Evaluation of the frequency of use and the dependence level of cigarette and other tobacco products in the vocational school of health services students

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ABSTRACT

Aims: Despite the legal regulations, there is an increase in the consumption of cigarette and other tobacco products. Therefore, we aimed to examine the use and addiction rates of tobacco products, especially cigarettes, among the students of the Vocational School of Health, who will be members of the health professionals in the future.

Methods: The study was planned as a cross-sectional study with a face-to-face survey. From a total of 913 health technician students from 9 programs in the University of Health Sciences, Vocational School of Health Services, 277 students were selected by simple randomization. The personal and sociodemographic characteristics of the students, the status of using cigarette and other tobacco products, the frequency and the degree of dependence were measured. Dependence level was measured by the Fagerstrom Nicotine Dependence Test.

Results:84.5% of the students were between the ages of 18-20, and 74% were female students. The average smoking rate of the students was 22.7% (female: 16.5%, male: 40.2%). The rate of using the water pipe was 25.7% (female: 17.5%, male: 58.1%) between non-smoking students. Most of the students who started smoking stated that they started smoking with the influence of their friends (76.1%), and 52.4% of the students indicated that they did not think about quitting smoking.

Conclusions: In our study, it was determined that amongst the young people who will become healthcare professionals in the future, the frequencies of cigarette and water-pipe use are high.

Introduction

Tobacco use is the 4th most common risk factor in the world in the global health risk assessment. The number of people in the world who die as a result of active or passive tobacco use is 19 thousand, and most deaths occur in low or middle-income countries (1). The use of cigarettes and other tobacco products is a behavioral process that develops physiological and psychological dependence. Nicotine in tobacco is a highly addictive chemical that causes continuous tobacco use. Tobacco products are categorized into two groups; flammable tobacco products such as cigarettes, cigars, rolled tobacco, water pipe, and smokeless tobacco products such as electronic cigarettes (e-cigarettes), chewing and snuffing. In studies conducted in the USA, 15.1% of adolescents and 4.2% of adults were smoking, and also, there was a rapid increase in e-cigarette consumption in adolescents in the last five years (2). When the data in our country was evaluated, we realized the effects of legal regulations on tobacco control. For the first time in 1996, the "Law on the Prevention of the Damages of Tobacco and Products" was enacted; however, restrictions about smoking in all public and private-public spaces were passed on May 19, 2008, with number 527; It was passed with the name "Law on Prevention and Control of Damages of Tobacco Products" (3) . With the law enacted on July 19, 2009, there was a decrease in the consumption of cigarettes (4). However, it has been observed that the decrease in the consumption of tobacco products has decreased in recent years. In 2010, the rate of the population who smoke daily was 25.4%, while the same number in 2016 was raised to 26.5%. In 15-24 years of age group, the rate of daily use and seldom use was 16.4 and 3.4% respectively in 2010 (total 19.4), while they were 18.1% and 3.3 in 2016 (total 21.4) (5).

The e-cigarette is a battery-powered device (6), which generally heats the nicotine-containing liquid and produces a vapor inhaled by the user. The liquid contains propylene glycol, nicotine, formaldehyde, acetaldehyde, acrolein, toluene, cadmium, nickel, lead, nitrosamines and many other toxic products other than nicotine. It was produced for the first time in 1963 and entered the market in 2007 in our country. Product was advertised as "helping to quit smoking," but this was contradictory because it allowed non-smokers to meet with nicotine for the first time (7). In a research conducted in the US in 2016, 47.2% of the

high school students and 42.4% of the middle school students were using two or more types of tobacco products, and e-cigarette was the most commonly used product (8). As a matter of fact, e-cigarettes, which are not approved by the FDA as a smoking cessation product, were included in the scope of the "Law No. 4207 about the Prevention and Control of the Damages of Tobacco Products by the Ministry of Health" in 2013 and prohibited the sale, advertisement and use of tobacco products in places where consumption was prohibited (7).

Water-pipe is one of the most commonly used tobacco products except for cigarette among young people. Smoking The reason why water pipe is preferred among young people is that it is not considered as a tobacco product and suitable for use in social environments, especially for those with fruit flavors, thus, it can be considered as an insidious threat for youth (9). However, the use of a water pipe, have equal the heavy metal content to 4-5 packs of cigarettes and it has been shown that it carries all the Tuberculosis, Hepatitis C, Herpes risks caused by the use of mouthpieces (10).

