

Prevalence of Smoking and its Related Behaviors and Beliefs Among Secondary School Students in Riyadh, Saudi Arabia

Sultan Fahad Al Nohair

Saudi Board in Family Medicine, Arab Board in Family Medicine.

Department of Family and Community Medicine, KAMC

Saudi Arabia

Abstract:

Objective: To estimate the prevalence of smoking among secondary school students in National Guard area of Riyadh, and explore the reasons for the smoking and the attitude of non-smoker toward smoking habit.

Design: A cross-sectional study was conducted in June 2009. By random sampling technique 255 students were enrolled from secondary school of National Guard area, Riyadh, Saudi Arabia. A self-administered questionnaire was used for data collection.

Results: Current smokers represented 28.6% of the students. The most common reasons for smoking were: having free time (81.6%), for the relief of stress (63.2%) and seeing some of their teachers smoking (61.8%).

Most of the smokers started the habit before the age of 15 years old (89%). 84% of non-smokers suggested to ban smoking in public places. 42.2% of students were planning to start smoking in future.

Religion was the most important reason for not smoking among non smokers.

Conclusion: The prevalence of smoking is big enough a problem to be considered as a warning for an impending epidemic Health education provision should have a greater role in schools Governmental commitment and social support are vital if health education and awareness and especially quit smoking programs are to be implemented and sustained.

Key Words: Secondary school student, smoking, shisha, magha, Riyadh.

Correspondence:

Dr. Sultan Fahad Al Nohair, MD,

Saudi Board in Family Medicine, Arab Board in Family Medicine.

Department of Family and Community Medicine, KAMC

Saudi Arabia

Phone: 00966552263863

E mail: drsultan1@hotmail.com

Introduction

Tobacco is the single, most important preventable cause of death and the most important public health issue in the current time. Cigarette smoking is considered the single most preventable cause of premature deaths in some industrial countries. ⁽¹⁾

Tobacco addiction is an epidemic devastating the countries and regions that can least afford it in terms of disability, disease and even death. ⁽²⁾ WHO described tobacco smoking as an epidemic with an estimated three million deaths annually worldwide because of smoking. This figure is expected to rise to 10 million by the year 2020 or early 2030, if the current trends of smoking continue. Seventy percent of these deaths will occur in the developing countries. ⁽³⁾

The Prevalence of cigarette smoking among adults in the United States in 2004 was 20.9%. ⁽⁴⁾

Although Saudi Arabia does not grow tobacco or manufacture cigarettes, an average of 600 million SR (approximately US\$ 150 millions) are spent annually on tobacco. ⁽⁴⁾ Saudi Arabia is now ranked 8th in the world in terms of tobacco consumption and currently imports 20,000 million cigarettes per year, which cost about 351.8 million US dollars. ⁽³⁾

In 2002, the two holy cities of Mecca and Medina in Saudi Arabia were declared tobacco free by the Custodian of the Two Holy Mosques. Since then, tremendous efforts are being exerted by the Tobacco Control Program, Ministry of Health and the Anti-Smoking Committee (nongovernmental organization) towards maintaining and ensuring the continuity of this initiative. ⁽⁶⁾

Despite these alarming figures only few studies have been conducted to find out the prevalence of smoking among adolescent in Saudi Arabia. ^(7,9)

A study conducted in 1999 on male secondary school students in three region of Saudi Arabia reported a prevalence rate of 21.1%. ⁽⁷⁾ Another study conducted in 1995, and found the prevalence to be 17% among secondary school students in Riyadh. ⁽⁹⁾ In these studies, the definition of smoking was restricted to cigarette smoking only and not concerned other forms of tobacco smoking like shisha etc.

In other Gulf countries also only a few studies were found on this important topic and even those were not done on adolescents.

In Kuwait the prevalence of smoking was 34.4% in men and 1.9% among women. ⁽⁵⁾ Among men, the highest prevalence was observed in the youngest age group (20 years or below).

