



Original Article

Tobacco Use Status of Medical Faculty Students and Evaluation of Affecting Factors

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Cite this article as: Seven F, Günay T. Tobacco use status of medical faculty students and evaluation of affecting factors. *Thorac Res Pract.* 2024;25(3):110-120.

Abstract

OBJECTIVE: The aim of the study is to determine the tobacco use status of first and fifth grade students studying at Dokuz Eylül University Faculty of Medicine in the 2022-2023 academic year and to evaluate the factors affecting tobacco use.

MATERIAL AND METHODS: The data of the cross-sectional study were obtained by sending a form prepared in electronic environment to the students after a brief information was given in the unit/classroom where they did their internship, and the students responded on their mobile phones. In research, 539 of 790 students answered the form.

RESULTS: The prevalence of tobacco use was 34.1% (first: 29.8%, fifth: 40.8%) (female: 26.7%, male: 40.4%). According to multivariate analysis, tobacco use in first grades increases 1.8 times (95% CI: 1.1-3.3) if the general health perception is moderate/poor, 2.9 times (95% CI: 1.2-6.8) to be exposed to insistence of friends for tobacco use, 2.4 times (95% CI: 1.3-4.3) for at least one of the family members to use tobacco, 29.7 times (95% CI: 3.9-224.1) for at least one of the close friends to use tobacco, and 3.9 times (95% CI: 2.2-7.1) not to think that physicians should set an example for the society by not using tobacco; in fifth grade, tobacco use by at least one of the close friends increases 9.6 times (95% CI: 2.1-43.6), and not thinking that physicians should set an example for the society by not using tobacco increases 4.9 times (95% CI: 2.7-9.2).

CONCLUSION: In research, it is seen that tobacco use is common among medical faculty students, and the prevalence of use increases as they get higher classes.

KEYWORDS: Tobacco use, cigarette smoking, students, medical, affect

Received: August 28, 2023

Revision Requested: December 26, 2023

Last Revision Received: January 3, 2024

Accepted: January 23, 2024

Publication Date: February 20, 2024

INTRODUCTION

Tobacco epidemic is one of the biggest public health threats, which is among the leading causes of preventable disease, disability, and death.^{1,2} One out of every 2 tobacco users dies due to tobacco-related diseases, which means that more than 8 million people die annually, 7 million of whom are directly and 1.2 million are due to passive exposure (65 000 children).² According to the World Health Organization (WHO) reports, the prevalence of tobacco use in the global adult population, which was 23.6% in 2018 (female: 16.2%, male: 49.3%), decreased to 22.3% in 2020 (female: 7.8%, male: 36.7%) and it is projected to decrease to 20.9% by 2025.^{3,4} The increase in use among young people (especially adolescent girls) in recent years raises concerns.⁵ According to the Global Adult Tobacco Survey, which was recently published in Türkiye, the prevalence of tobacco use in adults in 2016 was 31.6% (female: 19.2%, male: 44.1%).⁶ According to the Türkiye Health Survey 2019, the rate of individuals aged 15 and over who use tobacco every day is 28%, while the rate of occasional users is 3.4%.⁷ According to the WHO report, 30.7% of adults in Türkiye use tobacco in 2020.⁴ Starting to use tobacco usually occurs during adolescence/young adulthood, and university life coincides with this period.⁸ It has been stated that university years are a risky period for tobacco use due to negative situations such as leaving home and family, adapting to a new environment, educational problems, and being a candidate for a profession.⁹ It is seen that tobacco use among medical students is a common and important problem as it is in society. According to studies in the last decade, the prevalence of tobacco use among medical students in Türkiye is 9.3%-33.0% (female: 3.9%-28.8%, male: 17.7%-42.0%), while it is 2.2%-38.8% (female: 0.0%-28.1%, male: 3.2%-58.6%) abroad.¹⁰⁻¹⁷ In the literature, it is seen that medical students who do not use tobacco feel more responsible for tobacco cessation, provide more counseling, and physicians with better health behaviors are more effective in cessation counseling. In this context, in the fight against tobacco, it is important to know the tobacco use status of medical students as future physicians and the reasons for their use because they play an important role in quitting tobacco, have leadership qualities in tobacco control, and are role models for society.^{18,19} The aim of this study is to determine the tobacco use status of first- and fifth-grade students studying at Dokuz Eylül University Faculty of Medicine (DEUFM) in the 2022-2023 academic year and to evaluate the factors affecting tobacco use.

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MATERIAL AND METHODS

Study Design and Sample Size

The population of this cross-sectional study consists of first- and fifth-grade students studying at DEUFM in the 2022-2023 academic year. There are 790 students in total, 453 of whom are in the first grade and 337 in the fifth grade. It was aimed to reach the whole universe without choosing a sample, and a total of 539 students (reach rate: 68.2%), including 326 students from the first grade and 213 students from the fifth grade, participated in the research. Voluntary participation was ensured by informing the students about the study, and their consent was obtained by a form in an electronic environment. The data of the research were collected in November-December of 2022.

