Water Pipe & Cigarette Smoking among Qassim University Male Students: Prevalence and Beliefs

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Abstract:

Objective: The main objective of this study was to investigate the prevalence and beliefs of water pipe & cigarette smoking among Qassim University male students.

Methodology: A cross-sectional survey was conducted among the students of Literature Colleges, Health Colleges of Qassim University and a self-administered, anonymous, pre-structured, designed proforma was distributed among randomly selected group of 500 male university students during January 2011. The questionnaire was designed to ask specific questions that are related to cigarette smoking and water pipe smoking in general and their belief regarding smoking. Statistical analysis was done using SPSS software.

Results: The total prevalence rate of waterpipe smoking was found to be 40% and Cigarette smoking was 41%. The major prevalence was found among the students of Health College (50%) then Science College (38%) and Literature College (12%). Cigarette smoking, smoking among relatives and friends has significant association ($P<0.05$) with prevalence of waterpipe among university students, while residence, income and marital status do not have any significant effect on water pipe smoking.

Conclusions: Approximately more than one-third of the students currently smoke waterpipe. Smoking of both cigarette and waterpipe was frequently found and it is precipitated with the same habits in family and friends.

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Introduction

There has been an alarming increase in waterpipe and cigarette smoking in the Eastern Mediterranean since last few years. [1] Tobacco use, one of the most important reasons for preventable mortalities, causes approximately 5 million deaths per year. This rate is estimated to increase to 10 million in 20-30 years. Of the deaths due to tobacco use, 70% are in the developing countries, and these countries are the ones in which problems due to epidemic tobacco use are mostly seen. [2, 3, 4] The most common form of tobacco use is cigarette smoking. The World Health Organization (WHO) estimates the number of smoking individuals as 1.1 billion, worldwide. A total of 700 million male smokers are living in developing countries and Worldwide, 47 percent of men and 12 percent of women smoke a total of 6 trillion cigarettes a year. [4] Together with the marketing initiatives of the tobacco industry, and parallel to the constant increase of the population, tobacco use is also steadily increasing. [2, 3, 4] There are other ways of tobacco use apart from cigarettes; one of them is waterpipe use. Waterpipe is a tray connected to a bottle half full of water by way of a metal tube. The smokers inhale the smoke through a hose connected to the metal tube. The main part of the waterpipe is the tobacco called 'tumbeki'. Tumbeki is usually wet, smelly, and sugary and is used by heating it above a piece of charcoal. [5, 6] The waterpipe has a past of approximately 400 years and is a method preferred by the elderly. Waterpipe use has decreased substantially in the last century, but it has been spreading, especially among young people after the 1980s. This increase can be explained by the worldwide campaign against cigarette smoking. There are 100 million daily waterpipe users worldwide. [4]

Data from the Global Youth Tobacco Survey (GYTS), performed in 2001 in five Arab populations, shows that about 10% of youths 13-15 years of age use tobacco products other than cigarettes, most likely waterpipe. [7] On the other hand, a recent study of smoking practices among Arab American adolescents found that 26.6% of the studied youths use waterpipe, [8] emphasizing the universality of the increasing trend of this form of smoking among Arabs. This increasingly popular method of tobacco use is thus an important public health concern, and more work must be done to understand and curb its use. [9] Efforts to address the growth in waterpipe use in the region are hindered by the scarcity of data regarding this centuries old method of tobacco use, and building a knowledge base related to waterpipe smoking is therefore an important goal for tobacco control scientists in this region. Besides understanding the physiological effects of waterpipe smoking (e.g., toxicant exposure, dependence liability), understanding who uses it and the social circumstances surrounding its use may be critical to prevention and treatment efforts. No study was found investigating the waterpipe use in Qassim among university students. This study aimed to investigate the prevalence of waterpipe use among university students and the effect of various socio-demographic and educational factors upon waterpipe smoking. This study also addresses the patterns of waterpipe as well as cigarette smoking, aiming to control the use of tobacco smoking and prevent the health hazards.

