

PREVALENCE OF SMOKING AMONG HEALTH CARE PROVIDERS IN EASTERN PROVINCE, SAUDI ARABIA

¹AZIZAH AL-MOBEERIEK, BDS, MSc

²AYAT AL-ZAKI, BDS

²LAILA AL-DUHAILAN, BDS

²TAHRA AL-HABBOUBI, BDS

ABSTRACT

The objective of the study was to determine the prevalence of smoking among health care providers in the eastern province. Questionnaires were distributed to health care workers in Eastern province of Saudi Arabia. Out of 578 individuals only 15.1% (87) were smokers, occasional smokers were 13.3% (77), 4.7% were ex-smokers and the remaining 67% (387) were non-smokers. The most common influencing factor was friends accounting for 66.7% (58/87). A large number of the smokers 82.8% (72/87) had considered quitting smoking. Failure of attempts to quit smoking was largely due to lack of will power 56.9% (41). Most of the smokers were aware of the health hazards of smoking 93.1% (81) and 54.3% (44/87) would check the nicotine level in cigarettes. It was concluded that smoking prevalence is relatively high among our hospital workers. Most of the smokers knew the harmful effects but did not succeed in quitting smoking due to various reasons.

Key words: Health care, smoking, attitude cessation

INTRODUCTION

Smoking represents a universal problem with multi-adverse effects on health and economical growth^{1,2}. Nearly 4 million people die prematurely due to smoking and this figure is expected to rise to 10 million within the next 30 years³⁻⁵. 70% of the smokers belong to developing countries⁴.

Smoking has been linked to serious diseases involving the cardiovascular and respiratory systems and cancers. For example lung cancer have been rated as the fourth most common type of malignant diseases among Saudi males⁶. In Saudi Arabia, in a connection with the rise of lung cancer, there is a growing consumption of cigarette smoking in Saudi Arabia^{6,7}.

Studies have indicated a widespread habit of smoking particularly among Saudi adult males⁶⁻⁸. Most of them begin to smoke early in life due to peer pressure and continue for many years later⁸⁻¹¹. It has been shown that smoking is affected by knowledge of its harmful effects, smoker's age, previous experience of smoking and whether smoking allowed in the presence of friends or brothers¹². Among health care workers (HCW), smoking was quite prevalent ranging from 19% to 34% of current daily smokers¹³⁻¹⁴. HCW represent a model for the public, thus it is crucial to assess such a habit. The current investigation was designed to (1)

explore the prevalence of smoking among health care workers in the eastern area of Saudi Arabia; (2) associations of smoking status with socio-demographic features and (3) attitude towards issues related to smoking and smoking cessation.

METHODOLOGY

The population of this study was obtained from the main hospitals in the eastern area of Kingdom of Saudi Arabia, including private and governmental sectors. A convenient sample was obtained from each hospital. Questionnaires were distributed equally and randomly to each hospital contributing approximately to 17% of the total sample.

Subjects for this study were male and female health care providers including physicians, dentists, nurses, technicians, pharmacists and members of other para-medics specialties such as dieticians, physical and respiratory therapists. All subjects were currently working members in these hospitals in Al-Dammam, Al-Dhahran, and Al-Khobar. All participants were interviewed; the aim and any uncertainty were explained.

A self-administered questionnaire was designed in English based on the reviewed literature. It was then peer-reviewed, tested in a pilot study and modified. The

¹ **Correspondence:** Dr. Azizah F. Al-Mobeeriek, Associate Professor, Department of Maxillofacial Surgery and Diagnostic Sciences, College of Dentistry, King Saud University, Riyadh, Kingdom of Saudi Arabia, Email: azizafm2001@yahoo.com, Tel: +966(1) 4784524, Fax: +966(1) 4678719

² Interns, College of Dentistry, King Saud University, Riyadh

questionnaire was undisclosed and confidential with an attached brief introduction explaining the aim of the investigation. The questionnaire was uncomplicated and needed approximately ten minutes to complete and all the questionnaires were gathered during the same visit whenever possible. The participants consisted of three parts:

- The participant's Demographic data (age, sex, marital status, qualification, clinical experience and place of practice).
- The second part consisted of
 - o The participants stress level: The participants were asked to rate their stress level on a ten-graded visual scale.
 - o Their smoking behaviour (duration, type, checking nicotine level in cigarettes and number of cigarettes) and attitude, cessation attempts, methods and factors affecting cessation efforts.
- The third section included: reasons for not smoking, suggestion of a policy to reduce tobacco smoking at the work place and why health providers smoke.

The questionnaire was distributed to the subjects at their working places during a six-week period after obtaining a written permission from the visited hospitals.

