

# Smoking habits of students in College Of Applied Medical Science, Saudi Arabia

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## ABSTRACT

**Objective:** To establish a baseline data on the smoking habits of health science students in a Saudi Arabian university environment.

**Methods:** The participating subjects were students of the College of Applied Medical Sciences within the age range of 18 to 26. An experimental design with pre-structured questionnaires, and simple random sampling was administered to 712 participants by a panel of experts in behavioral health sciences.

**Results:** Out of 647 respondents, 186 (29%) were current smokers. Of those that indicated that they were currently smokers, 127 (20%) were male and 59 (9%) were female. The 20-24 year old age group exhibited the highest prevalence of smoking ( $P < 0.000$ ). Major factors influencing the smoking prevalence were the smoking habits of peers, siblings, and parents ( $P < 0.005$ ). Most of the respondents appeared to be "Light Smokers",

consuming less than 10 cigarettes per day. When asked of their awareness of the health hazards of smoking, 73% of the respondents answered that they were aware of the hazards. Of those that smoked, 70% expressed a desire to cease cigarette smoking. Media influence was considered to be the major source of information on the health consequences of cigarette smoking.

**Conclusion:** Cigarette smoking is prevalent among students of health care professionals. Author advocates a collaborative effort in order to alleviate the consequences of cigarette smoking among health professionals. This effort must embody a multidisciplinary approach that includes legislators, mass media, public education and health professionals at all levels.

**Keywords:** Smoking behavior, smoking habits, students, university, Saudi Arabia.

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Research studies, in Saudi Arabia, have clearly indicated that cigarette smoking is one of the major health hazard etiologies,<sup>1-11</sup> covering a wide range of preventable morbidity and mortality.<sup>12-14</sup> Cigarette smoking, and its grave consequences on health, such as lung cancer, chronic bronchitis, and carcinoma of the oral cavity (larynx, oesophagus, and tongue) and urinary bladder, are all well documented.<sup>15-19</sup> Smoking is one of the major public health problems in Saudi Arabia<sup>1-10</sup> and it is increasing at an alarming rate.<sup>6,9,11</sup> Based on the statistics from the Saudi Customs Office, the Kingdom of Saudi Arabia imported 4.5 million kg of tobacco in 1972, 5.5 million kg of tobacco in 1975,

27 million kg of tobacco in 1977, and 36.5 million kg of tobacco in 1981 (approximately a 7-fold increase in tobacco import in a period of nearly 10 years). No official figures were available beyond 1981. The cost to the Saudi Arabian government, to import the tobacco during the 1972-1981 time-period was 117.5, 151.5, 350 and 979 million Saudi Riyals per year.<sup>20</sup> Clearly, tobacco consumption and its subsequent cost to the Saudi government has increased rapidly.

In the Western world, multifaceted anti-tobacco and anti-cigarette smoking campaigns, and smoking control programs are in full force. Such restrictions include limitations on advertising, higher taxes, and increased retail prices. In addition, these restrictions

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include prohibition of smoking in public places and in all government buildings. Further, there is an extensive attempt to introduce public health education messages into all levels of education in both the public and private school systems.<sup>21</sup> The present study was undertaken to establish baseline data on the smoking habits of health sciences students in a Saudi Arabian university environment, as well as to ascertain related demographic and socioeconomic parameters associated with those students and their potential relationship to smoking perception and habituation.

