

East African Medical Journal Vol. 77 No 1 January 2000

FACTORS AFFECTING CONDOM USE AMONG SOUTH AFRICAN UNIVERSITY STUDENTS

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### ABSTRACT

**Objective:** To investigate factors affecting condom use among South African university students.

**Design:** Cross-sectional survey.

**Setting:** Department of Psychology, University of the North, South Africa.

**Participants:** One hundred and forty six female and sixty first year male psychology students, mean age 20.9 years (SD=3.4), with a range from 17 to 34 years.

**Main outcome measures:** Sexual activity and condom use (6 items), A 16-item AIDS Health Belief Scale and a 28-item Condom Use Self-Efficacy Scale.

**Results:** Almost one third (29.2%) of the sample reported never using condoms, 35.4% always, 19.8% regularly and 8.5% irregularly in the past three months. Perceived barriers were associated with increasing age and reduced condom use intentions. In addition, perceived susceptibility was associated with past condom use. The total AIDS Health Belief was not related with age, gender, past condom use and condom use intentions. Self-efficacy of condom use was associated with decreasing age, past condom use and condom use intentions but not with gender.

**Conclusion:** Findings have relevant implications and are discussed in the context of developing an educational or intervention programme.

### INTRODUCTION

Condoms are an integral part of STD and HIV/AIDS prevention, and their use has increased significantly over the past decade. Correct use of them reduces the risk of HIV transmission by almost 100%. Therefore, condom promotion has received considerable attention in the fight against the AIDS pandemic(1). This is particularly important in sub-Saharan Africa where HIV transmission is mainly through sexual contact. Yet condom use is among the most difficult issues to address in designing programmes to reduce the sexual transmission of HIV in Africa. Campbell(2) summarises for sub-Saharan Africa that negative attitudes toward condom use are often based on cultural factors, such as the desire for children and female sexual compliance as ways to achieve economic status.

Lule and Gruer(3) found among Ugandan students that only a minority saw the condom as an effective preventive method against HIV/AIDS: most saw it as unsafe or an encouragement to promiscuity. Condoms had been used by 35% of men and 24% of women but were currently always used by only 9% of men and 11% of women. The condom was approved of by only one quarter of respondents. Kenyan university students appear to have a negative attitude toward condoms in general and do not see them as a viable tool in fighting AIDS(4). Kidan and Azeze(5) surveyed condom use among Ethiopian college students and reasons given for not using condoms included:

unavailability (44.3%), partner trust (43%), shortage of condoms (8%), and partner's disagreement (5.1%). In South Africa, aversion to condom use is the dominant theme, although explanations for this vary; cultural beliefs are also a barrier to condom use in South Africa, where many people consider it essential that the sperms of the men actually enters the woman(6). All in a sample of 100 urban black mothers questioned in Durban stated that they had never experienced sexual intercourse where their partner had used a condom(7). The highest incidence of condom use was in a sample of gold miners, where 32.6% had used them at least once(8).

Research also shows that the spread of HIV/AIDS is on the increase. It is expected that the prevalence of AIDS will reach about 27% of the sexually active population in South Africa by the year 2010(9). At least half of those infected with HIV are under the age of 25, making AIDS a major concern affecting youth today(10,11). At the University of the North (South Africa), it has been reported that the prevalence of HIV among students who consult private medical doctors in Mankweng area has reached an alarming rate of 50%(12).

