RESEARCH ARTICLE

Perceptions of Turkish University Students about the Effects of Water Pipe Smoking on Health

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Abstract

Background: The popularity of the water pipe, also referred to as hookah, narghile, shisha or hubble-bubble, has increased tremendously during the past few decades. This study was conducted to determine student water pipe smoking status and perceptions about the effects of water pipe smoking on health in a state university in Ankara. Materials and Methods: This cross-sectional study was conducted between September 2014 and January 2015. The data were collected with a questionnaire and "The Scale of Perception about the Effects of Water Pipe Smoking on Health". The data obtained were evaluated in IBM SPSS (version 20.0) statistical package program in computer. One-way analysis of variance (ANOVA) was used for the analyses by checking homogeneity of variances and Student's t-test. Values of $p<0.05$ were considered statistically significant. Results: The total mean score obtained by young people who took part in the study was determined as ($\bar{X}$=65.20±1.25, min=33, max=75). Upon comparison of the total mean scores obtained by young people from the Scale of Perception about the effects of water pipe smoking on health and gender variable, the scores obtained by the females students were higher than those of the male students with a statistically significant difference ($t=7.525$, $p<0.05$). A statistically significant difference was observed between the total mean scores obtained by young people with cigarette and water pipe smoking status (for each, $t=-3.731$, $p<0.05$; $t=-13.987$, $p<0.05$). Conclusions: In conclusion, university students have wrong knowledge on the dangers of water pipe smoking. There was a high prevalence of using water pipes among university students. Gender significantly affected the perceptions about the effect of water pipe smoking on health in our sample.

Keywords: University students - water pipe smoking - scale of perception about effects on health - Turkey

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Introduction

The popularity of the water pipe, also referred to as hookah, narghile, shisha or hubble-bubble, has increased tremendously during the past few decades (Cinar and Cakmak, 2014). Water pipe smoking has recently been described as a global tobacco epidemic by public health authorities (Hassoy et al., 2011; Alvur et al., 2014). It is estimated that a hundred million people throughout the world smoke water pipe everyday (Maziak et al., 2004; Poyrazoglu et al., 2010; Ibrahimov et al., 2012; Alzohairy et al., 2012; Cinar et al., 2014). Most of the studies emphasized that smoking water pipe as a tobacco product has increased significantly among the young people (Subasi et al., 2005; Gursoy et al., 2007; Orsel et al., 2010). Water pipe has been associated with a variety of adverse health outcomes, including cancer, chronic pulmonary disorder and infectious diseases (Al-Naggar and Sahir 2011; Alvur et al., 2014).

Several factors may contribute to the rising popularity of water pipe use. Water pipe (Shisha) is cheap and widely available. Water pipe smoking is often a social activity which takes place at cafes, restaurants and parties (Al-Naggar and Saghir, 2011). There is an established false belief that water pipe smoking is not as dangerous as cigarette smoking and it is not addictive, which is thought to increase the tendency towards water pipe smoking among young people (Al-Naggar and Bobryshev, 2012; Alvur et al., 2014).

Many articles have been published about cigarette smoking among university students in Turkey but there are limited researches on water pipe. This study was conducted to determine students' water pipe smoking status and perceptions about the effects of water pipe smoking on health in a state university in Ankara.

Materials and Methods

This cross-sectional study was conducted between September 2014 and January 2015 in a state university in Ankara. Written approval was also obtained from the local education authority. The participants gave verbal consent

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for the use of their data for the purpose of this study.

The data were collected using the questionnaire and The "*Scale of Perception about the Effects of Water Pipe Smoking on Health*". Questionnaire was prepared by The investigators and contained 17 questions that were administered. Nine of the questions were related to socio-demographic characteristics, eight were related to the students' water pipe smoking status and its effect on health.

The Scale of Perception about the Effects of Water Pipe Smoking on Health was developed by Cakmak and Cinar (2014). 5-point Likert scale consists of 15 positive items and each item has scores from 1 to 5 and the scores vary according to the answers. Grading for items: Strongly Agree 5, Agree 4, Neither Agree Nor Disagree 3, Disagree 2, Strongly Disagree 1. Minimum score in scale is 15, and maximum score is 75. The higher scores denote to positive perception about the water pipe's effect on health (Cakmak and Cinar, 2014).

Questionnaires were distributed randomly to students at university campus. The participants completed an anonymous, voluntary, self-report questionnaire. Survey administrators were research personnel who emphasized that responses would be anonymous and confidential. Self-completed questionnaire was administered by one of the investigators and took 15-20 minutes to complete.

