

Original Article

Factors associated with Smoking Habits among Kuwaiti Students in the Age Group 9-18 years

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ABSTRACT

Background: Smoking is now recognized as a major public health problem. It is noticed that the majority of regular smokers begin their smoking at an early age

Objectives: To study the risk factors associated with smoking behavior of Kuwaiti students in the age group 9-18 years

Design: Cross-sectional survey during the year 2001

Setting: Kuwait Government Schools

Subjects: A sample of 3338 Kuwaiti students using a questionnaire

Main Outcome Measures: The association between smoking status of the students and smoking family members and friends, family structure, parental education level, poor school performance and potentially aggressive personality of the student. In addition, we compared their knowledge about the health hazards of smoking.

Results: The prevalence of smoking among the students was 4.6%. The prevalence of smoking among students in the age group 15 to 18 was 18% in males and 0.68%

in females. The results showed that peers and family members had significant influence on smoking behavior of the students ($p < 0.001$). Fathers at the extreme level of education and mothers of intermediate and above educational level exhibited an inverse relationship with the smoking status of the students ($p = 0.055$, $p = 0.02$) respectively. Smoking status was significantly related to poor school performance and tendency to aggression ($p < 0.001$). Lastly, smoking students were less knowledgeable about the health hazards of smoking than non smoking students ($p < 0.001$).

Conclusion: Peers, family members, family structure, parents' educational level, students' school performance and tendency to aggression were all influencing students' smoking behavior. Attention should be given to improve health education at school and family level and improving social skills of the students to decrease peer group pressure.

KEY WORDS: associated factors, Kuwait, smoking, students

INTRODUCTION

Smoking is the single and most important preventable cause of morbidity and mortality worldwide^[1]. Literature in this area of research has grown substantially over the last few decades. Researchers attempt to raise the degree of awareness among teenagers all over the globe. World Health Organization (WHO) believes that smoking is the largest preventable cause of death worldwide. It is estimated that more than 2.5 million premature deaths each year throughout the world can be attributed to tobacco smoking^[2]. Moreover, epidemiological studies documented the consequences of tobacco smoking as one of the important causes of premature mortality in most of the developed countries^[3]. It is noticed that the majority of regular smokers begin smoking at an early age^[2]. Risk factors have been under investigation

in many countries and within different cultures in an attempt to control and/or prevent adolescent smoking. Research in smoking habits revealed that the most consistent and powerful predictor of whether an adolescent smokes is whether his friends smoke^[4]. There is also evidence of a family circle of smokers, whereby parents who smoke for a variety of reasons, will in time produce children who are more likely to become smokers^[5].

Recently, in USA, a study conducted on school students^[6] showed that current smoking was significantly associated with peer networks. In Brazil^[7], smoking among adolescent in the age group 10-19 years was studied. It showed that smoking is associated with older age, older smoking sibling, three or more smoking friends and low school performance. In New Zealand^[8] smoking habit was studied among students in the age group of 14 - 15

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years and it showed that socio-economic status was increasingly associated with smoking prevalence in girls only.

Among Arab nations however, a study in Syria^[9], for example, showed that peer influence was evident in all stages of smoking process especially in males. Parental smoking was an important association factor among smokers. The combination of parent and sibling smoking was the strongest predictor of smoking status of the survey.

In the Arabian Gulf area, a study conducted in Abha, Saudi Arabia^[10] among university students showed that friends were the main source of the first cigarette. Jarallah *et al*^[11] studied the predictors of smoking among male junior secondary school students in Riyadh. By multivariate analysis, he showed that factors such as knowledge of harmful effects of smoking, age, whether smoking was allowed in the presence of friends or brothers and previous smoking, were statistically significant determinants of current smoking.

In Bahrain, smoking habits among medical students was studied^[12]. The study showed that the proportion of smokers among male living alone or with friends was higher than those living with their families. In Kuwait, similar studies showed that the most important risk factor positively associated with smoking initiation is the history of smoking among sibling^[13]. It is also found that the highest risk of initiation of smoking among adult males is for those with history of smoking in the family and friends circle.

