

A Paradox in Clinical Practice: Smoking Among Pulmonologists

Klinik Pratikte Bir Paradoks: Göğüs Hastalıkları Uzmanlarında Sigara Kullanımı

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ABSTRACT

Background: Tobacco use remains one of the leading preventable causes of death worldwide. Although healthcare professionals are expected to act as role models in tobacco control, previous studies have reported conflicting findings regarding smoking prevalence among physicians.

Materials and Methods: This descriptive cross-sectional study was conducted between July 2024 and May 2025 among volunteer pulmonologists actively working in Türkiye. Data were collected through an online survey including sociodemographic characteristics, smoking status, and the Fagerström Test for Nicotine Dependence (FTND).

Results: Among the 156 participating physicians, 24 (15.4%) were current smokers, 18 (11.5%) were former smokers, and 114 (73.1%) were non-smokers. The mean FTND score among current smokers was 2.8 ± 2.8 , with 62.5% classified as having low nicotine dependence. Multivariate analysis showed that having family members who smoke [odds ratio (OR)=3.737; 95% confidence interval (CI)=1.334–10.469; $p=0.012$] and being unmarried (OR=3.120; 95% CI=1.194–8.156; $p=0.020$) were significantly associated with smoking behavior. No significant association was found with age, sex, or years of medical practice.

Conclusion: The prevalence of smoking among pulmonologists in Türkiye is lower than that in the general population and among other physician groups. This may be attributed to their higher level of professional awareness regarding tobacco-related health risks. However, the influence of family smoking behavior and marital status suggests that tobacco cessation interventions for healthcare professionals should address both individual and environmental factors.

Keywords: Pulmonologist, smoking prevalence, nicotine dependence, Fagerström Test

ÖZ

Amaç: Bu tanımlayıcı kesitsel çalışma, Temmuz 2024 ile Mayıs 2025 tarihleri arasında Türkiye’de aktif olarak görev yapan gönüllü göğüs hastalıkları uzmanlarıyla yürütülmüştür. Veriler; sosyodemografik özellikler, sigara içme durumu ve Fagerström Nikotin Bağımlılığı Testi (FNBT) içeren çevrim içi bir anket aracılığıyla toplanmıştır.

Gereç ve Yöntemler: Bu tanımlayıcı kesitsel çalışma, Temmuz 2024 ile Mayıs 2025 tarihleri arasında Türkiye’de aktif olarak çalışan gönüllü göğüs hastalıkları uzmanları arasında yürütülmüştür. Veriler; sosyodemografik özellikler, sigara içme durumu ve Fagerström Nikotin Bağımlılığı Testi (FNBT) içeren çevrimiçi bir anket aracılığıyla toplanmıştır.

Bulgular: Çalışmaya katılan 156 hekimin 24’ü (%15,4) aktif içici, 18’i (%11,5) eski içici, 114’ü (%73,1) ise hiç içmemiştir. Aktif içicilerde ortalama FNBT puanı $2,8 \pm 2,8$ idi ve %62,5’i düşük nikotin bağımlılığı düzeyine sahipti. Çok değişkenli analizde, ailesinde sigara içen birey bulunması [olasılık oranı (OR)=3,737; güven aralığı (GA)=1,334–10,469; $p=0,012$] ve bekar olmak (OR=3,120; GA=1,194–8,156; $p=0,020$) sigara içme davranışıyla anlamlı şekilde ilişkiliydi. Yaş, cinsiyet ve mesleki deneyim süresi ile anlamlı bir ilişki saptanmadı.

Sonuç: Türkiye’deki göğüs hastalıkları uzmanları arasında sigara içme sıklığı, genel nüfusa ve diğer hekim gruplarına göre daha düşüktür. Bu durum, tütün kaynaklı sağlık risklerine dair mesleki farkındalıklarının daha yüksek olmasına bağlanabilir. Ancak ailede sigara içme davranışı ve medeni durum gibi etkenlerin rolü, sağlık çalışanlarına yönelik sigara bırakma müdahalelerinde hem bireysel hem çevresel faktörlerin dikkate alınması gerektiğini göstermektedir.

Anahtar Kelimeler: Göğüs hastalıkları uzmanı, sigara prevalansı, nikotin bağımlılığı, Fagerström Testi



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Introduction

Tobacco use remains one of the leading preventable causes of death worldwide. In 2022, approximately 25.3% of the global adult population was tobacco users, down from 34.4% in 2000 (1). In Türkiye, as of 2022, the prevalence of smoking among adults aged 15 and older was reported as 30.7%, with 41.9% in men and 19.6% in women. It is estimated that nearly 20 million adults use tobacco products, with annual per capita cigarette consumption reaching 67.3 packs. These figures indicate that tobacco use continues to pose a major public health issue in Türkiye (2). In this context, healthcare professionals are expected not only to provide counseling and treatment for tobacco cessation but also to serve as role models for society. However, studies investigating the prevalence of smoking among healthcare workers and even among physicians have yielded results that contradict this expectation (3,4).

