



The Relationship Between Tobacco Use, Internet and Social Media Addiction: A Cross-Sectional Study

Tütün Kullanımı, İnternet ve Sosyal Medya Bağımlılığı Arasındaki İlişki: Kesitsel Bir Çalışma

Asuman Okur¹ | Neslihan Özçelik² | Fedai Kabadayı³

¹ Giresun University, Faculty of Medicine, Department of Public Health, Giresun, Türkiye

² Recep Tayyip Erdoğan University, Faculty of Medicine, Department of Chest Diseases, Rize, Türkiye

³ Recep Tayyip Erdogan University, Faculty of Education, Department of Counseling and Guidance, Rize, Türkiye

ORCID: AO: 0000-0003-0837-6988 NÖ: 0000-0002-4672-6179 FK: 0000-0003-2486-2337

Sorumlu Yazar | Correspondence Author

Asuman Okur

asumanokurao@gmail.com

Address for Correspondence: Giresun University Faculty of Medicine Department of Public Health, Giresun, Turkey

Makale Bilgisi | Article Information

Makale Türü | Article Type: Araştırma Makalesi | Research Article

Doi: <https://doi.org/10.52827/hititmedj.1819371>

Geliş Tarihi | Received: 12/11/2025

Kabul Tarihi | Accepted: 09/04/2026

Yayın Tarihi | Published: 29/06/2026

Atıf | Cite As

Okur A, Özçelik N, Kabadayı F. The Relationship Between Tobacco Use, Internet and Social Media Addiction: A Cross-Sectional Study. Hitit Medical Journal 2026;8(2):236-247 <https://doi.org/10.52827/hititmedj.1819371>

Hakem Değerlendirmesi: Alan editörü tarafından atanan en az iki farklı kurumda çalışan bağımsız hakemler tarafından değerlendirilmiştir.

Etik Beyanı: Çalışma için 29/03/2022 tarihinde Recep Tayyip Erdoğan Tıp Fakültesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu'ndan onay alınmıştır. Karar no: E-40465587-050.01.04-377.

İntihal Kontrolleri: Evet (iThenticate)

Çıkar Çatışması: Yazarlar çalışma ile ilgili çıkar çatışması beyan etmemiştir.

Şikayetler: hmj@hitit.edu.tr

Katkı Beyanı: Fikir/Hipotez: AO, NÖ, FK; Tasarım: AO, NÖ, FK; Veri Toplama/Veri İşleme: AO, NÖ; Veri Analizi: AO; Makalenin Hazırlanması: AO, NÖ, FK

Hasta Onamı: Katılımcıların bilgilendirilmiş onamı, ankete katılmayı kabul ettiklerini doğrulamalarını isteyen anketin ilk sorusu aracılığıyla belgelendirilmiştir.

Finansal Destek: Çalışma için finansal destek alınmamıştır.

Telif Hakkı & Lisans: Dergi ile yayın yapan yazarlar, CC BY-NC 4.0 kapsamında lisanslanan çalışmalarının telif hakkını elinde tutar.

Ek bilgi: Bu çalışma, International Lung Health Congress 2024'te SS-087 referans numarası ile sözlü bildiri olarak sunulmuştur. Özeti kongre bildiri kitabında yayımlanmıştır.

Peer Review: Evaluated by independent reviewers working in at least two different institutions appointed by the field editor.

Ethical Statement: Approval for the study was obtained from the Recep Tayyip Erdoğan University Faculty of Medicine Non-interventional Clinical Research Ethics Committee on 29/03/2022. Decision no: E-40465587-050.01.04-377.

Plagiarism Check: Yes (iThenticate)

Conflict of Interest: The authors declared that they have no conflict of interest.

Complaints: hmj@hitit.edu.tr

Authorship Contribution: Idea/Hypothesis: AO, NÖ, FK; Design: AO, NÖ, FK; Data Collection/Data Processing: AO, NÖ; Data Analysis: AO; Manuscript Preparation: AO, NÖ, FK

Informed Consent: Participants' informed consent was documented through the first question of the questionnaire, which asked them to confirm their agreement to participate.

Financial Disclosure: No financial support was received for the conduct of this study.

