Tanaffos (2009) 8(1), 62-67

Tobacco Smoking Pattern: Cigarette vs. Hookah

Hooman Sharifi [1], Gholam Reza Heydari [1,] Habib Emami [1,2], Babak Sharif Kashani [1,3], Saeed Fallah Tafti [1,4], Mohammad Reza Masjedi [5]

[1]Tobacco Prevention and Control Research Center (TPCRC), [2] Department of Epidemiology, [3] Department of Cardiology, [4] Department of Internal Medicine, [5] Department of Pulmonary Medicine, NRITLD, Shahid Beheshti University, MC, TEHRAN-IRAN.

ABSTRACT

Background: *Smoking causes 5.2 million deaths annually in the world of which 70% occur in developing countries. Hookah smoking is increasing around the world especially in the Eastern Mediterranean Region including Iran. This study was carried out to evaluate the pattern of tobacco smoking in both forms of cigarette and hookah smoking.*

Materials and Methods: *A cross- sectional study was conducted among a random population in the main squares of Tehran in 2006. The sample size consisted of 2053 people in the age range of 10 to 80 years. Non-Probability Sampling method was used. Questionnaires designed and adapted according to WHO and IUATLD questionnaires given to these people.*

Results: *Forty-six percent of the sample had experienced hookah smoking. The prevalence of occasional hookah smoking in the previous year was 45% , while 10% of the participants used hookah at least once a week, 17.9% at least once a month and 17.1% at least once a year;47.2% of participants had experienced cigarette smoking. Prevalence of daily cigarette smoking was 22.7%; 22.7% of current smokers and 25.01% of non-smokers consumed hookah at least once a week.*

Conclusion: *Prevalence of hookah smoking is very similar among cigarette smokers and non-smokers. In this study the prevalence of cigarette smokers was more than national data and the rate of cigarette and hookah smoking among women was higher than that of other studies in this realm. These issues need to be further investigated and more serious studies are required in this regard.* ***(Tanaffos 2009; 8(1): 62-67)***

Key words: *Cigarette, Hookah, Tobacco, Smoking*

INTRODUCTION

At present, smoking causes 5.2 million deaths annually in the world and it will reach to 10 million deaths a year during the next 20 – 30 years, of which 70% occur in developing countries. Most of the studies and policies focus on the industrial cigarette smoking control, while hookah smoking is increasing in the developing countries of Asia-India and the Eastern Mediterranean Region (1). This old method of tobacco smoking has different names such as Hookah, Shisha, Argile, Narghile, and there are different sizes and shapes in different regions (1).

Hookah smoking is a growing problem around the

Correspondence to: Sharifi H
Address: NRITLD, Shaheed Bahonar Ave, Darabad, TEHRAN 19569, P.O:19575/154, IRAN
Email address: Sharifih@nritld.ac.ir
Received: 8 June 2008
Accepted: 1 December 2008

world especially in the Eastern Mediterranean countries such as Arabic countries, Turkey and Iran (2). Recent epidemiologic studies on hookah smoking prevalence around the world have shown that in some regions the prevalence of hookah smoking has increased up to one fourth of the general population most of which being women, children and adolescents (3-6). Currently, there are more than 100 million people around the world consuming hookah (7, 8). In Arabic countries, regardless of the type of tobacco smoking and considering the total prevalence of cigarette and hookah consumption, prevalence of tobacco smoking is very similar among men and women (4-9).

Sufficient information on this domain is not available in Iran. A study on adolescent students in the 13th district of Tehran about hookah smoking showed that 55% of students (63% of boys and 47% of girls) had experienced hookah smoking (14).

Another study conducted on Lebanese students showed that 32% of them consumed hookah which was more common among males and it had no significant correlation with their socioeconomic level (6-10).

Analysis of hookah smoke ingredients has shown high concentrations of carbon-monoxide (CO), nicotine, tar, arsenic, chromium and heavy metals (11). It has also been shown that more puffs at hookah increases the concentration of all particles in hookah smoke with the exception of nicotine (12).