In the Kingdom of Bahrain, the prevalence of smoking shisha is (13.0%) among young male students. ⁽¹⁰⁾ Most studies have showed that, the family history of smoking is strongly associated with youth smoking. ⁽¹⁰⁾ This study also showed that, 43.2% of the smokers stated that their best friend was a smoker compared with 15.4% of non-smokers. ⁽¹⁰⁾

In another study, 32.10% of secondary school students smoke in front of their teachers with no feeling of embracement. ⁽⁹⁾ This study however also found that the main factor against smoking among the non-smoking secondary school students was religion (69.6%). ⁽⁹⁾

Adolescents who start to smoke early in their life are more likely to continue smoking as adults. ⁽¹¹⁾

Based on the facts that only few studies are available on this subject and even these are not recent, there was a need to find out the current prevalence of tobacco use and the factors affecting smoking behavior among adolescent in Saudi Arabia

Research Objectives

Primary Objective:

To determine the prevalence of smoking among students in the secondary school at National Guard area.

Secondary Objective:

1. To explore the reasons for starting smoking
2. To assess the attitude of non-smokers towards smoking,
3. To explore the reasons of abstinence of non-smokers,
4. To assess the influence of teachers on students regarding smoking.

Methodology

DESIGN:

Cross sectional descriptive study.

SETTING: King Khaled Secondary School, King Abdulaziz City, National Guard Area, Riyadh.

TARGET POPULATION: Students of the secondary school aged between 16-22 years.

SAMPLE SIZE: The study sample size of 255 was calculated using the formula $N = (Z)^2 p(1-p) / d^2$. Where prevalence $p = 21\%$ accuracy $d = 0.05$, alpha of 0.05, and power of 0.8. Prevalence of smoking among teenagers was obtained from a study conducted in three regions of Saudi Arabia. ⁽⁷⁾

QUESTIONNAIRE:

The questionnaire was prepared based on risk factors and teenage practices related to smoking noted in earlier studies. Questions were grouped into following sections: demographics, current smoking practices, smoker section and non-smoker section.

The smoker section explored in detail the practice of smoking, reasons for initiation and continuation of smoking, attitude toward smoking, readiness to quit and basic knowledge.

The non-smoker section explored knowledge of passive smoking, environmental influences, attitude toward smokers and their recommendations.

Data Entry & Analysis

Data was entered to a computer & analyzed by using SPSS version 18.

1. Descriptive analysis was carried out on all questions in the survey form, including mean, median, mode, frequencies and percentages.

2. Relationships were explored between the demographic variables, smoking behavior and non-smoker attitudes using chi-square, t-test, linear regression and ANOVA where applicable.

3. Questions 21 - 33 were used for smokers' reasons to Smoke preliminary analysis and questions 34-49 were used for Non-smokers' Attitude.

Results

A total of 255 secondary school students in King Abdulaziz City, Riyadh, answered the questionnaires during the study period, with a response rate of 85%.

This study demonstrates several important findings, the overall prevalence of smoking among male secondary school students at King Abdulaziz City; Riyadh was (29.8%).

In our study, the student's smoking status and having a friend who smoked were strongly related to the habit of smoking (60.5%).

It was found that 63% of smokers have seen one of their teachers smoke. In our study, more smokers confirms the most important age to start smoking was at 15 years old which was clinically significant (p -value < 0.05).

We also found that, the relationship between number of cigarettes smoked and the age of first cigarette was proportional inversely, those who smoke more cigarette started smoking at an early age.

Religion constituted the main factor against smoking among the non-smoking group (42.3%).

Also, from our study we found low smoking status among the students in legitimate department secondary school as compared to scientific department with significant p -value.

From our non-smoker participants 80% of them suggested to prevent smoking in public places and 80% of non-smoker participants encourage increasing the price of cigarette.

Table (1) presents the general demographics (age at which first cigarette was smoked and age at which regular smoking was started) as well as smoking behavior. A teenager with family history of smoking is more likely to be currently smoking, therefore, the chance of smoking is increases with family history of smoking by (5.78) compared to those with no family history. (Chi-sq 37.22, p value < 0.001).

Table (1). General Demographics & Smoking Behavior.