Copyright & License: Authors publishing with the journal retain the copyright of their work licensed under CC BY-NC 4.0.

Additional information: It was presented as a verbal presentation with the reference number SS-087 at the International Lung Health Congress 2024. The abstract of the presentation is included in the congress proceedings.

The Relationship Between Tobacco Use, Internet and Social Media Addiction: A Cross-Sectional Study

ABSTRACT

Objective: This study investigates the relationship between levels of internet and social media addiction and nicotine dependence among tobacco users, along with the influencing factors.

Materials and Methods: This cross-sectional study was conducted using an online questionnaire between April and December 2022. Ethical approval was obtained from the Non-Interventional Research Ethics Committee of Recep Tayyip Erdoğan University Faculty of Medicine. Data were collected using the Fagerström Test for Nicotine Dependence (FTND), the Young Internet Addiction Test Short Form (YIAT-SF), and the Bergen Social Media Addiction Scale (BSMAS). Sociodemographic details, tobacco use patterns, and addiction indicators were also assessed.

Results: The study included 255 participants (mean age: 33.6 years), predominantly male, with an mean smoking duration of 13.5 years. Cigarettes were the most commonly used tobacco product. The mean FTND score was 4.0 ± 2.7 , with no significant gender differences. However, FTND scores were significantly higher in participants who consumed more tobacco while on social media (5.4 ± 2.5 , $p=0.001$). The primary variables associated with FTND scores were YIAT-SF score, increased tobacco consumption while spending time on social media, and age.

Conclusion: Our study has shown that increased tobacco consumption during social media use is associated with nicotine dependence.

Keywords: Problematic internet use, Smoking, Social media addiction, Tobacco use disorder.

Tütün Kullanımı, İnternet ve Sosyal Medya Bağımlılığı Arasındaki İlişki: Kesitsel Bir Çalışma

Öz

Amaç: Bu çalışma, tütün kullanıcılarında internet ve sosyal medya bağımlılığı düzeyleri ile nikotin bağımlılığı arasındaki ilişkiyi ve bu ilişkiyi etkileyen faktörleri incelemeyi amaçlamaktadır.

Gereç ve Yöntem: Bu kesitsel çalışma, Nisan–Aralık 2022 tarihleri arasında çevrim içi anket yöntemiyle gerçekleştirilmiştir. Çalışma için Recep Tayyip Erdoğan Üniversitesi Tıp Fakültesi Girişimsel Olmayan Araştırmalar Etik Kurulu'ndan etik onay alınmıştır. Veri toplama araçları olarak Fagerström Nikotin Bağımlılık Testi (FNBT), Young İnternet Bağımlılığı Testi Kısa Formu ve Bergen Sosyal Medya Bağımlılığı Ölçeği kullanılmıştır. Ayrıca sosyodemografik özellikler, tütün kullanım biçimleri ve bağımlılık göstergeleri değerlendirilmiştir.

Bulgular: Çalışmaya yaş ortalaması 33,6 yıl olan toplam 255 kişi katılmıştır. Katılımcıların çoğunluğu erkek olup, ortalama sigara kullanım süresi 13,5 yıldır. En sık kullanılan tütün ürünü sigaradır. Ortalama FNBT puanı $4,0 \pm 2,7$ olup, cinsiyete göre anlamlı fark saptanmamıştır. Ancak sosyal medya kullanımı sırasında daha fazla tütün tükettiğini belirten katılımcıların FNBT puanları anlamlı derecede daha yüksek bulunmuştur ($5,4 \pm 2,5$; $p=0,001$). FNBT puanı ile ilişkili temel değişkenlerin; Young İnternet Bağımlılığı Testi puanı, sosyal medyada zaman geçirirken artan tütün tüketimi ve yaş olduğu belirlenmiştir.

Sonuç: Çalışmamız, sosyal medya kullanımı sırasında artan sigara tüketiminin nikotin bağımlılığı ile ilişkili olduğunu göstermiştir.

Anahtar Sözcükler: Problemlı İnternet Kullanımı, Sigara içme, Sosyal medya bağımlılığı, Tütün kullanım bozukluğu.