In this study, we aimed to analyze the frequency of use of all tobacco products, especially e-cigarette, water pipe which is becoming popular among adolescents, the level of dependence, the perceptions of the personal-environmental factors affecting them and their perceptions on the prohibition of smoking in public places. Therefore, we planned to conduct this research among the students of the Vocational School of Health Services (VSHS), who will become healthcare professionals in the future.

Methods

The study was planned as a cross-sectional study with a face-to-face survey. Questionnaires were asked by the simple random method and face-to-face interviews with 277 people who agreed to participate in the study among 913 students in 12 programs studying at the School of Health Sciences. The study was conducted between 01.03.2018 and 31.05.2018. Okmeydanı Training and Research Hospital Ethics Committee approved with approval no. 779 on 05.12.2017 and institutional permission was obtained from VSHS Directorate.

The survey consisted of 36 questions, and the first 21 questions were asked to all students. Smoking prohibition in public places and whether this would be useful in preventing passive smoking was asked to all students regardless of their sociodemographic characteristics, smoking and other tobacco use with Likert-type scale. The last 15 questions of 36 questions were prepared only for the students who stated that they were smoking. In this part, the factors for starting smoking, age of starting, monthly smoking costs, wanting to quit smoking, attempts to quit smoking, admission to smoking cessation clinics and smoking status of other members of the family were asked. Besides, dependence levels were measured by the Fagerstrom Nicotine Dependence Test (FNDT). The FNDT had six questions, and the total score was 10. In the test, 0-2 points; was considered as very mild, 3-4 points; as mild, 5 points; as moderate, 6-7 points; as high and 8-10 points; as very high addiction.

The results were analyzed by SPSS for Windows 15.00; SPSS Inc., Chicago, IL, USA. Descriptive statistical methods (Frequency, Percent, Mean, Standard deviation) were used for statistical analysis of data, Pearson chi-square test was used for comparison of qualitative data, and Kolmogorov-Smirnov distribution test was used for the evaluation of normal distribution. In the case of two groups, for the comparison of the quantitative data, independent samples t-test was used for the comparison of the normally distributed parameters, and the Mann Whitney U test was used for the comparison of the non-normal distributed parameters; In the comparison of quantitative data, if there were more than two groups, Kruskal Wallis test was used for the comparison of non-normal distributed parameters. The comparison of the quantitative data was made by correlation analysis. Results were considered to be statistically significant at a 95% confidence interval and $p<0.05$.

Results

The mean age of the 277 students who completed the questionnaire was 18.64 ± 1.44 (18-29), 84.5% were between 18-20 years of age (n:234), and 13% were between 21-23 years of age (n:36), 1.1% were between 24-26 years of age (n:3), and 1.4 % were above 26 years of age (n:4). 74% of the students were female (n:205), and 26% were male (n:72).

When we evaluate the working status of the students outside of school hours, it was seen that 10.8% of them worked in a job (n:30) and 89.2% of them did not work (n:247). When the students were asked about the place of residence of their families, 52.7% (n:146) were living in Istanbul, 45.8% (n:127) were living outside of Istanbul, and 1.1% (n:3) were living abroad. The type of accommodation of the students during their education was usually with their families (50.9%, n:141), then in the same rate in the dormitory (15.5%, n:43) and in private dormitories (15.5%, n:43), 7.2% (n:20) were staying in the student house and 10.8% (n:30) were staying in other places. When asked about the number of siblings in the family, 5.4% of the students did not have any siblings (n:15), 22.4% had 2 siblings (n:62), 24.5% had 3 siblings (n:68), 20.2% had 4 siblings (n:56), 27.4% had more than 4 siblings (n:76). The educational status of the parents of the students is shown in Figure 1.