In this study however, we focussed attention to investigate factors associated with smoking behavior among Kuwaiti students in the age group 9-18 years.

A cross-sectional survey was conducted during the year 2001 on school students in Kuwait government schools. Kuwait is made up of six Governorates. During the planning stage, the sample size was calculated to be proportional to all governorates (Capital, Hawalli, Ahmadi, Farwania, Jahra, and Mubarak Al-Kabeer) based on the statistics obtained from the Ministry of Education. A written permission was obtained from the Ministry of Education for each governorate to conduct the study. A female school and a male school were randomly chosen using random tables for each of the three education levels (elementary, intermediate and high school) at random starting from 4th grade of primary school (age 9 years) to 4th grade in secondary school (age 18 years). A total of 36 schools were selected. The questionnaire was pilot tested on a sample of 100 students, and some of the questions were modified to make them clear before it was formally administered. To minimize non-response and under-reporting, respondents

were told that the information obtained would be confidential and used only for scientific purposes. Ten percent students of these selected schools were randomly chosen with a calculated sample size of 3600 students (type 1 error $\alpha = 5\%$, type 2 error $\beta = 5\%$, allowable error = 5%, and test power = 95%). At the time of the questionnaire however, only 3338 students were present in the classes with a non-respondent rate of 7.3%. Although the respondents were 3338 the frequency in each table may appear less than 3338 due to the missing values which may vary from question to question. Questions were given in several formats including binary (yes, no), normal and 4-point likert scale. The questions covered several areas. Students were asked if their fathers, mothers, sisters, brother or friends were smokers. Then they were asked if they lived with one parent, both parents or others; the education level of their parents (illiterate, elementary, intermediate, secondary, university and above) and if their parents were frequently absent from home at night. Thirdly, questions were directed to assess certain personality characteristics of the student. These included: school performance (excellent, very good, good, failure and failure was considered as poor school performance); if the student liked quarreling with others using force; liked dangerous actions; liked to be in a car with a driver driving dangerously; if he used a seatbelt and if he likes to carry a knife with him. Lastly, a student was questioned about whether he considered smoking as a health hazard or not. Data were coded and entered into SPSS version 12. Thus, the data were checked and audited for entering mistakes or wrong code. Several statistical analysis procedures were implemented which statistically summarize measures in the form of frequency and percentages and Chi-square test for association.

RESULTS AND FINDINGS

The overall prevalence of smoking among the students was 4.6%. However, considering different age groups the prevalence was 0.5% in the age group 9 - 11, 1.9% in the age group 12 - 14 and 15.4% in the age group 15 - 18 years. According to gender the overall prevalence in males was 9.3% and 0.2% in females and within the age group 15-18, it was 18% for males and 0.68% for females.

Table 1 shows the association between the students' smoking status and smoking among family members and friends. From the table, smoking status of family members and friends was significantly associated with smoking status of the students ($p < 0.001$). Compared to smoking family members, smoking friends had the highest association with smoking students (67.9%, $p < 0.001$). Within family members however, brothers

Table 1: The association between smoking status of family members and friends on smoking behavior of the students

	Nonsmoker f (%)	Smoker f (%)	All Responders	p-value
Smoker Father	992 (31.7)	55 (44.4)	1047	
Non-smoker Father	2142 (68.3)	69 (55.6)	2211	< 0.001
Total	3134	129	3258	
Smoker Mother	57 (1.8)	15 (12.1)	72	
Non-smoker Mother	3051 (98.2)	109 (87.9)	3160	< 0.001
Total	3108	124	3232	
Smoker Brother	744 (23.7)	69 (51.1)	813	
Non-smoker Brother	2400 (76.3)	66 (48.9)	2466	< 0.001
Total	3144	135	3279	
Smoker Sister	34 (1.1)	6 (4.71)	40	
Non-smoker Sister	3093 (98.9)	123 (93.3)	321	< 0.001
Total	3127	129	3256	
Smoker Friend	389 (12.4)	91 (67.9)	480	
Non-smoker Friend	2738 (87.7)	43 (32.1)	2781	< 0.001
Total	3127	134	3261	

f = frequency

Table 3: The association between different behavior characteristics and smoking status of the students