Variable	Number	Mean (SD)	Min-Max
Age of first cigarette (years)	76	13.4 (2.5)	7-18
Age of regular smoking (years)	76	15.1 (1.8)	10-20
Cigarettes / day	70	14.7 (7.5)	1-60
Shisha days / week	26	3.6 (1.8)	1-7
Smoking in front of relatives	64 / 76	84.2	
Self buyers of cigarettes / shisha	64 / 76	84.2	
Believes smoking is hazardous	71 / 76	93.4	
Heard of Anti-smoking Society	59 / 76	77.6	
Ever think of quitting smoking	68 / 76	89.5	
Ever quit smoking for 1 week	44 / 76	57.9	
Not ready to quit in 6 months	44 / 76	57.9	
Shisha users*	26 / 76	34.2	

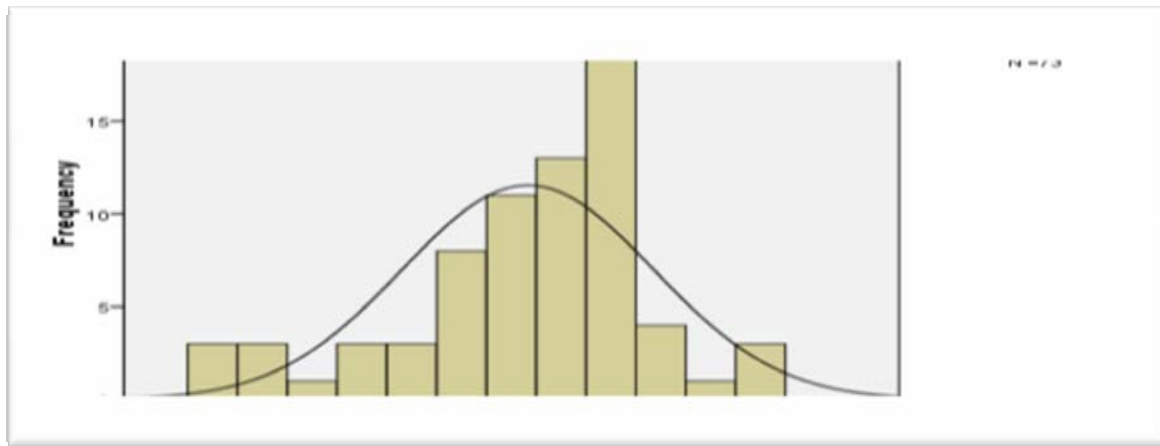


Fig. (1). Histogram showing the age of students when they first tried to smoke.

Figure (1) shows almost 20% of the students smoked their first cigarette at 15 years of age and < 5% started before 10 years of age. This high percentage might predict future prevalence of smoking and complications from this habit.

Figure (2). Type of Tobacco Use.

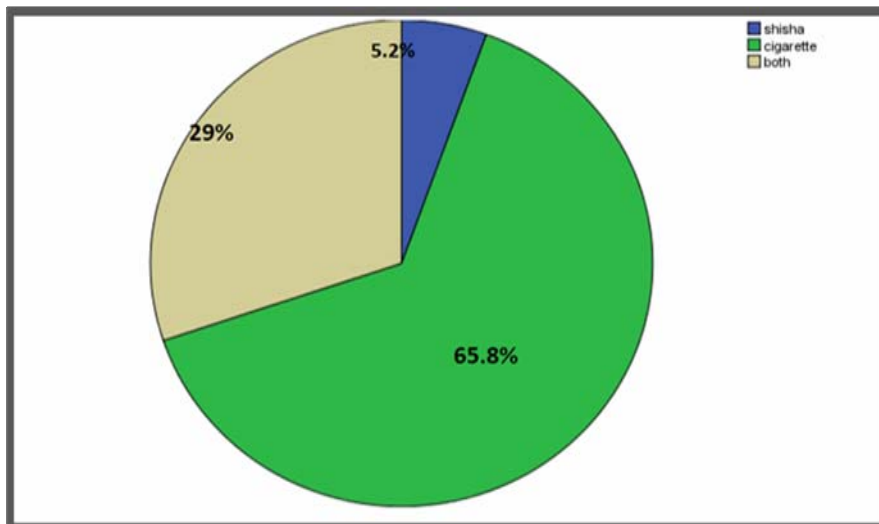


Fig. (2). shows nearly 95% of the smokers used cigarettes and over 1/3rd smoked shisha.