Methodology

Study includes cross sectional population of randomly selected 500 male students from purposively selected colleges (Literature College, Health College and Science College) of Qassim University in Qassim region, where 260, 133 and 107 were simultaneously selected from Literature, Health and Science college in an attempt to obtain a representative sample of university students from these three different college. Within each selected college a sampling frame was prepared, whereby interviewers would randomly sample 30 students from each class of each college until the desired sample size was

reached. A self-administered, anonymous, pre-structured, pre-designed proforma was distributed among university students after conducting a pilot trial among a group of 50 students to check the accuracy and validity of questionnaire. Questionnaire includes information regarding the socio-demographic background of the students, prevalence of waterpipe and cigarette smoking, their attitude and beliefs regarding waterpipe smoking as well as passive smoking. Ever waterpipe smoking was defined as ever having smoked waterpipe; current waterpipe smoking was identified based on responses to a question about past month waterpipe use; daily waterpipe smoking was defined as any current waterpipe smoking on a daily basis. These definitions were adapted from WHO guidelines, [10] and were also used for cigarette smoking in this study to allow for comparison. Data was collected during January 2011 and analysis was done using SPSS software. Chi square and logistic regression was applied whenever needed. The water pipe smoking was taken as dependent and other variable were taken an independent variable for required analysis.

Results

The socio-demographic characteristics of the study group are given in Table I and II. Of the students in the study group 40% (201) stated that they had experienced waterpipe ever in their life. The mean age group of the study group students was 21.414 with SD 1.853. It was found out that 28% of the students who had experienced waterpipe had done so before 15 years of age, 63% between 15 and 20 years of age, and rest after the age of 20 years. Study population comprises of students of Health College 27% (133), Science College 21% (107) and Literature College 52% (260). Majority of the study group were single (95%) of them 40% were using waterpipe. Waterpipe smoking among the students of Health Colleges was significantly low (31%) as compared to the smoking prevalence among other students. Maximum number (58%) of the students was living in big city while others were from small city (38%) and rural area (4%). Students were from different year of study like first year (27%), second year (21%) and advance year (52%) having excellent (36%), very good (37%), good (4%) and fair (23%) GPA and majority of them were involved with waterpipe smoking. Most number of students were having yearly family income of <15000SR and it was observed that as income increases, number of the students involved in waterpipe smoking increases.

The effects of various independent variables on the prevalence rate of waterpipe smoking were investigated, and odds ratios were calculated. Additionally, logistic regression analysis was performed in order to adjust the independent effects of these variables. Unadjusted and adjusted odds ratios are given in Table III. As shown in Table III, the cigarette smoking condition of the students, and the presence of waterpipe smokers among family members and friends were found to have significant effects on the prevalence rate of waterpipe smoking of the students. It was found that cigarette smoking, presence of any waterpipe smoker among family members and friends significantly affect the probability of waterpipe smoking of the students. In the univariable analysis, the prevalence rate of waterpipe smoking among the students of Science College was significantly higher than other students. On the other hand, economic condition and residence area of the family and living arrangement of the student were found to have no significant effect on waterpipe smoking. Various characteristics of the current waterpipe smokers are given in Table IV. The mean age of beginning water pipe smoking was found to be 16.43 with SD 4.88. 60% (299) of the total university student never smoked waterpipe while 8% of the students smoked waterpipe daily. Almost 8% of the student smoked water pipe for more than 30 times in last one month. 59% (295) of the total university students never smoked cigarette anytime of which 16% were regularly smoking cigarette on

daily basis. 20% of the students used to smoke waterpipe at their friend's home and 10% used to smoke at public places. Almost 18% of the students spent <50 SR last month on waterpipe smoking while 7% spent more than 200 SAR. 9% of the total students had a reason of stress behind water pipe smoke while 8% mentioned meeting with friends and relatives. In 31% of the cases water pipe smoking increased during vacation period while it was increased during examination period in 6% cases. Some students (19%) smoked water pipe at public places for almost 5-10 times during the last 30 days. 27% of the students were thinking of stopping the waterpipe smoking. 10% of the students like to smoke waterpipe alone while 28% with friends.