A total of 907 questionnaires were given. The questionnaires were completed by the students under the supervision of one of the investigators and then taken back. After preliminary evaluation, 877 (96.7%) questionnaires were found suitable for evaluation. The data were evaluated in SPSS program (version 20). For evaluating the socio-demographic characteristics, data point and percentage analyses were used. The relationship between students' socio-demographic characteristics, characteristics about water pipe and cigarette smoking and scale scores were analyzed by using Student t-Test and one-way analysis of variance (ANOVA) before controlling homogeneity of variances. The values that are $p<0.05$ were considered statistically significant.

Results

No statistically significant difference was observed between the total mean scores obtained by the young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and the age groups ($F=1.761$, $p>0.05$). Upon comparison of the total mean scores obtained by young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and gender variable, a statistically significant difference was obtained between the means of females and males ($t=7.525$, $p<0.05$). The mean scores of female students (67.20±7.29) were higher than those of the male students (62.93±9.25). A statistically significant difference was observed between the total mean scores obtained by the young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and their departments ($F=25.530$, $p<0.05$). The mean scores of the students at the nursing department (69.14±5.95) were higher than those of the students at the engineering, medicine, business management and social sciences (66.80±8.20, 62.64±10.42, 61.29±7.01, 65.36±9.11). A statistically significant difference was determined between the total mean scores obtained by the young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and their school years ($F=13.772$, $p<0.05$). Mean scores of the senior year students (69.18±6.75) were higher than those of the students in other school years. There was a statistically significant difference between total mean scores obtained by young

Table 1. Comparison Between The Introductory Characteristics of Adolecents and The mean of The Scale

Introductory Characteristics		Mean of the Scale Scores					
		n (%)	$\bar{X}$	SS	t	F	p
Age Group	≤19	366	64.86	7.97		1.761	0.153
	20	257	65.82	7.53			
	21	122	66.08	10.21			
	≥22	132	64.14	9.98			
Gender	Male	410	62.93	9.25	-7.525		0.000
	Female	467	67.20	7.29			
School	Faculty of Engineering	184 (21.0)	66.80	8.20	25.530		0.000
	Faculty of Economics and Administrative Sciences	198 (22.6)	61.29	7.01			
	Faculty of Health Sciences	169 (19.3)	69.14	5.95			
	Faculty of Medicine	87 (9.9)	62.64	10.42			
	Faculty of Social Sciences	239 (239)	65.96				
School Year	1	506 (57.7)	63.88	8.68		13.772	0.000
	2	157 (17.9)	65.82	8.82			
	3	101 (11.5)	66.43	7.46			
	4	113 (12.9)	69.18	6.75			
Weekly pocket money	Enough	642	64.62	8.74		13.641	0.000
	Low	215	67.46	5.93			
	High	20	59.65	16.75			
	Other						
Living with Family		415	64.97	9.20	-7.756		0.450
	Yes	462	65.41	7.88			

*difference is significant at the 0.05 level

people from the scale and their weekly pocket money (F=13.641, p<0.05). The mean scores of the young people who find their weekly pocket money low (67.46±5.93) were higher than those of the young people who find their weekly pocket money sufficient (64.62±8.741). Based on the independent samples t-test conducted on total mean scores obtained by young people from the scale and variable of living with family, there was no statistically significance between total mean scores obtained from the scale and living with family (t=-7.756, p>0.05) (Table 1).

The total mean score obtained by young people who took part in the study was determined as ($\bar{X}$=65.20±1.25, min=33, max=75). The answer of young people to all items of the scale was "strongly agree" (Table 2).

Considering the cigarette and water pipe smoking statuses of the young people in the study group, number of cigarette smokers was determined to be 18.6% (n=163) and number of water pipe smokers was 29.3% (n=257). Based on the distribution of the cigarette and water pipe smoking statuses in the family of the young people, number of cigarette smokers in the family was 44.9% (n=394) and water pipe smokers was 19.4% (n=170) (Table 3). An independent samples t-test was performed on the total mean scores obtained by the young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and water pipe and cigarette smoking variables. Based on the results, there was a statistically significant difference between the mean scores of the cigarette smokers and non-smokers (t=3.731, p<0.05). Mean scores of the non-smokers (65.71±8.71) were higher than the mean scale scores of cigarette smokers (62.96±7.28). The difference between the mean scores of the water pipe smokers and non-smokers was statistically significant (t=-13.987, p<0.05). Mean scale scores of the non-smokers (67.55±6.22) were higher than the scores of water pipe smokers (59.54±9.87). There was no statistically significant difference between total mean scores obtained from the scale and cigarette smoking status in the family (t=-0.747, p>0.05). There was a statistically significant difference between total mean scores obtained from the scale and water pipe smoking status in the family (t=-8.03, p<0.05). Mean scores of those with a non-smoker family (66.20±7.70) were higher than the scores of those with a water pipe smoker family (60.43±10.25) (Table 3).