Questionnaire

As a data collection tool, a questionnaire form prepared in an electronic environment by the researchers using the literature was used. The questionnaire form consists of 48 questions and sub-questions. In the first part, there are 31 questions with variables such as sociodemographic, body, and health status characteristics of students, tobacco use status of family members, close friends, and students. In the second part, students who regularly/occasionally use any tobacco product answered 11 questions about tobacco use characteristics, and the Fagerstrom Test for Nicotine Dependence consists of 6 questions to determine the level of dependence. The answers to questions in the dependency test are scored from 0 to 1 or from 0 to 3. According to the Fagerstrom score, it is classified as 0-2 points very low, 3-4 points low, 5 points moderate, 6-7 points high, and 8-10 points very highly dependent.²⁰ The shareable link of the form was sent to students in the unit/classroom where they did their internship, after a brief information was given by the researcher, via class/internship WhatsApp groups, and students were expected to answer the form on their mobile phones.

Definitions

Students who regularly or occasionally use any tobacco product are defined as "tobacco users," while students who have quit or never use are defined as "tobacco non-users".

Ethics Committee Approval

The necessary permission was obtained from DEU Dean's Office in April 2022. Ethics committee approval was obtained

with the decision numbered 2022/35-10 on November 2, 2022 from the Non-Interventional Research Ethics Committee of DEU.

Statistical Analysis

Statistical Package for the Social Sciences 24.0 (IBM Corp., Armonk, NY, USA) was used in data analysis. Descriptive findings were presented as number, percentage, mean \pm SD, and median (minimum–maximum value). Chi-square, Fisher–Freeman–Halton (post hoc Bonferroni test), Fisher's exact test, and *t*-test as univariate analysis to determine the relationship of independent variables with tobacco use. Logistic regression analysis (enter method) was used as multivariate analysis. Logistic regression analysis results are presented with OR and 95% CI. The significance level of $P < .05$ was accepted for statistical tests.

RESULTS

Of the 539 participants, 326 (60.5%) were first grade students and 213 (39.5%) were fifth grade students. Out of the total, 292 (54.2%) were male and 247 (45.8%) were female. The mean age of first graders is 18.89 ± 1.31 , with a median age of 19 (17-27); mean age of fifth graders is 22.93 ± 1.14 , with a median age is 23.²¹⁻²⁹ The sociodemographic, body, and health status characteristics of the research group are given in Table 1.

In research, 42.1% of students (first: 42.6%, fifth: 41.3%) have habit of doing any sport and 37.7% of them (first: 41.1%, fifth: 32.4%) are involved in any branch of art. Students who are exposed to friends' insistence for tobacco use are 8% (first: 8.3%, fifth: 7.5%). The majority of students have good communication with their family and friends. The rate of those who have moderate/poor communication with family is 23.3% in first graders and 18.3% in fifth graders; the rate of those who have moderate/poor communication with friends is 25.4% in first graders and 19.7% in fifth graders.

More than half of participants (57.3%) tried to use tobacco (first: 49.1%, fifth: 70%). First try age is 15.73 ± 2.68 (minimum: 6, maximum: 21) for first graders, 16.49 ± 3.19 (minimum: 4, maximum: 23) for fifth graders. The most common reasons for both first and fifth grade students who have never tried tobacco use are that it is harmful to health, dislikes its smell or smoke, and does not attract attention. Incompatibility with profession of medicine and the idea of being good example for the environment as a health worker are among the reasons why approximately one-third of students do not try. Not disturbing/harming others (31.3% vs. 14.5%), not being welcomed by the environment (14.4% vs. 8.1%), family reaction (30.0% vs. 14.5%), and friends reaction (8.1% vs. 4.8%) in the first grades; opinions about the tobacco industry (22.6% vs. 13.1%), and finding it contrary to beliefs (17.7% vs. 14.4%) were stated as reasons for not trying at a higher rate in fifth grades (Figure 1).

The prevalence of tobacco use among students was 34.1% (cigarette: 28%, hookah: 14.7%, e-cigarette: 3.7%, other tobacco products: 6.3%). The prevalence of tobacco use in first grades was 29.8%, it is 40.8% in fifth grades (Table 2). At least one of family members of 54.7% of students (first:

Main Points

- Tobacco use is common among medical faculty students, and the prevalence of use increases as they get higher in classes.
- Tobacco use of close friends and family members is an important risk factor for medical students' tobacco use.
- The awareness of medical students who are prospective physicians about their position in tobacco control should be increased.
- Non-cigarette tobacco products should not be ignored in tobacco control.

Table 1. Sociodemographic and Body and Health Status Characteristics of the Research Group

