Research Article / Araştırma Makalesi

Evaluation of the Smoking Prevalence, Attitudes and Behaviors, and General Self-Efficacy of Undergraduate Dentistry Students

Diş Hekimliği Lisans Öğrencilerinin Sigara İçme Sıklığı, Tutum ve Davranışları ile Genel Özyeterliklerinin Değerlendirilmesi

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Abstract: Physicians play a crucial role in reducing tobacco use. Besides many studies have shown doctors have a high prevalence of smoking. Dentistry students receive varying levels of education about the negative effects of smoking and tobacco products on general health and the risks of causing systemic and oral diseases. The present study aims to assess the prevalence of smoking, attitudes toward smoking, knowledge on smoking addiction treatments, and general self-efficacy of dentistry students. Utilizing a digital platform, the questionnaire form was constructed. The survey instrument employed in the research comprises two distinct sections: 1.Global Health Professionals Student Survey (GHPSS), 2.General Self-Efficacy Scale. 260 dentistry students were included in the study. The prevalence of smoking was %24.7 for 3rd-grade, %30.0 for 4th grade, and %30.3 for 5th grade. The smoking status of 3rd, 4th, and 5th-grade dentistry students did not vary by educational level(p=0.320). Self-efficacy levels do not differ significantly according to 'never smoked', 'still smoking', or 'quit smoking' status(F=0.317,p=0.729). The majority of dentistry students participating in this study believe they have a responsibility to provide smoking cessation advice(n=228,%88,3) and should receive specialized training on the topic(n=214,%82,9). Attitudes toward smoking was related to general self-efficacy in some questions. In conclusion, the clinical education and self-efficacy levels of dentistry students had no effect on their smoking attitudes, according to the present study. Provisions should be made to increase dentistry students' limited knowledge of smoking cessation methods and treatments, and psychosocial support services should be provided to increase their self-efficacy during undergraduate education.

Keywords: Oral medicine, Dentistry, Dental Education, Dental students, Smoking, Tobacco use, Self-Efficacy

Özet: Hekimler tütün kullanımının azaltılmasında çok önemli bir rol oynamaktadır. Ayrıca birçok çalışma, doktorların sigara içme prevalansının yüksek olduğunu göstermiştir. Diş hekimliği öğrencileri, sigara ve tütün ürünlerinin genel sağlık üzerindeki olumsuz etkileri ile sistemik ve ağız hastalıklarına neden olma riskleri konusunda farklı düzeylerde eğitim almaktadırlar. Bu çalışma, diş hekimliği öğrencilerinin sigara içme prevalansını, sigaraya karşı tutumlarını, sigara bağımlılığı tedavileri hakkındaki bilgilerini ve genel öz-yeterliliklerini değerlendirmeyi amaçlamaktadır. Dijital bir platform kullanılarak anket formu oluşturulmuştur. Araştırmada kullanılan anket aracı iki ayrı bölümden oluşmaktadır. 1. Küresel Sağlık Profesyonelleri Öğrenci Anketi (GHPSS), 2. Genel Öz-Yeterlilik Ölçeği. Çalışmaya 260 diş hekimliği öğrencisi dâhil edilmiştir. Sigara içme sıklığı 3. sınıf için %24.7, 4. sınıf için %30.0 ve 5. sınıf için %30.3'tür. Üçüncü, dördüncü ve beşinci sınıf diş hekimliği öğrencilerinin sigara içme durumu, eğitim düzeyine göre değişmedi (p=0.320). Öz-yeterlilik düzeyleri hiç sigara içmeyenler, hala içenler ve sigarayı bıraknalar arasında anlamlı farklılık göstermedi (F=0.317 p=0.729). Bu çalışmaya katılan diş hekimliği öğrencilerinin büyük çoğunluğu sigarayı bırakma konusunda tavsiye verme sorumlulukları olduğuna (n=228,%88,3) ve bu konuda özel eğitim almaları gerektiğine (n=214,%82,9) inanmaktaydı. Sigara içmeye yönelik tutum bazı sorularda genel öz-yeterlilik ile ilişkiliydi. Sonuç olarak, bu çalışmaya göre diş hekimliği öğrencilerinin klinik eğitim ve öz-yeterlilik düzeylerinin sigara içme tutumları üzerinde bir etkisi olmamıştır. Diş hekimliği öğrencilerinin sigarayı bırakma yöntemleri ve tedavileri konusunda kısıtlı olan bilgilerini artıracak düzenlemeler yapılmalı ve lisans eğitimleri süresince öz-yeterliliklerini artıracak psikososyal destek hizmetleri sağlanmalıdır.