Table (2). Reasons for Smoking (N = 76)
(Percentages rounded to nearest).

Reason	Agree (%)	Not agree (%)	Not sure (%)
Mimic others	40 (52)	22 (29)	14 (18)
Smokers in family	23 (30)	42 (55)	11 (15)
Teachers smoke	47 (62)	26 (34)	3 (4)
Feel relaxed	38 (50)	20 (26)	18 (24)
Free time	62 (82)	13 (17)	1 (1)
Stress relief	48 (63)	22 (29)	6 (8)
Feeling strong	16 (21)	54 (71)	6 (8)
Interest	35 (46)	33 (43)	8 (10)
Special smell	25 (32)	35 (46)	16 (21)
Influence of friends	46 (61)	7 (9)	23 (30)
To attract attention	31 (41)	40 (53)	5 (6)
Advertisement	24 (32)	38 (50)	14 (18)
To sit with friends	30 (40)	20 (26)	26 (34)

Table (2) shows the reasons for smoking; these can be divided into two categories (personal and social).

Personal reasons include mimicry, feeling relaxed, free time, stress, feeling strong, interested in smoking habit, to attract attention of others, special smell like shisha.

Social reasons include seeing one of his teachers smoking, copying one's friend. By analyzing personal reasons we found that the majority confessed to have free time (81.6%) followed by stress (63.2%). The highest disagreement was smoking to feel strong (71.1%) followed by to attract attention of others (52.6%).

The highest answer of not sure was for feeling relaxed (23.7%), then special smell like shisha (21.1%).

Seeing one of his teachers smoking was among the strongest social driving force to start & continue smoking possibly because teachers are seen as people who are righteous and good example.

Table (3). Attitude of Non-smoker toward Smoking (N 175).

Attitude	Yes (%)	No (%)
Feel sad for smokers	162 (93)	13 (7)
Saw care providers smoke	146 (83)	29 (17)
Saw teachers smoke	159 (91)	16 (9)
Increase cigarette price	148 (85)	27 (15)
Ban smoking in public areas	147 (84)	28 (16)
Punish for public smoking	125 (71)	50 (29)
Ever think of smoking	74 (42)	101 (58)
Ever ask smoker to stop	130 (74)	45 (26)
Sitting with smokers	117 (67%)	58 (33)
Physicians lack in health education	109 (62)	66 (38)
Teachers lack in health education	124 (71)	51 (29)
Passive smoking hazardous	173 (99)	2 (1)
Smoking increases hashish use	146 (83)	29 (17)
Smoking increases amphetamine use	135 (77)	40 (23)
Will you stop a smoker in restaurant?	33 (19)	142 (81)

Table (3). shows that a majority of non-smoker students (92.6%) feel sad for the smokers. 90.9 % of them saw at least their teacher smoking. 15.4 % of non-smoker students do not suggest increasing the price of cigarette. 57.7 % of non-smoker students did not intend to start smoking at any time in their life compared to 42.3% who showed intent for smoking in the future.

Over 2/3rd of non-smokers used to sit with smokers and 98.9% of them think passive smoking affect their health. Nearly 2/3rd of non-smoker students think that the physicians are not doing their best in terms of providing education about the dangers of smoking compared to 70.9% who think the teachers have the same problem. Mixed reactions were elicited and reported as mentioned toward the behavior of smoking from the perspective of non-smokers.

Discussion

Although Saudi Arabia does not grow tobacco or manufacture cigarettes, an average of 600 million SR (approximately US\$ 150 millions) are spent annually on tobacco.⁽⁸⁾

Our study reported a higher prevalence rate as compared to other studies done previously in Saudi Arabia.^(7, 9)

This is partly explained by difference in the definition of smoker in the previous study. The definition was restricted to cigarette smoking, not included other type of smoking as shisha (water-pipe). Cigarettes were the most commonly used type of tobacco in our study (64.4 %), while shisha (water –pipe) was smoked by 5.5 % and those who smoke both were 30.1%.