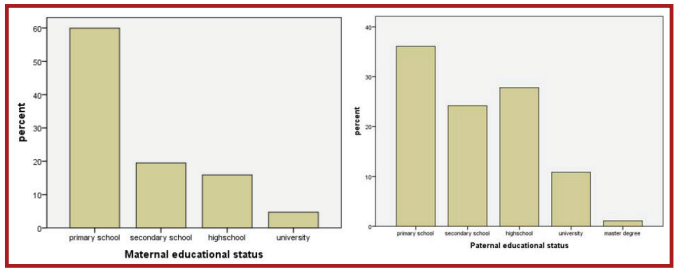

Figure 1. Educational status of parents of the students.

When the smoking status of the students was evaluated, the current smoking rate of the students was 22.7% (n:63). While 29.7% of female students (n:61) stated that they tried smoking but not currently smoking, this rate was 30.5% (n:22) for males; and the smoking rate was 16.5% (n:34) for female students, while 40.2% for males (n:29). There was a significant difference between the genders in the smoking ratio ($p<0.05$). Then, 214 students who stated that they did not smoke were questioned about the use of other tobacco products. Two hundred fourteen non-smoking students stated that 25.7% of them smoked water pipe (n:55). While the water pipe smoking rate for female students who did not smoke was 17.5% (n:30), it was 58.1% (n:25) for male students. The number of students who stated that they used wrapped tobacco even though they indicated that they did not smoke, was 11, and the number of students who used e-cigarettes was only 1 (Figure 2). There was no statistically

significant difference between the education level of parents and smoking (p> 0.05).All students were evaluated about their thoughts about smoking prohibition in social environments such as cafes, coffee houses, institutions such as schools, hospitals, and open areas with 6 Likert type. Table 1 shows the opinions of students about the smoking ban in public places. It was seen that 54% of the students who were asked about the smoking restrictions brought by the law thought that smoking prohibition was necessary to prevent passive smoking in social environments such as coffee houses and cafes. 59.3% of the participants who agreed the ban were non-smokers, 30% of those tried to smoke before and now do not smoke, and 10% of those were currently smoking. The percentage of students who believe that a smoking ban in social places such as coffeehouses and cafes had protection against passive smoking was 47.7%, and the majority (56%) were non-smokers. The rate of students who think that the smoking ban is necessary for official institutions such as schools and hospitals was 54.5%, and about half of them were non-smokers. The idea that the students showed the least participation rate in total was that the smoking ban in open spaces is necessary to prevent passive smoking. Again, about the extension of the smoking ban, 44% of the participants ultimately agreed, 61% of them were non-smokers, and only 5.7% were current smokers.

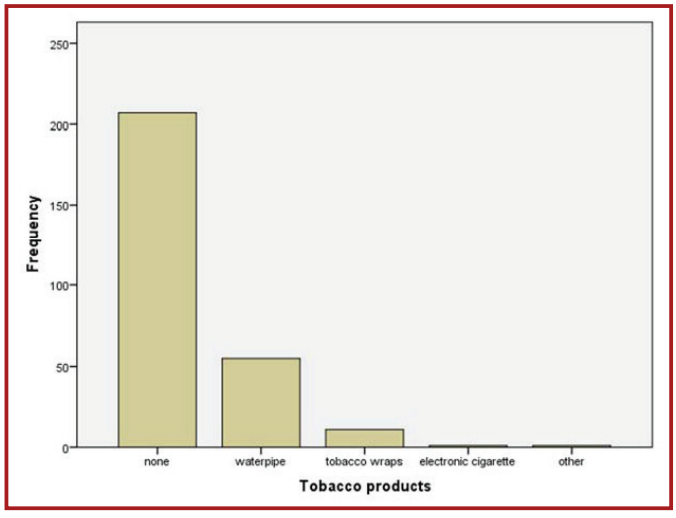

Figure 2. Rate of using other tobacco products among students who declared that they did not smoke.

In the part of the questionnaire where only smoking students were asked, they were asked questions about smoking attitudes and addiction rates. Between 63 students who smoked, 26.9% (n:17) had 0-50 Turkish Lira (TL), 19% had (n:12) 51-100 TL, 25.3% had (n:16) 101-200 TL and 28.5% of had (n:18) more than 200 TL monthly expense of cigarette. In the group with the lowest cost of 0-50 TL/month, the ratio of female students, and in the group with the highest cost of 200 TL or more, the ratio of male students was higher (p <0.05).

