first category comprises all those who reported no vaginal sex intercourse in the past 12 months. The vast majority were virgins; meaning that they had never engaged in vaginal sexual intercourse. 'Secondary abstinence' is uncommon among Durban students, with few reporting that they had refrained from sexual intercourse after initiation. The level of reported abstinence was highest in Indians females (68%), a little under 50% in Indian males

and White students of both sexes, lower at 31% among African women and lowest among African men (18%). Abstinence declines sharply with age from nearly 60% at age 17 years to about 10% at age 23 for the whole sample (results not shown).

Sexually active respondents were asked about their current partnership characteristics. Those reporting that they were in a 'faithful regular relationship with one person' formed the second category in Fig. 1, labelled fidelity. Female students were more likely to report fidelity than males. In Africans the contrast is greatest: 25% for women versus 6% for men. It is intermediate for Indians: 21% for women versus 13% for men and least pronounced for Whites: 17% versus 9.5%. These differences are consistent with data on number of lifetime sexual partners (results not shown). Only 8% of African men reported one lifetime partner compared with 25% of Indian and White men. Among sexually active women, 62% of Indians reported one partner only compared with 38% and 33% of Africans and Whites, respectively. Acquisition of multiple partners is common; half of African men, one-third of Indian and White men and one-quarter of White women reported five or more sexual partners.

The third category in Fig. 1 comprises those who did not profess fidelity to a single partner but were classified as consistent condom users. In the survey, the proportion of sexual acts protected by condoms was elicited by the question 'Thinking of all the times you have ever had sexual intercourse (vaginal sex), on a scale from never to always (0 - 10), how often have you used condoms?' Consistent use was defined as 9 or 10 on the scale (i.e. at least 90% of acts protected). Among male students, 20% of Africans, 17% of Indians and 12% of Whites fall into this category, compared with 15% of African women and 4% of Indian and White women.

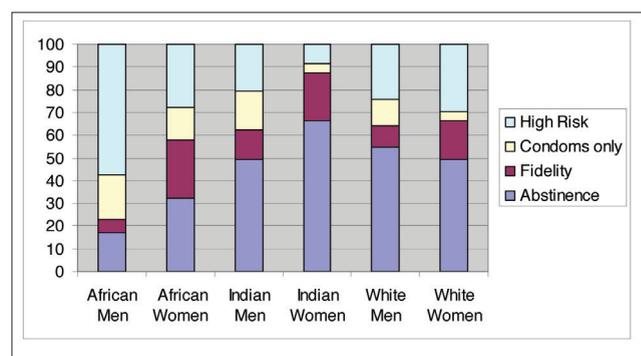


Fig. 1. Sexual risk status of students.

The fourth and final category in Fig. 1 is labelled 'high risk'. It contains students who claim neither fidelity nor consistent condom use. Few Indian women fall into this category (8%). The corresponding figure for Whites of both sexes, African women and Indian men ranges from 20% to 30% but it rises to 58% in African men.

Table 1 examines the characteristics of most recent vaginal sexual intercourse of college students. Between 40% and 50% of men described their most recent sexual partner as casual, compared with 12-17% of women. However, more than 70% of men and women of all racial groups reported that they had sexual relations with this partner before. In most cases, they did not expect to have sex on that occasion. Among Africans, men were more likely than women

Table 1. Characteristics of most recent vaginal intercourse (in the past 12 months)

Characteristics	African		Indian		White	
	Men	Women	Men	Women	Men	Women
	%	%	%	%	%	%
Partner described as casual	44.0	11.8*	48.7	14.0*	41.9	16.6*
Had sex before with this partner	77.2	93.0*	73.0	87.1*	72.1	91.7*
Did not expect sex on that occasion	60.5	47.9*	53.9	58.1	48.8	75.0*
Used alcohol or drugs	17.6	6.8*	32.2	9.7*	41.9	27.1*
Protection used:						
Nothing	15.2	11.2*	8.7	14.6*	25.6	6.3
Condom only	68.2	62.4	68.7	51.6	25.6	31.3
Condom + other FP method	8.9	14.4	13.0	16.1	30.2	29.2
Non-barrier FP method only	7.7	12.1	9.6	18.3	18.6	33.2
Condom slipped or broke (condom users only)	22.6	15.0*	21.2	11.3*	9.1	0.0*
N	790	869	115	93	43	48

*Significant at $p < 0.05$.

to report that they did not expect to have sex. Conversely, among Whites, women were more likely than men to report unanticipated sex. Alcohol or drug use before most recent sex was relatively uncommon among African men and women and Indian women, more common among White women (27%) and most common among Indian and White men (32% and 42%, respectively). The majority of students (72%) reported using condoms in their last sexual intercourse. Prevalence of condom use was 77% in Africans of both sexes, 82% and 68% for Indian males and females, respectively but lower for Whites. Dual-method protection (i.e. use of a non-barrier method together with condoms) was reported by 30% of White students but by smaller proportions of the two other groups. One-third of White women reported using a non-barrier family planning method only. Appreciable minorities of respondents reported experiencing condom slippage or breakage. Condom slippage and breakage was most commonly reported by African and Indian men and least by White men and women.

