ORIGINAL ARTICLE

Effect of Age and Gender on the Knowledge, Attitude and Practice of Shisha Smoking among Medical and Dental Students of Karachi, Pakistan

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ABSTRACT

Objective: To determine the effects of age and gender on knowledge, attitude and practice of Shisha smoking among medical and dental students of Karachi, Pakistan.

Methodology: This cross sectional survey was conducted in 2007 among 7 colleges randomly chosen from 20 medical and dental colleges of Karachi. A self-administered questionnaire was distributed among the students during the class hours. The questionnaire contained demographic information, area of study (medicine/dentistry), year of study, smoking habits, frequency and place of smoking, attitude and knowledge of diseases related to shisha smoking.

Results: Out of 1204 participants, 22.8% indicated that they smoked shisha. The prevalence among males and females were 41% and 16.9%, respectively. Only 35% of the respondents indicated that they smoked shisha "daily" or weakly. 47.5% mentioned that they used shisha bar for shisha smoking. 67% of the respondents showed that they were influenced by friends to adopt this habit. 59% of the students considered shisha smoking harmful. 62% of the students related the shisha smoking to lung diseases and about quarter of the respondents related it to cancer and heart diseases. Twenty six to thirty percent of the respondents indicated that they experienced headache, dizziness and cough during shisha smoking. Only seven percent of the respondents took the advice of the doctors after feeling the above mentioned symptoms.

Conclusion: The study concludes that a high prevalence of shisha smoking exists among medical/dental students and knowledge, attitude and practice (KAP) among males are significantly different in many respects to the females. However, the age groups do not affect significantly in most of the responses.

Key words: Shisha smoking, medical students, effect of gender, effect of age-groups, Pakistan.

INTRODUCTION

Shisha is being used as tobacco smoking in Indian subcontinent, Arab countries and Africa for at least last four centuries.[1] It has been reported in the literature that Hakim Abul Fatah, royal physician of Emperor Akbar of India has suggested of this method of tobacco use, as less harmful method of smoking.[2] However, this claim is contradicted by Chaouachi.[3] and stated that shisha could have been in used by Southern or Eastern African people about two century before Akbar, as an Archeologist claimed.[4] Nevertheless, one thing emerges from the earlier claim that this misconception of relatively safe smoking habit of shisha as compared to cigarette and other types of tobacco use was as old as invention of shisha (Waterpipe) itself.[5] Shisha is also known as hookah, huqqa, jurak, arghile, narghile, hubble bubble, goza or boori in different cultures and countries.[6] Shisha is used to smoke specially made tobacco by indirectly heating the tobacco, usually with burning embers or charcoal. The smoke is filtered through a bowl of water (sometimes mixed with other liquids such as wine) and then drawn through a rubber hose to a mouthpiece.[7]

Until recently shisha was used as the tobacco consumption among old people in low socio economic or rural areas of Indian subcontinent. However, recently its use has been increased tremendously among young people, especially college students.[8] The myth that shisha smoking is less harmful than cigarette smoking due to the passage of smoke through the steaming water before inhalation is proven wrong in many studies. It has indicated in the literature that amount of carbon monoxide (CO) and nicotine in shisha smoking has almost same level as cigarette smoking.[9-

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[10] Studies showed that regular and long term habitual use of shisha smoking could develop lung, gastrointestinal, bladder problems and even in the fetus and newborn.[8,11] Pulmonary, cardiovascular and hematological diseases could also be developed due to long term use of shisha.[10] Hence, this habit is a serious health hazards and therefore, should be given considerable attention in the research studies for making awareness among the masses and preventive strategies, especially the young population of the society. Only few studies have been conducted to determine the prevalence of shisha smoking among college students in Pakistan.[8, 11] This study was conducted to determine the prevalence, along with knowledge, attitude and practice (KAP) regarding shisha smoking among medical and dental students of Karachi colleges and determine the correlation of KAP with gender and age-groups of the students. The objective of the study was to determine the effects of age and gender on knowledge, attitude and practice of shisha smoking among medical and dental students of Karachi, Pakistan.