Sociodemographic and Body and Health Status Characteristics (n = 539)		First Grade		Fifth Grade		Total	
		n	%	n	%	n	%
Gender	Female	148	45.4	99	46.5	247	45.8
	Male	178	54.6	114	53.5	292	54.2
Marital status	Married	1	0.3	1	0.5	2	0.4
	Single	325	99.7	212	99.5	537	99.6
Perception of economic status	Income < expenses	39	12.0	33	15.5	72	13.4
	Income = expense	188	57.7	126	59.1	314	58.2
	Income > expenses	99	30.3	54	25.4	153	28.4
Working status	Working	9	2.8	16	7.5	25	4.6
	Not working	317	97.2	197	92.5	514	95.4
Scholarship status	Yes	83	25.5	101	47.4	184	34.1
	No	243	74.5	112	52.6	355	65.9
Place of residence during medical education*	Dormitory	199	61.0	43	20.2	242	44.9
	Alone	36	11.0	49	23.0	85	15.8
	With family	48	14.7	38	17.8	86	16.0
	With relative	8	2.5	3	1.4	11	2.0
	With friend	45	13.8	116	54.5	161	29.9
Residence of the family	Rural area	38	11.7	20	9.4	58	10.8
	Urban area	288	88.3	193	90.6	481	89.2
Family structure	Nuclear family	288	88.3	189	88.7	477	88.5
	Separated parents	11	3.4	13	6.1	24	4.5
	Extended family	22	6.8	7	3.3	29	5.4
	Other	5	1.5	4	1.9	9	1.6
Mother's education status	Illiterate	13	4.0	9	4.2	22	4.1
	Literate	9	2.8	5	2.4	14	2.6
	Primary school	53	16.3	36	16.9	89	16.5
	Secondary school	23	7.0	16	7.5	39	7.2
	High school	73	22.4	45	21.1	118	21.9
	University	153	46.9	102	47.9	255	47.3
	Don't know	2	0.6	0	0.0	2	0.4
Father's education status	Illiterate	1	0.3	1	0.5	2	0.4
	Literate	3	0.9	5	2.3	8	1.5
	Primary school	34	10.4	23	10.8	57	10.6
	Secondary school	30	9.2	14	6.6	44	8.2
	High school	60	18.5	38	17.8	98	18.2
	University	195	59.8	132	62.0	327	60.6
	Do not know	3	0.9	0	0.0	3	0.5
Body mass index	Underweight	36	11.0	17	8.0	53	9.8
	Normal	212	65.0	141	66.2	353	65.5
	Overweight	67	20.6	44	20.7	111	20.6
	Obese	11	3.4	11	5.2	22	4.1
Body perception	Underweight	44	13.5	22	10.3	66	12.2
	Normal	219	67.2	148	69.5	367	68.1
	Overweight	62	19.0	39	18.3	101	18.8
	Obese	1	0.3	4	1.9	5	0.9

(Continued)

Table 1. Sociodemographic and Body and Health Status Characteristics of the Research Group (Continued)

Sociodemographic and Body and Health Status Characteristics (n = 539)		First Grade		Fifth Grade		Total	
		n	%	n	%	n	%
General health perception	Very good	20	6.1	16	7.5	36	6.7
	Good	119	36.5	93	43.7	212	39.3
	Moderate	138	42.3	74	34.7	212	39.3
	Poor	44	13.4	27	12.7	71	13.2
	Very poor	5	1.5	3	1.4	8	1.5
Presence of chronic disease	Yes	19	5.8	46	21.6	65	12.1
	No	307	94.2	167	78.4	474	87.9
Total		326	100.0	213	100.0	539	100.0

*Multiple responses.

51.8%, fifth: 59.2%) and at least one of close friend of 82.2% of students (first: 77.9%, fifth: 88.7%) used tobacco.

Almost all students (98.1%) had previously received information about the harms of tobacco. The most common information sources for first are internet (80.3%), school (73.6%), television (69.1%), and family (64.0%); in fifth grade, they are the internet (84.9%), health workers (84.9%), school (81.1%), and television (74.5%). The least chosen answer as information was friend (with 40.4% and 49.5% respectively).

In research, 95.1% of first graders and 99.5% of fifth graders are exposed to tobacco smoke at various frequencies. The rate of those who are frequently/always exposed is 31.9% in first graders and 40.8% in fifth graders. The rate of students who think that physicians should set an example for society by not using tobacco is 70.9% (first: 71.5%, fifth: 70.0%).

Of students who regularly use tobacco, 59.4% started using it before entering medical faculty. Of fifth grade students who started smoking regularly in faculty, 50% started in first grade, 18.4% in second grade, 2.6% in third grade, 21.1% in fourth grade, and 7.9% in fifth grade. Five first-grade students start to use tobacco regularly after entering faculty. The tobacco use characteristics of students are shown in Table 3.

The median Fagerstrom score was 3 (first: 2, fifth: 3). While the rate of first graders who are highly/very highly dependent is 12.0%; the rate of fifth graders is 19.6%.

In research, 75.6% of students plan to quit using tobacco (first: 65.0%, fifth: 88.0%). One-third of those who have a quit plan are considering quitting within the next month. In the research group, 76.1% of students received information about quitting methods (first: 69.8%, fifth: 83.3%) and 60.7% of students tried to quit in the last 12 months. The most common method used by those trying to quit is self-cessation (93.9%). The second method most frequently used by first graders is consultancy from health institutions (5.6%) and nicotine replacement treatments (9.1%) in fifth graders.

The most common reasons for students to start using tobacco are reducing distress-stress, enjoying, curiosity, and seeing it as a means of entertainment in both first and fifth graders. While the influence of close friends/environment (31.6% vs. 18.8%), school problems (38.6% vs. 6.3%), personal-family problems (21.1% vs. 15.6%), socializing (19.3% vs. 9.4%), attention raising (24.6% vs. 3.1%), and weight control (8.8% vs. 3.1%) were stated to be reasons for starting at a higher rate in fifth grades; emulation-enthusiasm (28.1% vs. 22.8%) and seeking new pleasures (18.8% vs. 14.0%) were shown as reasons at a higher rate in first graders (Figure 2).