According to the statistics given by the Iranian Ministry of Health, the prevalence of cigarette smoking in Iran is about 12.5% which includes 25% of men and 2.5% of women (13).

Considering the addictiveness of hookah and the long history of hookah smoking in Iran, it seems that we are facing a difficult situation in terms of strategy planning and campaigning for hookah smoking control compared to cigarette smoking control.

This study aimed to evaluate tobacco smoking pattern in the forms of industrial cigarette smoking and hookah smoking.

MATERIALS AND METHODS

This cross-sectional study was conducted in July 2006 in Tehran. Five main geographical districts in the North, the South, the East, the West and center of Tehran were chosen for sampling and five most crowded squares were selected for this purpose. The information was gathered on the sidewalks of the squares by trained interviewers via face to face questioning. Only those who consented were questioned. Purpose of the study was explained to the participants and their data were recorded on anonymous questionnaires and then evaluated. Sampling was based on Non-Probability Sampling. The questionnaires consisted of 12 close–ended questions and 100 volunteers were questioned during the preliminary pilot study. Data on gender, age, education, experience of tobacco smoking, and pattern of tobacco smoking were collected. The participants were questioned about both cigarette and hookah smoking.

In this study a person who smoked at least one cigarette a day was considered a current smoker. Those who smoked occasionally were considered occasional smokers. Those who used to smoke but had not been smoking for a year, were considered ex-smokers and a person who had smoked less than 100 cigarettes so far was considered an experimental smoker. In case of hookah smoking, due to the lack of consumer's information on the amount of tobacco (weight), the frequency of hookah smoking was considered and hookah smokers were divided into 3 groups of at least once a week, monthly, or annually smokers. There was also a group of experimental hookah smokers who had smoked hookah at least once (to date).

The collected data were analyzed using SPSS software (version 11.5). For descriptive analysis, measures of central tendency (mean, etc.) and measures of variation (standard deviation, etc.) were used. Also, Chi-Square test was used for testing independency of qualitative variables. P-value <0.05 was considered as significant.

RESULTS

Of 2053 participants, 1426 were males (69.5 %). The mean age was 34.9±14.8 yrs, the median was 30, and the mode was 25. Among all participants, 11.7% were below 19 years old, 72% were between 20-50 years old and 16.3% were above 50 years old.

Regarding educational level, 132 (6.4%) were illiterate, 522 (25.4%) did not have high school diploma, 808 (39.4%) had a high school diploma, 471 (22.9%) had a bachelor's degree and 120 (5.8%) had higher educational degrees.

Among all participants, 944 cases (46%) had experienced hookah smoking of whom 713 were men (75.5%) and 231 were women (24.5%) which constituted 50% of all men and 36.8% of all women participating in the study.

Two-hundred and six cases (10%) consumed hookah at least once a week, 368 (17.9%) consumed it at least once a month, 352 (17.1%) used hookah at least once a year and 1127 cases (54.9%) had never experienced it. Among men, 175 cases (8.5%) consumed hookah at least once a week, 288 (14%) consumed hookah at least once a month and 241 (11.7%) consumed hookah at least once a year. This rate among women was 31 (1.5%), 80 (3.9%) and 111 (5.4%), respectively. Table 1 shows the frequency distribution of hookah smoking according to age groups. In this study, as we mentioned earlier, daily and weekly hookah smoking were considered as current hookah smoking; therefore, prevalence of hookah smoking among the study population was 9.9%. Figures 1 and 2 show comparison of hookah and cigarette smoking in different age groups.

Table1. Frequency distribution of hookah smoking according to the age of Tehran citizens in 2006.