The beliefs and perception of water pipe smokers are given in Table V. Most of the students (35%) thought they can quit smoking and some of them mentioned probable reason which pushes them to quit smoking would be a reason of health problem (20%), religious (9%) or family reason (5%). 56% of the students believe that smoking waterpipe could lead to addiction. 40% perceive that smoking water pipe is unacceptable to the society while 45% students said it so for cigarette smoking.82% believe that smoking can affect our health and 56% said that sitting next to smokers can also affect our health. 83% of the students support banning smoking at public places.

Discussion

40 percent of the students in the study group had tried smoking waterpipe at least once, and it was established that most of them still smoking. These findings show that waterpipe smoking is substantially wide-spread among university students. In a study performed in England among university students, the rate of steady waterpipe smokers was 2.8%; this rate was 19% among waterpipe users in the USA. [11, 12] In a study performed in Syria the rates of waterpipe smoking were 25.5% among male students and the rates of daily waterpipe use were 1.8% among male students. In another study performed in Syria, the rates of daily waterpipe use among café customers were 24%. [13] In East Mediterranean countries, waterpipe is second to cigarette smoking among the types of steady tobacco consumption. The social acceptance of smoking waterpipe is also a factor in the steady increase of the smoking rate. [14] Also it can be seen as a reason for the increase in the waterpipes cafés. The increase in waterpipe use in the last years and especially among young people in the East Mediterranean countries is a known fact. [3, 15] In the multi-centre study Global Youth and Tobacco Investigation, in its Lebanon part, it was found that among Lebanese youth the cigarette smoking rate had decreased between 2001 and 2005, whereas use of other tobacco methods had increased. [16] In Turkey, which could be thought of as a bridge between the East Mediterranean countries and Europe, and in which the waterpipe is widely used, waterpipe use is expected to be at a lower rate than in the East Mediterranean countries. But on the contrary, in our study we found that the casual use of waterpipe among university students is not low at all. It is also same as cigarette smoking. In England, in a study performed with students from the British University, it was found that experiencing waterpipe and its steady use was higher in males. [11] In different studies performed in Lebanon in 2008 [16] and in Syria in 2004, [14] in university students, similar results were obtained among males. In studies performed in United States, waterpipe use was found to be higher in boys. [12] There are studies which shows that presence of someone using tobacco products in the family increases the tendency of cigarette and waterpipe smoking among boys which is very much in relation to our findings, this could be because of the water pipe smoking is closer to the local traditions and may be less subject to taboos in Saudi Arabia and in Arab culture sharing waterpipe provides a means of demonstrating the hospitality and generosity characteristics of an adult Arab males, [13] so waterpipe smoking is

considered natural among parents, and some parents even smoke it together with their children. [6, 13] Although waterpipe use was slightly higher in the advance-grade students (52%) of the faculties, the difference between classes was not significant. This can be explained by the fact that students with a tendency for waterpipe smoking usually do it before university or in the first grade. As a matter of fact the mean age for starting smoking waterpipe was found to be 21. On the other hand, there are studies showing that the prevalence of waterpipe smoking was same as cigarette smoking. A similar study, showing that cigarette smoking has an effect upon trying and steadily smoking waterpipe was done in a British University, [11] while in Syria, in a study in which university students and regular café customers were evaluated, the prevalence of waterpipe smokers was found to be higher in cigarette smoking individuals.[14] Again in Syria, in a study performed with medical faculty students, similar to our study, waterpipe smoking was found to be ten times more frequent in the cigarette smokers compared to non-smokers [18] which is not associated with our findings. The presence of a family member or friend that smokes waterpipe increases substantially the possibility of the student smoking waterpipe as well. In a study performed in the USA, it was found that the presence of a family member smoking waterpipe increases substantially the possibility of the student smoking waterpipe as well. In a study performed in the USA, it was found that the presence of a family member smoking waterpipe increases the smoking in other individuals by 6.5 times. [12] There are many studies showing the important effect of family members and friends upon waterpipe use. [2, 15, 16 and 18] Most of the students smoke waterpipe less than once a week and 35% of the students in the study group were considering quitting smoking waterpipe in our research.

