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Research Article

Smoking cessation behaviors of patients who refer to smoking cessation clinics affiliated to family medicine departments

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ABSTRACT

Objective: Tobacco use continues to be one of the most important causes of preventable death and diseases globally. The present study was designed to evaluate the smoking cessation behaviors of patients who referred to smoking cessation clinics operated by family medicine departments at different universities.

Methods: The present study was conducted as a cross-sectional study with the participation of 611 individuals who referred to smoking cessation clinics operated by family medicine departments at Bolu Abant Izzet Baysal University Faculty of Medicine Training and Research Hospital, Duzce University Faculty of Medicine Hospital, Suleyman Demirel University Faculty of Medicine Hospital, Balıkesir Atatürk City Hospital and who agreed to participate in the study. The survey form includes questions about the patients' demographic information and smoking habits. The participants who agreed to participate in the study were contacted by phone six months later to learn about their smoking status along with the treatment they received. The data were analyzed using IBM SPSS Statistics 20, with a significance level set at $p<0.05$.

Results: The study was completed with 611 individuals. Of the participants, 57.9% (n=354) were male, while 42.1% (n=257) were female. The primary reason for starting smoking was reported as friends by 63.7% (n=289). While the mean age of starting smoking was found as 19.69±6.91 (min:10-max:50) years in participants who stated that their reason for starting smoking was friends. It was found that 28.8% (n=176) of the participants who referred to the clinic had not previously attempted to quit smoking. Of the participants who had previously attempted to quit smoking, 39.7% (n=173) had decided to refer to the clinic after their first try. It was found that 20% (n=122) of the participants had previously received professional support at least once. At the end of 6 months, it was found that while 72.2% (n=439) of the participants had received pharmacotherapy, 27.8% (n=170) stated that they preferred non-pharmacological treatment. It was also found that 26.2% (n=160) of

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the participants had completely stopped smoking at the end of six months. The rate of smoking cessation was significantly higher in participants who had received pharmacotherapy (p=0.01).

Conclusion: Smoking cessation programs should be addressed in a multidimensional manner. Smoking cessation clinics operated by family medicine departments offer a holistic approach that evaluates individuals not only biomedically, but also with psychosocial, behavioral and environmental aspects.

Keywords: Family medicine, smokers, smoking cessation, treatment

Introduction

Tobacco use continues to be one of the most important causes of preventable death and diseases globally. According to the World Health Organization data, each year approximately more than 8 million people die due to tobacco-related diseases.[1] Tobacco and tobacco product use is a major risk factor for cardiovascular disease, chronic obstructive pulmonary disease and many types of cancer.[1]

Tobacco use is a significant public health issue in Türkiye. In a study conducted, it was found that 30.7% of the population aged 15 and older used tobacco products, with the rate being 41.9% in men and 19.6% in women.[2] These rates show indicate that tobacco use is widespread throughout the society, creating a serious burden on both the health system and individuals.

Türkiye signed the World Health Organization Framework Convention on Tobacco Control in 2004, making an international commitment to combat tobacco use. Following this process, "National Tobacco Control Program" was implemented in 2008, and policies such as smoke-free zone laws, package warnings and advertising bans were put into effect.[3] In addition, Republic of Türkiye Ministry of Health established free "Smoking Cessation Clinics" throughout the country in 2010s. These clinics aimed to increase smoking cessation rates by offering pharmacological treatments, psychosocial support and counseling services.[4]

Public health programs and physical counseling increase smoking cessation rates, but long-term relapse rates may remain high.[5] Factors determining success include the combined use of behavioral therapy and pharmacological treatment, the length of follow-up, patient motivation and social support system.[6]

In studies conducted in our country, the success rates of those who refer to smoking cessation clinics range from 11% to 47.5% between 6 months to 1 year. This variability depends on many factors such as the type of treatment, patient profile and frequency of follow-up.[7,8]

Family medicine clinics provide services and health education to all patients, regardless of age or gender. Family physicians not only treat their patients but also aim to prevent disease before it occurs. Preventive care is a fundamental component of family medicine and plays a crucial role in promoting both individual and community health. Through patient education, family physicians seek to prevent or minimize potential health problems. They are responsible for health promotion and education for both the individuals they serve and the broader community. The ultimate goal of family physicians is to enhance the health status of each individual and contribute to a healthier society. To achieve this, they provide patients with information on all health-related matters, enabling them to take an active role in their own health and make informed decisions. They conduct necessary health checks, aim to detect diseases at an early stage, and implement

preventive measures to reduce the risk and impact of illnesses.[9]

