

Knowledge, attitude, and practice of water-pipe smoking among medical students in Rawalpindi, Pakistan

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Abstract

Objectives: To assess knowledge, attitude and practice of water-pipe smoking among medical students.

Methods: The cross-sectional study using self-administered questionnaire was conducted at Rawalpindi Medical College, Rawalpindi, in 2011, and included all five batches of medical students. SPSS 17 was used for statistical analysis of the data.

Results: The final sample comprised 724 participants; 505 (69.7%) being female and 219 (30.2%) being male students. Besides, 625 (86.6%) participants knew about shisha smoking, and 140 (22.4%) reported to have smoked shisha. Curiosity (n=44; 31.4%) and social trends (n=41; 29.2%) were cited as main reasons for shisha smoking. Overall, 572 (91.5%) participants thought shisha was dangerous for health, with majority 261 (41.8%) believing it to be more dangerous than cigarettes.

Conclusions: There was awareness among medical students about the hazards of shisha smoking. Even then water-pipe smoking was relatively common among them.

Keywords: Water-pipe, Shisha, Medical students, Pakistan. (JPMA 64: 155; 2014)

Introduction

Water-pipe is known around the globe by many different names, with slight modifications — Hookah, Shisha, Narghile, Hubble-bubble, Nargeela, Argeela, Kalia, Ghelyoon, Ghalayan, Okka, Boury and Gouza.^{1,2} Even though water-pipe smoking may be perceived as less harmful compared to cigarettes,^{3,4} water-pipe contains tobacco; therefore, it contains many of the same toxicants as cigarette smoke including high concentrations of nicotine, carbon monoxide (CO), 'tar' and heavy metals.⁵ Nicotine content in water-pipe tobacco is documented to be 2-4%, whereas in cigarettes, it is 1-3%.⁶ Similarly, CO concentration in water-pipe smoke ranges from 0.34-0.40% compared to 0.41% in cigarette smoke.⁷ Water-pipe smoking has been linked to malignancy, cardiovascular disease, pulmonary dysfunction and nicotine dependence.^{2,8,9} It has potential to transmit infectious diseases since the same mouth-piece is passed from person to person during a session.^{10,11}

Across the world, water-pipe smoking has been gaining in popularity. A study amongst university students in Syria showed that 69.9% of men and 29.8% of women had tried water-pipe smoking, and 25.5% of men and 4.9% of women were current smokers.¹² Among the youth of

Arizona, USA, it was noted to be the 3rd most common source of tobacco after cigarettes and cigars.¹³

Previous research exploring trends in water-pipe smoking in Pakistan has mostly focussed on the city of Karachi. One study cited 22.7% of medical students at six medical and dental schools in Karachi as active shisha smokers.¹⁴ In a recent survey in Karachi, 53.6% of the participants, all university students, had ever smoked shisha. Boredom in youth, peer pressure, and use of water-pipe in leisure activities were listed as the most common reasons for increasing popularity of water-pipe smoking in Pakistan.¹⁵ Peer pressure has been commonly noted as a key factor in adopting shisha smoking.

The current cross-sectional study was conducted to assess knowledge, attitude and practices of water-pipe smoking among medical students in Rawalpindi, Pakistan.

Subjects and Methods

The cross-sectional study amongst medical students at the Rawalpindi Medical College, Rawalpindi, was conducted in 2011. An organised self-administered questionnaire in English was developed after studying the current literature and tools used in assessing cigarette and water-pipe smoking.¹⁴⁻¹⁶ The questionnaire was distributed in each class after participating students gave their informed consent and the study was approved by the institutional ethics committee. The information on individual students was kept confidential. Participants were given 24 hours to fill out the questionnaire, after

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which they were collected for analysis. The investigators of the study were responsible for administering and collecting questionnaires from each class. All students in attendance were invited to participate and no sampling was employed. With regard to statistical considerations, a sample of 725 would provide 95% confidence level for an expected prevalence of current shisha smoking among 5% of students, with a 1.6% margin of error.¹²

The survey was kept anonymous and brief in order to ensure maximum participation. The first part of the questionnaire was meant to notice the practices among water-pipe smokers, including age of initiation, frequency, duration of a single session, location of shisha smoking, and whether students shared the water-pipe with other individuals. The second part focussed mainly on attitudes of the students, primarily highlighting if they felt addicted, and if they felt an effect on their personality and academic performance. The third part was used to assess the knowledge about harmful effects, including myths such as whether water filters the smoke, if shisha has tobacco, and whether it is 'more dangerous', 'equally dangerous' or 'less dangerous' than cigarette smoking. In

order to find association between cigarette smoking and water-pipe smoking, questions were added regarding frequency and prevalence of cigarette smoking as well.

