

# The relationship between social support and loneliness and relapse in individuals who have quit smoking

## Sigarayı bırakan bireylerde nüks ile sosyal destek ve ilişkili faktörlerin değerlendirilmesi

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## Özet

**Amaç:** Bu çalışmanın amacı, sigara bırakma kliniğine başvuran bireylerde sigaraya tekrar başlama nedenlerini, sigarayı bırakma sürecinde karşılaşılan zorlukları ve sosyal desteğin sigarayı bırakma üzerindeki etkisini belirlemektir.

**Yöntemler:** Bu kesitsel ve tanımlayıcı çalışma, Nisan-Haziran 2021 tarihleri arasında AİBÜ İzzet Baysal Eğitim ve Araştırma Hastanesi Sigara Bırakma Kliniği'ne başvuran 120 birey üzerinde yürütülmüştür. Katılımcılar, Sosyodemografik Veri Formu, Fagerström Nikotin Bağımlılığı Testi, Çok Boyutlu Algılanan Sosyal Destek Ölçeği, UCLA Yalnızlık Ölçeği ve Beck Umutsuzluk Ölçeği kullanılarak değerlendirilmiştir.

**Bulgular:** Katılımcıların %80'i erkek ve %70'i evliydi. Sigarayı bırakma girişim sayısı arttıkça aile desteği algısı da artmıştır ( $p<0,001$ ). Ancak, yalnızlık ve umutsuzluk puanları da tekrarlayan bırakma girişimleriyle birlikte yükselme eğiliminde olmuştur ( $p<0,001$ ). Sigarayı bırakmaya tekrar başlama ile sosyal destek arasında anlamlı bir ilişki bulunmuştur.

**Sonuç:** Çalışmamızda, birden fazla bırakma girişimi olan bireyler, yalnızca bir kez bırakma girişimi olanlara kıyasla daha yüksek düzeyde algılanan sosyal destek, yalnızlık ve umutsuzluk bildirmiştir. Bu durum, birden fazla başarısız bırakma girişimi yaşayan bireylere hedefli psikolojik ve sosyal destek müdahaleleri sağlamanın önemini vurgulamaktadır.

**Anahtar kelimeler:** Sigarayı bırakma, nüksetme, sosyal destek, yalnızlık, umutsuzluk

## Summary

**Objective:** This study aims to identify the reasons for smoking relapse, the challenges faced during the smoking cessation process, and the impact of social support on smoking cessation among individuals seeking help at a smoking cessation clinic.

**Methods:** This cross-sectional and descriptive study was conducted on 120 individuals who applied to the Smoking Cessation Clinic of Bolu İzzet Baysal Training and Research Hospital between April and June 2021. Participants were assessed using the Sociodemographic Data Form, the Fagerström Test for Nicotine Dependence, the Multidimensional Scale of Perceived Social Support, the UCLA Loneliness Scale, and the Beck Hopelessness Scale.

**Results:** Among the participants, 80% were male, and 70% were married. As the number of smoking cessation attempts increased, the perception of family support also increased ( $p<0.001$ ). However, loneliness and hopelessness scores also tended to rise with repeated cessation attempts ( $p<0.001$ ). A significant relationship was found between smoking relapse and social support.

**Conclusion:** In our study, individuals with multiple quit attempts reported higher levels of perceived social support, loneliness, and hopelessness compared with those who had attempted to quit only once. This highlights the importance of providing targeted psychological and social support interventions for individuals who have experienced multiple unsuccessful quit attempts.

**Keywords:** Smoking cessation, relapse, social support, loneliness, hopelessness

## Introduction

Smoking is recognized as a major public health issue worldwide and is a primary risk factor for numerous chronic diseases.<sup>(1)</sup> The act of smoking is influenced by an individual's physical and psychological dependence as well as by social and environmental factors.<sup>(2)</sup> Therefore, the process of smoking cessation is shaped not solely by personal willpower but also by the interaction of various biological, psychosocial, and environmental determinants.