Age group		Hookah smoking status				Total
		At least once a week (percentage)	Monthly	Yearly	Never	
≤19	No.	37	46	42	116	241
	(%)	(15.4)	(19.1)	(17.4)	(48.1)	(100)
20-50	No.	135	262	255	826	1478
	(%)	(9.1)	(17.7)	(17.3)	(55.9)	(100)
> 50	No.	34	60	55	185	334
	(%)	(10.2)	(18.0)	(16.5)	(55.4)	(100)
Total	No.	206	368	352	1127	2053
	(%)	(10.0)	(17.9)	(17.1)	(54.9)	(100)

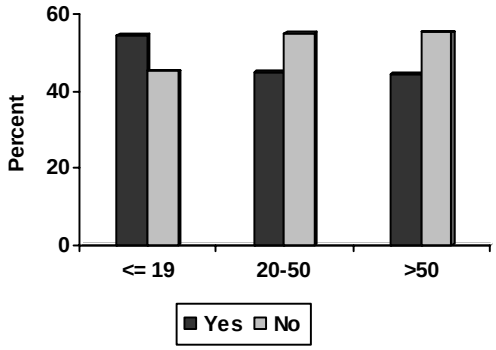

Figure 1. Comparison of hookah smoking in different age groups (in percentage)

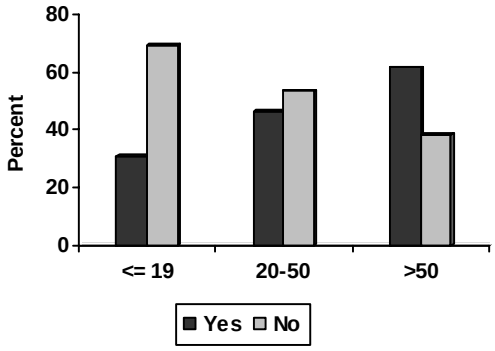

Figure 2. Comparison of cigarette smoking in different age groups (in percentage)

Considering the prevalence of cigarette smoking, 968 cases (47.2%) had smoked cigarette at least

once, of whom 791 were men (81.7%) and 177 were women (18.3%). These figures show a smoking experience prevalence of 55.5% in all men and 28.2% in all women in the whole under-study population. Prevalence of cigarette smoking experience was 30.7% in the age group of "≤ 19 years", 46.5% in the age group of " 20-50 years" and 61.7% in the age group of "over 50 years" .Table 2 shows the prevalence of daily and occasional cigarette smoking and ex-smokers in different age groups.

Prevalence of smoking both cigarette and hookah is demonstrated in Table 3.

Table2. Frequency distribution of cigarette smoking according to the age of Tehran citizens in 2006

Age group		Cigarette smoking status				Total
		Daily	Occasionally	EX-smoker	Non-smoker	
≤19	NO.	21	35	8	177	241
	(%)	8.7	14.5	3.3	73.4	100.0
20-50	NO.	312	278	72	816	1478
	(%)	21.1	18.8	4.9	55.2	100.0
>50	NO.	134	43	24	133	334
	(%)	40.1	12.9	7.2	39.8	100.0
Total	NO.	467	356	104	1126	2053
	(%)	22.7	17.3	5.1	54.8	100.0

Table3. Frequency distribution of hookah smoking according to cigarette smoking status of Tehran citizens in 2006

Cigarette smoking status	Hookah smoking status				Total
	Daily	Weekly	Monthly	Yearly	
Daily	9(%3.5)	50(%19.2)	199(%45.8)	82(%31.)5	340(%100)
Occasionally	3(%1.5)	29(%14.7)	94(%47.7)	71(%36)	197(%100)
Ex-smoker	4(%6.7)	8(%13.3)	18(%30)	30(%50)	60(%100)
Non-smoker	30(%7.4)	72(%17.7)	136(%33.4)	169(%41.5)	407(%100)
Total	46(%5)	159(%17.2)	367(%39.7)	352(%38.1)	924(%100)

Fifty-nine (22.7%) daily smokers and 102 (25.01%) non-smokers consumed hookah at least once a week. Fifty six percent of those who had experienced cigarette smoking declared that they had experienced hookah smoking as well; while, of those with no cigarette smoking experience, 36.4% had experienced hookah smoking.