It was observed that about the question of whether there were any other smokers in their families, 77.7% (n:49) of the students answered the question positively and 22.2% (n:14) of the students answered the question negatively. When the students were asked about with whose the incentive or influence they started smoking, 76.1% (n:48) of the 63 students answered as their friends, 4.7% (n:3) as their father, 3.1% (n:2) as their older brothers, 1.5% (n:2) as their mother, 9.5% (n:6) as other relatives, and 4.7% (n:3) as their own will, not by anyone. Starting smoking with the encouragement of friend was statistically higher than the encouragement of other people (p <0.05).

When the students' approaches to smoking cessation were asked, they stated that they did not think to quit (n:33) at a rate of 52.4% and 47.6% (n:30) of them stated that they thought to quit. When asked about smoking cessation experiences, it was learned that more than half (52.4%, n:33) tried and 47.6% (n:30) did not try to quit.

When 63 students were asked whether they applied to a health institution or smoking cessation clinic, only one person (1.6%) said he applied and 62 students (98.4%) said they did not. When asked about applying, 19% (n:12) stated that they want to apply, 81% (n:51) stated that they do not want to apply.

When university students were asked about the age of start smoking, the mean age was 15.9±2.66 years, the minimum age of onset was 12, the highest was 27, and the duration of smoking was 3.79±1.94 years. They had been using for at least one year and at most for eight years. The mean age of onset of smoking was 16.23±2.81 for female students, and there was no statistically significant difference between the mean age of male students (15.51±2.47). (P> 0.05)

To the Fagerstrom Nicotine Dependence Test (FNDT) questions, 50.8% of the students answered as less than 10 (n:32), 31.7% as between 11-20 (n:20), 14.3% as between 21-30 (n:9) and 3.2% as more than 31 (n:2). It was seen that 67% of female students smoked less than ten cigarettes per day and 51% of males smoked between 11-20 cigarettes, and the daily smoking amount was significantly higher in males than females (p <0.05). When we measured the degree of dependence over the total FNDT score, 10 students had zero points, and alongside with the total of 28 students who had 1-2 points (44.4%), they were found to be very mildly dependent, a total of 10 students (19.4%) who had 3-4 points were mild, 9 students (14.5%) with 5 points were moderate, 10 (13.2%) students with 6-7 points were high, and 6 students (9.5%) with 8 or more points were found to be very highly dependent. The mean FNDT score of female students was 2.81 ± 2.89, which was significantly lower than the mean score of male students (4.20 ± 2.35) (p <0.05). (Figure 3)

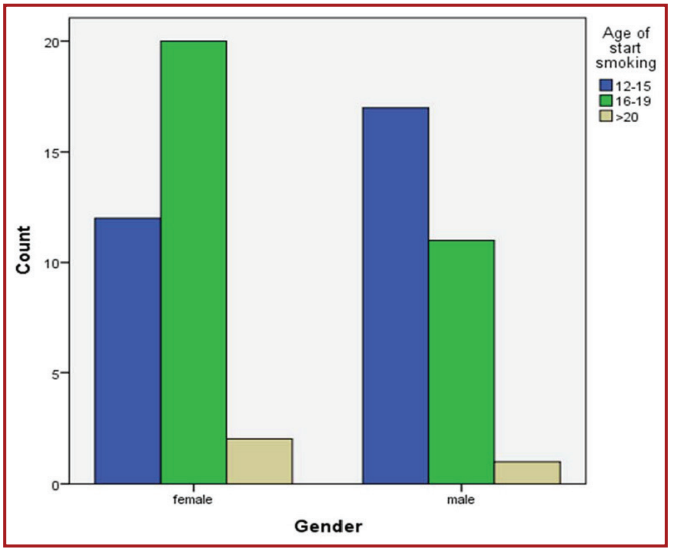

Figure 3. The ages of start smoking according to genders.