Smoking cessation is often explained within the framework of the Transtheoretical Model (TTM), which conceptualizes behavior change through stages ranging from precontemplation to maintenance. Evidence indicates that social support is significantly associated with the behavioral and experiential processes of change described in the TTM, facilitating progression between stages and strengthening readiness to quit.<sup>(3)</sup> Social support - particularly from family and peers - has been shown to enhance self-efficacy, increase motivation to quit, and improve short-term cessation outcomes.<sup>(4)</sup> Furthermore, supportive social networks help individuals cope with withdrawal symptoms during the early abstinence period and reduce relapse risk by buffering exposure to social environments that trigger smoking.<sup>(5)</sup> Meta-analytic evidence also suggests that peer-supported interventions can improve abstinence rates during the first months of cessation.<sup>(6)</sup> These findings indicate that social support functions not only as an external facilitator but also as a dynamic mechanism influencing behavioral change throughout the cessation process.

Although various methods have been developed to aid

smoking cessation, a significant proportion of individuals who quit smoking eventually relapse. This phenomenon, referred to as “relapse” in the literature, highlights the complex nature of nicotine addiction.<sup>(7)</sup> Preventing relapse remains an unachieved goal in smoking cessation treatment.<sup>(8)</sup> Studies have indicated that both positive and negative emotions can trigger relapse.<sup>(9)</sup> For instance, the presence of close friends who smoke has been identified as a factor that increases the risk of relapse.<sup>(10)</sup> Additionally, individuals with higher levels of nicotine dependence have been shown to be at a greater risk of relapse.<sup>(11)</sup>

Social support includes the encouragement and guidance received from family, friends, healthcare professionals, and smoking cessation groups. While positive social support facilitates successful smoking cessation, negative or insufficient support may lead to relapse. For example, individuals who frequently spend time with friends or family members who smoke are at an increased risk of resuming smoking.<sup>(12,13)</sup> Furthermore, stressful life events, depression, anxiety, and low self-efficacy have also been identified as significant contributors to relapse risk.<sup>(14,15)</sup>

A study conducted by Deiches et al. demonstrated that single individuals are more likely to relapse when engaging in social conversations in group settings. It was suggested that these individuals should initially avoid social gatherings and parties to reduce the risk of relapse.<sup>(16)</sup> Numerous studies have established that family and social support play a direct role in the smoking cessation process.<sup>(11,16)</sup> Burns et al. reported that individuals with higher social support have higher

quit rates and a reduced risk of relapse. The study shows that family support, friend support and support from health professionals are determinants of quitting relapse. Loneliness is defined as a decline in psychological well-being due to insufficient social connections or feelings of social isolation. It has been shown that feelings of loneliness may trigger smoking as a coping mechanism for stress.<sup>(17)</sup> Research indicates that depression and feelings of hopelessness increase failure rates in smoking cessation attempts and elevate the risk of relapse.<sup>(18)</sup>

### **Aim**

This study aims to identify the reasons for smoking relapse, the challenges encountered during the cessation process, the factors contributing to relapse, and the role of social support among individuals who seek help at a smoking cessation clinic due to relapse. Furthermore, the impact of psychosocial factors such as loneliness and hopelessness on relapse will also be examined. The findings of this study are expected to contribute to the development of strategies aimed at enhancing the effectiveness of smoking cessation programs and establishing social support mechanisms to promote long-term cessation success.

### **Materials and Methods**

#### **Study design and participants**

This study was designed as a cross-sectional and descriptive study. The study was approved by the Ethics Committee of Bolu Abant İzzet Baysal University (2021/63). Individuals who had previously quit smoking but subsequently relapsed, as well as those with a history

success<sup>(4)</sup>. Additionally, loneliness and hopelessness have been identified as crucial psychological factors influencing

of multiple smoking cessation attempts, and who applied to the Smoking Cessation Clinic of Bolu İzzet Baysal Training and Research Hospital between April and June 2021, were included in the study. Individuals who were actively trying to quit smoking, over the age of 18, and cognitively able to complete the survey were included in the study. Individuals with active psychiatric illness, those who did not complete the survey, and those with severe communication disabilities were excluded.

