

## STRESS AND SMOKING AMONG UNIVERSITY STUDENTS AT THE UNIVERSITY OF THE WESTERN CAPE

Frantz, José (PhD), Associate Professor

Department of Physiotherapy, University of the Western Cape

Correspondence address:  
Professor José M Frantz  
Department of Physiotherapy  
University of the Western Cape  
Private Bag X17  
Bellville, 7535  
South Africa  
E-mail: [jfrantz@uwc.ac.za](mailto:jfrantz@uwc.ac.za)

### Abstract

**Introduction:** Stress is one of the most commonly reported reasons for smoking and generally smokers are perceived to experience more stress than non-smokers. Reducing stress may thus be an important part of smoking cessation.

**Objectives:** The aim of the current study was to determine the prevalence of smoking and stress among university students attending the University of the Western Cape.

**Methods:** A cross-sectional descriptive survey study design was used to describe and identify smoking habits of university students as well as their stress levels. The data was captured on Excel and SPSS was used to analyse the data.

**Participants:** Nine hundred and twelve university students.

**Setting:** Students enrolled at six faculties at the University of the Western Cape.

**Intervention:** Self-answered questionnaire

**Results:** Slightly more than half (53%) of the students had smoked previously but only, 61% of these reported having smoked in the last month (current smokers). Females reported to experience more stress than males (stress score 21.6 vs 16.6). The main reasons for smoking included helping to relax, just enjoying smoking, coping with stress and smoking because friends smoke.

**Conclusion:** Students need to know that increased stress levels are associated with smoking. Groups at higher risk are: those being older than 30 years; female; of the coloured ethnic group; in the fourth year of study and studying in the law faculty.

**Key words:** stress, smoking, students, university.

### Introduction

Stress is the 'wear and tear' that our bodies experience as we adjust to our continually changing environment. According to Steptoe, Wardle,

Pollard, Canaan and Davies (1996), psychosocial factors such as life stress are thought to affect health by altering health risk behaviors such as smoking, alcohol consumption and physical activity.

Stress has physical and emotional effects on us and can create positive or negative feelings. As a positive influence, stress can compel us to action; it can result in a new awareness, and an exciting new perspective. As a negative influence, it can result in feelings of distrust rejection, anger and depression, which in turn can lead to health problems such as headaches, high blood pressure, heart disease and stroke. When adjusting to different circumstances, stress will help or hinder us depending on how we react to it.

Stress is one of the most commonly reported reasons for smoking and generally smokers experience more stress than non-smokers. Despite the extensive research indicating that cigarette smoking is the number one preventable cause of death and many diseases, smoking continues at a high rate. According to Kassel, Strond, and Paronis (2003), in stress coping and self-medication models of drug abuse (Khantzian 1997), drugs are used as a coping mechanism to facilitate general mood regulation. Shiffman (1993) stated that smokers report that they smoke more when they are stressed, angry and anxious.

According to statistics presented by the Medical Research Council of South Africa, cardiovascular disease research, smoking accounts for 5 million of the 57 million deaths worldwide and this is primarily through causing heart attacks and strokes. In South Africa, smoking accounts for more than 25 000 deaths every year (Mbewu, 2005). Reducing stress may thus be an important part of smoking cessation. Byrne and Mazanov (2000) stated that both stress and low self esteem have been linked to various aspects of adolescent smoking behaviour. According to a study among college students in Kannada (India), the prevalence of smoking among

these students was 33% (Sajjan, Chacko & Asha, 2003). In another study amongst American college students it was found that approximately 20% of the students were smokers (Britt, Collins & Cohen 1999). Frantz (2006) reported from a study conducted in a local community in South Africa that approximately 30% of physically active adolescents smoked and 41% of physically inactive adolescents smoked. In another study by Swart, Reddy, Ruiters and de Vries (2003) among grade 8-10 learners in South African schools it was found that 23% of the learners reported being current smokers. In a report from the Global Youth Tobacco Survey project, it was found that 17% smoked (Warren et al. 2000). Thus in the South African context it seems as if the prevalence of smoking among youth has been increasing over the past 5 years.

The intensity of studying at a tertiary institution requires enormous commitment and hard work by students. This shift from high school to a tertiary institution means coping with an increased workload under less supervision may produce stress in a student's life. Possible reasons for smoking among tertiary institution students include, an inaccurate perception of the smoking norm, having more freedom to make personal decisions, increased visibility of smoking on campus and increased stress. Byrne and Mazanov (1998) reported that certain sources of stress seemed to be related to current smoking habits. Steptoe et al (1996) reported that a relationship was found between smoking, stress and gender. In addition, Emmons, Wechsler, Dowdall, and Abraham (1998) reported that predictors of smoking among university students include gender, high-risk behaviours and lifestyle. The aim of the current study was to determine the prevalence of smoking and to identify

the prevalence of stress among university students attending the University of the Western Cape.