The literature indicates considerable variation in smoking rates among physicians from different specialties. In some specialties, the prevalence of smoking approaches or even exceeds that of the general population (5,6). Higher rates have been observed among general practitioners and family physicians, while specialties more closely associated with tobacco-related diseases, such as pulmonology and cardiology, typically report lower smoking rates (4). Nonetheless, current and comprehensive data specific to smoking prevalence and nicotine dependence among pulmonologists in Türkiye are limited. Some studies in the literature suffer from limitations in sample size, scope, or methodological consistency. Moreover, there remains a need for updated data to assess behavioral changes among physicians following recent national tobacco control policies.

Gaining deeper insight into the effectiveness of tobacco control policies and the role of healthcare workers in this process can contribute both to the development of interventions promoting behavioral change within the health system and to the restructuring of cessation programs specifically targeted at healthcare professionals.

This study aims to evaluate the prevalence of smoking, the level of nicotine dependence, and the sociodemographic factors associated with smoking behavior among pulmonologists working across Türkiye.

Materials and Methods

Study Design and Duration

This descriptive and cross-sectional study was conducted to determine the prevalence of smoking and the level of

nicotine dependence among pulmonologists, as well as to evaluate the sociodemographic factors associated with these behaviors. The study was carried out between July 25, 2024, and May 25, 2025, with volunteer pulmonologists actively working across Türkiye.

Inclusion and Exclusion Criteria

Physicians were included in the study if they were actively working as pulmonologists in Türkiye and had voluntarily completed the questionnaire in full. Exclusion criteria included physicians from non-pulmonology specialties, incomplete questionnaire responses, physicians without an active professional status (e.g., retired individuals), and physicians who reported a current diagnosis of psychiatric or neurological disorders.

Data Collection Method

Participants were contacted via an online questionnaire distributed through the Google Forms platform. The form consisted of three main sections. The first section gathered demographic information, including age, sex, marital status, years of professional experience, level of healthcare institution, presence of comorbidities, and whether there were smokers in the participant's family. The second section inquired about smoking status, and participants were categorized as never smokers, former smokers, or current smokers. The third section involved the administration of the Fagerström Test for Nicotine Dependence (FTND), which had been adapted and validated for use in Turkish. The Turkish version was validated by Uysal et al. (7), with a reported Cronbach's alpha coefficient of 0.56 (8). FTND scores range from 0 to 10; a score of 0–4 indicates low dependence, 5 indicates moderate dependence, and 6–10 indicates high dependence.

Sample Characteristics

Data from a total of 156 participants who completed the questionnaire in full were included in the analysis. For current smokers, additional information was collected, including age at smoking initiation, daily cigarette consumption, and FTND score.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics version 22.0. After calculating descriptive statistics, group differences were analyzed using the chi-square test, independent samples t-test, and Mann-Whitney U test where appropriate. Multivariate logistic regression analysis was conducted to identify independent variables associated with smoking behavior. A p-value of <0.05 was considered statistically significant for all analyses.

Ethics Approval and Informed Consent

Ethical approval for this study was obtained from the Clinical Research Ethics Committee of Hitit University (approval number: 2024–50, dated: 10.07.2024). The study was conducted in accordance with the principles of the Declaration of Helsinki. All participants were informed about the purpose and scope of the study and provided written informed consent prior to completing the questionnaire. Participation was entirely voluntary and anonymous.

Results

A total of 156 pulmonologists participated in the study. The mean age of the participants was 37.5 ± 9.8 years, and 48.7% ($n=76$) were female. Regarding marital status, 67.9% ($n=106$) of the physicians were married. Based on the institutions where they worked, 81.4% ($n=127$) were employed in tertiary healthcare centers. It was reported that 47.4% ($n=74$) of the participants had at least one family member who smoked. The mean duration of professional experience was 13.1 ± 9.8 years. Additionally, 19.9% ($n=31$) of the physicians reported having at least one comorbid condition.

When assessed for smoking status, 73.1% of the participants identified as non-smokers, 11.5% as ex-smokers, and 15.4% as current smokers. Among the 24 current smokers, the mean age at smoking initiation was 21.9 ± 4.9 years, mean daily cigarette consumption was 10.7 ± 7 cigarettes, and the mean FNDT score was 2.8 ± 2.8 . In terms of nicotine dependence levels, 62.5% were found to have low dependence, 16.7% moderate dependence, and 20.8% high dependence (Table 1).