A total of 168 individuals presented to our clinic during the study period. Of the individuals evaluated using the consecutive sampling method, 48 individuals who met the exclusion criteria were excluded, resulting in a total of 120 participants. Thus, the response rate for the study was calculated as 71.4%. This method was chosen to reduce selection bias and ensured the consecutive inclusion of all eligible participants. Post-hoc power analysis was conducted using G\*Power 3.1 to assess the adequacy of the study's sample size. Assuming a moderate effect size ( $f = 0.25$ ), the sample size provided over 80% power.

#### **Data collection instruments**

The study employed the Descriptive Sociodemographic Data Form, the Fagerström Test for Nicotine Dependence (FTND), the Multidimensional Scale of Perceived Social Support (MSPSS), the UCLA Loneliness Scale, and the Beck Hopelessness Scale. The data were collected by the researcher during face-to-face interviews with the participants, and all scales were

completed in an outpatient clinic environment, under standard conditions and under the supervision of the researcher.

**Fagerström Test for Nicotine Dependence (FTND):**

Developed by Fagerström et al. to assess the level of physical dependence on nicotine, the FTND comprises six questions, with scoring based on responses. The total score is categorized into four levels: low dependence (0–4 points), moderate dependence (5–6 points), high dependence (7–8 points), and very high dependence (9–10 points).<sup>(19)</sup> The Turkish version of the FTND was validated by Uysal et al., with a Cronbach's alpha reliability coefficient of 0.56.<sup>(20)</sup>

**Descriptive Sociodemographic Data Form:** Developed by the researchers through a comprehensive review of the relevant literature, this form includes questions pertaining to age, gender, education level, and the presence of any significant event or trauma that contributed to smoking initiation.

**Multidimensional Scale of Perceived Social Support (MSPSS):**

Originally developed by Zimet et al. in 1988, the Turkish validity and reliability study was conducted by Eker and Arkar in 1995.<sup>(21,22)</sup> The scale consists of three subdimensions: family support, friend support, and support from a significant other. Higher scores indicate greater perceived social support. The Cronbach's alpha coefficients were reported as 0.85 for the family subscale, 0.88 for the friend subscale, 0.92 for the significant other subscale, and 0.88 for the total score.

**UCLA Loneliness Scale:** Developed by Russell et al. in 1980, the Turkish version's validity and reliability were established by Demir in 1989.<sup>(23,24)</sup> This scale consists

of 20 items rated on a four-point Likert scale, with higher scores indicating greater levels of loneliness. The Cronbach's alpha coefficient was reported as 0.96.

**Beck Hopelessness Scale:** Developed by Beck et al. in 1974, this scale was adapted and validated for the Turkish population by Seber et al.<sup>(25,26)</sup> The scale comprises three subdimensions: feelings and expectations about the future, loss of motivation, and hopelessness. Higher scores indicate increased levels of hopelessness.

**Statistical analysis**

Data collected in the study were analyzed using SPSS 25 (IBM SPSS Statistics, Version 25) software. The normality of continuous variables was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests. Parametric tests were employed for variables meeting normality assumptions, whereas non-parametric tests were applied for variables that did not satisfy normality criteria.

The Independent Samples t-Test was used to compare two groups when normality assumptions were met, while the Mann-Whitney U test was applied in cases where normality was not met. For comparisons involving three or more groups, One-Way Analysis of Variance (ANOVA) was used when normality was satisfied, and the Kruskal-Wallis test was employed otherwise.

Relationships between social support, loneliness, hopelessness levels, smoking cessation attempts, and relapse were assessed using Pearson or Spearman correlation analysis. Additionally, a multivariate regression analysis was conducted to determine the

association between the number of smoking cessation attempts and independent variables. Statistical significance was set at  $p < 0.05$ .