Statistical analysis

The collected data were entered into Statistical Package for Social Sciences (SPSS), version 11.0 and were analyzed for frequency distributions. The Chi-square test

RESULTS

Sample characteristics

The results are summarized in Table 1. Of the 700 questionnaires distributed only 578 returned with a response rate of 82.6%.

The male participants constituted 42.4% (245) while the females were 57.6% (333). Most of the participants age-range was 20-30 comprising 39.6% (229), followed by 31-40 years with 32.2% (186), 41-50 years 22.7% (131) and the least was 50 years and above. Technicians comprised 27.2% (157), physicians were 25.1% (145), nurses were 23.2% (134), dental assistants were 9.3% (54), dentists were 6.6% (38), pharmacists were 5.5% (32), physical therapists were 1.9% (11), dental hygienists were 0.9% (5) and respiratory therapists were 0.3% (2). Out of the 578 participants, 37% (214) were Saudi, while 63% (364) were Non-Saudi of different nationalities. More than half of the sample were married 62.6% (362), whereas 35.5% (205) were single, divorced participants constituted 1% (6) and widows were 0.9% (5).

TABLE 1: DEMOGRAPHIC CHARACTERISTICS OF SAMPLE

Variable	Number	Percentage
Gender		
Male	245	42.4
Female	333	57.6
Age		
20-30 years	229	39.6
31-40 years	186	32.2
41-50 years	131	22.7
≥50 years	32	5.5
Occupation		
Physicians	145	25.1
Dentists	38	6.6
Nurses	134	23.2
Technicians	175	30.3
Dental Assistants	54	9.3
Pharmacists	32	5.5
Dental Hygienists	5	0.9
Nationality		
Saudi	214	37.0
Non-Saudi	364	63.0
Marital Status		
Married	362	62.6
Single	205	35.5
Divorced	6	1.0
Widow	5	.9
Working Hours		
4 hours	8	1.4
8 hours	332	57.4
> 8 hours	238	41.2
Smoking Habits		
Smoker	87	15.1
Non-smokers	387	67.0
Occasional Smokers	77	13.3
Ex-Smoker	27	4.7

Most of the health care workers (HCW) had an 8-hour work shift 57% (332), followed by those who worked more than 8-hours 41.2% (41.25) and the least were those with their work duties less than 4 hours 1.4% (8).

Smoking Data

Out of 578 individuals only 15.1% (87) were smokers, occasional smokers were 13.3% (77), 4.7% were

TABLE 2: DEMOGRAPHIC CHARACTERISTICS OF SMOKER AND NON-SMOKER PARTICIPANTS

Variables	Smoker No. (%)	Non-smoker No. (%)	Occasional Smoker No. (%)	Ex-Smoker No. (%)	P-value
Age					
20-30	38(6.6)*	156(27)	33(5.7)	2(0.3)	.000
31-40	27(4.7)	131(22.7)	24(4.2)	4(0.7)	—
41-50	22(3.8)	80(13.8)	18(3.1)	11(1.9)	—
≥50	0(0)	20(3.5)	2(0.3)	10(1.7)	—
Gender					
Male	61(10.6)	121(20.9)	41(7.1)	22(3.8)	.000
Female	26(4.5)	266(46)	36(6.2)	5(0.9)	—
Nationality					
Saudi	44(7.6)*	141(24.4)	24(4.2)	5(0.9)	.007
Non-Saudi	43(7.4)	246(42.6)	53(9.2)	22(3.8)	—
Marital Status					
Married	47(8.1)	242(41.9)	47(8.1)	26(4.5)	.021
Single	36(6.2)	140(24.2)	28(4.8)	1(0.2)	—
Divorced	2(0.3)	3(0.5)	1(0.2)	0(0)	—
Widow	2(0.3)	2(0.3)	1(0.2)	0(0)	—
Working Hours					
4 Hours	2(0.3)	3(0.5)	3(0.5)	0(0)	—
8 Hours	56(9.7)	220(38.1)	42(7.3)	14(2.4)	—
> 8 Hours	29(5)	164(28.4)	32(5.5)	13(2.2)	—
Occupation					
Physician	16(2.8)	89(15.4)	28(4.8)	12(2.1)	—
Dentist	3(0.5)	26(4.5)	7(1.2)	2(0.3)	—
Nurse	19(3.3)	101(17.5)	10(1.7)	4(0.7)	—
Technician	39(6.7)	108(18.7)	20(3.5)	8(1.4)	.004
Dental Assistant	9(1.6)	35(6.1)	9(1.6)	1(0.2)	—
Pharmacist	1(0.2)	28(4.8)	3(0.5)	0(0)	—

ex-smokers and the remaining 67% (387) were non-smokers.