Literature indicates that factors affecting condom use are a range of situational, interpersonal and structural factors such as knowledge about AIDS, behavioural intention, perceived susceptibility, perceived barriers, self-efficacy, and demographic factors(13-15). White, Terry and Hogg(16) identified group norms (normative

beliefs) as the distinctive predictor of their subjects' intentions to practice the target behaviours (safer sex intentions and the utility of reasoned action and planned behaviour models in an HIV-preventive context). Edem and Harvey(17) found among Nigerian University students that condom benefit beliefs, condom barrier beliefs, cues to action, knowledge, and male gender were significant predictors of past condom use. Perceived barriers to condom use, perceived benefits use, and male gender were significant predictors of intentions to use condoms. Such findings have important implications for the design of interventions to increase condom use among University students and young adults. In addition, findings suggest that prevention efforts to promote condom use must be gender as well as culture-specific if they are to be effective(18). The aim of the study is to investigate factors affecting condom use among South African University students. Objectives include to identify a relationship between demographic factors, sexual activity, normative beliefs, perceived susceptibility to HIV, perceived severity of HIV, perceived benefits of preventive behaviour, barriers of prevention behaviour, condom use self-efficacy and condom use. The dependent variables included two HIV preventive behaviours, namely, condom use and condom use intention. Independent variables selected were demographic and psychosocial correlates of heterosexual condom use.

#### MATERIALS AND METHODS

*Procedure:* The study population included all first year psychology students of the University of the North. A self-administered questionnaire was given to 232 students at the beginning of the lecture session. Students were clearly informed that the purpose of the survey was to find out about attitudes and the use of the condom and that their responses would be totally anonymous. Formal informed consent was sought. Each student was requested to complete the questionnaire or indicate that he or she did not wish to do so. In either cases, they were asked to put it in the envelope provided and hand it back to the researcher within approximately half an hour. Data collection was conducted solely by project staff who was not responsible for instruction of that particular set of students. Questionnaires were administered after a research module had been taught, which had explained and made students familiar with Likert type responses. Ethical approval for the study was obtained from the University from which students were recruited.

*Measure:* The questionnaires were identified through a literature review and meta-analysis on psychosocial correlates of heterosexual condom use. The study variables form part of the AIDS Risk Reduction Model stage commitment stage variables, namely: attitudes and beliefs about condom use, social influence variables and condom use self-efficacy(19). The measures used here follow a social-cognitive model, which assumes a relationship among perceptions, intentions, and actions (e.g., perceptions and intentions lead to behaviour) and social influence. Both social-cognitive and social influence models were found to be appropriate in a non-western setting among Namibian youth(20). Cognitive oriented variables related to condom attitudes were measured on Likert type

scales. The instrument, which was essentially a questionnaire, was pre-tested for readability, understanding, and anonymity on 15 men and 15 women, who did not form part of the final sample. The final questionnaire consisted of questions about: (a) biographic data (6 items: age, sex, ethnicity, marital status, religious denomination, and monthly family income); (b) Sexual activity and condom use (6 items) (cf. 21) (history of sexual intercourse, knowledge of condoms prior to first sexual encounter, sexual encounter within the last month, sexual encounter within the last three months, condom use when having sexual intercourse in the past three months, and intended condom use when having sexual intercourse); (c) A 5-item normative belief scale associated with condom use when having sex in the next three months(22). The normative beliefs held by participants are also used to predict condom use. Normative beliefs or normative social influence involves altering our behaviour to meet others' expectations. The normative belief areas covered in this scale are: (i) people generally, (ii) sex partner, and (iii) health care provider. Scaling involved a 7-point scale from 1=very unlikely to 7=very likely; (d) A 16-item AIDS Health Belief Scale (AHBS), developed by Zagumny and Brady(23), to measure the four components of the Health Belief Model (HBM): perceived susceptibility to disease, perceived severity of a specific disease, perceived benefits of preventive behaviour, and barriers to preventive behaviour. Scaling involved the use of a 6-point Likert type scale with responses of "strongly agree" weighted 6 and "strongly disagree" weighted 1. For all sub-scales, higher scores represent a greater amount of that belief. Past research on the predictive utility of the HBM for HIV preventive behaviours suggests that perceived susceptibility, perceived benefits, and perceived barriers are the strongest predictors of HIV preventive behaviours; and (e) A 28-items Condom Use Self-Efficacy Scale (CUSES). Examples for statements are: (i) I feel confident in my ability to put a condom on myself or my partner, (ii) If my partner and I were to try to use a condom and did not succeed, I would feel embarrassed to try to use one again (e.g., not being able to unroll condom, putting it on backwards, or awkwardness), or (iii) I feel confident that I could use a condom with a partner without 'breaking the mood'. Each item has a 5-point strongly disagree (scored as 0) to strongly agree (scored as 4) response format. After reversing negatively worded items, the scores are summed up yielding a total score ranging from 0 to 112, with higher scores indicating greater condom self-efficacy (24).