Introduction

The widespread use of tobacco and its significant negative impact on health remain critical public health issues. Tobacco is the leading risk factor for respiratory and cardiovascular diseases, as well as for more than twenty types of cancer. Annually, millions of individuals worldwide lose their lives as a result of tobacco use. The health hazards of tobacco use are not limited to the users (1). In Türkiye, according to the 2022 Health Statistics Yearbook, the prevalence of daily smoking among people aged 15 years and older in 2022 was 28.3% (15.5% for women and 41.3% for men), while the prevalence of occasional smokers was 3.8% (2). Acknowledging that more than 1.3 billion people globally use tobacco products highlights its status as a major public health issue with worldwide implications (1).

Internet use is becoming more widespread in Türkiye and around the world. It is emphasized that social media applications are the most widely used feature of the internet (3). The research findings indicate that, in 2023, 95.5% of households had internet access. Among individuals aged 16 to 74, 87.1% reported using the internet. Internet usage was higher in males at 90.9%, compared to 83.3% in females. All usage rates showed an increase compared to the previous year (4). When internet usage statistics are evaluated over previous years, they show that the increasing trend of internet usage may continue in the coming years.

The literature highlights that elevated internet usage among individuals can pose risks, including the development of internet addiction, and problematic internet use. Internet addiction is characterized by symptoms including excessive internet use, a persistent need to stay connected, repeated failed attempts to cut down on usage, diminished value placed on offline time, extended use beyond intended limits, significant restlessness when offline, and resulting social challenges (5, 6).

Like internet addiction, social media addiction is characterized by the development of tolerance and withdrawal states. Studies have identified

associations with various factors, including gender, age, personality traits, depression, anxiety, and stress, which may be related to social media addiction. Findings reveal that social and psychological factors play a larger role in women, whereas biological and social influences are jointly effective in men. Social media addiction also shows a trend of increasing as age decreases among adults (7, 8).

Factors such as personality traits (9,10), family characteristics (11), depression, and stress may contribute to the development of behaviors, including internet addiction, alcohol use, tobacco use, and substance abuse (12).

When examining the link between internet addiction and smoking, it was noted that excessive use of technology and a tendency to smoke are observed together, particularly among teenagers and young adults. One possible explanation for this association is the similarity in impulse control and craving mechanisms between nicotine dependence and internet gaming addiction (13, 14). It has been found that smoking and the quantity of cigarette smoke is associated with an increased risk of problematic internet use (15). The main components of the coexistence of these two addictions—stress and escape mechanisms, disruption of social interaction, isolation, as well as neuropsychological, social, and economic conditions such as the effect of advertisements—should be considered.

In our country, the use of the internet and tobacco products has predominantly been examined in specific contexts, such as tobacco products (e.g., waterpipe) (16) or selected populations, including university students (17) and healthcare workers (18). However, limited research has focused on adult tobacco users across different age groups, particularly in terms of the interrelationship between nicotine dependence, internet addiction, and social media addiction.

Moreover, the potential role of increased tobacco consumption during social media use has not been sufficiently explored in existing literature. Understanding whether social media

engagement contributes to higher nicotine dependence levels remains an important yet under-investigated area. Therefore, this study aims to investigate the relationship between nicotine dependence, internet addiction, and social media addiction among tobacco product users, and to identify factors associated with nicotine dependence.

Material and Method

Study population

The study was conducted among individuals who applied to the Smoking Cessation Outpatient Clinics of Rize Central District Community Health Center and Recep Tayyip Erdogan University Training and Research Hospital between April and December 2022. A questionnaire was used as a data collection tool (administered via online forms). The online questionnaire link was distributed via WhatsApp. The link to the questionnaire was shared with the participants, who were asked to complete it. Everyone was invited only once and was not re-contacted during the study period. The survey platform was configured to allow a single submission per user to minimize duplicate responses. Participation was voluntary and anonymous. No identifying information was collected.

Inclusion criteria for participation in this study were as follows: Individuals aged 18 years or older; Current use of at least one tobacco product; Regular use of a smartphone with internet access; and Provision of informed consent to participate in the study.