Table 1. General characteristics of the participants (n=156)

Variable	n (%), mean $\pm$ SD
Age (years)	37.5 ± 9.8
Gender (female)	76 (48.7%)
Marital status	
Married	106 (67.9%)
Single	50 (32.1%)
Institution type	
Tertiary care center	127 (81.4%)
Secondary care center	23 (14.7%)
Primary care center	6 (3.9%)
Years in professional practice	13.1 ± 9.8
Family member who smokes	74 (47.4%)
Comorbidity present	31 (19.9%)
Smoking status	
Non-smoker	114 (73.1%)
Ex-smoker	18 (11.5%)
Current smoker	24 (15.4%)

SD: Standard deviation

Participants were categorized into three groups based on their smoking status: non-smokers ($n=114$; 73.1%), ex-smokers ($n=18$; 11.5%), and current smokers ($n=24$; 15.4%). The mean age was 35 ± 16 years in the non-smoker group, 33 ± 19 years in the ex-smoker group, and 33 ± 7 years in the smoker group ($p=0.505$). The proportion of female participants was 50.9%, 44.4%, and 41.7%, with no significant difference in gender distribution among the groups ($p=0.663$). The average duration of medical practice was also similar across groups ($p=0.481$). Although there was no statistically significant difference in the presence of comorbidities among the groups ($p=0.089$), the ex-smoker group had a relatively higher rate (38.9%) compared to the other groups. In contrast, statistically significant differences were observed regarding marital status and having a family member who smokes. The proportion of married individuals was higher in the non-smoker and ex-smoker groups, while it was lower in the smoker group (45.8%) ($p=0.041$). Similarly, having a family member who smokes was significantly more common in the smoker group (75%) compared to the non-smoker group (38.6%) ($p=0.001$) (Table 2).

According to the multivariate logistic regression analysis evaluating factors associated with smoking status, physicians with family members who smoke were significantly more likely to be smokers themselves [odds ratio (OR)=3.737; 95% confidence interval (CI)=1.334–10.469; $p=0.012$]. Similarly, the likelihood of smoking was approximately three times higher among single physicians compared to their married counterparts (OR=3.120; 95% CI=1.194–8.156; $p=0.020$). Gender ($p=0.283$), age ($p=0.894$), and years in medical practice ($p=0.990$) were not significantly associated with smoking behavior (Tables 3 and 4).

This figure illustrates the OR and 95% CI for factors associated with smoking behavior among pulmonologists. Each black dot represents the OR of a given variable, while the horizontal lines denote the 95% CI. The dashed vertical line at OR=1 represents the point of no association. The presence of a family member who smokes and being single were both significantly associated with increased odds of smoking ($p<0.05$) (Figure 1).

Table 2. Characteristics of current smokers (n=24, 15.4%)

Variables	n (%), mean $\pm$ SD
Age at initiation of smoking (years)	21.9 ± 4.9
Daily cigarette consumption (number)	10.7 ± 7
FTND score (0–10)	2.8 ± 2.8
Level of nicotine dependence	
Low (0–4)	15 (62.5)
Moderate (5)	4 (16.7)
High (6–10)	5 (20.8)

FTND: Fagerström Test for Nicotine Dependence, SD: Standard deviation

Table 3. Participant characteristics by smoking status

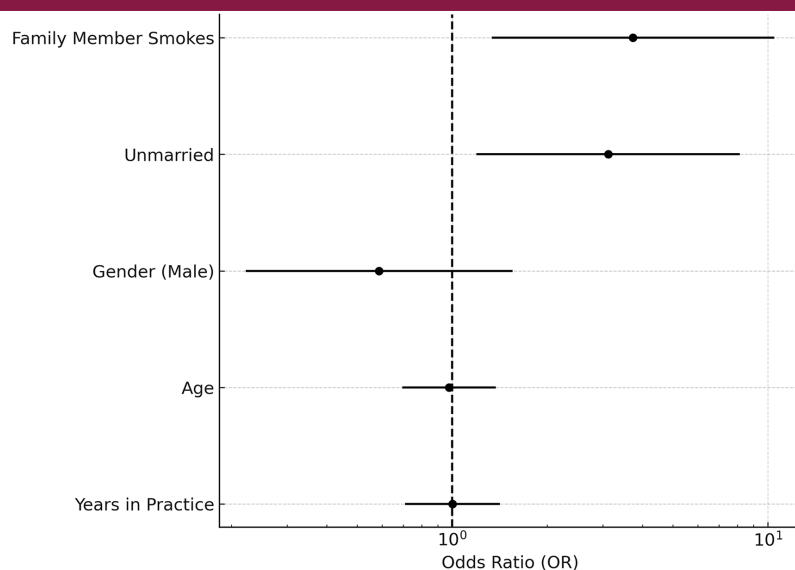
Variables	Non-smoker, n=114 (73.1)	Ex-smoker, n=18 (11.5)	Smoker, n=24 (15.4)	p-value
Age (years)**	35±16	33±19	33±7	0.505
Gender* Female, n (%)	58 (50.9)	8 (44.4)	10 (41.7)	0.663
Marital status* Married, n (%)	82 (71.9)	13 (72.2)	11 (45.8)	0.041
Duration of medical practice (years)**	10±18	9±19	9±8	0.481
Family members who smoke Yes, n (%)*	44 (38.6)	12 (66.7)	18 (75)	0.001
Comorbidity present * Yes, n (%)	19 (16.7)	7 (38.9)	5 (20.8)	0.089

