

Tobacco use among black South African university students: attitudes, risk awareness and health locus of control

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Abstract

Objectives: To provide data on African/black South African university students' tobacco use status, belief in the benefits to health of not smoking, risk awareness in terms of knowledge of the links between smoking and disease, health locus of control, value for health, subjective health status and well-being.

Design: Cross sectional.

Setting: University of the North

Subjects: 793 Black University students from non-health courses chosen by random sampling, of these 370 (46.7%) were males and 423 (53.3%) were females in the age range of 18 to 25 years (*M* age 21.0 years, *SD*=3.48).

Main Outcome Measures: A measure of smoking, the Multidimensional Health Locus of Control Scale, the Health as a Value Scale, and a measure for subjective health and subjective well-being.

Results: The average prevalence of current tobacco use was 15% in men and 1% in women. The proportion of tobacco users who were classified as light users (1-10 per

day) averaged 10% in men and 1% in women. Age and being male were significantly positively associated with status and frequency of tobacco use. Awareness of the link between smoking and lung cancer was high (93%), but awareness of the role of smoking in heart disease was very low (16%). The importance to health of not smoking was associated with smoking status (non-smoking versus smoking). Overall, 75% of the current smokers stated that they would like to reduce the amount they smoked. Poor subjective health status and low subjective well-being was associated with smoking status. No significant differences were found among non-tobacco users and tobacco users in relation to the three subscales of the Health Locus of Control (Internal, Chance, and Powerful others) and Value for health.

Conclusion: For about 9% of the male students investigated, a high risk exists to become regular tobacco users for the next 30 years.

Introduction

Tobacco consumption is a major, worldwide health hazard. In South Africa tobacco use is a major public health concern as it has severe consequences for smokers, non-smokers and the economy (Rocha-Silva, De Miranda & Erasmus 1996: 5ff., Yach 1996: 29). Yach (1996: 31f.) reports that tobacco use among Blacks is rising in South Africa. For the country as a whole, lung cancer already accounts for 24% of all death from cancer in men, and 10.6% of all such death in women. A study of cigarette smoking in the black township population of Cape Town showed that the smoking prevalence among adults was 53% in men compared to 6% in women (Strebel, Kuhn & Yach 1989: 209f.). Steyn et al. (1994: 784f.) conducted a similar study and found that about 52% of the men, but only 8% of the women used tobacco regularly.

Men and women who smoked cigarettes, smoked 9.6 and 4.3 cigarettes on average per day, respectively. Peltzer and Phaswana (1999: 36) found in a pilot study that among South African university students past month prevalence rates of tobacco use were 13% in males and 0% in females. Among rural primary health care patients in the Northern Province of South Africa, Peltzer (1999b: 96f.) found past 6 months smoking of cigarettes of 42.6% among men and 0% among women and taking snuff 3.3% and 17.2% respectively. According to Russel (1990: 293) ninety percent of teenagers who smoke 3-4 cigarettes a day become regular smokers for 35-40 years.

Many factors affect smoking, including cultural norms, social influences and economic constraints. Psychological models of health behaviour emphasize the relevance of cognitive factors such as attitudes and risk awareness. Two major cognitive variables relevant to tobacco consumption were included in this survey. The first was risk awareness, operationalized in terms of knowledge of the links between smoking and two diseases: lung cancer and coronary heart disease. Ignorance of the risk factors associated with tobacco use has been reported in a number of surveys (Peltzer & Phaswana 1999: 38). Reddy et al. (1996: 1391) found in a national sample in South Africa that only 58% were aware that cancer was associated with smoking and 36% associated heart disease with smoking. It might therefore be predicted that fewer users than non-users will be aware of the role of tobacco use in major diseases. Bennett et al. (1997: 179) studied a representative sample including measures of health locus of control and value for health and found that smokers held stronger internal, chance, and powerful others beliefs, than never smokers. Moreover, the interaction between chance, health locus of control, and value for health, was a significant predictor of smoking status, suggesting that health value may moderate the relationship between health locus of control and smoking status. Therefore this study also investigated health locus of control and value for health in regard to smoking status and frequency.

Materials and Methods

Sample and procedure: The sample included 793 Black University students from non-health courses chosen from randomly selected classes from the University of the North, South Africa. The students were 370 (46.7%) males and 423 (53.3%) females in the age range of 18 to 25 years (*M* age 21.0 years, *SD*=3.48).

Data were collected by a self-administered questionnaire in a class room situation after informed consent had been obtained. Participants were assured of complete anonymity.