## Results

In our study, 96 (80%) of the 120 participants were male, and 84 (70%) were married. Regarding educational status, 48 (40%) had completed primary

education, while 60 (50%) had completed secondary education. Based on the Fagerström Test for Nicotine Dependence (FTND) classification, 36 participants had low dependence, 12 had moderate dependence, 12 had high dependence, and 60 had very high dependence. Descriptive information regarding participants' age, social support, and psychosocial status is presented in Table 1.

**Table 1: Descriptive Characteristics of Participants**

	Mean	SD	Min	Max
Age	35.9	6.43	24	45
Number of cigarettes smoked per day	22.6	5.00	15	30
How many years has he been smoking?	16.20	5.98	9	32
Package/Year	17.57	4.61	7.5	25
FTND Score	6.5	2.47	3	9
Social support- Family support	23.1	5.84	13	28
Social support- Friend support	21.2	3.91	13	26
Social support- Significant other support	17.4	8.12	4	28
Social support total score	59.7	14.89	38	82
Loneliness scale score	49.0	8.32	33	60
Hopelessness scale score	6.5	4.07	2	13
			n	%
Gender	Female		24	20
	Male		96	80
Marital status	Single		26	21.7
	Married		84	70
	Widowed/Divorced		10	8.3
Education level	Primary education		48	40
	Secondary education		60	50
	University		12	10
Number of quit attempts	1 time		36	30
	2 times		48	40
	3 or more times		36	30

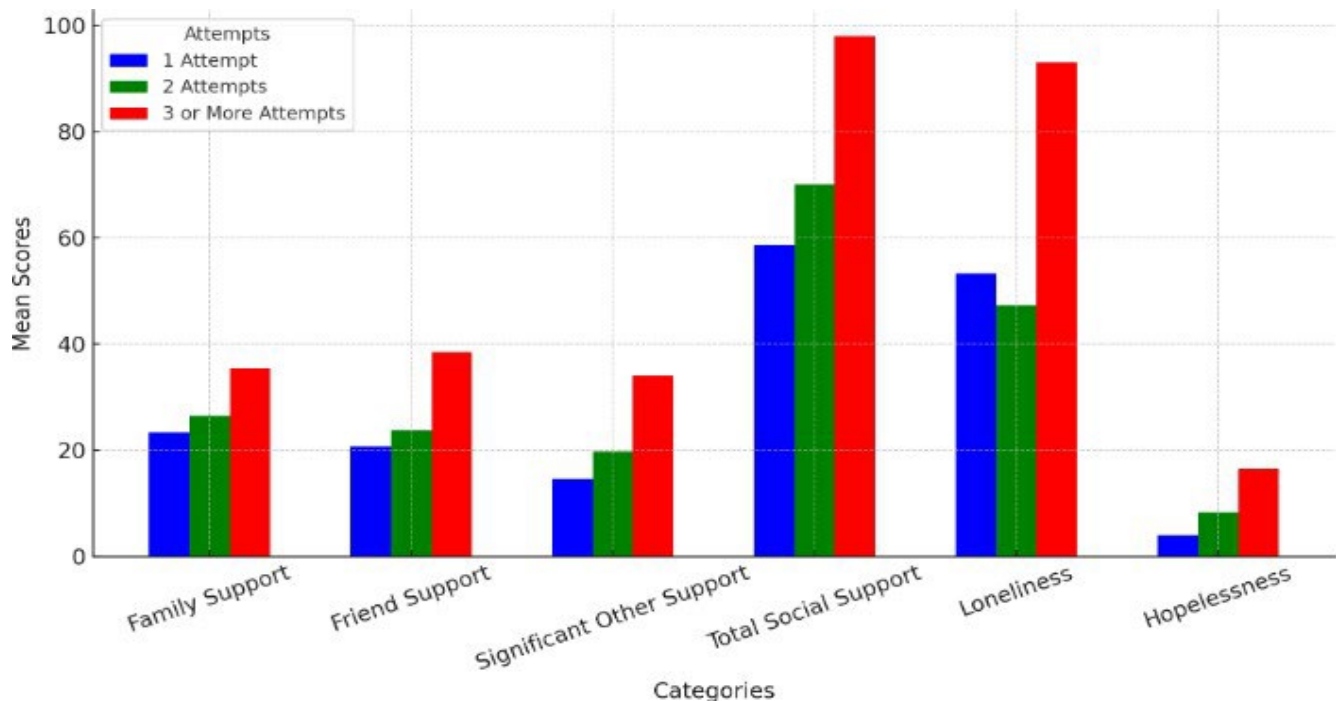
OPA: oral polio virüs, KKK: kızamık, kızamıkçık, kabakulak aşısı, BCG: verem aşısı, DaBT: difteri boğmaca tetanoz aşısı, İPA: inaktif poliovirus aşısı, Hib: Hemofilus İnfluenza tip b aşısı, KPA: konjuge pnömokok aşısı, Hep B: Hepatit B aşısı, Td: Erişkin tetanoz difteri aşısı, DT: Pediatrik difteri tetanoz aşısı, Hep A: Hepatit A aşısı)