DISCUSSION

Few studies have been conducted on pattern and prevalence of hookah smoking in Iran. Collecting information on pattern and prevalence of tobacco smoking (especially hookah smoking) could provide more knowledge in order to prevent and control this social problem. Hookah smoking is an old-fashioned form of tobacco smoking which has been renewed and revived during the last decade.

In this study, prevalence of tobacco smoking in two forms of cigarette and hookah and the relationship between tobacco smoking and demographic factors were evaluated. Generally, 29% of men and 7% of women were current smokers, and more than half of men and about one third of women had experienced cigarette smoking; while in similar studies on general population, 25.2% of men and 2.5% of women were current smokers. (13) It seems that in comparison to previous studies, prevalence of cigarette smoking has increased among men but this increase has been three-fold among women. According to the results of this study, prevalence of daily and occasional cigarette smoking among men was more than that among women. Occasional smoking is the predominant pattern of smoking among women; while "daily" smoking pattern is more common among men.

The most common patterns of hookah smoking among women of all age groups were yearly pattern, monthly pattern and at least once a week, respectively. While the most common pattern among men was monthly pattern. It is noteworthy that in the majority of published articles on prevalence of hookah smoking, neither a comprehensive definition

of hookah smoking nor the frequency of smoking pattern had been mentioned. For example, in Syria, Lebanon and Egypt, 20-30% of adults are regular hookah smokers (2, 5).

In a study done in Kuwait by Memon A et al., about the knowledge and attitude of adults towards hookah smoking, 4000 government employees were questioned. The results showed that 57% of men and 69% of women had experienced hookah smoking (15). Madjdzadeh et al. revealed that prevalence of hookah smoking was 18.8% in Hormozgan province among those older than 15 years of age (16). Also in Lebanon, prevalence of hookah smoking was 14.6% in adults (10).

It seems that in our study, the prevalence of hookah smoking in the age group of "≤ 19 years" was similar to that of other studies of the regional countries. For example, in a study by Maziak W et al. in Syria it was shown that 62.6% of boys and 29.8% of girls had experienced hookah smoking (3). According to the results of TLGS (Tehran Lipid-Glucose Study) 63% of male students, 47% of female students and in general, 55% of the students had experienced hookah smoking. These figures are close to those of ours in the age group of "≥ 19 years" (14).

Considering the results of this study and according to Tables 1 and 2, it seems that cigarette smoking is increasing by age, but we do not see this trend for hookah smoking. We may conclude that hookah smoking does not increase by age.

Generally, it is obvious that the pattern of tobacco smoking is not haphazard. It means that tobacco smoking pattern will be different depending on the social class, ethnicity, age and gender (3). On the other hand, according to the results shown in Table 3, it has been proven that cigarette smoking does not have any significant effect on hookah smoking. Prevalence of hookah smoking was quite similar among smokers and non-smokers. In a similar study in the Eastern Mediterranean Region, about half to three quarters of hookah smokers did not consume cigarette or any other tobacco products (2). It seems that factors influencing cigarette smoking and hookah smoking are different in many cases.

Our study had some limitations. First, the sampling was a Non-Probability Sampling. Comparing to other sampling methods, it is less convenient for evaluating the prevalence rate. Second, the questionnaires were completed through face to face questioning and they were not completed by self-report method. Thus, there is a possibility that the interviewers recorded the pattern and amount of smoking lesser than reality.

CONCLUSION

Considering the high prevalence of cigarette and hookah smoking in general population, further studies and comprehensive evaluations on factors affecting knowledge, attitude and practice of people in this realm seem necessary. At present, hookah smoking is increasing among young people which is mainly due to the growing number of direct and indirect advertisements in this regard, production of new tobacco products other than industrial cigarettes with pleasant odors and many other factors. Knowledge of people about the harmful effects of these bad habits has a close relationship with their attitude towards tobacco smoking and it is obvious that by promoting their knowledge we could reduce tobacco use.