Behavioral characteristics	Smoking habit				p-value
	Non-smoker		Smoker		
	f	(%)	f	(%)	
Poor school performance	206	6.8	22	15.8	< 0.001
Quarrel with friends	348	11.3	47	35.1	< 0.001
Dangerous maneuvers	613	19.9	76	56.7	< 0.001
Likes driving recklessly	743	24.1	75	45.7	< 0.001
Not using seat belt	1333	43.3	85	62.5	< 0.001
Likes to carry knife	1427	46.5	76	55.9	< 0.001

f = frequency

had the highest association (51.1%, p < 0.001), followed by smoking fathers (44.4%, p < 0.001), smoking mothers (12.1%, p < 0.001) and lastly smoking sisters (4.71%, p < 0.001).

This study also considered the effect of social and family characteristics on smoking behavior of the students. These included family structure, parents' educational level and absence of parents from home at night. It was shown that 17% of smoking students came from families with separated parents (p = 0.055). Moreover, 29.3% of smoking students had their fathers absent from home at night; 5.5% with absent mothers (p = 0.15, p = 0.293) respectively. Smoking among the students was inversely related to fathers' educational level in the two extremes (p = 0.055). Mothers with intermediate and higher educational level also had an inverse relation to the smoking status of their children (p = 0.002, Table 2).

Our study also showed that certain behavior patterns such as poor school performance (15.8%), quarrelling with friends (35.1%), liking dangerous

Table 2: The association of family structure and social factors with smoking behavior of the students

Social and Family Factors	Non-smoker students f (%)	Smoker students f (%)	p-value
Not living with Parents	310 (9.8)	23 (17)	0.055
Father Education:			
Illiterate	89 (2.9)	3 (2.3)	
Elementary	117 (3.9)	7 (5.3)	
Intermediate	625 (20.0)	39 (29.3)	0.055
Secondary	938 (30.9)	41 (31.3)	
University & above	1267 (41.7)	41 (31.3)	
Mother Education:			
Illiterate	286 (9.4)	18 (14.1)	
Elementary	244 (8.1)	11 (8.6)	
Intermediate	560 (80.5)	33 (28.8)	0.002
Secondary	922 (30.4)	38 (29.7)	
University & above	1019 (33.6)	28 (21.9)	
Father absent at night	607 (20.5)	39 (29.3)	0.015
Mother absent at night	109 (3.7)	7 (5.5)	0.293

f = frequency

Table 4: Perception of smoking as health hazard among responders

Smoking is a health hazard	Non smokers f (%)	Smokers f (%)	p-value
Yes	2731 (88.5)	95 (70.4)	< 0.001
No	355 (11.5)	40 (29.6)	< 0.001

f = frequency

maneuvers (56.7%), liking reckless driving (45.7%), not using seat belts (62.5%) and liking to carry a knife (55.9%) were all significantly associated with smoking students (p < 0.001, Table 3).

Lastly, there was a significant difference between knowledge of the hazards of smoking among smokers (70.4%) and non smokers (88.5%, p < 0.001, Table 4).

DISCUSSION

Despite the fact that the questionnaires were anonymous there is reason to believe that the prevalence of smoking was underestimated as a result of underreporting. Wagner *et al*^[14] and Coltas^[15] discussed that selfreporting may underestimate the smoking prevalence in the populations studied. In our study the prevalence of smoking among students was 4.6%. The GYTS (Global Youth Tobacco Survey) survey in Kuwait - 2001^[16] estimated the prevalence of current smoking among students of the age 13 to 15 to be 14.9%. Comparing this result with our study, it is evident that a lower result was obtained in our study. This seems logical since we focused our attention on a wider age range (9 - 18). On the other hand, the prevalence of smoking among the age group 15