Women reported significantly higher family support ( $p=0.001$ ) and significant other support ( $p<0.001$ ) compared to men. Single individuals had significantly higher loneliness scores compared to married individuals ( $p=0.028$ ) and also had higher hopelessness scores ( $p<0.001$ ). Participants smoked an average of 22.60 cigarettes per day, with a pack-year average of 17.57. The proportion of individuals receiving smoking cessation treatment versus those who did not was equal (50%–50%). During the smoking cessation process, 50% of participants did not use any support, 40% used medication, and 10% used nicotine gum. When evaluating the relationship between individuals' smoking cessation experiences and their social support, loneliness, and hopelessness scores, those who attempted

to quit smoking three or more times had significantly different scores ( $p<0.001$ ,  $p=0.001$ ,  $p<0.001$ ). As the number of quit attempts increased, the perception of family support also increased ( $p<0.001$ ). Additionally, loneliness and hopelessness scores were found to rise with an increasing number of quit attempts. The relationship between gender, marital status, education levels, and the number of quit attempts with social support, hopelessness, and loneliness is detailed in Table 2.

The source of the differences between the groups was determined by the Tukey post-hoc test, and it was determined that the loneliness and hopelessness scores of the group that made three or more trials were significantly higher (Figure 1).



**Figure 1:** Effect of Smoking Cessation Attempts on Social Support, Loneliness, and Hopelessness

**Table 2:** The Effects of Gender, Marital Status, Education Level, and Quit Attempts on Social Support, Loneliness, and Hopelessness

		Social Support-Family Support		Social Support-Friend Support		Social Support-Significant Other Support		Social Support Total Score		Loneliness Scale Score		Hopelessness Scale Score	
		Mean±SD	p	Mean±SD	p	Mean±SD	p	Mean±SD	p	Mean±SD	p	Mean±SD	
Gender	Female	26.50±0.51	0.001	22.00±2.04	0.264	24.00±2.04	<0.001	62.50±14.81	0.305	44.00±8.17	0.001	6.00±2.04	0,504
	Male	22.25±6.25		21.00±4.23		15.75±8.24		59.00±14.91		50.25±7.92		6.63±4.43	
Marital Status	Single	22.00±4.96	0.178	23.67±1.26	<0.001	15.33±8.77	0.068	61.00±11.59	0.534	51,00±4,61	0,028	10,00±4,30	<0.001
	Married	23.57±6.15		20.14±4.18		18.29±7.71		59.14±16.13		48,14±9,38		5,00±2,89	
Education Levels	Primary education	23.00±4.63	0.043	23.25±2.41	<0.001	17.75±8.93	<0.001	59.00±13.65	<0.001	46.25±7.23	0.010	6.75±3.739	0.259
	Secondary education	22.40±6.94		19.00±4.03		15.40±7.09		56.80±15.13		50.6±9.36		6.00±4.64	
	University	27.00±0.00		24.00±0.00		26.00±0.00		77.00±0.00		52.00±0.00		8.00±0.00	
Number of Quit Attempts	1 time	23.33±5.99	<0.001	20.67±3.44	<0.001	14.67±8.49	0.040	58.67±14.20	<0.001	53.33±1.91	0.001	4.00±2.86	<0.001
	2 times	26.50±2.62		23.75±2.30		19.75±9.43		70.00±11.89		47.25±8.79		8.25±3.52	
	3 or more times	35.50±6.64		38.50±3.57		34.00±5.10		98.00±5.10		93.00±12.25		16.50±0.51	