Questionnaires c), d) and e) include Likert scaling. Likert scales ask people to indicate whether they agree or disagree with a statement. Other modifications are possible; people might be asked whether they approve or disapprove, or whether they believe something is "almost always true". It is normally better to use four to eight categories(25).

*Data analysis:* From the data compiled, condom use and condom use intention in relation to demographic and other variables associated with condom use were tested using a non-experimental type of research design in which patterns of correlations are analysed: here Correlation Coefficient (Pearson Product-Moment and Spearman' rho). Correlational statistics involves the relationships between two variables such that high scores on one tend to go with high scores on the other or (in the case of negative correlation) such that high scores on one tend to go with low scores on the other. Descriptive statistics uses here as measure of central tendency the arithmetic mean and not the median. The main difference

between the mean and the median is sensitivity to extreme values. So the mean was used because of no anticipated extreme values. Moreover, when a measure of central tendency should reflect the total of the scores (in behavioural sciences), the mean is the best choice because it is the only measure based on this quantity (26). In addition, Chi-square analysis was used for dichotomous variables. Statistical Package for Social Scientists (SPSS) software programme was used to process data.

## RESULTS

The questionnaire was fully completed by 206 students (88.8%) to whom it was offered; nobody refused to participate. This is 12.1% of the entire University first year student population in 1999. Thus, the sample included 206 first year psychology students, 146 female and 60 male, the mean age was 20.9 years (SD=3.4), with a range from 17 to 34 years. Most were Northern Sotho (73.6%), Tsonga (13.2%), Venda (4.4%), Zulu (3.3%), and others (5.5%). One fifth (22.2%) belonged to the Zion Christian Church, 13.3% were Roman Catholic, 10% Lutheran, 10% Christian Baptist of South Africa, 7.8% Anglican, 6.7% African religion, 5.6% Apostolic, and others 24.4%. The majority (188; 91.3%) were not married.

One hundred and four (71.2%) of females and 51 (85%) of males had reported previous sexual intercourse. More than half of the respondents (57%) were aware of condoms prior to their first sexual encounter while less than 20% used a condom on first sex. About 40% of male students (46.5%) and female students (38.6%) had a sexual encounter within the last month and about 60% within the last three months. Regarding the frequency of sexual encounter during the last three months 39.6% of men and 21.1% of women said three times or more, and 20.7% of the men and 28.7% of the women reported none.

Table 1 indicates the current condom use and condom use intentions.

Almost one third (29.2%) of the sample reported never using condoms, 35.4% always, 19.8% regularly and 8.5% irregularly in the past three months. Chi-Squared test could not be done with marital status due to small proportions. There was significant relationship between family income of parents and condom use ( $r=.780$ ,  $p<.02$ ) but not with condom use intention ( $r=.051$ ,  $p<.15$ ).

Table 2 indicates normative beliefs about condom use.