Questionnaires were manually checked for accuracy and completeness. Data entry and analysis were carried out using SPSS 17.0. Frequencies and percentages were presented where appropriate. Associations were determined by chi-square test and statistical significance was taken at $p < 0.05$.

Results

Of the 1,033 forms initially distributed, 724 were returned duly filled. The response rate, as such, was 70.1%. Of the 724 students in the study, 505 (69.7%) were female. The overall mean age of the participants was 20.6 ± 1.4 years. A total of 625 (86.6%) reported knowledge of shisha smoking and 140 (19.3%) had smoked shisha at one or more occasions (ever smokers). Of those who reported ever smoking shisha a majority 54.28% were male ($n=76$; 34.7% of all male participants) and 45.7% were females ($n=64$, 12.7% of all female participants). Besides, 54 (38.6%) ever shisha smokers reported smoking it in the

Table-1: Comparison of opinions regarding the hazardous effects of shisha and cigarettes between shisha smokers and non-smokers.

	Knowledge of Shisha Smoking (n=625)	Nonsmokers (n=485)	Shisha Smokers (n=140)	P-value
Shisha more hazardous to health, n(%)	261 (41.8)	193 (39.8)	68 (48.6)	<0.001
Equally hazardous, n(%)	215 (34.4)	189 (38.9)	26 (18.6)	
Cigarette more hazardous to health, n(%)	149 (23.8)	103 (21.2)	46 (32.8)	

Table-2: Comparison of knowledge regarding health hazards of waterpipe smoking among the study participants — positive responses.

Knowledge regarding shisha	Knowledge of Shisha Smoking (n=625)	Nonsmokers (n=485)	Shisha Smokers (n=140)	P-value
Shisha is dangerous for health, n(%)	572 (91.5)	455 (93.8)	117 (83.5)	<0.001
Shisha has significant amount of tobacco, n(%)	486 (77.8)	378 (77.7)	108 (77.1)	0.84
Habitual shisha smoking can cause peptic ulcer, n(%)	147 (23.5)	126 (25.9)	21(15.4)	0.01
Habitual shisha smoking can cause lung cancer, n(%)	504 (80.6)	391 (80.6)	113 (80.7)	0.91
Habitual shisha smoking can cause CHD, n(%)	185 (29.6)	147 (30.3)	38 (27.1)	0.47
Habitual shisha smoking can cause DM, n(%)	12 (1.9)	6 (1.2)	6(4.3)	0.02
Habitual shisha smoking can cause communicable diseases, n(%)	74 (11.8)	51 (10.5)	23 (16.4)	0.06

DM= Diabetes Mellitus. CHD= Coronary Heart Disease.

Table-3: Comparison of beliefs regarding water-pipe smoking among the study participants - positive responses.

Beliefs regarding shisha	Knowledge of Shisha Smoking (n=625)	Nonsmokers (n=485)	Shisha Smokers (n=140)	P-value
Shisha is more dangerous to health as compared to cigarettes, n(%)	261 (41.8)	193 (39.8)	68 (48.6)	0.06
Shisha has significant amount of tobacco, n(%)	486 (77.8)	378 (77.7)	108 (77.1)	0.84
Water filters the smoke by removing the toxic products, n(%)	105 (16.8)	58 (12.0)	47 (33.6)	<0.001
Burning coal helps to burn cancer causing agents of tobacco, n(%)	84 (13.4)	58 (12.0)	26 (18.6)	0.04
Fruity flavors have benefit, n(%)	101 (16.1)	56 (11.6)	45 (32.1)	<0.001

preceding 30 days. A majority of respondents reported smoking shisha for the first time between the ages of 18-24 years. The frequency of shisha smoking was variable, with once in 6 months ($n=41$; 29.3%) being the commonest and with 50.7% ($n=71$) of the sessions lasting <30 mins. Curiosity ($n=44$; 31.4%) and social trends ($n=41$; 29.2%) were cited as the main reasons for initiating shisha smoking, with 76.4% ($n=107$) respondents reporting having smoked for the first time in companionship with friends. Shisha bar was the most common location ($n=104$, 74.2%); 97 (69.2%) reported sharing a single water-pipe with 3-4 people frequently present in a session; 11 (7.8%) reported using substances other than tobacco in shisha — narcotics and cannabis were cited as the additional substances.

Of the smokers, 29 (20.7%) respondents reportedly had permission from their parents/guardians to smoke shisha. A small proportion (6.4%, $n=9$) of shisha smokers reported feeling as being addicted; 109 (77.9%) and 98 (70.0%) respondents felt that shisha smoking had no effect on their academic performance and personality, respectively; 22 (15.7%) reported that shisha smoking made them more relaxed; 390 (62.4%) felt social trends to be the most popular reason for increasing popularity of shisha smoking; 54 (8.64%) said shisha smoking constituted a 'good group activity'; 572 (91.5%) participants reported that shisha is dangerous to health (Table-1).