*chi-square test, **Mann-Whitney U test.

Table 4. Logistic regression analysis of factors associated with smoking behavior

Variable	B	SE	Wald	p-value	Exp. (B)	95% CI (lower-upper)
Gender Male=1	-0.533	0.497	1.151	0.283	0.587	0.222–1.554
Years in medical practice	0.002	0.177	0.000	0.990	1.002	0.709–1.417
Family members who smoke Yes=1	1.318	0.526	6.293	0.012*	3.737	1.334–10.469
Age (years)	-0.023	0.175	0.018	0.894	0.977	0.694–1.376
Marital status Married=1	1.138	0.490	5.387	0.020*	3.120	1.194–8.156
Constant	-3.186	4.402	0.524	0.469	0.041	—

Nagelkerke R Square: 0.172. B: Regression coefficient, CI: Confidence interval, Exp.: Odds ratio, SE: Standard error

**Figure 1. Odds ratios of factors associated with smoking behavior**

Discussion

In this study, among 156 pulmonologists who voluntarily participated in the nationwide survey, the prevalence of smoking was found to be 15.4%, and the majority of current smokers were identified as having low levels of nicotine dependence. Multivariate analysis revealed that smoking behavior was significantly associated with having a family member who smokes and marital status. Specifically, physicians with family members who smoked had approximately 3.7 times higher odds of smoking, while single physicians were about three times more likely to smoke compared to their married counterparts. In contrast, no statistically significant association was observed between smoking behavior and demographic variables such as age, gender, or years of professional experience.

When compared with the literature, the 15.4% smoking rate identified in our study is notably lower than the rates reported in other physician groups in Türkiye. For instance, the smoking rate among family physicians has been reported as 30.9% (6), and it can rise up to 42.15% in other specialties (5). In a study conducted in a secondary healthcare facility in Istanbul, the overall smoking prevalence among healthcare workers was found to be 37.2%, whereas the rate among physicians was reported as 9.8% (9). In a study conducted among medical school students, the smoking rate was found to be 26.1% (10). Similarly, in a study conducted by Üzer (11) in 2018, the smoking rate among physicians was found to be 23.8%, which was lower than that of other hospital staff. In another study involving pulmonologists in Türkiye, the current smoking rate was reported as 9.9%, while 21.1% of participants were ex-smokers (10). When compared with international data, a study conducted by Kotz et al. (12) in the Netherlands reported a smoking rate of 3.5% among pulmonologists. These findings suggest that pulmonologists tend to have lower smoking rates than the general physician population, which may be associated with increased professional awareness. According to the systematic review and meta-analysis published by Besson et al. (4) in 2021, the global prevalence of smoking among physicians is approximately 21%. This rate varies by medical specialty: 24% among family physicians, 18% among surgeons, 17% among psychiatrists, 11% among anesthesiologists, 9% among radiologists, and 8% among pediatricians. These rates are notably lower in developed countries. For example, the prevalence has been reported as 6.9% in Australia and 8.3% in the United States, whereas much higher rates have been observed in developing countries such as China (45.2%), Pakistan (42.1%), and Egypt (59.5%) (4). Compared to European countries, the relatively high smoking prevalence among pulmonologists in Türkiye

highlights the need to strengthen the effectiveness of national tobacco control policies. The high rate of smoking among physicians in developing countries may be associated with factors such as stress, social influences, and insufficient awareness of their role model status. Therefore, smoking cessation programs targeting healthcare professionals should go beyond simply providing information and instead focus on behavioral and social support interventions.