Family medicine and primary healthcare services have a strategically important role in cigarette smoking cessation services. This is because family medicine has strong aspects such as easy accessibility, continuity, a holistic approach and a relationship of trust between patients and physicians.[10] Smoking cessation initiatives carried out at the primary care level are highly advantageous in terms of both effectiveness and cost. In addition, family medicine has a critical role in the smoking cessation process, not only in terms of curative, but also preventive healthcare services.[11,12]

In this context, evaluating the smoking cessation behaviors of patients who refer to smoking cessation clinics affiliated to family medicine departments will contribute to both understanding the factors that affect clinical success and also to evaluating the effects of national tobacco control policies in the field.

This study aimed to evaluate smoking cessation behaviors and the factors influencing these behaviors among individuals who applied to smoking cessation clinics affiliated with family medicine departments at different universities.

Materials and Methods

This cross-sectional study, conducted from January to September 2025, included 611 individuals who referred to smoking cessation clinics operated by family medicine departments at Bolu Abant İzzet Baysal University Faculty of Medicine Training and Research Hospital, Düzce University Faculty of Medicine Hospital, Suleyman Demirel University Faculty of Medicine Hospital, Balıkesir Atatürk City Hospital and who agreed to participate in the study. The information was collected face-to-face through surveys. The survey form included questions about the demographic information and smoking habits of patients. The personal information form used in the study included questions about marital status, income status, the status of having children, occupation, educational status, chronic diseases, regularly used medication, while the questions related with tobacco use were the age of starting to smoke regularly, the age of starting smoking, the number of cigarettes smoked a day, the status of accessing cigarette, the status of smoking in the workplace for employed participants, the presence of other smokers in the house, the reasons which increased the desire to smoke, the reasons for wanting to quit smoking, previous attempts to quit smoking and the status of using other tobacco products. Fagerström Nicotine Dependence Test (FNDT) values were calculated. Height and weight of the participants were measured and body mass index (BMI) value was found from the calculation of weight/height.[2]

The present study included individuals over 18 years of age who were referred to smoking cessation clinics within family medicine departments, were reachable by phone, and consented to participate.

Considering that participants who agreed to participate in the study came for follow-up in different units, telephone interviews were made 6 months later regardless of the frequency of their interim follow-up. Cigarette use of participants was questioned based on their own statements. Pharmacotherapeutic drugs specified by our Ministry of Health were grouped together and evaluated.

Fagerström Nicotine Dependence Test: It was developed by Fagerström[13] as 6 questions to evaluate the level of dependence. The total score varies between 0 and 10 and increased score indicates increased dependence. The total scores from the questions determine the level of nicotine dependence. The scores are interpreted as very low dependence (0-2 points); low dependence (3-4 points); moderate dependence (5 points); high

dependence (6-7 points); very high dependence (8-10 points). Validity and reliability study of the test was conducted by Uysal et al.[14]

The data were analyzed by using IBM SPSS Statistics 20 program. Results were presented as mean±standard deviation and minimum–maximum for quantitative data. In the comparison of paired independent groups, Mann-Whitney U test was used since the data were not normally distributed. Chi-square test was used to analyse the categorical variables. The level of significance was considered as $p < 0.05$ in all tests.

In our multi-center study, institutional permissions were obtained from all participating centers. This study has been approved by the Bolu Abant İzzet Baysal University Non-Interventional Clinical Research Ethics Committee (approval date 07.01.2025, number 2024/376). Written informed consent was obtained from the participants.

Results

The study was completed with 611 participants. The participants were distributed across the centers as follows: 224 at Bolu Abant İzzet Baysal University Faculty of Medicine Training and Research Hospital, 34 at Düzce University Faculty of Medicine Hospital, 74 at Suleyman Demirel University Faculty of Medicine Hospital and 279 at Balıkesir Atatürk City Hospital. Of the participants, 57.9% (n=354) were male and 42.1% (n=257) were female. Mean age was found as 42.79±12.95 (min:18-max:76). Mean height was found as 171.04± 8.65 cm (min: 145- max:190), while mean weight was found as 77.82±14.77 kg (min:42-max:135). Mean BMI was found as 26.92±4.34 in male individuals and as 26.03±4.41 in female individuals. Of the participants, 74.8% (n=457) were found to be married and 73.3% (n=448) had at least one child (Table 1).