The exclusion criteria comprised the following: age below 18 years; failure to apply to the smoking cessation outpatient clinic; absence of smartphone use; and lack of regular social media or internet use.

Data collection tool

The survey questions included sociodemographic characteristics such as age, gender, duration of tobacco use, types of tobacco products used, the presence of any other addictions, the Fagerström Test for Nicotine Dependence, the Young Internet

Addiction Test Short Form, and the Bergen Social Media Addiction Scale.

Other addictions (e.g., alcohol, gambling, technology addiction) were assessed through self-report using a single multiple-choice question asking participants whether they had any additional addictions.

The Fagerström Test for Nicotine Dependence (FTND) consists of six questions; each assigned a different score. The total score, obtained from evaluating the responses, ranges from 0 to 10: 0-2 points indicates very low level addiction, 3-4 points indicates low level addiction, 5-6 points indicates medium level dependence, 7-8 points indicates high level dependence, and 9-10 points indicates very high level dependence.

Young's Internet Addiction Test Short Form (YIAT-SF): Developed by Young and converted into a short form by Pawlikowski et al. consists of 12 items and is a five-point Likert-type scale (1=Never, 5=Very often) (19). The total score of the scale varies between 12-60. The scale was adapted into Turkish by Kutlu et al. It is stated that the construct and criterion-related validity of the scale is appropriate. When the internal consistency of the scale was evaluated, Cronbach's alpha coefficient was found to be 0.86 and 0.91 in different groups (20).

Bergen Social Media Addiction Scale (BSMAS) developed by Schou Andreassen et al. (21) consists of six items. Each item in the scale meets six basic addiction criteria: mental occupation, mood change, tolerance, withdrawal, conflict and unsuccessful quit attempt. The scale is answered according to a five-point Likert-type scale ranging from very rarely (1) to very often (5). The total score of the scale varies between 6-30. Adaptation of the scale into Turkish, validity and reliability study was conducted by Demirci (22). Cronbach alpha internal consistency coefficient of the scale was calculated as 0.83. When the fit indices of the measurement model were examined, it was seen that the unidimensional model was at an acceptable level ($\chi^2 = 11.98$, $df=9$, $p=0.214$; CFI=0.99; TLI=0.98; SRMR=0.039; RMSEA=0).

The factor loadings of the scale are between 0.48-0.89 (22).

Statistical Analyses

The sample size for our study was calculated using the GPower 3.1 (Heinrich Heine University, Düsseldorf, Germany) (23) with a power level of 0.80, an effect size of 0.25, and a significance level of 0.05, aiming for at least 200 participants. At the end of the study, 255 participants were successfully included.

Normal distribution of scale scores was evaluated with the Kolmogorov–Smirnov test, histograms, and skewness and kurtosis coefficients. According to these results, the independent samples t-test and ANOVA tests were used to evaluate relationships between dependent and independent variables. The FTND scores were classified according to established cut-off values and compared with other variables. The dependent variables were FTND, internet addiction and social media addiction scores, while the independent variables included age, tobacco product type, gender and other addiction status. Partial correlation analyses were also performed. Variables that were found to be related to FTND scores in univariate analyses were included in the regression model. Data was analyzed with IBM SPSS Statistics 24.0 (IBM Corp., Armonk, NY, USA), with a significance level set at $p < 0.05$.

Ethics Committee Approval

Ethical approval for this research was obtained from the Non-Interventional Research Ethics Committee of Recep Tayyip Erdoğan University Faculty of Medicine (29/03/2022, E-40465587-050.01.04-377). Participants' informed consent was documented through the first question of the questionnaire, which asked them to confirm their agreement to participate. This study was conducted in accordance with the principles of the Declaration of Helsinki.

Results

The mean age of the participants was 33.6 ± 10.0 years. Of the participants, 60.8% were male and 39.2% were female.

Years of tobacco product use and product diversity

The mean duration of smoking was 13.5 ± 9.3 years. Among the participants, 95.7% ($n=244$) smoked cigarettes, 14.1% ($n=36$) smoked rolled tobacco, 9.8% ($n=25$) used hookah, 5.1% ($n=13$) smoked cigars, 0.8% ($n=2$) used pipes, and 0.8% ($n=2$) used e-cigarettes.