When evaluating the relationship between nicotine dependence and social support, loneliness, and hopelessness, a significant negative correlation was found between friend support and FTND score ( $r=-0.240$ ,  $p<0.001$ ), indicating that as friend support decreased, nicotine dependence increased. A significant positive correlation was found between hopelessness and

FTND score ( $p=0.001$ ), suggesting that as nicotine dependence increased, hopelessness levels also increased. Additionally, as age increased, both family support and significant other support decreased, while loneliness showed a significant positive correlation with age ( $p<0.001$ ,  $p<0.001$ ) (Table 3)

**Table 3:** Correlations Between FTND Scores, Cigarette Consumption, and Social Support, Loneliness, and Hopelessness

		Social Support-Family Support	Social Support-Friend Support	Social Support-Significant Other Support	Social Support Total Score	Loneliness Scale Score	Hopelessness Scale Score
FTND Score	r	-0.094	-0.240	0.452	0.010	-0.603	0.306
	p	0.306	<0.001	<0.001	0.917	<0.001	0.001
Cigarette s Per Day	r	-0.012	-0.315	0.364	0.046	-0.177	0.000
	p	0.893	<0.001	<0.001	0.620	0.054	1.000
Pack-year	r	-0.308	-0.281	-0.621	-0.567	0.021	-0.167
	p	0.001	0.002	<0.001	<0.001	0.822	0.067
Age	r	-0.289	-0.123	-0.585	-0.320	0.359	0.144
	p	0.001	0.179	<0.001	<0.001	<0.001	0.116

FTND: Fagerström Test for Nicotine Dependence

## Discussion

This study examined the relationship between social support levels and psychosocial factors such as loneliness and hopelessness among individuals in the smoking cessation process. The findings suggest that nicotine dependence is associated with feelings of loneliness and hopelessness and that social support mechanisms play a crucial role in smoking cessation success.

When analyzing the relationships between FTND scores and social support, a negative correlation was found with friend support, while a positive correlation was observed

with significant other support. This finding indicates that individuals with higher nicotine dependence tend to have lower friend support but receive more support from a significant other. Previous studies have shown that smoking behavior is closely related to social environments, with smokers often socializing within groups of other smokers.<sup>(27)</sup> Regarding the relationship between loneliness and nicotine dependence, a negative correlation was found between FTND scores and loneliness. This may suggest that nicotine-dependent individuals do not necessarily become socially isolated or that smoking serves as a social activity for them. Similarly, a positive correlation was found between

hopelessness levels and FTND scores, indicating that individuals with higher hopelessness levels are less motivated to quit smoking and have a higher likelihood of unsuccessful cessation attempts. Previous studies have also identified hopelessness and depression as significant barriers to smoking cessation, increasing the risk of relapse.<sup>(28,29)</sup>

This study also explored the relationship between smoking cessation attempts and relapse. Among the participants, 30% had attempted to quit smoking only once, 40% had tried twice, and 30% had attempted three or more times. When assessing relapse rates, social support scores were found to increase significantly with the number of quit attempts. Specifically, individuals who had attempted to quit smoking three or more times had a significantly higher total social support score (98.00) compared to those who had attempted only once (58.67). Additionally, loneliness scores varied significantly based on the number of quit attempts. Participants who had attempted to quit smoking only once had a loneliness score of 53.33, whereas those who had attempted three or more times had a loneliness score of 93.00. This finding suggests that individuals who experience repeated failures in quitting smoking tend to feel lonelier. The relationship between social support and relapse has been widely discussed in the literature. It has been reported that individuals who fail in smoking cessation attempts are more exposed to factors such as stress, depression, and loneliness, which increase the likelihood of relapse.<sup>(30)</sup> Similarly, a study by West and Sohal emphasized that smoking cessation success is

positively correlated with encouragement and support from social networks.<sup>(31)</sup>