### **Methodology**

A cross-sectional descriptive survey study design was used to describe and identify smoking habits of university students as well as their stress levels. The population used was all students registered at the University of the Western Cape for the 2005 academic year. Given the total student population of 13500 and assuming a smoking prevalence of at least 50% and accepting a margin error of about 5% with a 95% confidence level, the needed sample size was calculated to be approximately 806. A total of 1000 questionnaires were distributed proportionally to six faculties (Arts, Education, Community and Health Sciences, Science, EMS and Law) in the university as Dentistry students were not readily available on campus. This generated a convenient sample of 912 of which 144 students were from the Arts, 50 from the Education Faculty, 235 students from the Community and Health Sciences Faculty, 137 students from the EMS Faculty, 111 students from the Law Faculty and 235 students from the Science Faculty. The questionnaire distributed was composed of two sections. Section A dealt with the smoking prevalence and behaviors of the students, which were adapted from the WHO (1984) smoking questionnaire. This included smoking prevalence, practice of smoking (number of cigarettes), smoking influences (among friends, alone) and factors that influence quitting in the last month. Students were classified as current smokers if they smoked in the last month and non-smokers if they had not smoked a cigarette in the last month. Section B dealt with the Perceived Stress Scale-10 (PSS) as described by Cohen, Kamarck and Mermelstein (1983). The PSS measures the degree to which situations in

one's life are appraised as stressful. The questions in this scale checked the feelings and thoughts of the students in the last month. The PSS scores are obtained by reversing the scores on the seven positive items e.g. 0=4; 1=3; 2=2 etc. and then summing across all items.

The questionnaire was piloted among students not included in the main study. The pilot study aimed at checking the content validity of the information the instrument intended to measure and whether it would be applicable for the current population. A letter describing the nature and significance of the study was sent to the Deans of the faculties requesting permission and ethical clearance was obtained from the Research, Study Grants and ethical Clearance committee with the Faculty of Community and Health Sciences and University of the Western Cape. After obtaining permission from lecturers and students questionnaires were handed out during lecture time. A code of confidentiality was maintained throughout the study. Each questionnaire contained a cover letter outlining the aim of the study and how to answer the questionnaire. Completion of the questionnaire was an indication of consent. The data was captured on Excel and the Statistical Package of Social Sciences (SPSS) version 13 was used to analyze all data in the study.

### **Results**

The results of the study are based on the questionnaire response rate 91% (912/1000). The sample age ranged from 17 – 39 years with the majority of the students being between the ages of 18 and 25 years (81%). Slightly more than half of all the participants reported that they have smoked before (53%). Significant differences were noted with regards to ethnicity and the faculty that the

students are affiliated to and the increase number of smokers. More people of the Coloured ethnic group and more students in the Arts faculty smoked

compared to non-smokers in the same categories (Table 1).

**Table 1: Demographics of study sample (N=912)**

Variable		Smoked N=485		Never smoked N=427		Total N	P value
		n	%	n	%		
Age	< 18 years	37	(8)	44	(10)	81	0.137
	18-25 years	407	(84)	333	(78)	740	
	26-30 years	22	(4.5)	24	(6)	48	
	> 30 years	19	(4)	26	(6)	45	
Gender	Male	184	(38)	131	(31)	315	0.025
	Female	301	(62)	296	(69)	597	
Ethnicity	Black	92	(19)	171	(40)	263	<0.001
	Coloured	318	(66)	177	(42)	495	
	White	22	(5)	27	(6)	49	
	Indian, Foreigner	53	(10)	52	(12)	105	
Year level	First	213	(44)	177	(41)	390	0.320
	Second	109	(22)	86	(20)	195	
	Third	95	(20)	105	(25)	200	
	Fourth	68	(14)	59	(14)	127	
Faculty	Arts	101	(21)	43	(10)	144	<0.001
	Community & Health	122	(25)	113	(27)	235	
	Economic & Management	71	(15)	66	(16)	137	
	Education	25	(5)	25	(6)	50	
	Law	61	(13)	50	(11)	111	
	Science	105	(21)	130	(30)	235	

In this study we look at a sub-sample of learners who smoked in the last month (current smokers). Sixty one percent (294/485) reported that they have smoked in the last month. The mean stress score was the highest for female current smokers (21.6), followed by students in the law faculty (21.5), students in their fourth year of study (21.4) and students in the age group older than 30 years (21.4). Among those who smoked in the last month (294), 54% (160) smoked more than 21 days per month. However, even though they tended to

smoke most days of the month, 43% (126) smoke only 5 cigarettes per day. The reasons for smoking included helping to relax (43%), just enjoying smoking (39%), coping with stress (36%) and smoking because friends smoke (29%). Of those who smoked, 70% had tried to stop smoking and 40% had tried within the last 6 months. It was also found that the students were not only social smokers. Of the students 46% smoked alone and 43% tended to smoke more when they were with friends (Table 2).