Table 1. Students' thoughts on smoking ban in public places

A smoking ban is required to prevent passive smoking in social settings such as coffee houses and cafes	Not smoking n (%)	Never smoked n (%)	Smoking n (%)	Total n (%)
I strongly disagree	10 (27.7)	13 (36.1)	13 (36.1)	36 (13.0)
I do not agree	1 (7.6)	2 (15.2)	10 (76.9)	13 (4.7)
I partially disagree	2 (25)	3 (37.5)	3 (37.5)	8 (2.9)
I partially agree	3 (15.7)	3 (15.7)	13 (68.4)	19 (6.9)
I agree	21 (41.1)	21 (41.1)	9 (17.6)	51 (18.4)
I strongly agree	46 (30.6)	89 (59.3)	15 (10)	150 (54.2)
Total	83 (29.9)	131 (47.2)	63 (22.7)	277 (100.0)
A smoking ban is useful to prevent passive smoking in social settings such as coffee houses and cafes	**Not smoking n (%)**	**Never smoked n (%)**	**Smoking n (%)**	**Total n (%)**
I strongly disagree	8 (25)	14 (43.7)	10 (31.2)	32 (11.6)
I do not agree	3 (17.6)	5 (29.4)	9 (52.9)	17 (6.1)
I partially disagree	1 (7.6)	5 (38.4)	7 (53.8)	13 (4.7)
I partially agree	9 (36)	7 (28)	9 (36)	25 (9.0)
I agree	19 (32.7)	26 (44.8)	13 (22.4)	58 (20.9)
I strongly agree	43 (32.5)	74 (56)	15 (11.3)	132 (47.7)
Total	83 (29.9)	131 (47.2)	63 (22.7)	277 (100.0)
A smoking ban is required to prevent passive smoking in public institutions such as schools and hospitals	**Not smoking n (%)**	**Never smoked n (%)**	**Smoking n (%)**	**Total n(%)**
I strongly disagree	7 (25.9)	12 (44.4)	8 (29.6)	27 (9.7)
I do not agree	2 (11.1)	2 (11.1)	14 (77.7)	18 (6.4)
I partially disagree	3 (30)	2 (20)	5 (50)	10 (3.6)
I partially agree	2 (13.3)	5 (33.3)	8 (53.3)	15 (5.4)
I agree	19 (33.9)	27 (48.2)	10 (17.8)	56 (20.2)
I strongly agree	50 (33.1)	83 (54.9)	18 (11.9)	151 (54.5)
Total	83 (29.9)	131 (47.2)	63 (22.7)	277 (100.0)
A smoking ban is useful to prevent passive smoking in public institutions such as schools and hospitals	**Not smoking n (%)**	**Never smoked n (%)**	**Smoking n (%)**	**Total n (%)**
I strongly disagree	8 (25.8)	13 (41.9)	10 (32.2)	31 (11.2)
I do not agree	3 (14.3)	5 (23.8)	13 (61.9)	21 (7.6)
I partially disagree	1 (14.3)	2 (28.6)	4 (57.1)	7 (2.5)
I partially agree	8 (30.8)	8 (30.8)	10 (38.5)	26 (9.4)
I agree	20 (37.7)	25 (47.2)	8 (15.1)	53 (19.1)
I strongly agree	43 (30.9)	78 (56.1)	18 (12.9)	139 (50.2)
Total	83 (29.9)	131 (47.2)	63 (22.7)	277 (100.0)
A smoking ban in outdoor areas is useful in preventing passive smoking	**Not smoking n (%)**	**Never smoked n (%)**	**Smoking n (%)**	**Total n (%)**
I strongly disagree	8 (16)	10 (20)	32 (64)	50 (18.1)
I do not agree	7 (21.2)	14 (42.4)	12 (36.3)	33 (11.9)
I partially disagree	9 (36)	10 (40)	6 (24)	25 (9.0)
I partially agree	16 (39)	20 (48.7)	5 (12.1)	41 (14.8)
I agree	9 (31)	18 (62)	2 (6.8)	29 (10.5)
I strongly agree	34 (34.3)	59 (59.5)	6 (6)	99 (35.7)
Total	83 (29.9)	131 (47.2)	63 (22.7)	277 (100.0)
Increasing the extent of the smoking ban may have a beneficial effect on protection from passive smoking	**Not smoking n (%)**	**Never smoked n (%)**	**Smoking n (%)**	**Total n (%)**
I strongly disagree	8 (16)	14 (28)	28 (56)	50 (18.1)
I do not agree	3 (21.4)	4 (28.6)	7 (50)	14 (5.1)
I partially disagree	6 (28.6)	4 (19.1)	11 (52.4)	21 (7.6)
I partially agree	9 (32.1)	11 (39.3)	8 (28.6)	28 (10.1)
I agree	17 (41.5)	22 (53.7)	2 ((4.9)	41 (14.8)
I strongly agree	40 ((32.5)	76 (61.8)	7 (5.7)	123 (44.4)
Total	83 (29.9)	131 (47.2)	63 (22.7)	277 (100.0)