As in this study smokers confirms the most important age to start smoking is at 15 years, it should prompt the ministry of health to start advising about the harmful effects of smoking in primary and intermediate schools classes.

Since the number of cigarettes smoked and the age at which first cigarette smoked is inversely proportional, we need more regulation in the market tobacco regarding not to sell cigarette to those less than 18 years old. The government should adopt a policy of regular increase in cigarette taxes to cover part of the cost of treating smoking-related disease. There were some limitations however in our study. Our survey was only among male students, this may in future encourage female physician to do similar study among female students.

We included only one area which obviously does not represent the national trend and the prevalence in the whole kingdom. Also adolescents who do not go to the schools were not included

Conclusion and Recommendations

Emphasis on the exemplary role of parents and teachers should be stressed in these programs. School 'quit' program should be considered to combat the addictive nature of tobacco. Government commitment and social support are vital if these programs are to be implemented and sustained. Provide intellectual faculties in delivering lectures& providing input in workshops and do meeting with those concerned. Launching a website specifically aimed to smokers in the whole kingdom of Saudi Arabia and teenagers in particular should definitely be expected to help.

Mobile smoking cessation clinics should be set up to assist smokers quit smoking. Encourage researchers to conduct studies about the effects of smoking. Encourage school administration to arrange regular visits to anti-smoking charitable associations. Inform teachers to be a role model & leaders for anti-smoking campaign. Help in establishing a large number of satellite anti-smoking clinics and help in training of their staff.

References

1. Al Nasir FAL. *Bahrain school teacher knowledge of the effects of smoking*. Ann Saudi Med, 2004 December; 24(6):448-452.
2. WHO. [Homepage on the Internet], 2006. WHO's World no tobacco day '2006, *Tobacco deadly in any form of disguise*, Tobacco free initiative. www.who.int/tobacco; Cited: 2006, Retrieved: 04 May '2011 available from: www.who.int/tobacco/communications/events/wntd/2006/en/index.html
3. World Health. Guidelines for controlling and monitoring the tobacco epidemic . Geneva: World Health Organization; 1998.
4. Center for Disease Control and Prevention. State-Specific Prevalence of Cigarette Smoking and Quitting Among Adults United States. 2004. MMWR Morb Mortal Wkly Rep 2005; 54(44):1124-1127
5. Memon A, Moody PM , Sugathan TN, El-Gerges N, Al-Bustan M, Al-shatti A ,Al-Jazzaf H. *Epidemiology of smoking among Kuwaiti adults , prevalence , characteristics , and attitudes*. Bull World Health Org, 2000; 78(11):1306-15
6. WHO. [Homepage on the Internet], 2006. *Together for tobacco free Hajj 2006 (1426 Hegira). Religion and tobacco*; Cited 2006. Retrieved: 04 May '2011 available from: http://www.emro.who.int/tfi/TobaccofreeMecca_Medina.htm
7. Jarallah JS , AL-Rbeaan KA, AL-Nuaim AA, AL-Ruhaily AA, Kalantan KA. Prevalence and Determinants of Smoking in Three Region of Saudi Arabia. Tobacco Control 1999; 8:53-56.
8. *Foreign trade statistics in Saudi Arabia*. Riyadh, Ministry of Finance and National Economy, Saudi Arabian Central Department of Statistics, 1985–1995.

9. AL-Faris EA, Smoking Habits of Secondary School Boys in Rural Riyadh, *Public Health* (1995); 109: 47-55
10. Al-Haddad¹ N, Hamadeh RR, Smoking among secondary-school boys in Bahrain: prevalence and risk factors, *Eastern Mediterranean Health Journal*, January 2003; 9 (1/2): 1-1.
11. Wang MQ, Fitzhugh EC, Turner LW, Fu Q. A retrospective study of social influence on southern adolescents' smoking transition. *Southern Med J* 1997; 90(2):218-222.