When the opinions of the young people in the study group were examined, it was determined that 93.4%

Table 2. Range of The Answers of The Adolescents to The Scale

Items	Strongly Agree		Agree		Neither Agree Nor Disagree		Disagree		Strongly Disagree	
	n	%	n	%	n	%	n	%	n	%
1. Smoking water pipe affects lungs adversely.	714	81.4	102	11.6	40	4.6	19	2.2	2	0.0
2. The harmful carcinogenic substances are not filtered while water pipe smoke passes through water.	488	55.6	195	22.2	127	14.5	47	5.4	20	2.3
3. A skin condition (eczema) may develop in water pipe smokers.	412	47.0	185	21.1	176	20.1	90	10.3	14	1.6
4. Smoking water pipe increases the risk of cardiovascular disease.	565	64.4	221	25.2	61	7.0	30	3.4	-	
5. Exposure of non-smokers to water pipe smoke causes respiratory tract diseases.	556	63.4	190	21.7	99	11.3	27	3.1	5	0.6
6. Oral infections (cancer, herpes, aphta etc.) may develop in water pipe smokers.	515	58.7	186	21.2	98	11.2	51	5.8	27	3.1
7. Fruity/flavored tobacco is addictive in water pipe.	530	60.4	168	19.2	115	13.1	52	5.9	12	1.4
8. Water pipe smoking cessation affects health positively.	537	61.2	204	23.3	66	7.5	48	5.5	22	2.5
9. Water pipe contains nicotine.	474	54.0	194	22.1	160	18.2	34	3.9	15	1.7
10. Water pipe is addictive.	527	60.1	172	19.6	108	12.3	54	6.2	16	1.8
11. Diseases like flu and cold can be transmitted by sharing mouthpiece.	563	64.2	160	18.2	91	10.4	63	7.2	-	
12. Fruity/flavored tobacco is not healthier than plain tobacco.	453	51.7	197	22.5	112	12.8	103	11.7	12	1.4
13. Hepatitis B, hepatitis C and AIDS can be transmitted by sharing mouthpiece.	513	58.5	149	17.0	72	8.2	62	7.1	81	9.2
14. Water pipe is not more innocent than the cigarette in terms of nicotine.	629	71.7	157	17.9	39	4.4	44	5.0	8	0.9
15. Water pipe mouthpiece should never be shared.	689	78.9	144	16.4	17	1.9	10	1.1	17	1.9

General Situation; Perception Scale of Water Pipe's Effects on Health; Mean 65.20±1.25, Standard Deviation 8.533; Min 33, Max 75, Scale α: 0.86

Table 3. Comparison Between Adolescents, Cigarette and Water Pipe Smoking and Mean Scores of The Scale

Water Pipe and Cigarette Smoking		Mean Scale Score				
		n (%)	$\bar{X}$	SS	t	p
Cigarette Smoking	Smoker	163 (18.6)	62.96	7.28	3.731	0.000
	Non-smoker	714 (81.4)	65.71	8.71		
Water Pipe Smoking	Smoker	257 (29.3)	59.54	9.87	13.987	0.000
	Non-smoker	620 (70.7)	67.55	6.62		
Cigarette smoking in family	Smoker	394 (44.9)		64.96	.747	0.455
	Non-smoker	483 (55.1)		65.39		
Water pipe smoking in family	Smoker	170 (19.4)		60.43	8.034	0.000
	Non-smoker	707 (80.6)		66.20		

*The mean difference is significant at the 0.05 level

Table 4. Comparison of The Adolescents, Views About Water Pipe and Mean Scores of Scale