While the prevalence of use of hookah (female: 6.9%, male: 21.2%) and other tobacco products (female: 1.2%, male: 10.6%) was significantly higher in males than in females ($P < .001$); there is no significant difference between genders for cigarette and e-cigarette use ($P = .077$). The prevalence of cigarette smoking was significantly higher in fifth grade students (32.9%) than in first graders (24.8%) ($P = .043$). The prevalence of e-cigarette use was significantly higher in first grade students than in fifth graders ($P = .006$). There was no significant difference according to class in terms of the prevalence of use of hookah and other tobacco products. Univariate analyses showing the relationship of independent variables with tobacco use are shown in Table 4.

According to multivariate analysis, tobacco use by at least one of close friends and not thinking that physicians should set an example for society by not using tobacco in fifth grade, the insistence of friends to use tobacco, and tobacco use by at least one of family members were the factors affecting tobacco use in first grade (Table 5).

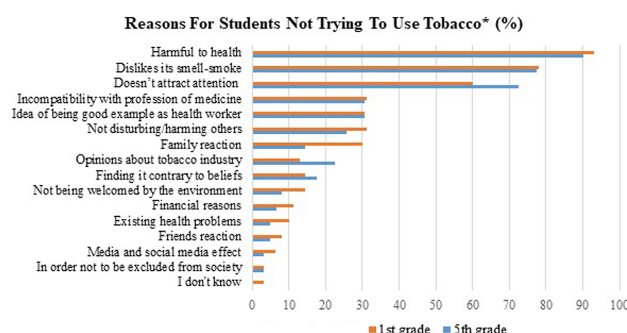


Figure 1. Reasons For Students Not Trying To Use Tobacco. *Multiple response.

Table 2. Tobacco Use Status of Medical Faculty Students and Their Family Members

Tobacco Use Status (n = 326)	First Grade									
	Tobacco		Cigarette		Hookah		E-Cigarette		Other Tobacco Products	
	n	%	n	%	n	%	n	%	n	%
Student										
Regularly	97	29.8	37	11.4	0	0.0	2	0.6	0	0.0
Occasionally			44	13.5	46	14.1	16	4.9	25	7.7
Ex	229	70.2	17	5.2	10	3.1	4	1.2	2	0.6
Never			228	69.9	270	82.8	304	93.3	299	91.7
Mother										
Yes	68	20.9	66	20.2	0	0.0	1	0.3	1	0.3
No	258	79.1	260	79.8	326	100.0	325	99.7	325	99.7
Father										
Yes	114	35.0	110	33.7	5	1.5	7	2.1	6	1.8
No	212	65.0	216	66.3	321	98.5	319	97.9	320	98.2
Sibling										
Yes	65	19.9	62	19.0	11	3.4	7	2.1	3	0.9
No	261	80.1	264	81.0	315	96.6	319	97.9	323	99.1
Total	326	100.0	326	100.0	326	100.0	326	100.0	326	100.0
(n = 213)	Fifth Grade									
	Tobacco		Cigarette		Hookah		E-Cigarette		Other Tobacco Products	
	n	%	n	%	n	%	n	%	n	%
Student										
Regularly	87	40.8	37	17.4	0	0.0	0	0.0	0	0.0
Occasionally			33	15.5	33	15.5	2	0.9	9	4.2
Ex	126	59.2	23	10.8	26	12.2	4	1.9	9	4.2
Never			120	56.3	154	72.3	207	97.2	195	91.6
Mother										
Yes	47	22.1	47	22.1	0	0.0	0	0.0	0	0.0
No	166	77.9	166	77.9	213	100.0	213	100.0	213	100.0
Father										
Yes	81	38.0	81	38.0	0	0.0	0	0.0	3	1.4
No	132	62.0	132	62.0	213	100.0	213	100.0	210	98.6
Sibling										
Yes	62	29.1	59	27.7	3	1.4	4	1.9	0	0.0
No	151	70.9	154	72.3	210	98.6	209	98.1	213	100.0
Total	213	100.0	213	100.0	213	100.0	213	100.0	213	100.0

DISCUSSION

In this study, the tobacco use status of the first and fifth grade students of DEUFM and the affecting factors were evaluated. The tobacco use prevalence of the medical students was 34.1% (cigarettes: 28%, hookah: 14.7%, e-cigarettes: 3.7%, other tobacco products: 6.3%). The prevalence of tobacco use among first grade students was 29.8%, while it was 40.8% in fifth grade students. While the prevalence of use among female students is 26.7% and 40.4% among male students.