When considering the demographic data (Table 2), smoking was significantly ($p = .000$) prevalent among males at the age-range of 20-30 years. Among the smokers subjects, higher percentage of smoking was cited by technicians 6.7% (39/578) at $p = .004$, followed by nurses 3.3 % (19/578), then physicians 2.8% (16/578) and the least were dental assistants 1.6% (9/578), dentists 0.5% (3/578) and pharmacists 0.2% (1/578). Saudis showed significantly higher prevalence of smoking ($p = .007$) than non-Saudis. Working hours, though not significant, showed that there were more smokers

among the 8-hour shift workers. As for the marital status, married subjects showed a higher percentage than other groups at $p = 0.021$. Looking at stress, smoking was significantly ($p = 0.029$) associated with moderate stress rating.

A good number of the smokers 39.1% (34/87) ($p = 0.000$) started during adolescence, followed by childhood 27.6% (24/87), and early adulthood 32.2% (28/87) and the least was in the age above 35 accounting for 1.1% (1/87) (Table 3). The most common influencing factor was friends accounting for 66.7% (58/87) ($p = 0.000$), then personal choice accounting for 27.6% (24/87) and family 3.4% (3/87). Both Advertisements and those with mul-

TABLE 3: SMOKERS' AGE OF ONSET, FACTORS INFLUENCING COMMENCE OF SMOKING AND DAILY FREQUENCY OF CIGARETTE SMOKING

Variables	Frequency	Percent
Age of start		
less than 12 Years	24	27.6
12–20 years	34	39.1
21–35 years	28	32.2
36–55 years	1	1.1
Influencing factors		
Friends	58	66.7
Family	3	3.4
Advertisements	1	1.1
Personal choice	24	27.6
More than one factor	1	1.1
No. of cigarettes/day		
1–10	43	49.4
11–20	29	33.3
21–30	10	11.5
31–40	3	3.4
> 40	2	2.3

multiple factors constituted 1.1% (1) each (Table 3). As regard to area of smoking 42.5% (37/87) reported smoking at home ($p=.000$) and was significant for non-Saudi ($p=0.019$), for those who smoked less 1-10 cigarettes ($p=.020$) and for the age range 41-50 years ($p=0.035$). Whereas 31% (27/87) reported that they were smoking in public/social places and 8% (7/87), and was significant for males, ($p=.008$) cited that they were smoking in restricted areas, 5.7% smoked at

the workplace and 12.6% (11/87) smoked in different areas.

The majority of smokers 49.4% (49/87) consumed 1-10 cigarettes/day ($p=.000$), followed by 11-20 cigarettes/day. In terms of types of smoking, cigarettes were the most common consumed type constituting 79.3% (69/87) ($p=.000$), and 9.2% (8/87) were smoking Shisha (Ma'sel), while 11.5% (10/87) had a combined habit of smoking (cigarettes and Shisha) (Table3).

Most of the smokers were aware of the health hazards of smoking 93.1% (81) ($p=.000$) and 54.3% (44/87) of them check the nicotine level in their cigarette packages before buying them ($p=.000$).

A large number of the smokers 82.8% (72/87) ($p=.000$) had considered quitting smoking, mainly by themselves 83.3% (60/72) ($p=.000$), six individuals (8.3%) attempted quitting through multiple methods, four (5.56%) used nicotine patches and only two (2.78%) visited smoking cessation clinics.

Failure of attempts to stop smoking, was largely due to lack of will power 56.9% (41) ($p=.000$), 9.7% (7) subjects reported that a family member or friends influenced them to continue smoking, 8.3% (6) reported social problems were the reason of failure, three (4.2%) cited withdrawal symptoms and 20.8% (15) had a combination of the four previous reasons.

Among 491 non-smokers and ex-smokers, health care providers (60.5%) reported that the main reason for not smoking was health hazards, and 4.5% of subjects cited religion as a main reason, the other 22.4% of subjects cited other reasons such as social stigma. Most of them 357(76%) felt annoyed when somebody smoked around them ($p=00$), while 70(14.9%) did not care. Most of non-smokers, ex-smokers health care providers 235(47.9%) thought that the stress was the primary reason for starting smoking and it affected the continuity of it, while 81(16.5%) thought that the habit and addiction were the primary reasons and they suggested that the self decision, health education and promotion programs and governmental issues are the most effective methods to help them to quit.