The age of starting smoking was 19.87±7.39 (min:10-max:55). The number of cigarettes smoked a day was 26.15±11.31 (min:4-max:55). The primary reason for starting smoking was reported as friends by 63.7% (n=289). While the mean age of starting smoking was found as 19.69±6.91 (min:10-max:50) years in participants who stated that their reason for starting smoking was friends, while the mean age was found as 15.54±2.84(min:10-max:19) years in those who stated that they started smoking by imitating their parents. It was found that the mean age of starting smoking was significantly low in male participants when compared with female participants (p=0.007).

Table 1. Sociodemographic characteristics of the participants

Variables	Categories	n	%
Gender	Male	354	57.9
	Female	257	42.1
Marital status	Single	154	25.2
	Married	457	74.8
Having child	No	163	26.7
	Yes	448	73.3
Education	Primary school	116	19.0
	High school	281	46.0
	Higher	214	35.0
Income	Below minimum wage	136	22.3
	Minimum wage	176	28.8
	Above minimum wage	299	48.9
Chronic disease	No	292	47.8
	Yes	319	52.2
Regular medication use	No	343	56.1
	Yes	268	43.9
Employment status	Employee	325	53.2
	Not regular employee	286	46.8
Shift work status	No	200	61.5
	Yes	125	38.5

It was found that 28.8% (n=176) of the participants who referred to the clinic had not previously attempted to quit smoking. Of the participants who had previously attempted to quit smoking, 39.7% (n=173) had decided to refer to the clinic after their first try. It was stated by 64.3% (n=393) of the participants that the primary reason for referring to the clinic was fear of becoming ill in the future. Only 10.5% (n=64) of those had referred to the clinic with the recommendation of health professionals.

FNDT score of the participants who had referred to the clinic was found as 6.73±2.43 (min:1-max:10). At the end of six months, FNDT score was found as 7.03±2.28 in the participants who did not quit smoking and as 5.88±2.62 in the participants who quit smoking; the mean score of participants who did not quit smoking was significantly higher (p<0.001). When the primary reason that increased the desire to smoke was asked, 30.6% (n=187) answered as "when they felt stressed". There was at least one more smoker in the houses of 35.7% (n=218) of the participants. It was found that 85.6% (n=523) of the participants stated that they did not smoke inside the house (Table 2). While the presence of another smoker in the house increased the rate of smoking inside the house significantly (p<0.001), it was not found to cause a significant difference in the rates of smoking cessation at the end of six months (p=0.055).

It was found that 53.2% (n=325) of the participants were working regularly and 15.4% (n=50) of the employed participants stated that they smoked indoors in the workplace.

It was found that 20% (n=122) of the participants had received professional support at least once previously. In the present study, while 72.2% (n=439) of the participants had received pharmacotherapy at the end of 6 months, 27.8% (n=170) stated that they preferred non-pharmacological treatment. At the end of 6 months, 26.2% of participants (n=160) had completely quit smoking. The rate of quitting smoking was significantly higher among those who received pharmacotherapy (p=0.01) (Table 3).

Table 2. Smoking behavior and exposure to smoke among participants

Variables	Categories	n	%
Reasons for wanting to quit smoking	Fear of getting ill	393	64.3
	Due to an existing illness	73	11.9
	Doctor's recommendation	64	10.5
	Social pressure	45	7.4
	Financial difficulty	36	5.9
Primary reason that increased the desire to smoke	Stress	187	30.6
	Tea	179	29.3
	After eating	111	18.2
	Coffee	66	10.8
	Other	50	8.2
	Alcohol	18	2.9
Smoker in the house	No	393	64.3
	Yes	218	35.7
Smoke inside the house	No	523	85.6
	Yes	88	14.4
Exposure to cigarette smoke in the workplace	No	275	45.0
	Yes	50	8.2

Table 3. Factors associated with smoking cessation status

Variables	Categories	Smoking cessation status				p*
		No		Yes		
		n	%	n	%	
Gender	Male	279	78.8	75	21.2	0.010
	Female	172	66.9	85	33.1	
Marital status	Single	114	74.0	40	26.0	
	Married	337	73.7	120	26.3	0.518
Shift work status	No	239	73.5	86	26.5	0.471
	Yes	212	74.1	74	25.9	
Income	Below minimum wage	136	77.3	40	22.7	0.001
	Minimum wage	114	83.8	22	16.2	
	Above minimum wage	201	67.2	98	32.8	
Professional support	No	372	76.1	117	23.9	0.010
	Yes	79	64.1	43	35.2	
Number of cigarettes smoked daily	≤20	46	68.7	21	31.3	0.040
	21-40	217	82.2	47	17.8	
	41≤	48	92.3	4	7.7	
Smoker in the house	No	280	71.2	113	28.8	0.055
	Yes	171	78.4	47	21.6	
Smoke inside the house	No	382	73	141	27	0.359
	Yes	69	78.4	19	21.6	
Treatment	Non-pharmacological	138	81.2	32	18.8	0.010
	Pharmacotherapy	313	71.0	128	29.0	

* Chi-square test, p<0.05.