**Table 1**

*Condom use in the past three months and likelihood of condom use in the next three months by gender, frequency (F) and in percent (%)*

Item		Male F (%)	Female F (%)	Total F (%)
Condom use when having sexual intercourse in the past three months	- every time	23 (38.3)	49 (33.6)	73 (35.4)
	- regular <sup>1</sup>	11 (18.3)	32 (21.9)	41 (19.9)
	-irregular <sup>2</sup>	06 (10.0)	09 (06.2)	18 (08.7)
	-never	15 (25.0)	49 (33.6)	60 (29.1)
If I decided to have sexual intercourse with a partner I would use a condom to prevent infection	(Very) unlikely	11 (18.3)	27 (18.5)	38 (18.4)
	Undecided	05 (08.3)	18 (12.3)	21 (10.2)
	(Very) likely	35 (58.3)	64 (43.8)	105 (51.0)

<sup>1</sup>Regular: almost always, more often than not

<sup>2</sup>Irregular: about half the time, somewhat less than half the time, rarely

**Table 2**

*Normative beliefs about condom use to prevent infection*

Normative belief	Current condom use	Condom use intention
	r	r
1. Most people who are important to me think that if I have sex I use condoms to prevent infection	-.050	.091
2. My health care provider thinks that if I have sex I use condoms to prevent infections	.075	.224**
3. My partner is likely to think that we use condoms to prevent infections	-.041	.162*
4. Generally speaking, I try to do what my health care provider wants me to do to prevent infections	.144*	.154*
5. Generally speaking, I try to do what my partner wants me to do to prevent infections	.114	-.103

The normative beliefs about condom use from the health care provider are significantly related to current condom use and condom use intention. For the responses to the statement “Most people who are important to me think that if I have sex, I use condoms to prevent infection.” There was a weak negative correlation with current condom use, that is students that reported that people who are important to them thought that they used condoms to prevent infections were less likely to be currently using condoms and had a weak intention to use condoms. For the item “My health care provider thinks that if I have sex I use condoms to prevent infections.” the responses were weakly positively associated with condom use. On the other hand students who believed that their health care provider thinks that if they have sex they use condoms to prevent infections

had a very strong intention of using condoms in the future ( $r=.224, p<.01$ ).

Table 3 indicates AIDS health beliefs among the participants.

High mean rates of the Health Belief were found on each sub-scale of the AIDS Health Belief Scale, from 4.8 for perceived severity, 4.8 for perceived benefits, 3.4 for perceived susceptibility and 3.0 for perceived barriers in that order of importance.

Perceived barriers were associated with increasing age and reduced condom use intentions. In addition, perceived susceptibility was associated with past condom use. The total AIDS Health Belief was not related with age, gender, past condom use and condom use intentions.

Table 4 indicates self-efficacy of condom use by gender, age and condom use (past and intentions).

**Table 3**

*AIDS health beliefs (from 1= ‘strongly disagree’ to 6= ‘strongly agree’)*

Item	M (SD)
<i>Perceived susceptibility</i>	
	(3.4) (3.4)
1. I feel that the chances are good that I can get AIDS	2.57 (1.58)
2. I am afraid that I might contract AIDS	3.29 (1.75)
3. I believe that I can be exposed to HIV infection if my sex partner is heterosexual	4.02 (1.55)
4. I believe that I can get AIDS even if I am only having sex with one partner	4.03 (1.63)
<i>Perceived severity</i>	
	4.8 (1.0)
5. AIDS causes death	5.22 (1.23)
6. I would rather have any other terminal illness than AIDS	4.57 (1.46)
7. I would rather die from a violent death (e.g. gunshot, car accident, etc.) than from AIDS	4.77 (1.29)
8. AIDS is probably the worst disease a person can get	4.97 (1.27)
<i>Perceived benefits</i>	
	4.8 (1.0)
9. I believe that the chances of contracting AIDS can be significantly reduced by using a condom	4.92 (1.34)
10. I think it is worth the effort to have condoms readily available	4.88 (1.23)
11. I feel that the chances of contracting AIDS can be reduced by having sex with only one partner	4.44 (1.41)
12. If a condom is not available, it would be worth the effort to discontinue sexual activity to obtain a condom	4.44 (1.55)
<i>Perceived barriers</i>	
	3.0 (1.0)
13. Using a condom seems like an insult to my partner	2.66 (1.65)
14. It is embarrassing (to me) to buy condoms	2.69 (1.64)
15. I do not enjoy (or think I might not enjoy) sex when using a condom	2.80 (1.67)
16. I would offer first-aid to an AIDS patient because I would feel guilty not offering help	4.25 (1.43)