**Methods.** The subjects consisted of 712 males and female students registered in the 98 classes were randomly selected from the 325 undergraduates courses listed in the fall 1996, College of Applied Medical Sciences, King Saud University, Riyadh, Saudi Arabia. The subjects ranged between 18-26 years of age. A 20 item (Appendix I), structured questionnaire was developed, including items such as age, sex, marital status, grade levels, religious beliefs, socio-economic status of parents, educational levels of parents, use of tobacco, frequency of smoking, number of cigarettes smoking per day, age when first started smoking, idea of quitting smoking, parents and relatives smoking status, source of the idea of cigarettes smoking and attitude of the hazards of cigarettes smoking. The questionnaire was pre-tested, and modified by a panel of behavioral sciences experts, with doctoral degree in public health education and behavioral modification or both. The preliminary version of the questionnaire was tested with 20 health science students in a pilot study and revised by eliminating confusing items. The questionnaires were administered by a panel of trained personnel for administering and collecting data from 712 participants. Of these, 647 (91%) completed questionnaires were returned. The remaining 65 (9%) questionnaires were eliminated due to incomplete responses. The participants smoking status was defined as current smoker and non-smoker. Smokers were defined as those persons who are currently smoking at least one cigarette per day.

Data was entered into an Excel spreadsheet. Data was analyzed using EPI (v 5.0) and SPSS-X statistical software packages. ANOVA methods were used to test for hypotheses of significant different where appropriate.

**Results:** Table 1 shows the distribution of demographic, as well as socio-economic parameters. Of the 647 participants, 186 (29%) were current smokers, 127 (20%) were males and 59 (9%) were females. The current smokers were broken down into 3 major age groups: less than 19 years of age (27%), between 20-24 years of age (54%), and 25 years or

older (19%). Of the 3 age groups, the 20-24 year old age group exhibited the greatest number of cigarettes smoked per day of smoking ( $p < 0.000$ ). Major factors influencing the smoking prevalence were the smoking habits of peers (particularly closest friends), siblings, and parents ( $P < 0.005$ ). Gender was not associated with smoking attitudes or behaviors.

Most of the respondents appeared to be "light smokers" (when viewed from the perspective of the

**Table 1 - Demographic breakdown by smoking status.**

Smoking status				
	Current Smokers		Non Smokers	
	N	(%)	N	(%)
<b>Age (years)</b>				
<19	50	(27)	127	(27)
20-24	100	(54)	279	(60.5)
≥25	36	(19)	55	(12)
<b>Total</b>	186 (100)		461 (100)	
Significance: $0 < 0.000$				
<b>Socio-economic status</b>				
Upper class	21	(11)	64	(14)
Middle class	154	(83)	360	(78)
Lower class	11	(6)	37	(8)
Significance: none				
<b>Father's education</b>				
Illiterate	24	(13)	57	(12)
Elementary school	68	(37)	200	(43)
High school	44	(24)	87	(19)
College	50	(27)	117	(25)
Significance: none				
<b>Mother's education</b>				
Illiterate	54	(29)	121	(26)
Elementary school	92	(49.5)	216	(50)
High school	32	(17)	70	(15)
College	8	(4)	54	(12)
Significance: none				
<b>Parents/siblings/friends smoking behavior</b>				
Father smokes	22	(12)	37	(8)
Mother smokes	10	(5)	38	(8)
Brother(s) or sister(s) smoke	35	(19)	38	(8)
Closest friend(s) smoke	46	(25)	64	(14)
Significance: $p < 0.005$				
<b>Gender</b>				
Male	127	(68)	256	(55.5)
Female	59	(32)	205	(44.5)
Significance: none				

Saudi Arabian culture), consuming less than 10 cigarettes per day. Table 2 shows the results of the responses to cigarette consumption. Of those that smoked, 50% consumed less than 10 cigarettes per day, 40% smoked between 10 and 20 cigarettes per day, and only 11% reported smoking over 20 cigarettes per day.