Tobacco use prevalence was 27% at Mustafa Kemal University in 2017 (first grade: 15.8%, fourth grade: 35%, last grade: 33.3%); it was 28.2% at Düzce University in the 2019-2020 academic year.^{13,21} In a study in Northern Cyprus in the 2018-2019 academic year, the prevalence of cigarette smoking was 33.7% (first: 28.9%, fifth: 35.5%), and the prevalence of the use of non-cigarette tobacco products was 26.8%.²² In a study in Malaysia in 2021, the prevalence of tobacco use was 10.3% (cigarettes: 4.7%, hookah: 4%, e-cigarettes: 6.4%).²³ The prevalence of tobacco use in this study seems to be higher than in other studies. It is thought that the

Table 3. Tobacco Use Characteristics of Students Who Use Tobacco in the Research Group

	First Grade		Fifth Grade		Total	
	Mean (SD)	Median (Minimum–Maximum)	Mean (SD)	Median (Minimum–Maximum)	Mean (SD)	Median (Minimum–Maximum)
Age to start smoking cigarettes regularly (n = 74)	17.2 (1.6)	17 (13-20)	18.8 (2.0)	19 (13-23)	18 (2)	18 (13-23)
Number of cigarettes used per day (n = 74)	13.8 (7.2)	15 (1-30)	17.0 (12.4)	15 (4-80)	15.4 (10.2)	15 (10-80)
Smoking cigarette duration (pack-years) (n = 97)	1.5 (2.1)	0.5 (0.1-10.4)	3.8 (5.0)	2.5 (0.1-32.0)	2.6 (3.9)	1.5 (0.1-32.0)
Age to start using e-cigarettes regularly (n = 2)	17.5 (0.7)	17.5 (17-18)	-	-	17.5 (0.7)	17.5 (17-18)
Age of starting to use hookah (n = 40)	16.2 (1.4)	16 (13-19)	17.0 (2.6)	18 (12-20)	16.5 (1.9)	16.5 (12-20)
The amount of hookah sessions consumed per week (n = 24)	0.2 (0.4)	0.1 (0.01-1.0)	0.4 (0.4)	0.3 (0.1-1.0)	0.3 (0.2)	0.2 (0.1-1.0)

higher rate of males in this study compared to other studies and the prevalence of the use of other tobacco products may cause this situation. The prevalence of cigarette smoking was similar to many other studies. It is thought that the variable frequencies seen in different studies are due to the place of work, research group, sociocultural–economic differences, variations in tobacco use definitions, and legal regulations differences. It is seen that the use of non-cigarette tobacco products has also become widespread over the years, and non-cigarette tobacco products are given more place in studies abroad compared to our country. In the study at Yıldırım Beyazıt University in 2021, the prevalence of cigarette smoking among medical students was 17.2%; (hookah: 20.5%, pipe: 12.6%, cigar: 7.5%, e-cigarette: 3.7%).²⁴ These findings show that non-cigarette tobacco products should also be taken into account in tobacco control programs. In this study, the prevalence of use by females was higher than in many other studies. This situation is thought to be a reflection of the recent increase in usage, especially among young women. In studies of different years among medical students, it is observed that the prevalence of tobacco use has increased as they get higher in classes. Similar to this study, in a study

at 3 medical faculties (Dokuz Eylül, Karadeniz Technical, Yüzüncü Yıl), the smoking of last grade students was 2.71 times higher than that of first graders; in a study in Syria, tobacco use in -grade students was 2.75 times more than in first graders.^{25,26} The inadequacy of education about tobacco in faculty, anxiety/stress experienced during education, change in the social environment, increase in the intensity of work in clinics as graduation approaches, specialization exam and anxiety about the future may have contributed to this situation. It is thought that medical education and especially clinical practices do not have a sufficient effect on preventing the initiation of tobacco use and enabling users to quit. In this study, it is seen that the use of e-cigarettes in first grades is significantly higher than in fifth grades. This finding can be considered as data supporting the harm reduction strategy of the tobacco industry. The tobacco industry’s continued active work is one of the most difficult barriers in the fight against tobacco.

In order to prevent medical students from using tobacco, it is necessary to know the reasons for starting to use tobacco and not trying to use it. In literature, the reasons that come to the forefront in studies both in our country and abroad are the influence of the close environment/friend, curiosity, and stress. In this study, reducing distress–stress, which is the most common reason for starting to use tobacco, and the influence of the close environment/friend, which is the reason for starting a quarter of students, are at the top of the list in many other studies, although the rate varies. It is seen that the reasons for not trying and not using it are not examined much in studies both in our country and abroad. However, the reasons for not trying are as important a guide as the reasons for starting tobacco use in preventing and quitting smoking. In this study, it was seen that the most common reasons for not trying to use tobacco were that it was harmful to health, they disliked its smell and smoke, and that it did not attract attention. Only one-third of those who did not try to use tobacco stated that they did not try it because they thought that it was not compatible with the profession of medicine and that they should be a good example for the environment as a health worker. This situation shows

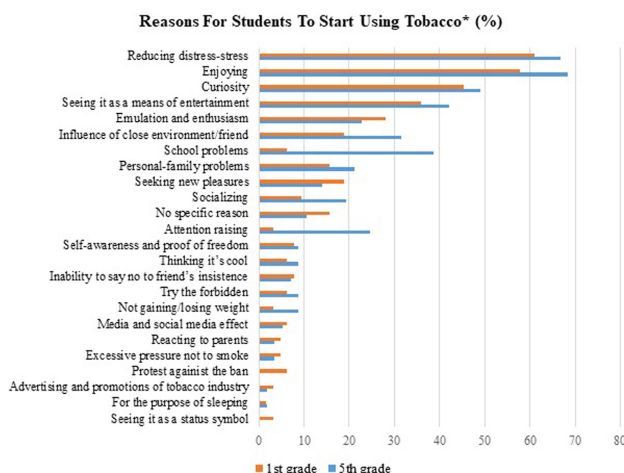


Figure 2. Reasons For Students To Start Using Tobacco. *Multiple responses.