METHODOLOGY

This cross sectional survey was conducted in 2007 among 7 medical and dental colleges of Karachi, randomly chosen from 20 medical and dental colleges available at that time. The selected colleges were Dow Medical College (DMC), Sindh Medical College (SMC), Aga Khan University (AKU), Dr. Ishrat-ul-Ibad Khan Instiutte of Oral Health Sciences (DIIOHS), Fatimah Jinnah Dental College (FJDC), and Karachi Medical and Dental College (KMDC) (both medical and dental sections). Permission was taken from each selected college through competent authorities. A pilot study was conducted at DMC to test the questionnaire and then it was revised accordingly with the appropriate modifications. The revised self-administered questionnaire was distributed among the students during the class hours. The purpose of the study was explained to them and a verbal consent was taken before the study. The questionnaire contained demographic information; like gender, area of study (medicine/dentistry), year of study, smoking habits (shisha, cigarette etc.), frequency and place of smoking, attitude and knowledge of diseases related to shisha smoking. SPSS (ver. 10.0) was utilized for data entry and analysis. Chi-square test was employed to determine the relationship of gender and age of students with other response variables.

RESULTS

One thousand two hundred and four (1204) students responded from seven medical and dental colleges. Eighty one percent of the respondents were medical students and 34.5% of the subjects were studying in the first professional year. About quarter (26.4%) of the students indicated of spending more than Rs. 750/- per month for shisha smoking (Figure 1). Two hundred and seventy three students (22.8%) indicated that they smoke shisha. Forty one percent of males responded positively for shisha smoking as compared to 16.9% of females and difference was highly significant ($p<0.0001$).

Table 1 shows that majority of the students (41.9%) who indicated that they smoke shisha were in the age group of 19-20 years. Only 35% of the respondents indicated that they smoke shisha "daily" or weakly. Males were more regular smokers than females ($p<0.05$). More than 50% of the respondents indicated that on average they smoke shisha for more than 30 min in each session. Significantly higher percentage of male respondents than female indicated that they smoke for more than 60 min in each session ($p=0.001$). About half of the students (47.5%) mentioned that most of the times they go to shisha bar for shisha smoking. Majority of the respondents of age group of =18 years usually visits the restaurants for smoking shisha whereas majority of students of other age groups generally go to shisha bars. Result showed that use of tobacco in other forms especially in the form of cigarette was higher in male students as compared to female students.

Table 2 shows the knowledge of the respondents with respect to gender and age group. Sixty seven percent of the respondents showed that they were influenced by friends to adapt this habit. Male students were influenced more by the friends than the female students ($p=0.016$). Other than this, the remaining influencing factors, like: fashion, family members and media did not show any significant effect on gender and age group. In this survey, fifty nine percent students considered shisha smoking harmful. Female students indicated significantly higher percentages than male students for the injurious effects of shisha smoking on health ($p<0.0001$). Sixty two percent of the students related the shisha smoking to lung diseases and about quarter of the respondents related it to cancer and heart diseases. Female students showed higher percentage for indicating relationship of lung diseases with shisha smoking. About 30% indicated that shisha smoking

could cause tuberculosis. Sixteen percent of the students indicated that they have tried to quit shisha smoking. Higher percentage of students of age group =18 years strived to relinquish the shisha smoking. Twenty six to thirty percent of the respondents indicated they experienced headache, dizziness and cough during shisha smoking. Significantly higher percentage of male students than female students indicated that they experienced headache, dizziness, blurred vision and palpitation during shisha smoking. Nevertheless, higher percentages of male students recommend other people for shisha smoking. Only seven percent of the respondents took the advice of the doctors after feeling the above mentioned symptoms.

DISCUSSIONS

Shisha smoking which was limited to the people of villages and among low socio-economic groups in the form of hookah/chillum, few decades back, is now becoming popular among young urban population of Pakistan, like Karachi and Lahore.[12] It is estimated that shisha smokers may inhale as much of smokes in one session (about 80 minutes), as cigarette smokers do it for 100 or more cigarettes and consequently could cause lung cancer, heart and other diseases.[13] In spite of these potentially health hazards, it is not receiving serious attention until now among Pakistani health planners. Very few studies[8,11-12] have been conducted on this topic in Pakistan, even though this habit is spreading rapidly among young population, especially college students.