Sub-scales	Sex	Age	Current condom use	Condom use intention
	r	r	r	r
Perceived susceptibility	.042	.090	.144*	.077
Perceived severity	-.036	-.048	-.029	.016
Perceived benefits	-.030	-.031	-.012	.127
Perceived barriers	.088	.231 **	.053	-.196**

\*  $p<.05$ ; \*\*  $p<.01$

Table 4

*Self-efficacy of condom use by gender, age and condom use (past and intentions) (0=strongly disagree to 4=strongly agree)*

Statements(abbreviated) intention	M (SD)	Gender	Age	Past condom use	Condom use
		r	r	p	p
1. Confident to put a condom	2.55 (1.37)	.129	-.167*	.132	.211**
2. Confident to purchase condoms	2.32 (1.43)	.022	-.123	.116	.237**
3. Confident to carry a condom	2.71 (1.30)	.142*	-.164*	.082	.243**
4. Confident to discuss condom usage	3.09 (1.20)	.025	-.130	.052	.157*
5. Confident to suggest using condoms	3.10 (1.17)	.009	-.019	.242**	.185*
6. Confident to suggest using a condom without my partner feeling "diseased"	2.46 (1.32)	-.038	-.143*	.195**	.175*
7. Confident to maintain an erection while using a condom	2.22 (1.36)	.199**	-.003	.071	.146*
8. Feeling embarrassed to put a condom on ®	2.98 (1.31)	.034	-.121	-.009	.108
9. Afraid of rejection when suggesting condom use ®	2.94 (1.33)	.004	-.146*	-.039	.102
10. Not suggesting condom use when unsure about partner's view on condoms ®	2.77 (1.43)	-.055	-.150*	-.101	-.069
11. Confident to use a condom correctly	.2.89 (1.29)	.011	-.052	.093	.143
12. Comfortable discussing condom use with new partner before	2.85 (1.22)	-.139*	-.095	.103	.214**
13. Confident to persuade a partner to accept using a condom	2.87 (1.17)	-.025	-.093	.188**	.200*
14. Confident to remove and dispose of a condom after sexual intercourse	2.51 (1.43)	.182**	-.031	.025	.135
15. If my partner and I were to try to use a condom and did not succeed, I would feel embarrassed to try to use one again ®	2.66 (1.39)	-.168*	-.050	-.069	.043
16. Not confident suggesting condom use with new partner since the latter thought I had homosexual experience ®	2.84 (1.44)	-.062	-.055	-.004	.075
17. Not confident suggesting condom use with new partner since the latter thought I had a STD ®	2.89 (1.37)	-.107	-.107	.151*	.228**
18. Not confident suggesting condom use with new partner since I thought the latter had a STD ®	2.89 (1.37)	-.109	-.108	.158*	.212**
19. Comfortable discussing condom use with new partner before intercourse	1.03 (1.24)	.081	.014	-.120	-.161*
20. Confident to use condom as part of foreplay	2.50 (1.33)	.022	-.093	.154*	.198**
21. Confident to use condom without 'breaking the mood'	2.72 (1.29)	.023	-.008	.216**	.228**
22. Confident to use condom on myself or partner quickly	2.39 (1.35)	.020	.014	.200*	.132
23. Confident to use condom without reducing sexual sensations	2.64 (1.34)	-.072	.076	.233**	.127
24. Confident to use condom after drinking	2.71 (1.37)	-.048	-.004	.156*	.149*
25. Confident to use condom even if I were high	2.79 (1.36)	-.052	-.081	.176*	.068
26. Could easily convince partner to use condom	3.11 (1.22)	-.073	-.114	.149*	.213**
27. Confident to use condom successfully	3.08 (1.08)	.057	-.130	.185*	.195**
28. Confident to put condom in the heat of passion	1.77 (1.46)	-.020	.015	.126	-.038
Total		.013	-.149*	.202**	.305**