Table 4. Tobacco Use Status by Various Characteristics of the Research Group

Variables (n = 539)	First Grade						Fifth Grade						Total					
	Tobacco Use			No			Tobacco Use			No			Tobacco Use			No		
	n	%	P	n	%	P	n	%	P	n	%	P	n	%	P	n	%	P
Gender	32	21.6	.003*	116	78.4		34	34.3		80	65.7		66	26.7	.072*	181	73.3	.001*
	65	36.5		113	63.5		53	46.5		46	53.5		118	40.4		174	59.6	
Perception of economic status	14	35.9	.661*	25	64.1		18	54.5	.214*	15	45.5		32	44.4	.214*	40	55.6	.131*
	55	29.3		133	70.7		49	38.9		77	61.1		104	33.1		210	66.9	
Working status	28	28.3		71	71.7		20	37.0		34	63.0		48	31.4		105	68.6	
	5	55.6	.133*	4	44.4		9	56.3	.192*	7	43.7		14	56.0	.192*	11	44.0	.018*
Scholarship status	92	29.0		225	71.0		78	39.6		119	50.4		170	33.1		344	66.9	
	27	32.5	.522*	56	68.5		36	35.6	.142*	65	64.4		63	34.2	.142*	121	65.8	.971*
	70	28.8		173	71.2		51	45.5		61	54.5		121	34.1		234	65.9	
Place of residence during medical education	56	28.1	.215**	143	71.9		17	34.7	.006**	32	65.3		73	29.4	.006**	175	70.6	.001**
	9	25.0		27	75.0		28	58.3		20	41.7		37	44.0		47	56.0	
	14	25.5		41	74.5		9	23.1		30	76.9		23	24.5		71	75.5	
	19	42.2		26	57.8		51	45.1		62	54.9		70	44.3		88	55.7	
Residence of the family	7	18.4	.104*	31	81.6		9	45.0	.691*	11	55.0		16	27.6	.691*	42	72.4	.265*
	90	31.3		198	68.7		78	40.4		115	59.6		168	34.9		313	65.1	
Family structure	84	29.2	.523*	204	70.8		76	40.2	.598*	113	59.8		160	33.5	.598*	317	66.5	.420*
	13	34.2		25	65.8		11	45.8		13	54.2		24	38.7		38	61.3	
Mother's education status	39	39.8	.011*	59	60.2		25	37.9	.555*	41	62.1		64	39.0	.555*	100	61.0	.123*
	58	25.7		168	74.3		62	42.2		85	57.8		120	32.2		253	67.8	
Father's education status	25	36.8	.153*	43	63.2		16	37.2	.587*	27	62.8		41	36.9	.587*	70	63.1	.486*
	71	27.8		184	72.2		71	41.8		99	58.2		142	33.4		283	66.6	
Body mass index	72	29.0	.611*	176	71.0		62	39.2	.419*	96	60.8		134	33.0	.419*	272	67.0	.333*
	25	32.1		53	67.9		25	45.5		30	54.5		50	37.6		83	62.4	
Body perception	79	30.0	.819*	184	70.0		66	38.8	.233*	104	61.2		145	33.5	.233*	288	66.5	.520*
	18	28.6		45	71.4		21	48.8		22	51.2		39	36.8		67	63.2	
General health perception	31	22.3	.005*	108	77.7		40	36.7	.026*	69	63.3		71	28.6	.026*	177	71.4	<.001*
	43	31.2		95	68.8		28	37.8		46	62.2		71	33.5		141	66.5	
	23	46.9		26	53.1		19	63.3		11	36.7		42	53.2		37	46.8	

(Continued)

Table 4. Tobacco Use Status by Various Characteristics of the Research Group (Continued)