Information of Adolescents	Mean Scale Score				
	n (%)	$\bar{X}$	SS	F	p
The Effects of Water Pipe on Health					
Harmful	819 (93.4)	66.02	7.438	65.979	0.000
Harmless	56 (6.4)	53.45	13.590		
No information	2 (0.2)	59.00	.000		
The Effects of Water Pipe and Cigarette on Health					
Water pipe is harmful	27 (3.1)	64.00	.000	7.282	0.000
Water pipe is less harmful than cigarette	97 (11.1)	61.53	9.543		
Equally harmful	213 (24.3)	65.59	9.301		
Water pipe is more harmful	540 (61.6)	65.77	8.074		
Water Pipe Addiction Status					
Addictive	461 (52.6)	69.18	5.112	18.039	0.000
Not addictive	276 (31.5)	58.81	9.690		
No information	140 (16.0)	64.70	7.262		
Water Pipe's Transmitting Status					
Transmits Diseases	570 (65.0)	67.20	7.504	55.291	0.000
Not Transmit Diseases	106 (12.1)	59.43	10.080		
No Information	201 (22.9)	62.59	8.338		

*The mean difference is significant at the 0.05 level

(n=819) stated that water pipe is harmful, 61.6% (n=540) stated that water pipe is more harmful than cigarette, 52.6% (n=641) stated that water pipe is addictive and 65% (n=570) stated that water pipe transmits disease (Table 4). Based on the results of ANOVA conducted on the total mean scores obtained by the young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and variable of water pipe's harm on health, a statistically significant difference was obtained between the total mean scores and water pipe's harm on health ($F=65.979$, $p<0.05$). The mean scale scores of the young people who stated "Water pipe is harmful" (66.02±7.43) were higher than those of the young people who stated "Water pipe is harmless" (53.45±13.59) and "I have no information" (59.00±.000).

A statistically significant difference was obtained between the total mean scores obtained by young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and variable of water pipe and cigarette's harm on health ($F=7.282$, $p<0.05$). The mean scale scores of the young people who stated "Water pipe is more harmful" (65.77±8.07) were determined to be higher than those of the young people who stated "Water pipe is less harmful than cigarette" (61.53±9.54) and "Water pipe is harmless" (64.00±.000). A statistically significant difference was obtained between the total mean scores obtained by young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and addiction status of water pipe ($F=18.039$, $p<0.05$). The mean scale scores of the young people who stated "Water pipe is addictive" (69.18±5.11) were higher than those of the young people who stated "Water pipe is not addictive" (58.81±9.69). A statistically significant difference was obtained between the total mean scores of the young people and transmitting infectious disease with water pipe ($F=55.291$, $p<0.05$). The mean scale scores of the young people who stated "Water pipe transmits disease" (67.20±7.50) were found to be higher than those of the young people who stated "Water pipe does not transmit disease" (59.43±10.08) and "I have no information" (62.59±8.33) (Table 4).

Discussion

When the socio-demographic characteristics of the young people were examined, it was determined that the female students were in majority (67.20%), first-year students were more based on the distribution of their school years (57.5%), the students were majorly in the age group of 19 years and below (64.86%) as well as most of the mothers were primary school graduate and most of the fathers were high school graduate. The rate of water pipe smoking was 29.3% and cigarette smoking was 18.6% among the young people participated in the study. While frequency of smoking tends to reduce in developed countries, there is an increase in developing countries. Frequency of smoking in the United States was reported to be 25% (United States Department of Health and Human Services, 1998). However, frequency of smoking ranges between 20% and 48% among university students in Turkey (Akdur, 2010). Many studies conducted on university students reported that the rate of smoking water pipe at least once was above 30% (Maziak et al., 2005; Jawaid et al., 2008; Primack et al., 2008). Ozcebe et al. (2014) stated that 18.9% of the first-year students currently smoke water pipe whereas 24.5% of the senior year students smoke water pipe. Sahin et al. (2014) reported that the frequency of cigarette smoking was 26.7% (Sahin, 2014). Reem et al. (2014) stated that the rate of cigarette smoking was 55.7% (72.9% for males, 27.1% for females). Although 6.4% prevalence of water pipe smoking among adults in GATS Vietnam 2010 was slightly higher than the corresponding figures for Pakistan (6%) (4) and Tunisia (5.2%), it was lower than the water pipe smoking prevalence in Australia (11% in Arabic-speaking adults), Syria (9%-12%), and Lebanon (15%) (Harrabi et al., 2010; Akl et al., 2011). In a study performed in England among university students, the rate

of steady water pipe smokers was 2.8%; this rate was 19% among water pipe users in the USA (Jackson et al., 2008; Smith-Smione et al., 2008). The results of our study are consistent with the literature.