DISCUSSION

The result of our investigation indicated that health professionals, though aware of risks and hazards of smoking, had a quit prevalent smoking habit. Yet, only few studies have examined this issue. Most of the previous studies have addressed smoking habits among students and general population and students^{8-12, 15, 16}.

Our results are comparable to findings reported by Siddiqui and Ogbeide (2001) in Alkharj Military Hospi-

TABLE 4: PROFILE OF SMOKERS' PROFESSIONAL DEGREE ACCORDING TO NUMBER OF CIGARETTE SMOKED/DAY

Profession	Number of cigarettes smoked/day			
	1-10	11-20	21-30	31-40
Physician	9(1.6)	5(0.9)	1(0.2)	1(0.2)
Dentist	2(0.3)	1(0.2)	0(0)	0(0)
Nurse	13(2.2)	5(0.9)	1(0.2)	0(0)
Technician	12(2.1)	16(2.8)	7(1.2)	4(0.7)
Dental assistant	7(1.2)	2(0.3)	0(0)	0(0)
Pharmacist	0(0)	0(0)	1(0.2)	0(0)

tal who reported 19% prevalence¹⁷. In contrast, the predominance of smoking among physicians in Riyadh 34%, Kuwaiti and emirates male physicians 45.3% and 43.9% respectively^{18,19}. More prevalence was also reported by Netherlands 34%, and Greece internists 44% and surgeons 54%^{20,21}. Non-Smoker physicians are reported to be more efficient in patients' advice, attitudes, and counseling practices on smoking cessation²².

Similar to others^{18,19}, gender was a significant factor in adopting smoking habit, since most of the smokers, in this investigation, were males. This could be attributed to the fact that female smoking is unaccepted in Saudi societies. Another noteworthy finding in our research was the age of commencing smoking. In general, most of the studies agree that Saudi smokers start as early as first years of the teenage and continue thereafter⁸⁻¹¹. Our study documented the next common smoking starting age was late childhood and the least was above 35 years. This may highlight the importance of a planned age-dependant intervention and education.

Our results have also ascertained earlier findings pertaining to the influence of friend on the decision to begin smoking⁷⁻¹⁰. This is properly due to lack of experience along with psychological and mental changes and preference of leisure. It is, thus, the most appropriate age to install programs on tobacco-related issues at schools, mosques & areas of gatherings by experts and authorities. Other reasons mentioned in the literature are unrestricted tobacco sales to youths, low cost of cigarettes, receptivity to cigarette promotions and seeing tobacco use in films among adolescence^{9,23,24}.

In concurrence to results reported by Jarallah et. al. (1999), our results displayed high prevalence of smoking among married individuals and those with technical education²⁵. It also indicated that a possible association between level of self-rated stress. Smoking has been reported to impact the psychological well being²⁶.

In consistent with other research, high percentage of the sample was aware of smoking hazards and considered quitting but failed⁹. Failure to quit tobacco smoking was mainly due to lack of will power and influence of the family. In our sample, a high proportion of the participants smoke at home, increasing the risk for passive smokers.

The majority of the sample was light smokers consuming 1-10 cigarettes/day. This may point out the relatively low smoking prevalence and consumption of our sample when compared to universal prevalence and figures obtained from Saudi population^{9,12,7-21}. Consequently, there is a reasonable

opportunity for smoking intervention. More health awareness is required among health professionals and our general population. Programs and activities should be implemented as early as in the elementary school. The impact of films and cigarettes advertising should be acknowledged and used in the proper direction. Tobacco control laws and policies should be implemented. Tobacco cessation clinics should advertise it self more widely and expand its service to reach schools.

In the view of the scarcity of such researches, we recommend further national survey to study the prevalence, determinants factors and the impact of smoking cessation and education on prevalence and incidence.

In Conclusion smoking prevalence was relatively high among our hospital workers. Most of them were males and technicians. Smoking usually had started at an early age. This may highlights the importance of policies, implementation of early age health education. Tutoring should also explain the risks for both the smokers and passive smokers.