Discussion

Smoking cessation clinics play a critical role in individuals' struggle with addiction. These centers do not only provide pharmacotherapy and behavioral support, they also strengthen the cessation process by providing clients with motivation, information and follow-up support. It is reported in the literature that individuals receiving professional support have a significantly higher rate of success in quitting smoking when compared with those who try to quit on their own.[15,16] Therefore, accessibility and effective use of clinics come to the fore as a critical factor in increasing the success of smoking cessation attempts.

Studies report that recommendations of healthcare professionals have significant effects on increasing the success of smoking cessation attempts.[17,18]

A study has shown that there are variations in the knowledge, confidence, and frequency of practice regarding smoking cessation among primary care physicians and healthcare professionals, with some physicians being hesitant about e-cigarettes and cessation methods.[11,19] The Turkish Thoracic Society and current clinical research highlight structural problems related to access to smoking cessation clinics, treatment options and staff training and show that strengthening the vocational training of healthcare professionals and systematic screening and referral protocols can increase both the number of referrals and the effectiveness of treatment.[20] While the fear

of getting ill is a strong trigger for individual motivation, making the recommendations of healthcare professionals systematic and effective use of clinical-communication channels (ALO 171, Patient Appointment System, local clinic referrals) are keys that can increase referrals to smoking cessation clinics and successful cessation rates.[20,21]

Family health centers are ideal places to deliver smoking cessation services most effectively at the community level. However, it is very important to increase the knowledge and skills of healthcare professionals about smoking cessation in order to make these services sustainable and widespread. It is stated that counseling and referrals in primary healthcare increase cessation rates significantly.[16] For this reason, regular training programs to be planned and incorporating the latest methods[22] will enable family physicians to play a more effective role in the smoking cessation process and make a significant contribution to reducing tobacco use in the community. In addition, the Tobacco Control Strategy Document and Action Plan (2024-2028) emphasizes that it is a requirement for healthcare professionals to provide brief clinical interventions to advise patients to quit smoking.[21] In the present study, it was found that the most frequent reason for referring to smoking cessation clinics was the fear of getting ill, while the number of those who referred with the recommendation of healthcare professionals was low. This finding suggests that personal health concerns are decisive in individuals' motivation to quit smoking, but the referral and counseling roles of healthcare professionals are not used effectively enough. Therefore, in increasing referrals to smoking cessation clinics, it is important to strengthen the awareness of healthcare professionals and to make systematic screening and referral practices widespread.

Studies conducted worldwide have shown that physiological symptoms associated with nicotine withdrawal, stress, negative emotions, and environmental stimuli related to smoking trigger the desire to smoke to significantly.[23,24] Demir et al. reported that environmental and peer influences and the motivation to enjoy smoking were prominent factors in continuing smoking[25], while Türkkan et al. reported that university students started smoking at an early age and that this process mostly started within their family group.[26] Studies targeting adolescents have also found that rates of moderate to severe nicotine dependence are significant, while there are significant limitations in accessing treatment.[27] These results suggest that social environment and stress play a fundamental role in the increase in smoking desire in our country. Similarly, friend group was found as the primary reason for starting smoking. Providing structured counseling in primary healthcare by considering age groups is very important in terms of preventing individuals from starting smoking, providing cessation support and protecting from the harms of smoking.

The increase in the desire to smoke is considered to have multiple aspects. Nicotine withdrawal and dependence level come to the fore in terms of biological factors. A decrease in nicotine levels lead to withdrawal symptoms such as tremors, restlessness and impaired attention and trigger the desire to smoke directly.[23] Nicotine activates the reward mechanism in the brain and increases craving by creating short-term pleasure and reward sensation. Environmental triggers such as friends or family members who smoke, places where people smoke, and visual and auditory cues associated with smoking also trigger the desire to smoke, both at the initiation and continuation stages.[24] The results of a study that the age of starting smoking was early in university students and that smoking mostly occurred with friends shows the strong role of social interaction in the desire to smoke.[26] Psychosocial and emotional states such as stress, negative mood, anxiety and depression cause smoking to be considered as a