Measures: The measure of smoking was adapted from the questions used for screening adolescent smoking behaviour in the UK (Stephens et al. 1995: 574f.) Tobacco consumption was assessed by asking participants to endorse one of eight response options: „I have never smoked a cigarette or taken snuff, not even a puff“; „I have only ever tried one or two cigarettes or snuff“; „I used to smoke sometimes, but I don't now“; „I don't smoke cigarettes, but smoke a pipe or cigars“; „I smoke cigarettes but not as many as one per day“; „I usually smoke between one or ten cigarettes per day“; „I usually smoke between ten and twenty cigarettes per day“; „I usually smoke more than twenty cigarettes per day“. Participants in the first two categories were classified as never smokers, while respondents in the third category were classified as former smokers. For analysis of smoking prevalence the five smoking categories were combined, and compared with the three non-smoking categories. For analysis of the prevalence of „ever smoking“, former smokers were included with the present smokers. For analysis of the strength of smoking habits, the five smoking categories were reduced to three: very light smokers (<1/day), light smokers (1-10/day) and moderate/heavy smokers (>10/day). Only one respondent stated he smoked cigars or a pipe. As this was a very small number, this category was grouped with the very light cigarette smokers in the analysis of levels of smoking. Both the Cronbach alpha and the split-half reliability coefficient for the tobacco use measure were .6 for this sample.

Smokers were asked whether they would like to reduce the amount they smoke, with responses in a Yes/No format. Beliefs were assessed by asking participants to rate their beliefs in the importance of not smoking for health on a 10-point scale where 1=*low importance* and 10=*very great importance*. Risk awareness for smoking-disease links was asked in a Yes/No format if they believed that lung cancer and heart disease were influenced by smoking.

Data were also collected by using additional instruments that assess factors established as important to health behaviour in research in health psychology. These included the Multidimensional Health Locus of Control Scale (MHLOC)

(Wallston, Wallston & DeVellis 1978: 160), and the Health as a Value Scale (Lau & Ware 1981: 1147). Both the Cronbach alpha and the split-half reliability coefficient for the MHLOC and the Health as a Value Scale measures were .7 for this sample.

In addition, one question was included on the subjective health status (rated from 1=excellent to 5=poor), one question on subjective well-being (rated from 1=very satisfied to 5=very dissatisfied, and 6 items on sociobiographic data: age, sex, religion, income, car ownership in family, education of mother and father.

Results

Prevalence of tobacco consumption

The prevalence of current snuff users was very small (1% in men and 1% in women) and lifetime users of snuff (once or twice) was 5% in men and 4% in women. Therefore, in the following snuff users are grouped together with tobacco smokers and called tobacco users.

Table 1 indicates tobacco use status and frequency

The average prevalence of current smoking was 15% in men and 1% in women. The proportion of smokers who were classified as light smokers (1-10 per day) averaged 10% in men and 1% in women. Age and being male were significantly positively associated with smoking status [for age: $r=.132$; $p<.001$ and for sex: $r=.420$; $p<.001$] and frequency of smoking [for age: $r=.141$; $p<.001$ and for sex: $r=.262$; $p<.001$]. In each case, there was a higher prevalence among men. The socio-economic background was neither related to smoking status [$r=.012$; ns] nor to frequency of smoking [$r=.90$; ns].

Religion was divided into Christian (Protestant and Roman Catholic) (50.6%) and healing churches (Zion Christian Church, Apostolic, and African) (49.4%). Smoking status and major religious orientation was weakly associated, e.g. never smokers were positively related to being a member of a Zion Christian, Apostolic church, or African/traditional religion ($r=.3919$, $p<.044$).

Beliefs about smoking, risk awareness and smoking

The mean scores on the 10-point rating of the importance of health of not smoking was among women 7.69 and men 7.52, which indicated no significant sex difference ($F=2.187$, ns). The highest mean of the importance of health of not smoking

Table 1: Smoking status and frequency by gender

Tobacco use status and frequency	Male (No)	Male (%)	Female (No)	Female (%)	X ²
Never smoked (took snuff)	260	70	363	86	53.481***
Former smokers	41	11	11	3	21.246***
Current smokers	56	15	4	1	53.481***
Very light smokers	12	3	0	0	13.154***
Light smokers	35	10	2	1	33.706***
Moderate/heavy smokers	8	2	2	1	4.143

*** $p<.001$; ** $p<.01$; * $p<.05$

Table 2: Mean beliefs in the importance for health of not smoking

Tobacco use status and frequency	Mean beliefs in the importance for health of not smoking (SD)
Never smokers	7.73 (3.71)
Former smokers	8.29 (3.20)
Smokers	7.05 (4.72)
Very light smokers	6.83 (2.72)
Light smokers	7.76 (4.11)
Moderate/heavy smokers	5.30 (3.24)

was rated for former smokers (8.29) and the lowest mean rating was for moderate/heavy smokers (5.30) (see Table 2).