**Table 2: Demographics of current smokers**

Variable	N = 294	N	(%)	Mean Stress Score
Age	< 18 years	21	(7)	20.6
	18-25 years	242	(83)	19.3
	26-30 years	16	(5)	20.6
	> 30 years	15	(5)	21.4
Gender	Male	117	(40)	16.6
	Female	177	(60)	21.6
Ethnicity	Black	46	(16)	16.7
	Coloured	206	(70)	20.6
	White	10	(3)	18.3
	Indian	32	(11)	17.4
Year Level	First	142	(8)	18.3
	Second	50	(17)	20.9
	Third	56	(19)	20.6
	Fourth	46	(16)	21.4
Faculty	Arts	75	(26)	18.1
	Community & Health	73	(25)	20.0
	Econ & Management	31	(11)	19.5
	Education	19	(7)	19.0
	Law	45	(14)	21.5
	Science	51	(17)	19.6
Frequency of days smoked per months	< 5	60	20	Not calculated
	6 – 10	23	8	
	11 – 15	22	7	
	16 – 20	29	10	
	>21	160	54	
Cigarettes per day	5 or less	126	43	Not calculated
Reasons for smoking* Not add to 100% as some students gave more than one reason	Helping to relax	126	43	Not calculated
	Enjoy smoking	114	39	
	Coping with stress	105	36	
	Because friends smoke	85	29	
Smoking habit	Smoke alone	135	46	Not calculated
	Smoke more with friends	126	43	
Tried to stop smoking	Overall	206	70	Not calculated

## Discussion

Smoking and tobacco consumption is on the increase in various countries and psychosocial factors such as stress have been attributed as causative factors of this increase (Haddad & Malak, 2002; Steptoe et al., 1996). The study found that the prevalence of smoking among students at the University to be 30%. This is similar to the study by Haddad & Malak (2002) among university students who found their prevalence to be 28%. One of the reasons reported for smoking was stress, however, Parrott (1999) reported that there is a need to start realizing that smoking can in fact cause stress and not necessarily reduce stress as is the expectation. Entering tertiary education can be an exciting yet stressful event for many young people. According to Von Ah, Ebert, Ngamvitroj, Park & Kang (2004), reasons for this increase in stress are factors such as increased academic workloads, support networks and facing a new environment. In addition, greater freedom and control over their lives also adds to the opportunity to establish new lifestyle behaviours. Some may not be as healthy as others.

Students from the Faculty of Community and Health Science were found to constitute 25% of the total number of smokers. As future health professionals, who will teach health promotion and disease prevention, it is important to highlight to these students the consequences of risk behavior such as smoking. They also need to understand the role they will have to play in reducing smoking prevalence and influencing smoking cessation. It was also found in the study that a similar number of students smoked alone as those who smoked among friends. Thus social smoking was not the most common problem among the students. The

study by Moran (2004) however, indicated that social influences in smoking initiation and progression cannot be ignored.

Studies have shown that stress can have many detrimental effects on a person's physical and mental health (Rospenda, Halpert & Richman, 1994). According to Sinha (2001), stress plays a major role in persistent substance use and relapse. Among the students in the current study, students who tried to stop smoking in the last 6 months had increased mean stress scores. It is also important to note that in a study among young people by McGee, Williams & Nada-Raja (2005) cigarette smoking was significantly related to suicidal intention in early adulthood. Higher mean stress scores (21.0) were associated with smoking a greater number of cigarettes per day. This is similar to the study by Metcalfe et al (2003) who reported that higher levels of stress, as measured by the Reeder Stress Inventory, associated positively with smoking a greater number of cigarettes and a greater consumption of alcohol. Gender among the smokers was also found to be positively related to stress. This is similar to the findings of Steptoe et al (1996) who concluded that gender differences are relevant to how people respond to stress and needs further investigation. The authors further reported that academic stress was a source of motivation to smoke for almost 49% of the student smokers.