Acknowledgments

We wish to thank the significant contributions made by the Iranian Anti-Tobacco Association (IATA) that sponsored this project, Ms. Mojgan Padyab who analyzed the data, Ms. Eshrat Khamsieh who gathered the data for this study, Ms. Parizad Sinaei who translated the original article, Ms. Saeedeh Tabatabaie and Mr. Alireza Mozafarian who typed this article.

REFERENCES

1. Maziak W, Ward KD, Afifi Soweid RA, Eissenberg T. Tobacco smoking using a waterpipe: a re-emerging strain in a global epidemic. ***Tob Control*** 2004; 13 (4): 327- 33.
2. Maziak W, Eissenberg T, Klesges RC, Keil U, Ward KD. Adapting smoking cessation interventions for developing countries: a model for the Middle East. ***Int J Tuberc Lung Dis*** 2004; 8 (4): 403- 13.
3. Maziak W, Fouad FM, Asfar T, Hammal F, Bachir EM, Rastam S, Eissenberg T, Ward KD. Prevalence and characteristics of narghile smoking among university students in Syria. ***Int J Tuberc Lung Dis*** 2004; 8 (7): 882- 9.
4. Chaaya M, El-Roueiheb Z, Chemaitelly H, Azar G, Nasr J, Al-Sahab B. Argileh smoking among university students: a new tobacco epidemic. ***Nicotine Tob Res*** 2004; 6 (3): 457- 63.
5. Tamim H, Terro A, Kassem H, Ghazi A, Khamis TA, Hay MM, Musharrafieh U. Tobacco use by university students, Lebanon, 2001. ***Addiction*** 2003; 98 (7): 933- 9.
6. Chaaya M, Awwad J, Campbell OM, Sibai A, Kaddour A. Demographic and psychosocial profile of smoking among pregnant women in Lebanon: public health implications. ***Matern Child Health J*** 2003; 7 (3): 179- 86.
7. The Sacred Narghile. Available at: www. Sacrednarghile.Com / narghile len / index. Html. Accessed May 15, 2005.
8. Wolfram RM, Chehne F, Oguogho A, Sinzinger H. Narghile (water pipe) smoking influences platelet function and (iso) eicosanoids. ***Life Sci*** 2003; 74 (1): 47- 53.
9. Kandela P. Nargile smoking keeps Arabs in Wonderland. ***Lancet*** 2000; 356 (9236): 1175.
10. Baddoura R, Wehbeh-Chidiac C. Prevalence of tobacco use among the adult Lebanese population. ***East Mediterr Health J*** 2001; 7 (4-5): 819- 28.
11. Knishkowy B, Amitai Y. Water-pipe (narghile) smoking: an emerging health risk behavior. ***Pediatrics*** 2005; 116 (1): e113- 9.
12. Shihadeh A. Investigation of mainstream smoke aerosol of the argileh water pipe. ***Food Chem Toxicol*** 2003; 41 (1): 143- 52.
13. Kazem M, Noorbala AA, Majdzadeh SR, Karimloo M. Trend of smoking pattern in Iran. ***Hakim Journal*** 2000; 197: 290-4.
14. Azizi F, Mirmiran P, Azadbakht L. Predictors of cardiovascular risk factors in Tehranian adolescents: Tehran Lipid and Glucose Study. ***Int J Vitam Nutr Res*** 2004; 74 (5): 307- 12.
15. Memon A, Moody PM, Sugathan TN, el-Gerges N, al-Bustan M, al-Shatti A, et al. Epidemiology of smoking among Kuwaiti adults: prevalence, characteristics, and attitudes. ***Bull World Health Organ*** 2000; 78 (11): 1306- 15.
16. Madjdzadeh SR, Zamani G, Kazemi SH, Qualitative survey on the factors affecting tendency to hookah in Hormozgan province and appropriate campaign methods against it. ***Hakim Journal*** 2002; 5(3): 183-8.