As far as risk awareness was concerned 93% of the participants were aware of the association between smoking and lung cancer but only 16% knew the relationship between smoking and heart disease. There was no relationship between the level of risk awareness (smoking and heart disease) and smoking status.

Wish to reduce smoking levels

Overall, 75% of the current smokers stated that they would like to reduce the amount they smoked. In the very light smoking group 71.4% wanted to reduce smoking, compared with 88.9% in the light smoking group and only 44.4% in the moderate/heavy smoking group. The wish to reduce smoking was positively associated with tobacco use status [$r=.378$; $p<.001$] and amount of smoking [$r=.278$; $p<.001$]. Seventy six percent of the men and 24.1% of the female smokers stated that they would like to reduce the amount they used.

Analysis of variance further indicated that the wish to reduce smoking was associated with current smokers, light smokers, moderate/heavy smokers, very light smokers, and the belief in the importance for health of not smoking.

Poor subjective health status was associated with moderate/heavy, current and light smokers and low subjective well-being was related to moderate/heavy smoking (see Table 3).

Table 4 indicates ANOVA between tobacco use, Health Locus of Control and Value for Health.

Regarding tobacco use status and frequency no significant differences were found among non-tobacco users and tobacco users in relation to the three subscales of the Health Locus of Control

(Internal, Chance, and Powerful others) and Value for health except for a relationship between moderate/heavy tobacco use and internal locus of control.

Discussion

The sample of black university students studied had relatively low rates of current tobacco use, especially for females (15% in males and 1% in females), as compared to other samples in western countries (Webb et al. 1997: 145. Steptoe et al. (1995: 578f.) found among 21 European countries that the average prevalence of current smoking across country samples was 33.1% in male and 29.0% in female university students. The same applies for the rate of former smokers (11% male and 3% female). Steptoe et al. (1995: 576) showed that as many of the university students population (30.9% men and 34.2% women) stated that they had sometimes smoked in the past.

Never smokers were positively related to being a member of a Zion Christian, Apostolic church, or African/traditional religion as opposed to Christian (Protestant and Roman Catholic) denominations. Especially the Zion Christian Church and Apostolic church have prohibitions against tobacco use, which may explain the higher abstinence towards tobacco use (Peltzer 1999a: 400).

Table 3: ANOVA between tobacco use status and wish to reduce smoking, subjective health and well-being

Tobacco use status and frequency	Wish to reduce smoking	Subjective health (1)	Subjective well-being (2)
	F	F	F
Never smoked (took snuff)	—	1.744	1.596
Former smokers	2.348	1.169	.729
Current smokers	95.775***	4.616***	1.425
Very light smokers	7.283***	.967	.356
Light smokers	73.386***	3.253*	1.175
Moderate/heavy smokers	17.297***	6.793***	6.152***
Belief in the importance for health of not smoking	3.345*		

*** $p<.001$; ** $p<.01$; * $p<.05$

(1) Rated from 1=excellent to 5 poor, and

(2) Rated from 1=very satisfied to 5=very dissatisfied

Table 4: ANOVA between tobacco use, Health Locus of Control and Value for Health

Tobacco use status and frequency	Internal	Chance	Powerful others	Health value
	F	F	F	F
Never smoked (took snuff)	.569	.954	.843	.811
Former smokers	.593	.631	.961	.769
Current smokers	.573	.986	.696	1.055
Very light smokers	.634	.697	.735	1.594
Light smokers	.558	.972	.668	.668
Moderate/heavy smokers	2.080***	.953	.862	.618

*** $p < .001$; ** $p < .01$; * $p < .05$

The assessment of risk awareness showed that knowledge of the links between smoking and lung cancer in this sample (93%) was similarly higher than that found among European university students (97.4%) (Steptoe et al. 1995: 578). However, the knowledge of the association between smoking and heart disease (16%) was much lower than that among European university students (63.7%) (ibid.) and a national sample of South Africans (36%) (Reddy et al. 1996: 1389). In accordance with other studies (Steptoe et al. 1995: 579) the wish to reduce smoking was positively related with tobacco use status. Overall, 75% of the current smokers stated that they would like to reduce the amount they smoked; this was highest among the light smoking group (88.9%) and lowest among the moderate/heavy smoking group (44.4%). This means that the level of wanting to cut down with smoking did not increase with higher smoking levels, as it was found among European university students (ibid.). Similarly as among European male students (69%), in this sample, 76% of the males wanted to reduce the amount they smoked. However, only 24.1% of the female smokers wanted to reduce the amount they used.