This study was conducted among medical students of Karachi. It is a global fact that the most of the intelligent students always interested to study medicine and in Indian sub-continent it is an obsession. Therefore, best of the bests goes to medical college. This study targeted those students to determine the prevalence of shisha smoking among this much respected group and to find out the relationship with gender and age-group. A part of this study is already published earlier.[8] The significance of the problem lies in high prevalence among this group obtained from this study. The prevalence of 22.8% of this study is comparable with US[14] and Syrian[15-16] college students, but lower than earlier study of Karachi,[11] Saudi Arabia[17-18] and Beirut[19] college students. This prevalence is also closed to the adolescents in Estonia.[20] Males showed higher prevalence than females in this study which is in agreement with all the other studies. However, it is reported that the prevalence of cigarette smoking among adult Pakistani females was 3.5%[21] and among college students was 6%[22]. Therefore, the prevalence of shisha smoking of 16.9% among females is quite alarming. More than one-third of the smokers were irregular. Youngest group and females were more irregular than other older groups and males, respectively. In this study every fifth respondent claimed that he/she smoke shisha every day. This figure is significantly higher of Syrian studies.[15-16] The females and the youngest group spent significantly shorter session during smoking than males and older counterparts. This trend agreed with the earlier study of Karachi college students.[11] Every eighth students indicated that he/she smoke shisha either at restaurant or chafe. Other studies of Middle East[15-16] and African country[23] showed significantly lower percentage than this study with respect to the above enquiry. In Pakistan the shisha smoking is not so popular at homes, therefore the students go the restaurants/café to smoke. The percentage of cigarette smoking of shisha smokers of this study matched with other reports.[14-16] Influence of friends was the main reason in initiation of shisha smoking in this study and it was in agreement with other studies.[14-16] Irregular shisha smoking at restaurants and café with friends emphasizes the outdoor relaxation social behavior of this type of smoking. As can be inferred from the results of this study that the medical students smoked shisha to relax and socialize among the friends during the free times.

This study shed some light on the behavior and manners of the shisha smoking among Pakistani Medical students. These young group of students who are well respected in the society due to their professional study, including a significant percentage of females, are being involved in such activities which they themselves think are unhealthy. However, most of them are in the initial stage of shisha smoking and the pattern is irregular and only for socialization. These behaviors make this habit different from cigarette smoking and needs to develop a conceptual model of different social, sequential and spatial patterns for this kind of tobacco addiction. One third of the respondents indicated that shisha smoking was more harmful than cigarette smoking. An earlier Pakistani study,[11] a South African study[23] and an Egyptian study[24] showed even lesser percentage of the students' responses regarding this question. This misconception of less hazardous effect of shisha smoking is the main cause of growing use of this type of smoking and resisting for any preventing measure of this practice. Only limited number of respondents indicated that there was some relationship of shisha smoking with cancer, heart diseases and eczema, while about two-third have attached it with lung diseases. This lack of knowledge among health related students is alarming. It emphasizes the need of introduction of health hazards of shisha smoking in the curriculum of medicine and dentistry.

Since last three decades, evidence is being identified in the literature for the health hazards of shisha smoking. However, very little interest has been shown to combat against its use in the society. Cultural hindrance could also be playing its role of this slow movement. Since, shisha is not condemned or abhorred, like cigarette, pipe or cigar. Therefore, the citizens and government agencies are not taking its adverse influence seriously. Few activities to control shisha smoking have been reported recently in the Middle Eastern countries. The National Control Program of Bahrain has included the shisha smoking among the tobacco control list on government basis.[25] A fatwa has been issued from religious school of Egypt against shishs smoking.[26] Impact of these interventions have not assessed until now. However, the ball is rolling now. Unfortunately, no activity either from government or non-government sectors have been reported against shisha smoking in Pakistan, even though this habit is spreading fast among the youths as reported in the literature and this region has been pronounced by WHO as one of the highest rate regions of the world for shisha smoking. The results of this study emphasize the need of immediate attention of the government sector to incorporate the shisha smoking in the Tobacco Control Program. The non-government agencies, like academic institutions, religious schools and media can also play a significant role to fight against this hazardous habit which is expanding tremendously among our young people, especially the educated population.

Although, questionnaire-based cross-sectional studies are good indicator to determine the prevalence of smoking in the population,[22] the self-administered