Considering the distribution of water pipe smoking in the young people participated in the study by the age groups, the majority was aged 21 years and above. In a study conducted by Primack et al. on university students in the U.S. in 2007, the rate of students who smoked water pipe at least once was 40.5% (Primack, 2008). In Syria, half of university students said that they smoked water pipe at least once (Maziak, 2004). The influence of friends was very significant on starting water pipe smoking particularly in the young population aged 24 years and below. The influence of friends on starting water pipe smoking was more prominent in this age group compared to those aged 25 years and above. This result may be explained with the fact that it corresponds to a period when the friendships are in the foreground among university students (Ibrahimov et al., 2012).

Based on the opinions of the young people participated in the study, it was stated that water pipe is harmful by 61.6%, water pipe and cigarette are equally harmful by 24.3%, they have no information on addiction status of water pipe by 16.0% and they have no information whether water pipe transmits disease or not by 62.59%. Many studies concluded that students find water pipe less harmful than cigarette (Maziak et al., 2004; Akpinar et al., 2006; John et al., 2006; Erbaydar et al., 2010). This fact indicates that students have lack of knowledge on water pipe and proves that water pipe has gained currency as a new tobacco product smoking tool and that it may cause a serious public health problem.

The mean of total scores obtained by young people in the study was determined as ($\bar{x}$=65.20±1.25, min=33, max=75).The answer of young people to all items of the scale was "*strongly agree*". Cakmak (2014) determined that total mean score of the scale was 58.47±1.25 (Cakmak, 2014).

Based on the findings obtained upon comparison of the introductory characteristics of young people to the mean scores of the Scale of Perception about the Effects of Water Pipe Smoking on Health, there was a statistically significant difference between the total mean scores obtained from the Scale of Perception about the Effects of Water Pipe Smoking on Health and gender variable ($p<0.05$). The mean scores of the female students obtained from the Scale of Perception about the Effects of Water Pipe Smoking on Health were higher than those of the male students. In Cakmak's study (2014), the scores of the females were higher (Cakmak, 2014). Although there is limited literature examining the relationship of perceptions about the effects of water pipe on health with gender, most of the available studies emphasized that water pipe smoking is more frequent in men compared to women. It may be associated with the fact that as the women are more conscious about the negative effects of water pipe on health, their smoking rate is lower (Subasi et al., 2005; Akter, 2011). The higher social acceptance of water pipe smoking than cigarette is believed to be one of the reasons that water pipe smoking is popular in young women and women (Tamim et al., 2001; Jawaid et al., 2008).

A statistically significant difference was observed between the total mean scores obtained by the young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and their departments ($p<0.05$). The mean scores of the students at the nursing department were found to be higher than those studying at the engineering, medicine, business administration and social sciences. Obtaining higher scores by the students studying health is an expected result. Some studies also reported similar results. Ozcebe et al. (2014) found a high cigarette and water pipe smoking rate on students at the faculty of medicine (18.7-26.8%). Although the physicians are believed to be an important component of the struggle against tobacco, a rate of >10% in smoking water pipe in addition to tobacco among physician candidates can be defined as an important problem. These results indicate that anti-smoking measures are required for water pipe in addition to tobacco.

A statistically significant difference was determined between the total mean scores obtained by the young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and their weekly pocket money ($p<0.05$). The mean scores of the young people who find their weekly pocket money low were higher than those of the young people who find their weekly pocket money sufficient. Water pipe smoking is generally a social activity and smoking water pipe together with friends at cafes and its social aspect in this regard are important risk factors for its spreading use (Subasi et al., 2005). A study reviewed the relationship between high school students' tobacco and tobacco products smoking behaviors and their average monthly pocket money and determined that higher pocket money is associated with higher tobacco smoking rate (Akter, 2011). Cakmak's (2014) study on adolescents determined that mean scale scores of the adolescents who find their weekly pocket money sufficient are higher than those of the adolescents who find their weekly pocket money low.

A statistically significant difference was obtained between the total mean scores obtained by young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and cigarette and water pipe smoking status ($p<0.05$). The mean scale scores of those who do not smoke cigarette were higher than those of the cigarette smokers and the mean scale scores of those who do not smoke water pipe were higher than those of the water pipe smokers. The lower water pipe and cigarette smoking in students with higher perceptions on the effects of water pipe on health is quite important as it indicates that perceptions in this regard are reflected to behavior. No statistically significant difference was obtained between the total mean scores obtained by young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and cigarette and water pipe smoking in the family ($p>0.05$). Cakmak (2014) also reported similar results. In a study, cigarette smoking behaviors in the family of students were reviewed and tobacco and tobacco product smokers who reported continuous smoking in their family were more than those who reported no or infrequent smoking in their family

(Akter, 2011).