Poor subjective health status and low subjective well-being seems to be associated with smoking status, which needs further investigation. Regarding tobacco use status and frequency, no significant differences were found among non-tobacco users and tobacco users in relation to the three subscales of the Health Locus of Control (Internal, Chance, and Powerful others) and Value for health except for a relationship between moderate/heavy tobacco use and internal locus of control. This finding seems contrary to other research findings (Bennett et al. 1997: 181). The model by Wallston et al. (1978: 161f.) suggests that those who score highly on the internal dimension regard their health largely within their own control and are likely to engage in health-maintaining behaviours, and those who score highly on the chance dimension view their health as relatively independent of their behaviour and accordingly, are more likely to engage in health-damaging behaviours than those with lower scores. Value for health was also not found to be related to smoking status as was found in a representative sample studied by Bennet et al. (1997: 180).

Conclusion

The proportion of tobacco users who were classified as light users (1-10 per day) averaged 10% in men and 1% in women.

later age.

Some of the risks and protective factors identified in this study can provide the basis for effective prevention and cessation programmes (Editorial 1999: 353, Mzileni et al. 1999: 400).

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References

- BENNETT, P; NORMAN, P; MOORE, L; MURPHY, S & TUDOR-SMITH, C 1997 : Health locus of control and value for health in smokers and nonsmokers. *Health Psyc* 16: 179-182.
- EDITORIAL 1999 : Tobacco control in Africa: opportunities for prevention. *Tobacco Control* 8: 353-354.
- MZILENI, O; SITAS, F; STEYN, K; CARRARA, H & BEKKER, P 1999 : Lung cancer, tobacco, and environmental factors in the African population in the Northern Province, South Africa. *Tobacco Control* 8: 398-401.
- LAU, RR & WARE, JE (JR) 1981 : Refinements in the measurement of health-specific locus-of-control beliefs. *Med Care* 19: 1147-1158.
- PELTZER, K & PHASWANA, N 1999 : Substance use among South African university students: a quantitative and qualitative study. *Urban Health Dev Bulletin* 2: 36-45.
- PELTZER, K 1999A : Faith healing for mental and social disorders in the Northern Province (South Africa). *J Relig Africa* 29: 387-402.
- PELTZER, K 1999B : Substance abuse in a rural primary health care patients in the Northern Province, South Africa. In: CDH Parry, A Bhana, J Bayley, H Potgieter, M Lowrie (Eds.) *Monitoring alcohol and drug abuse trends in South Africa* (pp. 94-101). Tygerberg, South Africa: Medical Research Council.
- REDDY, P; MEYER-WEITZ, A & YACH, D 1996 : Smoking status, knowledge of health effects and attitudes to-

According to Russell (1990: 293) 90% of teenagers who smoke 3-4 cigarettes a day become regular smokers for 35-40 years. Thus, for about 9% of the male students investigated a high risk exists to become regular tobacco users at

wards tobacco control in South Africa. *South Med J* 86: 1389-1393.

ROCHA-SILVA L; DE MIRANDA S & ERASMUS R 1996: Alcohol, tobacco and other drug use among South African Youth. Pretoria: Human Sciences Research Council.

RUSSELL, MA 1990 : The nicotine addiction trap: a 40-year sentence for four cigarettes. *Br J Addict* 1990: 293-296.

STEYN, K; BOURNE, PL; JOOSTE, PL & FOURIE, JM 1994 : Smoking in the black community of the Cape Peninsula. *E Afr Med J* 71: 784-789.

STREBEL, P; KUHN, L & YACH, D 1989 : Determinants of cigarette smoking in the black township population of Cape Town. *J Epidemiol C* 43: 209-213.

STEPTOE, A; WARDLE, J; SMITH, H; KOPP, M; SKRABSKI, A; VINCK, J & ZOTTI, AM 1995 : Tobacco smoking in young adults from 21 European countries: association with attitudes and risk awareness. *Addict* 90: 571-582.

WALLSTON, KA; WALLSTON, BS & DEVELLIS, R 1978 : Development of the multi-dimensional health locus of control. *Health Educ Monographs* 6: 160-170.

WEBB, E; ASHTON, H; KELLY, P & KAMALI, F 1997 : Patterns of alcohol consumption, smoking, and illicit drug use in British university students: interfaculty comparisons. *Drug Al Dep* 47: 145-153.

YACH, D 1996 : Tobacco in Africa. *World H For* 17: 29-36.