Table 1: Relationship of responses with Gender and age group

Question	Gender			Age Group				Total (%)
	Male	Female	P-value	<=18	19-20	>=20	P-value	
Do you smoke shisha?	119 (41.2)	154 (16.9)	<0.0001	27 (14.4)	129 (26.1)	114 (22.7)	0.005	273 (22.8)
How often do you smoke?								
Daily	22 (19.0)	31 (21.8)		4 (16.7)	25 (20.5)	23 (20.9)		53 (20.5)
Weekly	24 (20.7)	14 (9.9)	0.049	3 (12.5)	21 (17.2)	14 (12.7)	0.921	38 (14.7)
Monthly	35 (30.2)	38 (26.8)		6 (25.0)	34 (27.9)	33 (30.0)		73 (28.3)
Others	35 (30.2)	59 (41.5)		11(45.8)	42 (34.4)	40 (36.4)		94 (36.4)
Average duration of one session								
15 Mins	21 (17.9)	48 (35.8)		9 (39.1)	30 (25.9)	30 (27.3)		69 (27.5)
16-30 Mins	17 (14.5)	29 (21.6)		5 (21.7)	22 (19.0)	18 (16.4)		46 (18.3)
31-45 Mins	22 (18.8)	22 (16.4)	0.001	3 (13.0)	19 (16.4)	22 (20.0)	0.882	44 (17.5)
40-60 Mins	28 (23.9)	18 (13.4)		2 (8.7)	23 (19.8)	20 (18.2)		46 (18.3)
> 60 Mins	29 (24.8)	17 (12.7)		4 (17.4)	22 (19.0)	20 (18.2)		46 (18.3)
Where do you smoke mostly?								
Restaurant	33 (28.4)	52 (37.4)		10 (41.7)	38 (31.4)	37 (34.3)		85 (33.3)
Shisha Bar	58 (50.0)	63 (45.3)	0.403	8 (33.3)	57 (47.1)	54 (50.0)	0.248	121 (47.5)
Home	18 (15.5)	15 (10.8)		2 (8.3)	18 (14.9)	13 (12.0)		33 (12.9)
Others	7 (6.0)	9 (6.5)		4 (16.7)	8 (6.6)	4 (3.7)		16 (6.3)
Tobacco use to in any other form								
Cigarette	61 (51.3)	42 (27.5)	<0.0001	14 (51.9)	44 (34.1)	45 (39.8)	0.205	103 (37.9)
Pipe	17 (14.3)	6 (3.9)	0.002	1 (3.7)	12 (8.1)	10 (8.8)	0.632	23 (8.5)
Cigar	23 (19.3)	7 (4.6)	<0.0001	1 (3.7)	20 (15.5)	9 (8.0)	0.077	30 (11.0)
Other	9 (7.6)	7 (4.6)	0.299	2 (7.4)	5 (3.9)	9 (8.0)	0.384	16 (5.9)
No	48 (40.3)	98 (64.1)	<0.0001	11 (40.7)	73 (56.6)	59 (52.2)	0.313	146 (53.7)
What do you smoke more?								
Cigarette	56 (53.8)	31 (28.7)	<0.0001	10 (50.0)	35 (37.2)	42 (42.9)	0.507	87(41.0)
Shisha	48 (46.2)	77 (71.3)		10 (50.0)	59 (62.8)	56 (57.1)		125(59.0)

surveys of the college-based studies could give biased reporting. In muslim society, like Pakistan, it is not acceptable to females to declare of any kind of smoking, even they do. Therefore, these results should be read with caution. Furthermore, the data were collected in 2007, about 4 years ago. Since then the prevalence of shisha smoking could have changed. A multi-center recent study conducted in Pakistan in 2010 showed that the shisha smoking among high school students of private schools was about 38.7%. In addition, this study showed the prevalence of shisha smoking among medical students of Karachi. Therefore, the results should not be generalized for all college students for all Pakistan. The study concludes that a high prevalence of shisha smoking exists among medical/dental students and KAP among males are significantly different in many respects to the females. However, the age groups do not affect significantly in most of the responses.

Figure 1: Percentages of colleges, professional years and amount spend per month on shisha smoking of the respondents