When asked of their awareness of the health hazards of smoking, 73% of the respondents answered that they were aware of the hazards. Of those that smoked, 70% expressed a desire to cease cigarette smoking (Table 3). Factors found to contribute to influencing the first idea and knowledge of the students, with respect to cigarette smoking

**Table 2 -** Smoking behavior by age, gender and socioeconomic status according to number of cigarettes smoked per day.

Cigarette consumption			
	≤10 cigarettes/day	10-20 cigarettes/day	≥20 cigarettes/day
	N (%)	N (%)	N (%)
<b>Age</b>			
≤19	29 (16)	15 (8)	6 (3)
20-24	55 (30)	40 (21.5)	5 (3)
≥25	8 (4)	19 (10)	9 (5)
<b>Gender</b>			
Male	67 (36)	51 (27.5)	9 (5)
Female	25 (13)	23 (12)	11 (6)
<b>Socioeconomic status</b>			
Upper	9 (5)	11 (6)	1 (0.53)
Middle	82 (44)	59 (32)	13 (7)
Lower	1 (0.53)	4 (2)	6 (3)

**Table 3 -** Responses of smokers to specific questions.

Response	N (%)
<b>Responses to the question: Do you think that smoking is harmful to health?</b>	
Strongly agree	135 (72)
Slightly agree	29 (16)
Disagree	5 (3)
No opinion	17 (9)
<b>Responses to the question: Have you ever thought about quitting smoking?</b>	
Yes	131 (70)
No	55 (30)
<b>Total</b>	<b>186 (100)</b>

**Appendix 1 -** Questionnaire related to smoking and non-smoking habits.

- Sex: male \_\_\_\_\_ female \_\_\_\_\_
- Age: below 18 \_\_\_\_\_ 18-19 \_\_\_\_\_ 20-21 \_\_\_\_\_  
22-23 \_\_\_\_\_ 24-25 \_\_\_\_\_ 26 and above \_\_\_\_\_
- Marital status: Married \_\_\_\_\_ Single \_\_\_\_\_
- Grade level: Freshman \_\_\_\_\_ Sophomore \_\_\_\_\_ Junior \_\_\_\_\_  
Senior \_\_\_\_\_ Other \_\_\_\_\_
- On a scale of 1 to 5 how strongly would you rate your religious beliefs  
Not religious at all \_\_\_\_\_ 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 5 \_\_\_\_\_ very religious
- In terms of socio-economic status, how would you classify your parents?  
Low \_\_\_\_\_ Middle Class \_\_\_\_\_ High Class \_\_\_\_\_
- Highest educational level completed by your father.  
None \_\_\_\_\_ Elementary School \_\_\_\_\_ High School \_\_\_\_\_ College \_\_\_\_\_
- Highest educational level completed by your mother.  
None \_\_\_\_\_ Elementary School \_\_\_\_\_ High School \_\_\_\_\_ College \_\_\_\_\_
- Do you use tobacco? (If your answer is no, proceed to question No. 16)  
Yes \_\_\_\_\_ No \_\_\_\_\_
- In what way do you use tobacco?  
Smoking \_\_\_\_\_ Chewing/Dipping \_\_\_\_\_
- How often do you smoke?  
Daily \_\_\_\_\_ Three to five times a week \_\_\_\_\_  
Once a week \_\_\_\_\_ A couple of times a month \_\_\_\_\_
- If you smoke cigarettes, how many cigarettes do you smoke per day?  
1-9 \_\_\_\_\_ 10-20 \_\_\_\_\_ 21-30 \_\_\_\_\_ 31-40 \_\_\_\_\_ 41 and more \_\_\_\_\_
- Have you ever used chewing tobacco?  
Yes \_\_\_\_\_ No \_\_\_\_\_
- How old were you when you first started smoking cigarettes seriously?  
Age (years) \_\_\_\_\_
- Have you ever thought about quitting smoking?  
Yes \_\_\_\_\_ No \_\_\_\_\_
- Does your father smoke cigarettes?  
Yes \_\_\_\_\_ No \_\_\_\_\_
- Does your mother smoke cigarettes?  
Yes \_\_\_\_\_ No \_\_\_\_\_
- Do your brothers or sisters smoke cigarettes?  
Yes \_\_\_\_\_ No \_\_\_\_\_
- For the very first time, where did you get the idea of cigarettes smoking.  
School \_\_\_\_\_ Doctors \_\_\_\_\_ Media \_\_\_\_\_ Others \_\_\_\_\_
- Do you think that smoking is harmful to health?  
Strongly Agree \_\_\_\_\_ Slightly Agree \_\_\_\_\_ Disagree \_\_\_\_\_  
No Opinion \_\_\_\_\_