REFERENCES

- 1 Bellagio Statement on Tobacco and Sustainable Development. Tobacco Control 1994;3:358-61.
- 2 Bánóczy J. and Squier C. Smoking and disease. J Dent Educ. 2004, 8(suppl.4) 7-10.
- 3 World Health Organisation. Controlling the smoking epidemic. Geneva: WHO, 1979. (Technical Report Series No 636.)
- 4 World Health Organisation. Guidelines for controlling and monitoring the tobacco epidemic. Geneva: WHO, 1996.3 Saudi Arabian Central Department of Statistics. Foreign
- 5 Martin G, Steyn K, Yach D. Beliefs on smoking and health and attitudes towards tobacco control measures. S Afr Med J 1992; 82: 241-245.
- 6 Saudi Arabian National Cancer Registry. First report. Cancer incidence in Saudi Arabia. Riyadh: National Cancer Registry, 1994.
- 7 World Health Organisation. Tobacco or health. A global status report. Geneva: WHO, 1997:260-1.
- 8 Saeed AA, Khoja TA, Khan SB Smoking behaviour and attitudes among adult Saudi nationals in Riyadh City, Saudi Arabia. Tob Control. 1996 Autumn;5(3):215-9.
- 9 Siddiqui S, Ogbeide DO, Al Khalifa I. Smoking in a Saudi community: prevalence, influencing factors, and risk perception. Fam Med. 2001 May;33(5):367-70.
- 10 Al-Yousaf MA, Karim A. Prevalence of smoking among high school students. Saudi Med J. 2001 Oct;22(10):872-4.
- 11 Al-Haddad NS, Al-Habeeb TA, Abdelgadir MH, Al-Ghamdy YS, Qureshi NA. Smoking patterns among primary health care attendees, Al-Qassim region, Saudi Arabia. East Mediterr Health J. 2003 Sep-Nov;9(5-6): 911-22.

- 12 Jarallah JS, Bamgboye EA, al-Ansary LA, Kalantan KA. Predictors of smoking among male junior secondary school students in Riyadh, Saudi Arabia. *Tob Control*. 1996 Spring;5(1):26-9.
- 13 Siddiqui S, Ogbeide DO. Profile of smoking amongst health staff in a primary care unit at a general hospital in Riyadh, Saudi Arabia. *Saudi Med J*. 2001 Dec;22(12):1101-4.
- 14 Saeed AA. Attitudes and behaviour of physicians towards smoking in Riyadh city, Saudi Arabia. *Trop Geogr Med*. 1991 Jan-Apr;43(1-2):76-9.
- 15 Hasim TJ. Smoking habits of students in College of Applied Medical Science, Saudi Arabia. *Saudi Med J*. 2000 Jan;21(1):76-80.
- 16 Al-Arifi MN. Smoking habits among pharmacy students at a University in central Saudi Arabia. *Saudi Med J*. 2005 May;26(5):893-5.
- 17 Siddiqui S, Ogbeide DO. Profile of smoking amongst health staff in a primary care unit at a general hospital in Riyadh, Saudi Arabia. *Saudi Med J*. 2001 Dec;22(12):1101-4.
- 18 Saeed AA. Attitudes and behaviour of physicians towards smoking in Riyadh city, Saudi Arabia. *Trop Geogr Med*. 1991 Jan-Apr;43(1-2):76-9.
- 19 Bener A, Gomes J, Anderson JA. Smoking habits among physicians in two Gulf countries.. *J R Soc Health*. 1993 Dec;113(6):298-301.
- 20 Waalkens HJ, Cohen Schotanus J, Adriaanse H, Knol K. Smoking habits in medical students and physicians in Groningen, The Netherlands. *Eur Respir J*. 1992 Jan;5(1):49-52.
- 21 Polyzos A, Gennatas C, Veslemes M, Daskalopoulou E, Stamatiadis D, Katsilambros N. The smoking-cessation promotion practices of physician smokers in Greece. *J Cancer Educ*. 1995 Summer;10(2):78-81.
- 22 Willaing I, Ladelund S. Smoking behavior among hospital staff still influences attitudes and counseling on smoking. *Nicotine Tob Res*. 2004 Apr;6(2):369-75.
- 23 Sargent JD, Dalton M, Beach M, Bernhardt A, Heatherton T, Stevens M. Effect of cigarette promotions on smoking uptake among adolescents. *Prev Med*. 2000 Apr;30(4):320-7.
- 24 James D Sargent, Michael L Beach, Madeline A Dalton, Leila A Mott, Jennifer J Tickle, M Bridget Ahrens, Todd F Heatherton. Effect of seeing tobacco use in films on trying smoking among adolescents: cross sectional study. *BMJ* 2001;323:1394-7
- 25 Jamal S Jarallah, Khalid A Al-Rubeaan, Abdul Rahman A Al-Nuaim, Atallah A Al-Ruhaily, Khalid A Kalantan. Prevalence and determinants of smoking in three regions of Saudi Arabia. *Tobacco Control* 1999;8:53-56
- 26 Thomas JL, Patten CA, Offord KP, Clark MM, Schroeder DR, Nirelli LM, Bronars CA, Cowles ML. Reported distress associated with concern about a cigarette smoker. *Addict Behav*. 2006 Feb (Epub).