Among the participants, 77.3% ($n=197$) were exclusive cigarette smokers, 2.7% ($n=7$) were exclusive rolling tobacco smokers, 0.4% ($n=1$) were exclusive pipe smokers, 0.4% ($n=1$) were exclusive cigar smokers, and 0.4% ($n=1$) were exclusive e-cigarette smokers (Table I).

Eighty-one-point two percent (81.2%) of the participants consumed one type of tobacco product, 12.9% ($n=33$) consumed two types, 4.8% ($n=12$) consumed three types, 0.8% ($n=2$) consumed four types, and 0.4% ($n=1$) consumed five types of tobacco products (Table I).

The mean FTND score of the participants was 4.0 ± 2.7 . The mean FTND scores were 4.0 ± 2.7 for those who consumed one type of tobacco product, 4.2 ± 2.8 for those who consumed two types, 3.3 ± 2.2 for those who consumed three types, and 6.5 ± 0.7 for those who consumed four types. An FTND score of 8.0 was found for a person who consumed five types of tobacco products. No significant difference was found in FTND scores according to the number of product types (Kruskal-Wallis test, $df = 4$, $\chi^2 = 5.227$, $p = 0.265$) (Table I).

Table I. FTND Score by Type of Tobacco Product Consumed by Participants

Tobacco Product(s)	Frequency (n)	Percentage (%)	FTND Score (Mean $\pm$ SD)
Single type	207	81.2	4.0 $\pm$ 2.7
Cigarette	197	77.3	3.9 $\pm$ 2.7
Pipe	1	0.4	8.0
Cigar	1	0.4	3.0
Rolled tobacco	7	2.7	5.4 $\pm$ 3.3
E-cigarette	1	0.4	0.0
Two types	33	12.9	4.2 $\pm$ 2.8
Rolled tobacco, cigar	1	0.4	5.0
Cigarette, hookah	11	4.3	3.9 $\pm$ 3.5
Cigarette, cigar	4	1.6	4.8 $\pm$ 3.3
Cigarette, rolled tobacco	17	6.7	4.3 $\pm$ 2.3
Three types	12	4.8	3.3 $\pm$ 2.2
Cigarette, hookah, rolled tobacco	7	2.7	4.4 $\pm$ 2.1
Cigarette, hookah, cigar	4	1.6	1.5 $\pm$ 1.3
Cigarette, rolled tobacco, cigar	1	0.4	3.0
Four types	2	0.8	6.5
Cigarette, rolled tobacco, hookah, e-cigarettes	1	0.4	7.0
Cigarette, rolled tobacco, hookah, cigar	1	0.4	6.0
Five types	1	0.4	8.0
Cigarette, rolled tobacco, hookah, cigar, pipe	1	0.4	8.0
Total	255	100.0	4.0 $\pm$ 2.7

FTND: Fagerström Test for Nicotine Dependence, SD: Standard Deviation, subgroups with very small sample sizes ($n \leq 2$) are presented descriptively only

Other addictions

Among the participants, 3.9% ($n=10$) reported alcohol addiction, 2.7% ($n=7$) had gambling and games of chance addiction, 0.4% ($n=1$) were addicted to substances, and 9.8% ($n=25$) had a technology addiction. In total, 13.7% ($n=35$) of the respondents reported some form of addiction, while 86.3% ($n=220$) indicated they had no other addictions (Table II).

The frequency of other types of addiction in the research group is as follows: 11.0% ($n=28$) declared having one addiction (other than tobacco products), 2.0% ($n=5$) declared two addictions, and 0.8% ($n=2$) declared three addictions (Table II).

Fagerström Test for Nicotine Dependence (FTND)

The mean FTND score was 4.0 ± 2.7 in those who reported no other addiction, 3.5 ± 2.6 in those who reported one addiction, 6.4 ± 3.8 in those who reported two addictions (Table II).