Thus it can be seen in the current study, that stress has a negative influence on the students. Given the fact that the highest stress scores were experienced among female smokers as well as the younger age group, we realize that the transition from high school to tertiary institutions appears to be stressful and might influence the prevalence of smoking.

## Implications for practice

It is recommended that as part of the university orientation programme, students should be made aware about the additional stress that tertiary education brings along as well as the increased risk of taking up smoking to respond to this stress.

## Acknowledgements

University of the Western Cape Research fund and Ms W Davids who assisted in data collection.

## References

- Britt, D., Collins, F. & Cohen, L. (1999). Cigarette smoking and chewing-gum use among college students. *Journal of Applied Biobehavioural Research*, 4(2), 85-90.
- Byrne, D. & Mazanov, J. (1998). Sources of adolescent stress, smoking and the use of other drugs. *Stress Medicine*, 15(4), 215-227.
- Byrne, D. & Mazanov, J. (2000). Self-esteem, stress and smoking in adolescents. *Stress and Health*, 17(2), 105-110.
- Cohen, S., Kamarck, T. & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behaviour*, 24, 385-396.
- Emmons, K., Wechsler, H., Dowdall, G. & Abraham, M. (1998). Predictors of smoking among US college students. *American Journal of Public Health*, 88(1), 104-107.
- Frantz, J. (2006). Physical inactivity as one of the chronic disease risk factors among high school learners in public schools in a local community in South Africa. *South African Journal for Research in Sport, Physical Education and Recreation*, 28(2), 73-80.
- Haddad, L. & Malak, M. (2002). Smoking habits and attitudes towards smoking among university students in Jordan. *International Journal of Nursing*, 39, 793-802.
- Kassel, J., Strond, L. & Paronis, C. (2003). Smoking, stress and negative affect: correlation, causation, and context across stages of smoking. *Psychological Bulletin*, 129(2), 270-304.
- Khantzian E (1997). The self-medication hypothesis of substance use disorders: a reconsideration and recent applications. *Harvard Review of Psychology*, 4(5), 287-289.
- Mbewu, A. Speech on 6 April 2005. Retrieved 7 April 2006, from the South African Medical Research Council Website <http://www.mrc.ac.za>
- McGee, R., Williams, S. & Nada-Raja, S. (2005). Is cigarette smoking associated with suicidal intention among young people? *American Journal of Psychiatry* 162, 619-620.
- Metcalfe, C., Smith, G., Wadsworth, E., Sterne, J., Heslop, P., Macleod, J., & Smith, A. (2003). A contemporary validation of the Reeder Stress Inventory. *British Journal of Health Psychology*, 8, 83-94.
- Moran, S. (2004). Social smoking among the United States college students. *Pediatrics*, 114(4), 1028-1034.
- Parrott, A. (1999). Does cigarette smoking cause stress? *American Psychologist*, 54(10), 817-820.
- Rospenda, K., Halpert, J. & Richman, J. (1994). Effect of social support on medical students' performance. *Academic Medicine*, 69, 496-500.
- Sajjan, B., Chacko, J. & Asha, K. (2003). Smoking behavior among arts student of a college in Mangalore, Dakshina Kannada. *Indian Journal of Medical Sciences*, 57(7), 290-293.
- Shiffman, S. (1993). Assessing smoking patterns and motives. *Journal of Consulting and Clinical Psychology*, 61, 732-742.
- Sinha, R. (2001). How does stress increase risk of drug abuse and relapse? *Psychopharmacology* 158, 343-359.
- Steptoe, A., Wardle, J., Pollard, T., Cannan, L., & Davies, J. (1996). Stress, social support and health-related behaviour: a study of smoking, alcohol consumption and physical exercise. *Journal of Psychosomatic Research*, 41(2), 171-180.
- Swart D, Reddy P, Ruiters R and deVries H (2003). Cigarette use among male and female grade 8 - 10 students of different ethnicity in South African schools. 12: e1. Retrieved 15 June, 2006, from <http://www.tobaccocontrol.com/cgi/content/full/12/1/e1>
- Von Ah, D., Ebert, S., Ngamvitoj, A., Park, N., & Kang, D. (2004). Predictors of health behaviours in college students. *Journal of Advanced Nursing*, 48(5), 463-474.
- Warren C, Riley L, Asthma S, Eriksen M, Green L, Blanton C, Loo C, Batchelor, S. & Yach, D. (2000). Tobacco use by youth: a surveillance report from the Global Youth Tobacco Survey project. *Bulletin of the World Health Organisation* 78(7), 868-874
- World Health Organisation (1984). Guidelines for the conduct of tobacco smoking among Health Professionals, WHO/SMO84.