Table 1. Socio-demographic characteristics of the study group in Qassim Region.

Characteristics	Groups	Number	(%)
Age	Mean : 21.414 SD: 1.853		
Marital Status	Single	475	95
	Married	25	5
College	Health College	133	27
	Science College	107	21
	Literature College	260	52
Living Area	Big City	291	58
	Small city	187	38
	Rural Area	22	4
Year of Study	First	133	27
	Second	107	21
	Advance	260	52
Overall GPA	Excellent	182	36
	Very good	185	37
	Good	22	4
	Fair or excepted	111	23
Yearly income	<15000	364	73
	15000-35000	92	18
	35001-55000	14	3
	>55000	30	6

Table 2. Socio-demographic characteristics of the study group in relation to water pipe smoking in Qassim Region.

Characteristics	Groups	Waterpipe Smoking	
		Yes no. (%)	NO no. (%)
Marital Status	Single	188 (40)	287 (60)
	Married	13 (52)	12 (48)
College	Health College	77 (31)*	174 (69)
	Science College	100 (53)	89 (47)
	Literature College	24 (40)	36 (60)
Living Area	Big City	116 (42)	175 (58)
	Small city	79 (40)	108 (40)
	Rural Area	6 (27)	16 (73)
Year of Study	First	56 (42)	77 (58)
	Second	45 (42)	62 (58)
	Advance	100 (38)	160 (62)
Overall GPA	Excellent	69 (38)	113 (62)
	Very good	69 (37)	116 (63)
	Good	14 (64)	8 (36)
	Fair or excepted	49 (44)	62 (56)
Yearly income	<15000	146 (40)	218 (60)
	15000-35000	32 (35)	60 (65)
	35001-55000	8 (57)	6 (43)
	>55000	15 (50)	15 (50)

*P<0.05

Table 3. Impact of various factors on prevalence of waterpipe smoking among university students in Qassim region.

Characteristics	Groups	No.	Waterpipe smokers		Unadjusted or (95%CI)	Adjusted or (95% CI)
			No.	%		
Marital Status	Single	251	77	15.4	1	1
	Married	189	100	20	2.34 (1.61-3.29)*	1.01 (0.78-1.30)*
College	Health College	60	24	4.8	0.55 (0.40-0.75)	2.84 (2.07-3.90)
	Science College	25	13	2.6	1	1
	Literature College	475	188	37.6	0.78 (0.45-1.37)	0.92 (0.53-1.62)
Living Area	Big City	291	116	23.3	1	1
	Small city	187	79	15.8	1.95 (0.73-1.23)	0.19 (0.77-1.29)
	Rural Area	22	6	1.2	1.01 (0.55-1.87)	1.00 (0.55-1.83)
Year of Study	First	133	56	11.2	1	1
	Second	107	45	9	0.95 (0.70-1.30)	0.99 (0.74-1.35)
	Advance	260	100	20	0.92 (0.71-1.18)	0.99 (0.78-1.28)
Overall GPA	Excellent	182	69	13.8	1	1
	Very good	185	69	13.8	0.84 (0.65-1.10)	0.97 (0.75-1.26)
	Good	22	14	2.8	1.35	1.002