Table II. FTND, YIAT-SF, BSMAS Scores According to Addiction Status

Addiction Status	Frequency (n)	Percentage (%)	FTND Score (Mean±SD)	YIAT-SF Score (Mean±SD)	BSMAS Score (Mean±SD)
No other addiction	220	86.3	4.0±2.7	20.8±8.0	10.4±4.8
Single addiction	28	11.0	3.5±2.6	28.2±11.2	15.3±5.9
Alcohol addiction	4	1.6	4.5±4.1	22.3±10.2	13.8±3.1
Carbohydrate addiction	1	0.4	0.0	20.0	10.0
Gambling and games of chance addiction	3	1.2	3.3±1.5	29.7±4.9	11.7±2.5
Technology addiction	20	7.8	3.6±2.4	29.6±12.3	16.5±6.5
Two addiction	5	2.0	6.4±3.8	28.4±11.8	14.6±6.3
Alcohol + Gambling and games of chance	1	0.4	7.0	16.0	8.0
Alcohol + Technology addiction	3	1.2	6.0±5.3	32.0±13.5	15.3±6.8
Technology + Gambling and games of chance	1	0.4	7.0	16.0	8.0
Three addiction	2	0.8	5.5	20.0	9.5
Alcohol + Technology + Gambling	1	0.4	6.0	26.0	10.0
Alcohol + Substance + Gambling	1	0.4	5.0	14.0	9.0
Total	255	100.0	4.0±2.7	21.7±8.8	11.0±5.2

FTND: Fagerström Test for Nicotine Dependence, YIAT-SF: Young Internet Addiction Test Short Form, BSMAS: Bergen Social Media Addiction Scale, SD: Standard Deviation, Subgroups with very small sample sizes ($n \leq 2$) are presented descriptively only

The mean FTND score was 4.1 ± 2.6 in male participants and 3.9 ± 2.9 in female participants, but the difference was not significant according to gender ($p=0.302$). The FTND score was significantly higher in those who stated, "I consume tobacco products more while spending time on social media" (5.4 ± 2.5) ($p=0.001$). The FTND score was higher in those who stated they had technology addiction (4.1 ± 2.9), but the difference was not significant ($p=0.901$). The FTND score was higher in those who stated they had any addiction (4.1 ± 2.9), but the difference was not significant ($p=0.922$) (Table III).

The distribution of participants according to nicotine dependence level was as follows: 34.1% ($n=87$) had very low level addiction, 22.0% ($n=56$) had low level addiction, 22.4% ($n=57$) had moderate level addiction, 17.3% ($n=44$) had high level addiction, and 4.3% ($n=11$) had very high-level addiction.

Young Internet Addiction Test Short Form (YIAT-SF)

The mean Young Internet Addiction Test (YIAT-SF) score of the participants was 21.8 ± 8.8 points. The mean YIAT-SF score was higher in males (22.2 ± 8.9) than in females (21.1 ± 8.6), but the difference was not statistically significant ($p=0.334$). The mean score of YIAT-SF was significantly higher in those who reported "I consume tobacco products more while spending time on social media" (23.1 ± 9.1) ($p=0.042$). The mean score of YIAT-SF was significantly higher in those who reported having technology addiction (29.2 ± 12.0) ($p=0.001$). The YIAT-SF score was significantly higher in those who reported having any addiction (27.7 ± 11.2) ($p=0.001$). There was no significant difference in the mean YIAT-SF score based on nicotine dependence levels (Table III).

Table III. Score Distributions of the FTND, YIAT-SF and BSMAS according to gender and self-reported addiction status