® = reverse scored; \* p<.05; \*\* p<.01

High self-efficacy of condom use was found with the following four items: (i) easily convince partner to use condom (3.11); (ii) suggest using condoms (3.10); (iii) discuss condom use (3.09); and (iv) use condom successfully (3.08) and low self-efficacy with the following four: (i) discussing condom use with new partner before intercourse (1.03); (ii) put condom in the heat of passion (1.77); (3) maintain an erection while using a condom (2.22); and (iii) purchase condoms (2.32).

Self-efficacy of condom use was associated with decreasing age, past condom use and condom use intentions but not with gender.

There were, however, significant gender differences for items 7 (men were associated with maintaining an erection while using a condom) and 14 (men were associated with removing and disposing of a condom after sexual intercourse).

Younger age was associated with more confidence to 'put a condom', 'carry a condom', 'suggest using a condom without my partner feeling "diseased"', 'suggesting condom use when unsure about partner's view on condoms', and 'not afraid of rejection when suggesting condom use'.

The major self-efficacy items of condom use positively related to past condom use were: (i) 'suggest using condoms'; (ii) 'suggest using a condom without my partner feeling diseased'; (iii) 'persuade a partner to accept using a condom'; (iv) 'use condom without breaking the mood'; and (v) 'use condom without reducing sexual sensations'.

The major self-efficacy items of condom use positively related to condom use intentions were: (i) 'put a condom'; (ii) 'purchase, a condom'; (iii) 'carry a condom'; (iv) 'discussing and suggesting condom use with new partner'; (v) 'use condom as part of foreplay'; (vi) use condom without breaking the mood'; (vii) 'convince partner to use condom'; and (viii) 'use condom successfully'.

## DISCUSSION

The data show that psychosocial correlates such as attitudes, beliefs, social influence and self-efficacy of heterosexual condom use influence condom use and condom use intention.

High mean rates of the Health Belief were found on each sub-scale of the AIDS Health Belief Scale, from 4.8 for perceived severity, 4.8 for perceived benefits, 3.4 for perceived susceptibility and 3.0 for perceived barriers in that order of importance. This finding was on two similar sub-scales (3.4 for perceived susceptibility and 2.96 for perceived barriers) and on the other two much higher than that found among American University students (3.13 for perceived severity and 3.19 for perceived benefits)(23).

Perceived barriers were associated with increasing age and reduced condom use intentions. In addition,

perceived susceptibility was associated with past condom use. The total AIDS Health Belief was not related with age, gender, past condom use and condom use intentions. Although some sub-scales were related to condom use behaviour the utility of the Health Belief Model (perceived susceptibility, perceived benefits, and perceived barriers) for HIV preventive behaviour could not be confirmed(24, 27). This is contrary to what was found by Edem and Harvey(17) among Nigerian University students that condom benefit beliefs, condom barrier beliefs, cues to action, knowledge, and male gender were significant predictors of past condom use. Perceived barriers to condom use, perceived benefits, and male gender were significant predictors of intentions to use condoms. Hardeman, Pierro and Mannetti(28) found among Italian University students that the intention to use condoms was predicted by the perceived benefits of condom use.

However, the factors of HIV preventive behaviour identified should be considered in the development of an educational or intervention programme. Specifically, such programmes should include components on the susceptibility that individuals have to HIV infection. In this study participants scored very high on the AIDS Health Belief subscale 'perceived severity' indicating great concern about HIV. Research has shown that the more concerned individuals are about becoming infected, the more likely they are to engage in safer HIV-related behaviours. In addition, the benefit of engaging in safer behaviour must be emphasised and that perceived barriers to preventive behaviour are possible to overcome(22). Madu and Peltzer(29) found among University students in South Africa that their highest complaints were with respect to 'inconveniences during condom use', followed by 'negative psychological feelings during condom use', and by 'poor relationship to (sexual) partner possibly caused or worsened by condom use'. Nicholas(30) reported that among black South African University students the most highly endorsed problems about condoms were the larger number needed for many rounds of sex, partner's feelings of distrust, unpleasantness of purchasing condoms, and that condoms injure the vagina.