Anahtar Kelimeler: Ağız hastalıkları, Diş Hekimliği, Diş Hekimliği Eğitimi, Diş hekimliği öğrencileri, Sigara kullanımı, Tütün kullanımı, Öz-yeterlilik,

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1. Introduction

Smoking and tobacco use are risk factors for six of the eight primary causes of death worldwide; it is a grave public health issue that kills over 8 million people annually (1,2). The International Classification of Diseases (ICD-10) classifies smoking disorder as a mental and behavioral disorder According to the most recent information provided by the World Health Organization, 22.3% of the global population uses tobacco products (1,2). Due to the fact that Turkey is a tobaccoproducing county, it has the tenth-highest incidence of tobacco use in the World (4). According to a study conducted in 2023, more than 25 percent of adults aged 15 and older smoke in Turkey (5).

Physicians play a crucial role in reducing tobacco use. Encouraging the participation professionals in tobacco of health prevention and cessation counseling is one fatalities strategy for reducing the attributable to tobacco use. Previous research indicates that a physician's smoking habit influences his or her approach to smoking cessation counseling (6,7). In a meta-analysis, the prevalence of smoking among physicians was estimated to be approximately 21%. It has been reported that family physicians and medical faculty students have the highest prevalence of smoking (8).

Self-efficacy has been defined as an individual's belief that they can initiate an action and continue it until they results, in an effective way (9). In the field of health, numerous studies have examined patient behaviors related to self-efficacy. It appears that the use of self-efficacy in the formulation and modification of patients' health-related behaviors is advantageous (10-12). The benefit of high self-efficacy in overcoming addictions such as alcohol, cannabis. and nicotine has demonstrated in the scientific literature (13-15).

Regarding dentistry, oral cancer stands out as the most significant disease to which

smoking is a crucial risk factor. The present study aims to assess smoking prevalence, attitudes and behaviors toward smoking, and general self-efficacy of dentistry students from varying levels of dentistry education.

2. Materials and Methods

The ethical approval for the current study was received from the Non-Interventional Clinical Research ethics committee of Eskisehir Osmangazi University (Approval Date/ Number: 20.06.2023/54).

The study sample comprises undergraduate students in their third, fourth, and fifth years at the Faculty of Dentistry, Eskişehir Osmangazi University. The study excluded 1st and 2nd year dentistry students because they have not yet received training on the effects of cigarettes and tobacco products on general health and the systemic and oral diseases they may cause.

Utilizing a digital platform (Google Form, a free web-based virtual survey generator), the questionnaire form was constructed. An online informed consent was included. Then, the link to the Google Forms survey was shared with the students. The study participants who voluntarily accepted their participation were requested to respond to questions in an anonymous manner.

The survey instrument employed in the research comprises two distinct sections: 1. **Professionals** Global Health Student Survey's (GHPSS), 2. General Self-Efficacy Scale. The Global Health Student **Professionals** Ouestionnaire comprises a core questionnaire consisting of 42 questions. Its purpose is to gather data on five specific areas: smoking prevalence, exposure to secondhand smoke, education and knowledge regarding the health impacts of tobacco use, attitudes towards tobacco use, and smoking cessation (16). The present study did not utilize exposure to secondhand smoke dimension.

The first version of the General Self-Efficacy Scale was developed in 1982. In its simplified version, Likert options were reduced from 14 to 7 (17,18). A Turkish validity and reliability study of the questionnaire was conducted (19). The survey comprises a total of 17 questions. Each question has a score between 1 and 5. The scale's items 2, 4, 5, 6, 7, 10, 11, 12, 14, 16 and 17 are scored in reverse. The total score on the scale can range from 17 to 85; a higher score indicates greater self-efficacy beliefs.