Variables (n = 539)	First Grade						Fifth Grade						Total					
	Tobacco Use			No			Tobacco Use			No			Tobacco Use			No		
	n	%	P	n	%	P	n	%	P	n	%	P	n	%	P	n	%	P
Presence of chronic disease	4	21.1	.393*	15	78.9		20	43.5	.682*	26	56.5		24	36.9	.613*	41	63.1	
Habit of doing sports	93	30.3	.004*	214	69.7		67	40.1	.387*	100	59.9		160	33.8	.008*	314	66.2	
Dealing with any branch of art	53	38.1	.830*	86	61.9		39	44.3	.020*	49	55.7		92	40.5		135	59.5	
Friend's insistence on tobacco use	44	23.5	.002*	143	76.5		48	38.4	.192*	77	61.6		92	29.5	.002*	220	70.5	
Communication with family	39	29.1	.016*	95	70.9		36	52.2	.980*	33	47.8		75	36.9	.086*	152	63.1	
Communication with friends	58	30.2	.358*	134	69.8		51	35.4	.090*	93	64.6		109	32.4	.115*	203	67.6	
Mother tobacco use	15	55.6	.086*	12	44.4		9	56.3	.090*	7	43.7		24	55.8		19	44.2	
Father tobacco use	82	27.4	.005*	217	72.6		78	39.6	.793*	119	50.4		160	32.3	.019*	336	67.7	
Sibling tobacco use	66	26.4	.003*	184	73.6		71	40.8	.151*	103	59.2		137	32.3	.001*	287	67.7	
Close friend tobacco use	31	40.8	.163***	45	59.2		16	41.0	.001*	23	59.0		47	40.9		68	59.1	
Information about the harms of tobacco	69	28.4	.05***	174	71.6		65	38.0	.001*	106	62.0		134	32.4		280	67.6	
Exposed to tobacco smoke	28	33.7	.001*	55	66.3		22	52.4	.001*	20	47.6		50	40.0		75	60.0	
Physicians should be an example	26	38.2	.001*	42	61.8		24	51.1	.001*	23	48.9		50	43.5		65	56.5	
	71	27.5	.001*	187	72.5		63	38.0	.001*	103	62.0		134	31.6		290	68.4	
	45	39.5	.001*	69	60.5		34	42.0	.001*	47	58.0		79	40.5		116	59.5	
	52	24.5	.001*	160	75.5		53	40.2	.001*	79	59.8		105	30.5		239	69.5	
	29	44.6	.001*	36	55.4		30	48.4	.001*	32	51.6		59	46.5		68	53.5	
	68	26.1	.001*	173	73.9		57	37.7	.001*	94	62.3		125	30.3		387	69.7	
	96	37.8	.001*	62	62.2		85	45.0	.001*	104	55.0		181	40.9		262	59.1	
	1	1.4	.001*	71	98.6		2	8.3	.001*	22	91.7		3	3.1		93	96.9	
	95	30.0	.001*	222	70.0		87	41.0	.001*	125	59.0		182	34.4		347	65.6	
	2	22.2	.001*	7	77.8		0	0.0	.001*	1	100.0		2	20.0		8	80.0	
	2	12.5	.001*	14	87.5		0	0.0	.001*	1	100.0		2	11.8		15	88.2	
	95	30.6	.001*	215	69.4		87	41.0	.001*	125	59.0		182	34.9		340	65.1	
	47	20.2	.001*	186	79.8		43	28.9	.001*	106	71.1		90	23.6		292	76.4	
	50	53.8	.001*	43	46.2		44	68.8	.001*	20	31.2		94	59.9		63	40.1	

*Chi-square.
 **Fisher-Freeman-Halton (post hoc Bonferroni).
 ***Fisher's exact test.

Table 5. Factors Affecting Tobacco Use in the Research Group: Results of Logistic Regression Analysis

Variables (Affecting Factors/Reference Group)	First Grade		Fifth Grade		Total	
	Odds Ratio	95% CI	Odds Ratio	95% CI	Odds Ratio	95% CI
Gender (male/female)	1.31	0.70-2.47	-	-	1.50	0.99-2.28
Place of residence (With friend/others)	2.01	0.90-4.33	-	-	1.58	0.99-2.50
Communication with family (moderate or poor/good)	1.91	0.99-3.70	-	-	-	-
General health perception (moderate or poor/good)	1.84*	1.02-3.33	-	-	2.08**	1.38-3.15
Habit of doing sports (yes/no)	1.75	0.93-3.29	-	-	1.36	0.90-2.07
Insistence of friends on tobacco use (yes/no)	2.86*	1.19-6.88	-	-	2.08*	1.04-4.14
At least one of the family members using tobacco (yes/no)	2.39**	1.34-4.26	-	-	1.70*	1.14-6.43
At least one of the close friends using tobacco (yes/no)	29.72**	3.94-224.11	9.57**	2.10-43.58	14.49***	4.42-47.49
Physicians should set an example to society by not using tobacco (no/yes)	3.95***	2.19-7.14	4.95***	2.67-9.19	4.22***	2.77-6.43
Dealing any branches of art (yes/no)	-	-	0.60	0.33-1.08	-	-
Class (Fifth/First)	-	-	-	-	1.56*	1.01-2.40
Working status (working/not working)	-	-	-	-	0.95	0.41-2.22

For first grade model: Gender, place of residence, communication with family, general health perception, habit of doing sports, insistence of friends on tobacco use, at least one of the family members using tobacco, at least one of the close friends using tobacco, physicians should set an example to society by not using tobacco.

For fifth grade model: At least one of the close friends using tobacco, physicians should set an example to society by not using tobacco, dealing with any branches of art.

For total students model: Gender, place of residence, general health perception, habit of doing sports, insistence of friends on tobacco use, at least one of the family members using tobacco, at least one of the close friends using tobacco, physicians should set an example to society by not using tobacco, class, working status.

* $P < .05$.

** $P < .01$.

*** $P < .001$.

that medical students are not sufficiently aware of their own position in terms of being an important role model in society in terms of health behaviors and having a critical impact on tobacco control. In a study in 3 medical faculties in Türkiye, it was shown that “for healthy life,” “not interested in,” and “religious affiliation” were the reasons for not smoking.²⁵ In this context, it is seen that the harm of tobacco to health is the most important deterrent for those who do not try it. In addition, the fact that the family/environment’s reaction is the reason for not trying (especially for first grade) reveals the importance of creating an environment in which tobacco is not affirmed.

Many studies show that medical students start using tobacco before university education. Similarly, in this study, 59.4% of students start to use tobacco before faculty. In literature, the decrease in the tobacco trial age until the primary education years and the risk of starting to use tobacco indicate that interventions and advocacy activities on tobacco should be started from the initial years of the education process and that they should be continued before and during faculty. Similar to this study, in many studies with medical students, more than half of tobacco users want to quit. The high rate of students’ willingness to quit is an indication that quitting activities to be implemented during faculty can be beneficial. In addition, the high rate of students trying to quit and their need/desire to

receive support suggest that it is necessary to provide dropout counseling services for students.