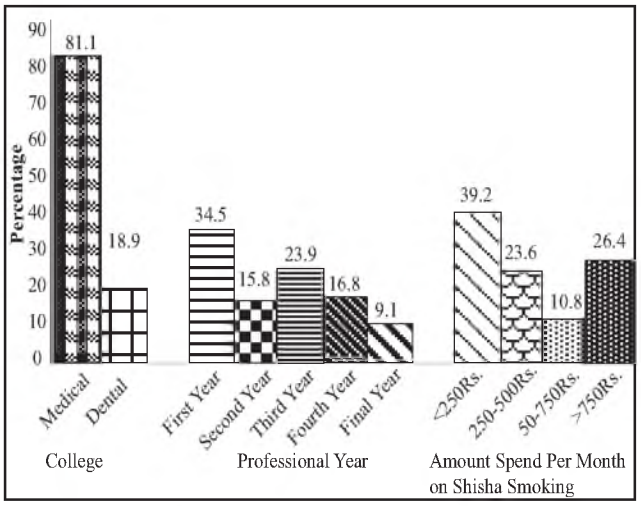

Table 2: Relationship of responses with gender and age group

Question	Gender			Age Group			P-value	Total (%)
	Male	Female	P-value	<=18	19-20	>=20		
Who influenced you for shisha smoking?								
Friends	87 (75.0)	87 (60.8)	0.016	17 (9.0)	80 (16.1)	76 (15.1)	0.60	174(67.2)
Fashion	29 (25.0)	42 (29.4)	0.433	7 (3.7)	32 (6.4)	31 (6.2)	0.383	71(27.4)
Family Members	14 (12.1)	18 (12.6)	0.900	0 (0.0)	18 (3.6)	14 (2.8)	0.033	32 (12.4)
Media	11 (9.5)	4 (2.8)	0.022	2 (1.1)	9 (1.8)	4 (0.8)	0.345	15 (5.8)
Believe shisha smoking harmful	147 (67.1)	565 (85.9)	<0.0001	99 (86.8)	307 (79.1)	297 (81.4)	0.178	714(59.3)
More harmful than cigarette smoking	89 (41.2)	340 (49.9)	0.25	58 (47.9)	186 (47.1)	178 (47.7)	0.979	431(35.8)
Harmful effect associate with shisha								
Lung Diseases	159 (55.0)	586 (64.2)	0.005	106 (56.4)	330 (66.3)	301 (59.8)	0.025	747(62.0)
Cancer	78 (27.0)	260 (28.5)	0.624	40 (21.3)	134 (26.9)	160 (31.8)	0.017	339(28.2)
Heart Diseases	77 (26.6)	212 (23.2)	0.235	23 (12.2)	122 (24.5)	139 (27.6)	<0.0001	289(24.0)
Eczema	30 (10.4)	79 (8.7)	0.373	16 (8.5)	36 (7.2)	54 (10.7)	0.147	109 (9.1)
None	44 (15.2)	51 (5.6)	<0.0001	11 (5.9)	41 (8.2)	43 (8.5)	0.491	95(7.9)
Disease can cause shisha smoking								
Tuberculosis	86 (29.8)	273 (29.9)	0.963	43 (22.9)	164 (32.9)	144 (28.6)	0.031	359(29.8)
Herpes	29 (10.0)	111 (12.2)	0.327	11 (5.9)	44 (8.8)	82 (16.3)	<0.0001	140(11.6)
Hepatitis	51 (17.6)	169 (18.5)	0.741	32 (17.0)	96 (19.3)	88 (17.5)	0.694	220(18.3)
None	46 (15.9)	56 (6.1)	<0.0001	9 (4.8)	50 (10.0)	43 (8.5)	0.091	102(8.5)
Try to quit shisha smoking	16 (13.2)	29 (19.7)	0.156	9 (32.1)	18 (14.6)	17 (14.8)	0.063	45(16.5)
Symptom during shisha smoking								
Headache	28 (9.7)	53 (5.8)	0.022	4 (2.1)	41 (8.2)	36 (7.2)	0.017	81(29.7)
Dizziness	33 (11.4)	41 (4.5)	<0.0001	7 (3.7)	32 (6.4)	35 (7.0)	0.285	74(27.1)
Blurred Vision	18 (6.2)	14 (1.5)	<0.0001	3 (1.6)	17 (3.4)	12 (2.4)	0.362	32(11.7)
Cough	31 (10.7)	42 (4.6)	<0.0001	11 (5.9)	30 (6.0)	31 (6.2)	0.988	73(30.8)
Palpitation	13 (4.5)	17 (1.9)	0.012	3 (1.6)	11 (2.2)	16 (3.2)	0.418	30(26.7)
None	47 (16.3)	46 (5.0)	<0.0001	8 (4.3)	48 (9.6)	37 (7.4)	0.056	93(34.1)
Recommend shisha to other people	65 (43.9)	93 (28.9)	0.001	15 (25.0)	76 (37.1)	66 (33.0)	0.210	158(57.8)
Did you seek advice from the doctor?	12 (11.8)	7 (6.0)	0.134	4 (20.0)	10 (9.9)	5 (5.2)	0.089	19(6.9)

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