Statistical analysis

IBM SPSS (Statistical Package for the Social Sciences) Version 26 was used for data analysis. Categorical data were presented as frequency and percentage, and continuous data as mean and standard deviation. Whether the continuous data fit the normal distribution was evaluated with Skewness and Kurtosis. The correlation of categorical data with each other was examined with the chi-square test, and differences were found. Bonferroni method was used for post hoc analyses. An independent group t-test was used to analyze the continuous data of the

two groups. A one-way Analysis of Variance (One way ANOVA) was applied to the comparison of continuous data from more than two groups. A statistically significant p value was accepted as ≤ 0.05 .

3. Results

3.1. Descriptive statistics

A total of 260 participants answered the questionnaires. Two of them were excluded from the analysis due to their inconsistent responses (Due to the simultaneous selection of 'I have never tried to smoke' and 'I don't intend to quit'). Table 1 presents the distribution of the remaining 258 dentistry students by class, gender, age, smoking status, and self-efficacy levels. Using the 1st, 3rd, and 28th questions of the GHPSS, the participants were categorized as "never regularly smoked," "still smoking," and "quitted smoking".

Considering the ratio of the number of participants to the total number of students in each class, 78.07% of the third grade students and 100% of the 4th and 5th grade students participated in the study.

Table 1. Demographic and clinical information of the participants by education level

			Education Level		
		3rd grade students	4th grade students	5th grade students	
The number of participants		n=89	n=80	n=89	
			n (%)		
Age	18-24	82 (%92.1)	79 (%98.8)	64 (%71.9)	
	25-29	5 (%5.6)	1 (%1.3)	25 (%28.1)	
	30 and above	2 (2.2)	0 (%0)	0 (%0)	
Gender	Female	44 (%49.4)	43 (%53.8)	51 (%57.3)	
	Male	45 (%50.6)	37 (%46.3)	38 (%42.7)	
Smoking status	Never regularly smoked	39 (%43.8)	26 (%32.5)	39 (%43.8)	
	Quitted smoking	28 (%31.5)	30 (%37.5)	23 (%25.8)	
	Still smoking	22 (%24.7)	24 (%30.0)	27 (%30.3)	
		Mean \pm Standard deviation			
General Self-Efficac	Score 59.23 ± 9.31 55.40 ± 8.88 55.48		55.48 9.53		

3.2. Comparisons based on the level of education of the students

Chi-square analysis was used to determine whether smoking status varied with education level. In this analysis, 6 cases were excluded because their smoking cessation was at least three years prior, i.e., when the participants had not enrolled in dental school. The smoking status of 3rd,

4th, and 5th-grade dentistry students did not

vary by educational level (Table 2).

Table 2. Smoking among dentistry students by education level

		Education Level				
		3rd grade	4th grade	5th grade		
		students	students	students		
The number of pa	rticipants	n=86				
Smoking status	Never regularly smoked	39 (%45.3)	26 (%32.9)	39 (%44.8)	$\chi^2 = 4.693$	
	Quitted smoking	25 (%29.1)	29 (%36.7)	21 (%24.1)	df=4	
	Still smoking	22 (%25.6)	24 (%30.4)	27 (%31.0)	p=0.320	

The 73 students who continued to smoke were compared based on their education level and whether or not they desired to cease smoking (GHPSS, question 26). 54.5% of 3rd grade students, 62.5% of 4th grade students, and 63% of 5th grade students wanted to quit smoking. According to the chi-square analysis, these rates did not differ statistically according to education level (χ^2 =0.433 df=2 p=0.805).

3.3. Responses to Curriculum and Education

The answers of the students of the faculty of dentistry participating in the study about the curriculum and education are presented in Table 3.

In the two survey questions, a difference was observed according to the education level of the students. Post hoc Bonferroni analyses were performed for the question "34. During your dental education, did you discuss the reasons people smoke in any of your lectures?". The difference between 3rd and 4th grade students was statistically significant (p<0.05). Since there was a

significant difference between the groups in the 36th question (36. During your dental education, did you receive any formal training in smoking cessation approaches that you can use with patients?"), a post hoc Bonferroni analysis was performed. A statistically significant difference was observed between 3rd and 4th grade students, and between 3rd and 5th grade students (p<0.05 for each).

3.4. Attitudes towards smoking and self-efficacy scores

Self-efficacy level according to smoking status was analyzed with the one-way Analysis of Variance (one-way ANOVA) test. Self-efficacy levels do not differ significantly according to 'never smoked', 'still smoking', or 'quitted smoking' status (F=0.317 p=0.729). The relationship between attitudes towards smoking and self-efficacy was analyzed by independent-samples t-test, the results are summarized in Table 4. Analyses showed that students with better attitudes toward smoking had higher self-efficacy in many questions (See Table 1).