In studies, it is seen that the presence of tobacco users among friends and in the social environment affects students’ tobacco use. Similar to this study, in a study at Balıkesir University, it was found that friends’ tobacco use increased students’ tobacco use 6.2 times. A study in Myanmar found that students with close friends who smoke tobacco use 10.7 times more than those who do not.^{10,27} It is thought that students start to use tobacco for reasons such as being included in social environments and being accepted by friends, and continue to use tobacco due to its strong addictive effect. In addition, the formation of close circles of friends from people of similar social status may also be related to this result (inverse causal relationship). In addition, the prevalence of tobacco use by assistant physicians and lecturers, who are role models for medical faculty students, and the difficulty of the educational process may explain the increase in the frequency of use despite progress in the medical faculty. In a study examining smoking addiction in doctors, it was seen that 42.1% of doctors smoked.²⁸ Although no significant relationship between income, scholarship, and parental education status and tobacco use in this study, it is known that social determinants of health (such as low income and education level) are an important

factor affecting tobacco use.⁴ In this respect, the stress factor, which is one of the most common reasons for starting and continuing to use tobacco in disadvantaged groups, may come to the fore.

In this study, there was a significant relationship between the tobacco use of each family member and tobacco use of students, and the prevalence of tobacco use was 1.7 times higher in students whose family members smoked tobacco compared to those who did not smoke. According to a study in South Africa, the presence of a smoker in the household increases a student's smoking by 4.74 times.²⁹ It is thought that this situation is due to the interaction brought about by taking the elders as role models and sharing the same living environment. The absence of a relationship with the use of family members in fifth grade may be related to being away from the family for a long time. In the literature, there are studies that have a relationship between the tobacco use of family members and tobacco use of medical students, as well as studies that don't. In this study, it is seen that as general health perception improves, the prevalence of tobacco use decreases and moderate/poor general health perception increases tobacco use 2.1 times. In the literature, it is seen that as health perception deteriorates, the prevalence of tobacco use increases, and the reporting of poor health status in tobacco users increases significantly.³⁰ In this study, being exposed to a friend's insistence for tobacco use increased students' tobacco use 2.08 times. Similarly, in a study in South India, male medical students who were exposed to peer pressure were 21.91 times more likely to smoke compared to those who did not; in a study in Myanmar, tobacco use is 5.4 times higher among those who are exposed to peer pressure than those who do not.^{27,31} Peer pressure is also an important reason to start using tobacco. Similar to this study in the literature, tobacco use is lower among medical students who think that physicians should set an example for society.^{21,32} In this study, students who do not think that physicians should set an example for society by not using tobacco use 4.22 times more than those who do. In parallel with this finding, it is seen that students who do not use tobacco feel more responsible in this regard. These findings support each other.

The limitations of this study are that it is a cross-sectional design, it was conducted in a faculty, the sample selection method was not used, and the questioning of tobacco use as self-report.

It is seen that tobacco use is a common public health problem in medical students as well as in society and requires urgent intervention. Being studied in a higher class, having a moderate/poor general health perception, being exposed to the insistence of friends on tobacco use, at least one of their family members using tobacco, at least one of close friends using tobacco, and not thinking that physicians should be an example to society by not using tobacco are factors that increase the prevalence of tobacco use. Although the most common tobacco product is cigarette, the use of other products should not be ignored. In order to prevent the increase in tobacco use in higher classes, structured, systematic, and layered education should be given in accordance with

the basic and clinical medical education periods from the beginning of faculty. Physicians should be supported with in-service training due to their position in tobacco control. Starting from primary–secondary education, tobacco should be included in the curriculum and it should be processed with methods that will provide skills to cope with stress. Counseling services should be provided in specialized units for young people, student's close environment should be included in interventions, educational environments should be made tobacco-free, and an environment in which tobacco is not positive should be created. Tobacco control measures should be fully implemented, necessary inspections should be carried out, and necessary sanctions should be applied in case of non-compliance. Young people should be included in advocacy activities and community participation should be ensured. Implementation of peer education models can be an effective intervention, as close friends and peers are important reasons for starting to use tobacco and are among the factors that increase the frequency of tobacco use. The reasons why medical school students start and continue using should be examined more deeply through qualitative research, and strategic interventions should be developed towards the cause. Initiatives aimed at social determinants of health (such as increasing scholarship opportunities) should not be ignored.

Ethics Committee Approval: This study was approved by the Ethics Committee of Dokuz Eylül University (approval number: 2022/35-10; date: 02.11.2022).

Informed Consent: Verbal and written informed consent was obtained from the students who agreed to take part in the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – F.S., T.G.; Design – F.S., T.G.; Supervision – F.S., T.G.; Resources – F.S.; Materials – F.S.; Data Collection and/or Processing – F.S.; Analysis and/or Interpretation – F.S., T.G.; Literature Search – F.S.; Writing – F.S.; Critical Review – F.S., T.G.

Declaration of Interests: The authors have no conflicts of interest to declare.

Funding: This study received no funding.

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