Table 2 shows an analysis of condom use at last sexual act by selected predictors for men and women. Bivariate results are shown as percentages and multivariate results from logistic regression as odds ratios. The bivariate analysis shows that race, experience of a sexually transmitted infection and sexual anticipation were significant predictors of condom use for both sexes, while number of lifetime partners was significant only for women. Age, partner type and use of alcohol/drugs were not associated with condom use. The multivariate results confirm that race was the dominant predictor of condom use with much higher use among Africans and lowest use among Whites. The odds of reporting condom use were higher among men and women who reported not ever having a sexually transmitted infection. The adjusted results for women show that condom use was significantly lower among those with five or more lifetime partners. After controlling for other factors, condom use was only significantly associated with sexual anticipation for men, but was no longer significant for women.

Table 3 provides information on factors relevant to interpretation of sexual behaviour and on two sexual health outcomes: experience of an STI and an unintended pregnancy. Almost one-fifth of sexually experienced men and women ever had an HIV test and this proportion rises to one-third or more among African women and

Whites. Few Whites and even fewer Indians reported ever having an STI but nearly one-fifth of African men and women reported this experience. Almost three quarters of African men and women reported that they were either very or extremely worried about HIV infection. The level of perceived risk falls to about a half among Indian and further to about one-third among Whites.

In African students, experience of an unintended pregnancy is similar to lifetime infection with a sexually transmitted infection – at about 20%. In Whites, only about 5% report an unintended pregnancy, lower than the proportion reporting an STI. In Indians, however, unintended pregnancies were more commonly reported than STIs. More Indians and White students said that they were extremely or very concerned about pregnancy than about HIV. African women were equally concerned about both outcomes but African men were appreciably less concerned about pregnancy than HIV.

As a partial check on the data consistency, the relationship between the reporting of any STI and consistent condom use and lifetime number of partners was explored using logistic regression analysis (Table 4). The adjusted results for African and non-Africans show that those with two or more lifetime number of partners were significantly more likely to report an STI than those with one partner. For Africans and non-Africans the odds of reporting an STI were almost two times higher among inconsistent or non-users than consistent condom users. However, this association was only significant for Africans.

Discussion

A key objective of the study was to establish the relative importance of the different preventive strategies (ABC) in the three racial groups. The findings of the study suggest that abstinence is an important protective strategy against the risk of HIV infection among Indian and White students. Almost half of Indian men and Whites reported virginity and this figure is much higher among Indian women. Virginity declines with age, so that by age 23 or more, it pertains to a small minority only. Clearly chastity until marriage is not widely practised among students in Durban, a finding consistent with other studies (Eaton *et al.*, 2003; Shelton *et al.*, 2004). A review of sexual behaviour studies suggests that at least half of young people in South Africa are sexually active at

Table 2. Percentage who used condoms at last sexual encounter by background characteristics (in the past 12 months) and odds ratios of use from logistic regression

Predictors	Men		Women	
	%	Odds ratio	%	Odds ratio
Age				
17 - 19	68.6	1.00	66.4	1.00
20 - 21	74.3	1.30(0.92-1.83)	71.0	1.17(0.83-1.64)
22 - 24	73.6	1.20(0.81-1.78)	69.6	1.06(0.74-1.53)
Race				
African	72.9	2.50(1.35-4.95)*	71.6	2.40(1.31-4.41)*
Indian	76.5	2.80(1.30-5.82)	58.1	1.67(0.57-2.40)
White	51.2*	1.00	50.0*	1.00
Type of partner				
Regular	72.0	1.00	69.1	1.00
Casual	72.7	1.09(0.81-1.48)	70.7	1.26(0.81-1.97)
Lifetime number of partners				
1	76.3	1.00	70.4	1.00
2 - 4	71.8	1.10(0.66-1.83)	72.4	1.13(0.82-1.55)
5+	70.5	0.59(0.84-2.06)	57.5	0.62(0.40-0.96)
Don't remember	76.8	0.80(0.44-1.47)	66.7*	0.88(0.37-2.08)*
Used alcohol or drugs				
No	72.9	1.00	69.9	1.00
Yes	70.1	0.92(0.64-1.33)	63.0	0.87(0.52-1.43)
Ever had an STI				
No	73.8	1.00	71.0	1.00
Yes	65.5*	0.68(0.47-0.99)*	60.6*	0.61(0.42-0.88)*
Sexual intent				
Spontaneous	75.4	1.00	66.2	1.00
Not spontaneous	68.0*	0.66(0.49-0.88)*	72.4*	1.20(0.91-1.59)