Higher self-efficacy of condom use was like in other studies(13, 24) positively related to past condom use and intention to use condoms. Therefore, self-efficacy of condom use should be improved, for example, the ability to put a condom on myself or on my partner or convincing the partner to use a condom.

Examining the responses to the individual items on the Condom Use Self efficacy Scale could help identify behaviours cause discomfort (or are anticipated as being uncomfortable) for an individual who does not consistently use condoms. A health educator could then focus on appropriate skills in discussing condom use with a partner. From the correlations from this study on condom use the following items seem to be in particular relevant for condom promotion: to use a

condom 'without breaking the mood', 'suggest (persuade, convince) using condoms (with a new partner)', 'use a condom as part of foreplay', and 'use condom successfully'. Regarding low self-efficacy items the following are particularly important to address: 'discussing condom use with new partner before intercourse'; 'put condom in the heat of passion'; 'maintain an erection while using a condom'; and 'purchase condoms'. Addressing these areas of low self-efficacy health educators could - depending on age and gender - focus on interpersonal skills in discussing condom use with a partner, physically handling a condom, talking through the embarrassment of using a condom, or perhaps building assertiveness skills(24).

Similar to other studies(22), this study found that the normative beliefs about condom use from the health care provider are significantly related to current condom use and condom use intention. In particular the normative belief of the health care provider should be incorporated in condom promotion.

There are several limitations to this study. First, the participants are first year psychology students at the University of the North. This would limit the extent of the generalisations of the results of this study to other students in the same University and in South Africa. Second, more factors could also be brought into the study, for example, the number of sexual partners of the participants and do they have children. Third, the attitudes and beliefs, risk behaviours, intentions and perceptions are by self-report.

#### ACKNOWLEDGEMENTS

I thank the University of the North for the financial support and Rita Olwagen for statistical assistance.