In Üzer's study, the mean FTND score among healthcare workers was reported as 4, and it was noted that the majority of participants had a low level of nicotine dependence (10). In another study conducted by Zorlu on physicians, 32% of participants were found to have very low or low levels of nicotine dependence (5). In a separate study involving 1233 family physicians in Türkiye, the mean FTND score was reported as 3.76 ± 2.48 (13). Similarly, in a survey conducted among 2,939 smoking physicians in Estonia, the mean FTND score was found to be 2.8 ± 2.1 , which is largely consistent with the average score in our study (14). When evaluated in light of these similar findings in the literature, the identification of low nicotine dependence among most of the smoking physicians in our study suggests that smoking may be more closely associated with behavioral habits and social influences than with physiological addiction. This implies that personalized counseling approaches and targeted awareness programs may be effective in increasing the success of smoking cessation among physicians.

The association between having a family member who smokes and being unmarried, with an increased likelihood of smoking behavior, can be interpreted within the framework of social learning theory. According to this theory, individuals develop behaviors by modeling those observed in their social environment; thus, family members who smoke may play a significant role in the adoption of this habit. In terms of marital status, the presence of stronger social support systems among married individuals may serve as a facilitating factor in the smoking cessation process. Similar findings have been reported in the literature. In a study conducted among healthcare workers in Türkiye, a statistically significant relationship was found between the presence of smoking family members and the individual's smoking status, while no such association was observed with marital status (15). Likewise, in Eroğlu's study, 87% of physicians who smoked had at least one family member who also smoked, although no significant relationship with marital status was identified (8). On the other hand, in a 2018 meta-analysis by Wang et al. (16), it was reported that family members' smoking significantly increased the risk of e-cigarette use among adolescents; each additional smoking family member increased the risk by approximately 47% ($OR=1.47$), and the risk rose to $OR=1.87$, if a sibling

smoked. In another study conducted by Ramsey et al. (17) involving 11,889 individuals, smoking prevalence was found to be significantly higher among single or never-married individuals. Our study is significant in that it highlights the critical role of social support, even among highly educated groups such as physicians. While spousal or child support may help reduce stress in married physicians, smoking may become a self-directed coping strategy among those who are single.

Although previous studies have indicated that male gender and older age may be associated with smoking behavior (3,4), no significant relationship was found with these variables in our study. In the literature, it has been reported that increased socioeconomic status among women, particularly higher education and income levels, may sometimes encourage smoking (18). The absence of such a difference in our findings may be attributed to the fact that the study sample consisted exclusively of pulmonologists, a group likely to possess higher socioeconomic characteristics.

One of the strengths of our study is that it reached pulmonologists working in various healthcare institutions across Türkiye, resulting in a professionally homogeneous sample. In addition, nicotine dependence was assessed using the FTND, which has been validated for reliability, and factors influencing smoking behavior were analyzed through multivariate statistical methods.

Study Limitations

The study has some limitations. Data were collected through self-reporting, which may have introduced social desirability bias and affected the accuracy of responses. Moreover, the cross-sectional design of the study limits the ability to infer causality between smoking behavior and associated factors.

Conclusion

In our study, the smoking rate and level of nicotine dependence among pulmonologists in Türkiye were found to be lower than the general population and other physician groups, reflecting a high level of professional awareness. Additionally, a significant association was observed between smoking behavior and having family members who smoke, as well as being single, which highlights the influence of the social environment on tobacco use. Despite limitations such as the cross-sectional design and self-reported data, this study provides important insights into the smoking profile of pulmonologists. Future research with larger and longitudinal samples may enhance the effectiveness of smoking cessation interventions. Furthermore, in-service training and awareness campaigns could help strengthen the role model responsibility of healthcare professionals.

In conclusion, although the low smoking rate is a positive finding, supporting physicians who smoke and mitigating social influences remain crucial for improving both individual and public health.

Ethics

Ethics Committee Approval: Ethical approval for this study was obtained from the Clinical Research Ethics Committee of Hitit University (approval number: 2024–50, dated: 10.07.2024).

Informed Consent: All participants were informed about the purpose and scope of the study and provided written informed consent prior to completing the questionnaire. Participation was entirely voluntary and anonymous.

Footnotes

Authorship Contributions

Surgical and Medical Practices: B.D., A.E.K., Concept: B.D., A.E.K., Design: B.D., A.E.K., Data Collection or Processing: B.D., Analysis or Interpretation: B.D., A.E.K., Literature Search: B.D., A.E.K., Writing: B.D., A.E.K.

Conflict of Interest: No conflict of interest was declared by the authors.

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