*Significant at $p < 0.05$.**Table 3. Experience and perceptions of sexually transmitted infections and unintended pregnancy: sexually experienced college students**

Characteristics	African		Indian		White	
	Men	Women	Men	Women	Men	Women
	%	%	%	%	%	%
Ever had HIV test	20.3	33.2*	26.0	19.8	39.6	33.3
Ever had an STI	19.1	18.3	3.3	0	8.3	7.8
Very/extremely worried about HIV infection	75.4	74.4	56.1	42.7	37.5	29.4
Experienced unintended pregnancy	19.2	24.5*	11.4	12.5	4.2	5.9
Very/extremely worried about unintended pregnancy	55.3	72.5*	65.8	58.4	50.0	47.0
N	844	906	123	96	48	51

*Significant at $p < 0.05$.

age 16 and probably 80% are by the age of 18 (Eaton *et al.*, 2003). Whether delayed sexual debut is a response to HIV risks or a reflection of more longstanding values is impossible to ascertain. However, among Whites, few among the sexually active expressed a concern about HIV and thus delayed sexual debut is unlikely to be a recent behavioural adaptation. Among African students, abstinence is uncommon, particularly for men, despite the fact that concern about HIV is greatest among this group. For all groups, the resumption of prolonged abstinence, following sexual debut, is very rare.

Secondary abstinence among young people is relatively infrequent. Once these young men and women become sexually active, the majority have acquired more than one sexual partner (with the clear exception of Indian women) and half of African men, a third of Indian and White men and one-quarter of White women reported five or more partners. Rather few students profess fidelity and over 40% of men (but fewer women) described their most recent sexual partner as casual. Thus the clear impression from the survey is that fidelity – the B of ABC – has not emerged as a major check on HIV transmission among this group of young people. These findings are

Table 4. The odds ratios of sexually experienced college students reporting ever having an STI by lifetime number of partners and consistent condom use

Characteristics	African Adjusted odds ratio	Others Adjusted odds ratio
Lifetime number of partners		
1	1.00	1.00
2-4	2.46(1.62-3.74)*	2.07(0.19-23.26)
5+	3.71(2.46-5.60)*	12.45(1.51-102.53)*
Don't remember	2.87(1.70-4.84)*	17.90(0.98-326.39)*
Consistent condom use		
No	1.00	1.00
Yes	0.53(0.38-0.74)*	0.31(0.07-1.49)

*Significant at $p < 0.05$.

consistent with other studies, as the existence of multiple sexual partnerships among youth has been well documented (Nshindano & Maharaj, 2008; Shisana *et al.*, 2005). A study conducted among students in Zambia found that while young people were generally aware of the HIV-related risk associated with multiple sexual partnerships, there were several socio-economic and cultural obstacles that prevented them from changing their sexual behaviour (Nshindano & Maharaj, 2008).

The high level of reported condom use among students in the present study is encouraging. Nearly three-quarters used a condom at most recent sexual act. This level of protection is consistent with the results of large-scale surveys conducted in KwaZulu-Natal (Rutenberg *et al.*, 2001; Maharaj, 2006), and compares favourably with estimates for industrialised countries (Gardner *et al.*, 1999). Qualitative results from this study, reported elsewhere, confirm that condoms have become the norm for Durban students (Maharaj & Cleland, 2006). Surprisingly, condom use was as common for regular as for casual partners, was not influenced by alcohol or drug use and was not lower in sexual acts that were unanticipated. Also surprising, and of concern, was the finding that use was not higher among students with many partners or among those who might have been prompted towards more protective behaviour by the experience of an STI. The reported level of condom stopping or breakage is also a concern and consistent use remains elusive with only about one-fifth claiming 100% protection by condoms over their entire sexually active careers. The qualitative data clarify the reasons for inconsistent use: insecurity with a new partner, intensity of passion, belief in the negative HIV status of the partner and protection against pregnancy by non-barrier methods (Maharaj & Cleland, 2006). In view of the high rates of slippage and breakage reported by African men, counseling might be justifiable. A study in Jamaica reported significantly decreased rates of reported condom breakage and slippage after counselling (Steiner *et al.*, 2007).