short-term relaxation and increase craving.[25,26] These results show that the desire to smoke cannot be explained only with addiction and that environmental and psychosocial triggers also play a critical role. In the present study, the participants reported that they smoked indoors in their workplace. This result shows that workplace can increase the desire to smoke as an environmental trigger. It is stated in the literature that smoking indoors is a risk in terms of both active smokers and also passive exposure.[28] Smoking indoors in the workplace is not only an environmental risk, it also leads to smoking being considered as a short-term relaxation by interacting with psychosocial triggers such as stress, social interaction, anxiety and depression and makes the desire to smoke stronger. In a study, it was found that the prevalence of smoking in work places can make smoking cessation interventions difficult.[25] Therefore, multifaceted strategies should be used together to decrease craving and increase the rates of successful cessation. The results of the present study show that the factors increasing the desire to smoke are in parallel with studies in both national and international literature. It seems appropriate to prioritize the development of programs that will reduce the influence of the social environment and increase motivation among young people and adolescents in our country.

Medications used for pharmacotherapy increase the rates of quitting significantly. The rates of success in smoking cessation were found to be higher in individuals who used these drugs.[29] It was also found in the present study that only 20% of the participants had received professional support at least once. It was found at the end of the 6-month follow-up that 72.2% of the participants received pharmacotherapy, while 27.8% preferred non-drug treatment methods. These results show that individuals mostly turn to pharmacological support, but the use of behavioral or psychosocial support remains limited. In the present study, the significantly high dropout rate in pharmacotherapy areas supports the effectiveness of pharmacological interventions.[15,16] This result is in line with the strong effect of pharmacotherapy in smoking cessation. In order to decrease craving and increase the rates of successful cessation, both pharmacological support and trigger-focused behavioral interventions, social support mechanisms, and stress management strategies must be used together. Recently, digital interventions have become increasingly important in smoking cessation strategies. Short Message Service (SMS) based support programs and web based personalized applications increase the success in quitting significantly and their effectiveness become stronger when used with pharmacotherapy.[30] Recent studies conducted in Türkiye also show that the combination of pharmacotherapy and behavioral support increase the rates of smoking cessation, while limited accesses to these services especially in rural areas, and the fact that access is limited to these services especially in rural areas and low socioeconomic groups has a negative effect on the cessation period.[24] These results show that the process of smoking cessation is not limited to only pharmacological interventions and environmental, psychosocial and digital support should also be integrated with a holistic approach. In the present study, it was found that only a limited number of participants had previously received professional support. This shows that smokers cannot sufficiently make use of cigarette smoking services.

In the six-month follow-up, the significantly higher smoking cessation rate among participants receiving pharmacotherapy supports the effectiveness of pharmacological interventions. On the other hand, the limited use of behavioral and psychosocial support has prevented the full assessment of the potential effectiveness of these methods. The low level of professional support experienced by our participants highlights the need to plan multidimensional strategies for

future interventions. Therefore, supporting smoking cessation programs with policies centered on pharmacotherapy while strengthening psychosocial support, integrating digital practices, and facilitating access to treatment services will increase sustainable cessation rates.

In conclusion, smoking cessation programs should be approached in a multidimensional manner. Smoking cessation clinics operated by Family Medicine Departments offer a comprehensive approach that evaluates individuals not only from a biomedical perspective but also in terms of their psychosocial, behavioral, and environmental dimensions. In this regard, smoking cessation efforts can focus not only on nicotine addiction, but also on the individual's lifestyle, sources of motivation, and social support systems. In addition, smoking cessation clinics strive to ensure the continuity of smoking cessation programs, support individuals in taking responsibility for their own health, and create lasting health gains at the community level. Thus, we believe that we are maintaining our position as one of the most effective disciplines in reducing cigarette use at both individual and societal levels.

Limitations of the study

Short study period and limited number of participating departments are among the limitations of our study. We believe that future studies with larger participation, which will examine other factors that may influence smoking cessation, will contribute to the development of smoking cessation programs.

Ethical approval

This study has been approved by the Bolu Abant İzzet Baysal University Non-Interventional Clinical Research Ethics Committee (approval date 07.01.2025, number 2024/376). Written informed consent was obtained from the participants.

Author contribution

The authors declare contribution to the paper as follows: Study conception and design: SG, HD; data collection: HD, Gİ, AK, MBK, DAB; analysis and interpretation of results: GZÖ, YÇ; Draft manuscript preparation:SG. All authors reviewed the results and approved the final version of the article.

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Conflict of interest

The authors declare that there is no conflict of interest to disclose.

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