**Table 4** - Sources of information regarding the idea of smoking.

Sources	Smokers (%)	Non Smokers (%)
School	34 (18)	103 (22)
Doctors	21 (11)	59 (13)
Media	79 (43)	175 (38)
Others	9 (5)	54 (12)
More than one source	43 (23)	70 (15)
<b>Total</b>	<b>186 (100)</b>	<b>461 (100)</b>

information were found to be the mass media (Table 4).

**Discussion.** International studies have addressed the prevalence of smoking among health science students despite their knowledge on the hazardous impact of smoking on health.<sup>22-25</sup> In King Saud University, Riyadh, Saudi Arabia; the College of Applied Medical Sciences runs 14 professional programs leading to a bachelor degree in biomedical technology, clinical laboratory, dental hygiene, community health sciences, radiological sciences, rehabilitation sciences and nursing.<sup>9</sup> Thus contributing more than 80% of the health profession in Saudi Arabia. Additionally, the total number of students in the health profession is 5666. The students enrolled in the College of Applied Medical Sciences represent more than 40% of the total health sciences university students. Our results indicate a smoking rate of 29% among the students of Applied Medical Sciences in Riyadh, Saudi Arabia. This rate was higher than that reported 10 years earlier, in a similar study by Saeed,<sup>9</sup> where they reported a smoking rate of 26.6%. In a similar study, involving only male students,<sup>4</sup> 33% smoked. In our study, we found that 20% of the males and 9% of the females responding were smokers. Our results were comparable to those found in Jaralla<sup>4</sup> and Felimban's<sup>3</sup> study of a female medical group where 9% smoked, and that of a non-medical group 12% smoked.

In 1986 Saeed and his co-workers, in their research on the smoking habits of the health professionals in the Riyadh area, reported 38% of the male and 16% of the female healthcare workers, both general practitioners and specialists, were regular smokers.<sup>8</sup> The prevalence rate for the 20-24 year old age group was somewhat higher than those previously reported for other Arab countries. In 1993 Kuwait, for example, showed a prevalence rate of 34% for the same age group.<sup>27</sup> In a similar study performed in Egypt in 1985, a prevalence rate of 28% was reported for the age bracket of 12-21 years of age.<sup>28</sup> In general,

the smoking attitudes and behaviors of family members, peers and close friends have been found, to be important factors in influencing smoking prevalence.<sup>29-31</sup>

Of the 29% of the respondents who reported smoking currently, 72% indicated that they were aware of the health hazards associated with smoking and 70% indicated that they would like to quite smoking but had difficulty breaking the habit once they had become accustomed to the smoking ritual. Previous studies have demonstrated that smokers wished to have tried quitting, however only a few were successful.<sup>5,7,8</sup> Obviously, the potential power of the media and of mass public education as both a means of coercing individuals into smoking as well as of informing them of the clear perils of smoking cannot be ignored.<sup>3,4,11,32</sup>

All of these studies reemphasize the importance of mass media on the public awareness and subsequent health-related behavior modification. Therefore, collaborative efforts between public health authorities and the mass media are essential in the planning, development, and dissemination/implementation of any intervention programs designed to further assess smoking impact and to reduce smoking in the Saudi population. The present results confirm that cigarette smoking is a major public health problem among Saudi Arabian students in universities that provide health profession training. Ideally, health professionals should play an important role in promoting healthy lifestyles. It is critical that they begin with their own cessation of smoking, thereby setting a strong and positive role model for students, patients, and the community alike.

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