Table 3. The responses of dentistry students regarding the curriculum and education

		E				
		3rd Grade	4th grade	5th grade		
During your dentistry education, in of your courses	any	n, %	n, %	n, %	χ^2	p
Have you heard about the dangers of smoking?	Yes	78 (%87.6)	63 (78.8)	74 (%83.1)	2.401	0.301
-	No	11 (%12.4)	17 (21.2)	15 (%16.9)		
Have you been taught about the dangers of smoking?	Yes	31 (%34.8)	40 (%50)	50 (%56.2)	8.591	0.014
	No	58 (%65.2)	40 (%50)	39 (%43.8)		
Have you learned that it is important to record a tobacco use history as part of a patient's	Yes	69 (%77.5)	65 (%81.3)	71 (%79.8)	0.366	0.833
overall medical history?	No	20 (%22.5)	15 (%18.8)	18 (%20.2)	_	
Have you received any formal training in smoking cessation	Yes	21 (%23.6)	35 (%43.8)	38 (%42.7)	9.690	0.008
approaches for use with patients?	No	68 (%76.4)	45 (%56.3)	51 (%57.3)	_	
Have you learned that it is important to provide educational	Yes	47 (%52.8)	60 (%62.5)	53 (%59.6)	1.737	0.420
materials to patients who want to quit smoking to support their cessation?	No	42 (%47.2)	30 (%37.5)	36 (%40.4)	_	
Have you ever heard of using nicotine replacement therapies in tobacco cessation programs (such	Yes	72 (%80.9)	61 (%76.2)	62 (%69.7)	3.072	0.215
as nicotine patch or gum)?	No	17 (%19.1)	19 (%23.8)	27 (%30.3)		
Have you ever heard of using antidepressants in tobacco	Yes	27 (%30.3)	35 (%43.7)	40 (%44.9)	4.483	0.089
cessation programs (such as Bupropion or Zyban)?	No	62 (%69.7)	45 (%56.3)	49 %55.1)		

Table 4. Examination of dentistry students' attitudes towards tobacco use and self-efficacy scores

According to you	Yes		No			
		SES,		SES,	_	
	n, %	Mean ± SD	n, %	Mean ± SD	t	p
Should the sale of tobacco to adolescents (under 18) be prohibited?	231 (%89,5)	56.98 ± 9.21	27 (%10,5)	54.74 ± 10.86	1,175	0.241
Should advertising of tobacco products be banned altogether?	180 (%69,7)	57.72 ± 9.41	77 (%30,3)	54.14 ± 8.91	2,754	0.006
Should smoking be banned in restaurants?	186 (%72)	57.46 ± 9.62	72 (%28)	54.91 ± 8.61	2.059	0.041
Should smoking be banned in discos/bars/pubs ?	128 (%49,6)	57.43 ± 9.68	130 (%50,4)	56.07 ± 9.10	1,163	0.246
Should smoking be banned in all enclosed public spaces?	206 (%79,8)	57.26 ± 9.33	52 (%20,2)	54.73 ± 9.48	1,741	0.083
Should healthcare workers receive special training in quitting techniques?	214 (%82,9)	57.28 ± 9.48	44 (%17,1)	54.15 ± 8.65	2020	0.044
Do healthcare professionals act as "role models" for their patients and the public?	170 (%65,8)	56.89 ± 9.23	88 (%34,2)	56.47 ± 9.76	0.337	0.736
Should healthcare professionals routinely advise their smokers to quit smoking?	217 (%84,1)	57.35 ± 9.69	41 (%15,9)	53.53 ± 6.93	3,015	0.004
Should healthcare professionals routinely advise their patients who use other tobacco products to quit these products?	216 (%83,7)	57.40 ± 9.58	42 (%16,3)	53.40 ± 7.68	2.953	0.004
Do healthcare professionals have a role in providing advice or information to patients about quitting smoking?	228 (%88,3)	57.14 ± 9.67	30 (%11,7)	53.80 ± 6.45	2,492	0.016
Does a patient who is recommended by a healthcare professional increase the chance of quitting smoking?	212 (%82,1)	57.50 ± 9.43	46 (%17,9)	53.30 ± 8.53	2,778	0.006
Abbreviations: SES; Self-Efficacy Score						

4. Discussion and Conclusion

The present study evaluated smoking-smoking cessasion status, education levels on smoking, and attitudes toward smoking of dentistry students. Grade in dentistry school and general self-efficacy had no relationship with smoking status. The study also demonstrated that public health oriented attitudes toward smoking may be related to general self-efficacy.