What broad conclusions can be drawn about the sexual behavioural strategies among those young students living in a setting with a generalised HIV epidemic, and how do protective factors vary by race group? Among Indians and Whites, abstinence is the most common protective factor with about half claiming virginity or no sex in the past 12 months. For Africans, the acceptability or feasibility of abstinence – or delayed sexual debut – is clearly lower than in the other groups and makes a particularly small protective

contribution in African men, only 17% of whom were virgins or had no sex in the past year. High frequency (90% or more) of condom use is the next biggest contributor to protection against HIV for men, with 20 - 30% of Africans and Indian men but fewer White men (15%) thereby protected. Among women fidelity to one partner (with or without high levels of condom use) is more common than high levels of condom use in the absence of a faithful partnership. This classification leaves a residue who are not protected by A, B or C. This higher-risk group comprises 58% of African men, and between 20 and 30% of all other groups, with the exception of Indian women, only 8% of whom were classified as higher risk.

Of course, risk classification based on self-reported behaviour may correspond poorly with epidemiological risk: individuals who have unprotected sex with uninfected partners are at no risk. In the case of South Africa, HIV has spread more widely among Africans than among other groups and thus, to the extent that sexual partners are selected primarily from the same group, African students in Durban probably face a greater risk of infection from unprotected sex than Indians or Whites. This consideration appears to be reflected in the greater concern expressed by Africans than others about HIV risk. It also underscores the seriousness of the results for African men who are much less likely than other groups to be protected by A, B or C. The behaviour of African women appears to be less risky but this may be misleading because they put themselves at risk through their sexual partners. It should be noted that lifetime experience of an STI is just as high in African women as in African men and the level is much higher than in Indians or Whites.

The results of the study point to the need for HIV/STI prevention efforts to take fully into account the related issue of contraception. More students expressed concern about unintended pregnancy than about HIV. This is understandable because pregnancy is a more immediate threat than HIV and spells disaster for progress through college to a good job. While abortion is legal in South Africa, it is still heavily stigmatized and therefore not to be undertaken lightly. Lifetime experience of an unintended pregnancy is high among sexually active African women (24.5%), moderate in Indian women (12.5%) and least in White women (6%). This gradient is consistent with use of a non-barrier methods of contraception at most recent coitus which is lowest in African women (26.5%), intermediate in Indian women (34%) and highest in White women (52%). It is encouraging to note that about half of women who used a non-barrier method

(typically the pill) also used a condom. Thus double-method protection is gaining acceptability in this elite population.

One of the key lessons for the wider population is that it is no longer possible to address the risk of pregnancy and HIV/AIDS separately. Given the importance of condoms in protecting against these dual risks it makes sense to address them as interrelated. Prevention programs have been relatively successful in increasing uptake of condom but the challenge is to improve correct and consistent use. More efforts should be directed towards creating awareness of the importance of correct and consistent condom use in order to avoid adverse reproductive health outcomes including unwanted pregnancy and HIV/AIDS.

Elucidation of the underlying reasons for the large racial differences in behaviour is beyond the scope of this study. However, the results suggest that African students, particularly men, attach a greater positive valuation to sexual experience than Indians or Whites, which persists as an influence on behaviour despite their widespread and acute concern about HIV infection. Worries about HIV among Africans are being addressed by high levels of condom use but with only limited success, as evidenced by the data on STIs and experience of unintended pregnancy.

Conclusions from the results of this study must be cautious for a number of reasons. First, the results like those from all cross-sectional studies, prevents investigation of trends in behaviour and are subject to ambiguities of causal interpretation. Second, as with nearly all studies of sexual lifestyles, the value of the study depends on the reliability of self-reported behaviour. It is possible that social desirability could have led men and women to underreport sexual contacts. Catania *et al.* (1990) point out that privacy, embarrassment and fear of reprisals are some of the reasons that may motivate people to conceal their true sexual behaviour. However, the study relied on survey data collected in the form of anonymous questionnaires which no doubt encouraged disclosure of risky behaviour. It is possible that some respondents have trouble recalling how often and with how many people they have had sexual relationships (Catania *et al.*, 1990). However the consistency of results is encouraging. As expected, reported sexually transmitted infection is associated with number of sexual partners and level of condom use. Though the sample was selected to be typical of students at tertiary institutions, it was not designed to be statistically representative. The data are not generalisable to the entire young population because they are based on a relatively small sample; in addition, the study population is an elite group. Only 8% of South Africans have a tertiary education (IEASA, 2004). Nonetheless, lessons can be learnt from this group that may have relevance to the wider population of young people.

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