Among those who had knowledge of shisha smoking, a comparison of knowledge regarding health hazards of water-pipe smoking among the study participants was done (Table-2). Among the gases, carbon monoxide was noted to be the major pollutant in shisha smoke by 411 (65.8%), followed by sulphur dioxide by 113 (18.1%). A comparison of beliefs regarding water-pipe smoking among the study participants was also done (Table-3).

Discussion

The results showed that a majority of medical students had knowledge of shisha smoking. One out of five medical students reported to have smoked shisha and one in 10 reported recent shisha smoking. Although previous research has explored trends of shisha smoking in Pakistan, a majority of these studies focussed on individuals in the port city of Karachi.^{14,15} There has been limited research on shisha smoking from other parts of Pakistan.¹⁷ The present study is important because it describes the knowledge, attitudes, and practice of shisha smoking among a group of medical students from another geographically and socially distinct region, Rawalpindi.

Shisha has been gaining in popularity worldwide. Its

emergence among the urban youth has caused a recent interest in it and led to studies being done in different countries. In a study amongst university students in Syria, 32% smoked water-pipe with higher rates among men.¹² In a study amongst Israeli children, 22% used water-pipe at least once a week.¹⁸ In Arizona, USA, 10.3% high school students had ever smoked a water-pipe and 5.4% had done so in the preceding 30 days.¹³

In our study, 19.3% of the final sample had ever smoked shisha and 7.5% of the final sample reported current shisha smoking. We noted lower rates of ever smoking and current smoking than the university students surveyed in Karachi, where 53.6% of the university students had ever smoked shisha, and among medical and dental students in Karachi, where 22.7% respondents reported the same.^{14,15} It is notable that both studies carried out amongst healthcare-related students reported lower rates of ever smoking of shisha despite the geographical disparity. This discordance in smoking rates needs to be further explored in future research with an emphasis on health education for both healthcare-related and non-healthcare-related students.

Curiosity and peer pressure were cited as the main reasons for the initiation and popularity of shisha smoking along with its use having become fashionable. The shisha bars were the most common location for shisha smoking. The increase in the shisha bar outlets might be another reason for the high prevalence. Shisha smokers were likely to smoke for the first time with friends. This shows the influence of peer pressure on shisha smoking. These opinions need to be taken into account by the policy-makers to make an effective strategy.

Although majority of our respondents described initiation of shisha smoking between the ages of 18 and 24, recent work from Karachi found a mean starting age of 14 years among adolescent shisha smokers.¹⁹ Perception of risk among younger smokers may be different from older ones. Amongst studies carried out in populations younger than ours, a survey of 2443 Lebanese high school students showed that the majority considered water-pipe smoking to be less dangerous than cigarette smoking.²⁰ Israeli high school students expressed similar opinions.¹⁹ Recent work on university students in Karachi has demonstrated similar perception of risks among both medical and non-medical students.¹⁵ In our study the majority of respondents considered it to be more dangerous or equally dangerous than cigarette smoking, while a significant minority considered it less dangerous. This is in contrast with the recent survey conducted in multiple cities of Pakistan where a majority of the respondents (69%) claimed that shisha smoking is less deleterious than

cigarette smoking.¹⁷ In the present study, a majority of the respondents reported awareness of myths surrounding shisha smoking while only a minority thought that the water acts as a filtering agent and the burning coal helps to burn the carcinogens. Beliefs pertaining to a less injurious nature of shisha smoking were significantly more likely to be recorded among shisha smokers in our study. These beliefs may be a useful target for educational efforts aimed at reducing shisha smoking.

There are several limitations of the study that must be taken into account. Even though the sample size was large, the research was carried out at one institution where all the participants were medical students. As these students are from the same profession and may be well informed about the health effects of shisha, the study's findings may not be generalisable to non-healthcare students and the general population. However, findings of the present study conform to those noted by Khan et al. among medical and dental students in Karachi.¹⁴ It is notable that population-based information is available on cigarette smoking and snuff in Pakistan,²¹ but corresponding information on shisha smoking is not available. There is a dire need for population-based research on shisha smoking and risk factors associated with it. While it is reassuring that fewer healthcare students — future health educators — indulge in shisha smoking, work needs to be carried in all the provinces of Pakistan, especially in the rural areas where hookah smoking is a part of a typical lifestyle, to get a more realistic idea of the knowledge, attitude and practice of shisha smoking in the general population of Pakistan.

Conclusions

Results showed that there was awareness among medical students about the hazards of shisha smoking. Water-pipe smoking was relatively common among the students, with a significant minority still believing it to be less harmful than cigarette smoking. Increased surveillance and additional research are necessary to address this growing threat to public health.

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