#### REFERENCES

- World Health Organisation *Condom promotion for AIDS prevention*. Geneva: author. 1995.
- Campbell, T. How can psychological theory help promote condom use in sub-Saharan African developing countries. *J. Roy. Soc. Med.* 1997; **117**: 186-191.
- Lule, G. S. and Gruer, L.D. Sexual behaviour and use of condom among Ugandan students. *AIDS CARE* 1991; **3**:11-19.
- Sindiga, I. and Luhando, M. Kenyan university students' views on AIDS. *East Afr. Med. J.* 1993; **70**: 713-716.
- Kidan, K.G. and Azeze, B. Survey of condom use among college students. *Ethiop. J. Heal. Dev.* 1995; **9**: 7-11.
- Gould, P. *The slow plague*. London: Blackwell. 1993.
- Abdool-Karim, Q., Abdool-Karim, S. S. and Nkomokazi, J. Sexual behaviour and knowledge of AIDS among urban Black mothers. *South Afr. Med. J.* 1991; **80**: 340-343.
- Ijesselmuiden, L.B., Padayachee, G.N., Mashaba, W. et al. Knowledge, beliefs and practices among black goldminers relating to the transmission of HIV and other sexually transmitted disease. *South Afr. Med. J.* 1990; **78**: 520-523 .
- Webb, D. *HIV and AIDS in Africa*. Cape Town: David Philip. 1997.
- Lindegger, G. and Wood, G. The AIDS crisis: review of psychological issues and implications, with special reference to the South African situation. *South Afri. J. Psychol.* 1995; **25**: 1-11.
- Munodawafa, D. and Gwede, C. Patterns of HIV/AIDS in Zimbabwe: implications for health education. *AIDS Educ. P.* 1996; **8**(1):1-10.
- Mashamba, J. HIV increases on campus. MASA (The Newspaper of the University of the North Community), 1 March, 3, 1999.
- Basen-Engquist, K. Psychosocial predictors of "safer sex" behaviours in young adults. *AIDS Educ. P.* 1992; **4**: 120-134.
- Bengel, J., Belz-Merk, M. and Farin, E. The role of risk perception and efficacy cognitions in the prediction of HIV-related preventive behaviour and condom use. *Psychol. Hea* 1996; **11**: 505-525.
- Manderson, L., Tye, L.C. and Rajanayagam, K. Condom use in heterosexual sex: a review of research, 1985-1994. In: J. Catalan, L. Sherr et al. (eds.) *The impact of AIDS: psychological and social aspects of HIV infection* (pp. 1-26). Singapore: Harwood Academic Publishers. 1997.
- White, K.M., Terry, D.J. and Hogg, M.A. Safer sex behaviour: the role of attitudes, norms, and control factors. *J. Appl. So. P.* 1994; **24**: 2164-2192.
- Edem, C.U. and Harvey, S.M. Use of Health Belief Model to predict condom use among university students in Nigeria. *Int. Quart. Comm. Hlth. Educ.* 1994/95; **15**: 3-14.
- Harvey, S.M., Beckman, L.J. and Wright, C. Perceptions and use of the male condom among African American University students. *Int. Quart. Comm. Hlth. Educ.* 1996/97; **16**:139-153.
- Sheeran, P., Abraham, C. and Orbell, S. Psychosocial correlates of heterosexual condom use: a meta-analysis. *Psychol. B.* 1999; **125**: 90-132.
- Stanton, B.F., Fitzgerald, A.M., Li, X., Shipena, H., Ricardo, I.B., Galbraith, J.S., Terreri, N., Strijdom, J., Hangula-Ndlovu, V. and Kahihuata, J. HIV risk behaviours, intentions, and perceptions among Namibian youth as assessed by a theory-based questionnaire. *AIDS Educ. P.* 1999; **11**: 132-149.
- Eshetu, F., Zakus, D. and Kebede, D. The attitudes of students, parents and teachers towards the promotion and provision of condoms for adolescents in Addis Ababa. *Ethiop. J. Hlth. Dev.* 1997; **11**: 7-16.
- Boyd, B. and Wandersman, A. Predicting undergraduate condom use with the Fishbein and Aizen and the Triandis Attitude-Behaviour models: implications for public health interventions. *J. Appl. So. P.* 1991; **21**: 1810-1830.
- Zagumny, M.J. and Brady, D.B. Development of the AIDS Health Belief Scale (AHBS). *AIDS Educ. P.* 1998; **10**: 173-179.
- Brafford, L.J. and Beck, K.H. Development and validation of a Condom Self-Efficacy Scale for College students. *J. Amer. Col. Hea* 1991; **39**: 219-225.
- Neuman, W.L. *Social research methods: qualitative and quantitative approaches*. Boston: Allan and Bacon. 1997.
- Minimum, E.W., King, B.M. and Bear, G. *Statistical reasoning in psychology and education*. New York: John Wiley & Sons, 1993.
- Lollis, C.M., Johnson, E.H. and Antoni, M.H. The efficacy of the health belief model for predicting condom usage and risky sexual practices in University students. *AIDS Educ. P.* 1997; **9**:551-563.
- Hardeman, W., Pierro, A. and Mannetti, L. Determinants of intentions to practise safe sex among 16-25 year-olds. *J. Comm. Appl. Soc. P.* 1997; **7**: 345-360.
- Madu, S.N. and Peltzer, K. Complaints of University students about male use of condoms as a preventive measure against HIV/AIDS in South Africa. *J. Psychol. Afr.* 1999; **9**:78-90.
- Nicholas, L.J. Black South African students beliefs and attitudes about condoms. *Psychological Reports* 1998; **83**: 891-894.