to 18 was 18% among males and 0.68% among females which is higher than that of the younger age group (13-15) students in GYTS survey. There was a noticeable difference in the prevalence of smoking among males and females in our study. This difference was also evident in other surveys conducted on Kuwait population. For example, in a survey in 1987 the prevalence of smoking among Kuwaiti males and females of the age 12 years and above was 27.4% and 2.1% respectively^[17]. Another survey in 1996 reported the smoking prevalence above the age of 15 to be 32.1% in males and 1.5% in females^[18]. In general, patterns of smoking in males and females are different in developing countries. Females in developing countries tend to have lower rates of smoking and start smoking later than males^[2]. This is mainly the result of social cultural, religious or economic factors. For example, it maybe considered improper and indecent for females to be smoking in public; in addition, there may be religious and economic arguments against it. It is noteworthy that in a study in Kuwait by Menon *et al* in 2000^[2] 85% of female smokers preferred to smoke in the privacy of their home. Because of negative social cultural connotations, females, particularly girls may underreport their smoking habits.

The data of this study also revealed that peers and family members have major influence in smoking behavior of students. This finding is consistent with previous studies of Moody *et al*^[4], Jarallah *et al*^[11] and Hassan *et al*^[19]. According to the social learning theory^[20] children are more likely to model themselves on people they regard as worthy, people they regard as similar to themselves, and models of their own sex. Smokers begin their smoking habits by mimicking their friends, co-workers, family members in general and their parents in particular.

Our finding that smoking behavior of friends had the highest association with smoking behavior of students, especially among males, is also consistent with findings reported by Radovanovic *et al*^[3], Alexander *et al*^[6] and Jarallah *et al*^[11]. Throughout adolescence, youngsters experience feeling of uncertainty about their self-image and consider themselves more or less dependent on the opinion and judgment of peers. Meeting these expectations of one's group is essential for preventing loss of friends, becoming a loner and eventually losing one's social identity^[21].

It was also evident that family structure had influence on smoking behavior of the students. Smoking was more prevalent in students of families with separated parents and those with frequently absent parents from home. Separated or absent parents may cause children to spend time with

other people, peers as a source of social and physiological support. Also those who come from broken families are more likely to be involved in activities such as smoking^[22].

An inverse relationship between the prevalence of smoking and education has been repeatedly observed in different parts of the world, both among males and females. We observed an inverse relationship between the smoking status of students and fathers being at the two extremes of the educational scale. This is consistent with the results of the study of Jarallah *et al*^[11]. On one hand, the highly educated are presumably more knowledgeable about the health consequences of smoking, while on the other hand, illiterates may be more conservative. Both groups may have in common the wisdom that could prevent their children from taking up smoking. Mothers with intermediate and higher educational levels were found to be inversely related to smoking status of their children. One may conclude that by their knowledge about the harmful effect of smoking these mothers may have protected children from starting to smoke.

In addition, our study revealed that poor school performance was significantly more common among smoking students as compared to non smoking students. This finding goes with that of Miller and Blant^[23]. We also we found that smoking was significantly associated with risk taking and aggressive behaviour such as quarreling with friends, liking dangerous maneuvers, not using seat belts and liking to carry a knife. This finding was consistent with that of Lynskey *et al*^[24], Choquet *et al*^[25], Byrd *et al*^[26] and Jackson *et al*^[27].

Finally, our observation that smoking students were less knowledgeable than nonsmoking students about the hazards of smoking is logical. This follows the findings in studies of Abolfatouh *et al*^[28] and Giser *et al*^[29] which clearly demonstrated the importance of health education at this age group.

CONCLUSION

This study highlighted several facts regarding our investigation of the factors associated with smoking behavior in Kuwait. Results showed that peers, parents, family structure, parent educational level were among factors that are associated with adolescence smoking. Moreover, poor school performance and tendency to aggression were also associated with smoking students. Therefore, preventive measures should be taken and seriously implemented. This includes school campaigns where awareness among parents, teachers and students is raised by organizing seminars. We concentrate particularly on teaching social skills and strengthening self efficacy in order to reduce

peer pressure. Attention should be given to those who suffer social instability. Meanwhile, we do not claim that we have identified all factors that contribute to the problem of smoking. We rather say that further investigations are needed and in depth studies should be conducted to thoroughly outline the causes of this longstanding problem.

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