Discussion

The use of tobacco products, especially cigarettes, is a significant public health problem in the world and our country, and there is an increase in the frequency of use, particularly among young people. The studies conducted in the world showed that the use of tobacco products varies between 1.8% and 29.5% (11, 12). 7.7% of young people in the age group of 13-15 years use a tobacco product in our country (13). In the studies made with university students; it was seen that the rate of using cigarettes or other tobacco products varied between 18.7% and 43.6% (14-16). The rate of smoking among VSHS students at our university was found to be 22.7% in our study. The fact that the smoking rate in male students was significantly higher than that of females was also consistent with the data of the world and our country (17).

One of the main objectives of our study was to investigate the use of water pipe and especially the rate of water-pipe use among students who stated that they did not smoke cigarettes. The aromas used in water-pipes give them an innocent image, and the fact that they are smoked in social places is among the factors that cause widespread consumption among young people. In our study, 55 of 214 students (25.7%) who were not smoking at the time stated that they smoked water pipe. While the water pipe smoking rate of female students who were not smoking cigarettes was 17.5% (n:30), it was 58.1% (n:25) for male students. In the literature, the rate of hookah consumption among university students in non-smokers was found to be 28.2% (18). While the rate of water-pipe consumption among non-smoker students was similar in our study to other studies, it was seen that the rate was much higher in male students. It should not be ignored that restrictions on tobacco products could cause new quests in the tobacco industry and that the increase in water-pipe use, especially in social settings, might be a way to tobacco addiction among non-smokers.

Our research on e-cigarettes among students showed that the rate of e-cigarette use was very low. This result is thought to be because of the difficulty of young people in accessing e-cigarettes due to the high cost of them. In many studies on e-cigarette use in the literature, it was seen that young people had easy access to cigarettes economically or had high consumption and the consumption was increasing rapidly in countries where their sale was legal (8,19,20).

The proportion of students who thought that the prohibition of smoking in both social settings and official institutions was necessary to prevent passive smoking was determined to be approximately equal. This rate is similar to the rates found in the PIAR study conducted in 1988 and is a higher rate when compared to the results of Azak's study (21, 22).

The mean age of starting smoking was 15.9 for male and female students. These rates seem to be compatible with the data both in our country and in the world (23). The presence of other smokers in families was found to be high, as in various studies. While this rate was 77% in our study, it was found 68% in the study of Yıldırım et al. and 73% in the study of Abbas Ali et al. (24, 25). As is seen, the presence of a smoker in the family affects young people in starting smoking.

By applying FNDT, it was seen that 44.4% of the students were very mildly dependent. Nevertheless, this result seems to be pleasing for the students to quit smoking and to avoid the complications of smoking with an appropriate approach and support on time. Both daily cigarette counts and FNDT scores of female students were found to be significantly lower than males, and these results were found to be consistent with many other studies (26).

Conclusion

The fact that VSHS students are health personnel who will take place in the health sector in the future makes smoking rates even more important. The investigation of young people in terms of their use of cigarettes and other tobacco products and taking due precautions are essential. The high rate of water-pipe use, even among young people who declared that they did not smoke (due to the illusion that water pipes are more innocent than cigarettes and related to the social environment) indicates that informing studies and restrictions on water pipe should be increased. Yet, the high smoking rate in the families of young people shows that it is an important parameter for the public health in terms of reducing the consumption of cigarettes in adults and decreasing the rate of smoking in future generations.

In our study, we can conclude that in general, young people have a positive view of the smoking ban in public places. However, young people, especially smokers, are seen to consider the extension of the ban to be less favorable.

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Conflict of Interest

The authors declared they do not have anything to disclose regarding conflict of interest with respect to this manuscript

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