Although hopelessness is less frequently examined in the smoking literature, evidence shows that depressive symptoms and negative affect—which are closely related psychological constructs—predict higher lapse and relapse risk during cessation attempts.<sup>(9)</sup> Depressive symptoms have also been associated with increased nicotine dependence severity over time in longitudinal studies.<sup>(32)</sup> These findings suggest that emotional vulnerability may influence relapse pathways independently of physiological dependence. Therefore, the higher hopelessness levels observed in individuals with repeated unsuccessful quit attempts in our study may reflect increased affective burden rather than inconsistencies in dependence scores. Future studies should directly assess hopelessness and relapse patterns to clarify this relationship.

An examination of participants' smoking cessation experiences revealed that many individuals had made multiple attempts to quit smoking. As the number of quit attempts increased, so did the level of social support. Notably, repeated quit attempts heightened the need for social support mechanisms while also intensifying feelings of loneliness.

The literature indicates that individuals who fail in smoking cessation attempts are more likely to experience stress and fatigue.<sup>(33)</sup> Those who lack social support during the cessation process have a higher likelihood of relapse. Blok et al. demonstrated that social support is a crucial determinant in smoking cessation and that

individuals with strong social support networks are more likely to succeed in quitting smoking.<sup>(13)</sup>

The findings of this study highlight the significant role of social support in the smoking cessation process. In particular, family and friend support increase the likelihood of individuals' smoking relapse. Social support helps individuals maintain motivation during smoking cessation and facilitates coping with cravings. Studies suggest that social support systems serve as protective factors in smoking cessation. It is recommended that social support programs be integrated into smoking cessation treatments.<sup>(34,35)</sup> However, some studies argue that social support may not always have a positive impact. For instance, excessive social pressure and judgmental attitudes can create stress, potentially triggering smoking behavior.<sup>(36)</sup> Therefore, for social support mechanisms to be effective, they should be structured in a constructive and encouraging manner.

The relationship between nicotine dependence, loneliness, and hopelessness is noteworthy. This study found that individuals who failed in their smoking cessation attempts experienced higher levels of loneliness and increased hopelessness. Research has shown that loneliness and hopelessness are key factors that contribute to nicotine dependence.<sup>(37)</sup> The study also indicated that socially isolated individuals are more prone to nicotine addiction.<sup>(38)</sup> Therefore, incorporating psychosocial interventions aimed at reducing loneliness into smoking cessation programs is recommended.

This study has several limitations. First, because the study had a cross-sectional design, the relationships between the variables cannot be established causally. Furthermore, because the study's sample was obtained from a single center, generalizability is limited. Because data were collected from individuals who presented to an outpatient clinic, individuals who successfully quit smoking could not be reached. Another potential limitation is the possibility of Type I error and researcher bias during data collection. Because the sample consisted only of individuals who applied to the clinic after experiencing relapse, individuals who successfully quit smoking could not be included. Future research could more clearly demonstrate the impact of social support on long-term quitting success through prospective, multicenter, and follow-up studies.

### Conclusion

In this study, individuals with multiple quit attempts reported higher levels of perceived social support, loneliness, and hopelessness compared with those who had attempted to quit only once. These findings suggest that repeated cessation attempts are associated with greater emotional burden, reflected by increased loneliness and hopelessness, and a greater need for social support. This highlights the importance of providing targeted psychological and social support interventions for individuals who have experienced multiple unsuccessful quit attempts.

**Conflict of Interest:** The authors report no actual or potential conflicts of interest.

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**Ethics Approval:** The study was approved by the Ethics Committee of Bolu Abant İzzet Baysal University (2021/63).

**Author contributions:** NURCAN AKBAŞ GÜNEŞ: Study design, data collection, data analysis, literature search, manuscript writing, critical review;

MEHTAP KAYNAK: Data collection, data analysis, literature search, manuscript writing.

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