A statistically significant difference was obtained between the total mean scores obtained by young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and their thoughts about the harms of water pipe on health ($p<0.05$). Mean scale scores of the young people who gave the answer "Water pipe is harmful" were higher than those of the young people who gave the answer "Water pipe is harmless" and "I have no information". In the study of Ibrahimov et al. (2012), when the effect of water pipe on health was asked, only half of the participants (50.4%) gave the medically correct answer and the rate of participants who knew that water pipe is more harmful than cigarette was reported to be 36.9% only. A study indicated that a significant portion of teenagers do not consider water pipe a tobacco product and stated that water pipe smoking is not harmful (Akter, 2011). In another study, 30.6% of the students believed that water pipe's harms on health are more than those of cigarette and 13.6% stated that flavors and fruits combined with tobacco make water pipe healthier (Hassoy et al., 2011). In the study of Subasi et al. (2005), 54.6% of the participants believed that water pipe is harmful, 18.3% stated that they have no information on the harms of water pipe on health. Alvur et al. (2014) determined that 16.25% of university students had the opinion that fruity/flavored water pipe is not addictive and 21.99% had the opinion that water pipe is not addictive. In Cakmak's (2014) study conducted on adolescents, mean scale scores of the adolescents who gave the answer "*Water pipe is harmful*" were higher than those of the adolescents who gave the answer "*Water pipe is harmless*" and "*I have no information*" (Cakmak, 2014).

A statistically significant difference was obtained when the total mean scores obtained by young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health are compared to the variable of water pipe and cigarette's harm on health ($p<0.05$). The mean scale scores of the young people who stated "*Water pipe is more harmful*" were determined to be higher than those of the young people who stated "*Water pipe is less harmful than cigarette*" and "*Water pipe is harmless*". In a study, it was determined that approximately one third of the study group believed that water pipe is less harmful than cigarette and approximately one fourth had the opinion that harmful substances are blocked as they are passed through water (Hassoy et al., 2011). Alvur et al. (2014) determined that 25.33% of university students believed that carcinogenic chemicals are filtered with water, 12.11% said that water pipe does not contain nicotine and 6.3% stated that water pipe is harmless as it does not burn the lungs. However, it is known that a water pipe smoker inhales about 100 times more smoke than a cigarette while smoking a single water pipe (Shihadeh and Saleh, 2005). The studies in the literature support this study and revealed that people have a little information on the effects of water pipe on health and they believe that water pipe is less harmful than cigarette (Vaisano et al., 2003; Maziak et al., 2004).

A statistically significant difference was obtained when the relationship between total mean scores obtained by young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health and their opinions on addiction status of water pipe was examined ($p<0.05$). The mean scale scores of the young people who gave the answer "*Water pipe is addictive*" were higher than those of the young people who gave the answer "*Water pipe is not addictive*". In a study, almost half of the study group was determined to believe that water pipe is not addictive like cigarette (Hassoy et al., 2011).

A statistically significant difference was obtained when the total mean scores obtained by young people from the Scale of Perception about the Effects of Water Pipe Smoking on Health are compared to their opinions on water pipe's risk of transmitting infectious diseases ($p<0.05$). The mean scale scores of the young people who stated "*Water pipe transmits disease*" were found to be higher than those of the young people who stated "*Water pipe does not transmit disease*" and "*I have no information*". Infections such as tuberculosis, herpes and hepatitis may be transmitted as water pipe is reusable and the same mouthpiece is shared (Chaouachi, 2006; Morton et al., 2013; Okdemir, 2013). Another study reported that the rate of those who believed that a disease can be transmitted from person to person through water pipe was 15%. 1.4% of the study group stated that airborne infections can be acquired in addition to some other diseases such as tuberculosis, hepatitis and HIV/AIDS (Subasi, et al., 2005). Alvur et al. (2014) determined that 7.89% of university students do not believe that infectious diseases can be transmitted through shared use of water pipe mouthpiece.

In conclusion and recommendations, water pipe smoking is a negative health-related habit that is common among university students. According to these results, there are false beliefs that water pipe is not as harmful as cigarette and it is not addictive. In order to correct misinformation on water pipe, it may be advantageous to raise the awareness of university students on the harms of water pipe and to organize campaigns against water pipe smoking such as implementation of smoking prohibition.

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