					(0.74-2.48)*	(0.55-1.83)*
	Fair or excepted	111	49	9.8	1.00 (0.76-1.33)	2.01 (1.52-2.65)
Yearly income	<15000	364	146	29.2	1	1
	15000-35000	92	32	6.4	1.07 (0.77-1.47)	1.005 (0.73-1.47)
	35001-55000	14	8	1.6	1.71 (0.80-3.64)	1.00 (0.47-2.13)
	>55000	30	15	3	1.03 (0.60 -1.75)	1.04 (0.61-1.80)
Cigarette smoking	No	295	228	45.6	1	1
	Yes	205	134	26.8	6.42 (4.32-9.54)*	6.87 (4.85-8.49)*
Waterpipe smoking among family members	No	68	52	10.4	1	1
	Yes	432	185	37	2.43 (1.35-4.40)*	1.91 (1.28-2.85)*
Waterpipe smoking among friends	No	87	72	14.4	1	1
	Yes	413	186	37.2	4.85 (3.13-7.52)*	3.93 (2.18-7.09)*

*P<0.05

Table 4. Distribution of waterpipe smokers according to various characteristics among university students in Qassim region

Characteristics	Groups	Number	(%)
Age at the beginning of smoking waterpipe	Mean : 16.432 SD: 4.88		
Frequency of water pipe smoking	Daily bases	38	8
	Occasionally	130	25
	Always	33	7
	No	299	60
Frequency in last 30 days	No	299	60
	1-5 times	69	15
	6-10 times	36	7
	11-20 times	35	7
	21-30 times	20	3
	More than 30 times	41	8
Frequency of cigarette smoking	Daily basis	80	16
	Occasionally	60	12
	Always	65	13
	No	295	59
Place to smoke	Home	22	4
	Friends place	98	20
	Public places	49	10
	Other	32	6
Money spent on smoking during last 30 days	Nothing	299	60
	<50 SR	89	18
	51-100 SR	44	9

	101-200 SR	31	6
	201- 300 SR	30	6
	>300 SR	7	1
Reason for smoking water pipe	No	299	60
	Outside environments	61	13
	Meeting with friends & relatives	40	8
	Stress	45	9
	Other reason	51	10
Smoking water pipe more during	Vacation	148	31
	Examinations	32	6
	Ramadan	21	4
How many times smoked water pipe at public places in last 30 days	Never	56	11
	5-10 times	95	19
	11-20 times	22	4
	>20 times	23	5
Thinking of stopping smoking	Yes	131	27
	No	70	14
Smoking together with others	With friends	139	28
	Alone	49	10
	Others	12	2

Table 5. Beliefs of water pipe smokers university students in Qassim region

Characteristics	Groups	Number	(%)
Can quit smoking?	Yes	177	35
	No	24	5
Probable reason that push to quit smoking	Health reason	101	20
	Religious reason	44	9
	Family reason	24	5
	Other	32	6
Smoking waterpipe lead to addiction?	Yes	276	56
	No	112	22
	May be	112	22
What degree of waterpipe smoking is accepted in society?	Un acceptable	199	40
	A little	154	31
	Somehow	115	23
	Accepted	32	6
What degree of cigarette smoking is accepted in society?	Un acceptable	225	45
	A little	135	27
	Somehow	116	23
	Accepted	24	5
Smoking can affect our health?	Yes	412	82
	No	21	4
	Somehow	67	14
Sitting next to smoker could affect our health?	No	31	6
	Don't think	35	7
	May be	155	31

	Yes	279	56
Support banning smoking at public places?	Yes	414	83
	No	86	17

Conclusion

It was concluded that approximately one-third of the university students smoke waterpipe and it was found to be more prevalent among university students. Care should be taken in realizing and taking precautions against waterpipe and cigarette smoking and awareness should be raised among young students regarding its dangers by way of health education programs inside the university campus and periodic health check-up of the students. In order to achieve success in the struggle against waterpipe use among young university boys, we should focus on the wrong perceptions about waterpipe, such as its being less harmful and more glorious, and its use, especially among youth, should be prevented. Also, support should be given for healthy activities in order to provide some help with changing behavioral patterns. University should also arrange seminar on changing behavioral pattern for waterpipe and cigarette smoking.

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