For many years, researchers wonder that why individuals do a certain act even though they know its harm. Health behavior theories were efforts to explain complex attitudes including health damaging behaviors like smoking (20) Knowledge on the specific topic is necessary but not enogh to change behavior (21). Interventions targeting attitudes, norms and self-efficacy were shown to promote healthier behavior (20) Healthcare professionals are key personnel to identify health damaging behaviors and intervene (21). Thus, our results on dentistry students' smoking status, attitudes toward smoking, and self-efficacy are significant.

General self-efficacy had no significant relationship with smoking status in the present study, however attitudes toward smoking were more public health oriented among the students with higher general self-efficacy. The concept of self-efficacy includes components such as the formulation of action plans, the recognition and arrangement of requisite talents, and the degree of motivation derived from appraising the potential benefits associated with overcoming challenges (19). The onset, persistence, dependence, and relapse of smoking habits are influenced by psychological, physiological, and social factors. One of these factors is self-efficacy (22). This indicates that levels of self-efficacy alone do not influence smoking addiction or smoking cessation behaviors. The concept of self-efficacy is thought to be an important variable in student learning as it affects students' motivation and learning (23). A study involving medical school students discovered that their courses (education level) and prior experiences may have an impact on their self-efficacy (24). However, comparing the education levels and self-efficacy levels of

dentistry students in our study revealed no statistically significant differences between the groups. The absence of a difference may root from the multifactorial structure of health behavior and the self efficacy. Formal education may not be enough to promote health lifestyle or to increase psychological abilities.

Included in the curriculum of dentistry are the etiological factors and pathogenesis of smoking, which can cause a variety of problems and diseases ranging from mild clinical conditions such as tooth discoloration to severe conditions such as oral cancer. Despite being aware of the dangers of smoking, some dental students who frequently encounter smoking-related clinical diseases during their clinical training continue to smoke, according to the present study. In a previous study conducted among medical school students, a comparable situation was also reported (25).

In terms of dentistry, oral cancer is the most serious illness to which smoking is a risk factor. This disease has a very high mortality and morbidity rate, and early detection is the most effective method for increasing survival rates (26). In this context, dentists assume a significant responsibility (27). The fact that the majority of the dentistry students who participated in the present study knew that 'it is essential to record a tobacco use history as part of the patient's general medical history' demonstrates that they are aware of the potential risks of smoking.

The physician, who was consulted for the treatment of a smoking-related disease, recommends that the patient cease smoking. However, it is a dilemma if she/he is also committing the act of herself/himself. More than half (68%) of the dentistry students participating in the present study reported that healthcare workers act as role models for patients and the public. Pulmonologists, who are frequently sought out by individuals seeking medical assistance for smoking-related health issues, are also seen as role models. A study was conducted among members of the Turkish Thoracic Society who specialize in thoracic disorders, revealing a smoking prevalence of 31% (28).

Similary, the smoking rate (n= 73) among dentistry students participating in the present study was 28%.

There are numerous studies evaluating the dentist's role in smoking cessation counseling (29–31). In Turkey, smoking cessation counseling is mainly provided by pulmonologists, public health specialists and family physicians (32). However, the majority of dentistry students participating in this study believe they have a responsibility to provide smoking cessation advice and should receive specialized training on the topic.

In conclusion, the clinical education and self-efficacy levels of dentistry students had no effect on their smoking attitudes, according to the present study. In addition, provisions should be made to increase dentistry students' limited knowledge of smoking cessation methods and treatments, and psychosocial support services should be provided to increase their self-efficacy during undergraduate education.

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Ethics

Ethics Ethics Committee Approval: The study was approved by Eskisehir Osmangazi University Noninterventional Clinical Research Ethical Committee (Approval Date/ Number: 20.06.2023/54).

Informed Consent: The authors declare that they have obtained informed consent from the dentistry students participating in the study.

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