Category	FTND		YIAT-SF		BSMAS	
	N	Mean±SD	Mean±SD		Mean±SD	
Gender						
Female	100	3.9±2.9	$p=0.302$	21.1±8.6	$p=0.334$	11.1± 5.2 $p=0.863$
Male	155	4.1±2.6	$t=1.034$	22.2±8.9	$t=0.968$	11.0±5.2 $t=0.172$
I consume tobacco products more while spending time on social media						
Yes	104	5.4±2.5	$p=0.001$	23.1±9.1	$p=0.042$	11.7±5.4 $p=0.064$
No	151	3.1±2.4	$t=7.473$	20.9±8.5	$t=2.034$	10.5±5.0 $t=1.871$
Technology addiction						
Have	25	4.1±2.9	$p=0.901$	29.2±12.0	$p=0.001$	15.7± 6.4 $p=0.001$
Not have	230	4.0±2.7	$t=0.125$	21.0±8.0	$t=3.339$	10.5±4.8 $t=4.998$
Other addiction situation						
Have addiction	35	4.1±2.9	$p=0.922$	27.7±11.2	$p=0.001$	14.9±5.8 $p=0.001$
Not have addiction	220	4.0±2.7	$t=0.098$	20.8±8.0	$t=3.527$	10.4±4.8 $t=4.976$
Nicotine dependence level						
Very low (0-2 points)	87	0.9±0.8	$F=1171.38$ $df=4$	21.0±8.5	$F=2.202$ $df=4$	11.0±5.3 $F=0.559$ $df=4$
Low (3-4 points)	56	3.6±0.5	$p=0.001$	21.3±8.3	$p=0.069$	10.7±4.9 $p=0.692$
Moderate (5-6 points)	57	5.5±0.5		20.9±7.0		10.5±4.4
High (7-8 points)	44	7.3±0.5		23.5±10.1		11.5±5.9
Very high (9-10 points)	11	9.5±0.5		28.0±13.7		12.6±6.7

FTND: Fagerström Test for Nicotine Dependence, YIAT-SF: Young Internet Addiction Test Short Form, BSMAS: Bergen Social Media Addiction Scale, SD: Standard Deviation, df = degrees of freedom

Bergen Social Media Addiction Scale (BSMAS)

The mean Bergen Social Media Addiction Scale (BSMAS) score for the participants was 11.0. The mean score of BSMAS was 11.0±5.2 for males and 11.1±5.2 for females, with no statistically significant difference between genders ($p=0.863$). The mean BSMAS score was higher in participants who reported "I consume tobacco products more when I spend time on social media" (11.7±5.4), but this difference was not statistically significant ($p=0.064$). The BSMAS score was significantly higher in those who reported having technology addiction (15.7±6.4) ($p=0.001$) (Table III). The BSMAS score was also significantly higher in those who reported having any addiction (14.9±5.8) ($p=0.001$). There was no significant difference in the mean BSMAS score based on nicotine dependence levels (Table III).

There was a strong, positive correlation between the YIAT-SF score and BSMAS

($r=0.664$, $p=0.001$). A weak but statistically significant positive correlation was found between YIAT-SF and FTND scores ($r=0.187$, $p=0.003$) (Table IV).

Table IV: Partial correlation analysis of FTND, YIAT-SF, and BSMAS scores

		FTND	YIAT-SF
YIAT-SF	r	0.187	-
	P	0.003	-
	N	255	-
BSMAS	r	0.084	0.664
	P	0.184	0.001
	N	255	255

Age is controlled. FTND: Fagerström Test for Nicotine Dependence, YIAT-SF: Young Internet Addiction Test Short Form, BSMAS: Bergen Social Media Addiction Scale

According to the results of the linear regression analysis (Adjusted $R^2=0.194$), the YIAT-SF score was found to have a significant

effect on FTND score ($B = 0.045$, $p=0.019$). It was also observed that individuals who reported increased tobacco consumption while spending time on social media had significantly higher

dependent variable scores ($B = 2.253$, $p=0.001$). The age variable also had a significant effect on the dependent variable ($B=0.035$, $p=0.037$) (Table V).

Table V: Linear regression analysis of factors associated with FTND

	B	Std error	β	t	p	95% CI	
YIAT-SF	0.045	0.019	0.147	2.371	0.019	0.008	0.082
Consuming tobacco products more while spending time on social media (Yes)	2.253	0.311	0.411	7.245	0.001	1.640	2.865
Age	0.035	0.017	0.130	2.102	0.037	0.002	0.068

$F=21.369$ $p=0.001$. CI: Confidence Interval, FTND: Fagerström Test for Nicotine Dependence, YIAT-SF: Young Internet Addiction Test Short Form

Discussion

This study explored the relationship between nicotine dependence, internet addiction, and social media addiction among tobacco users, shedding light on how these behavioral addictions co-occur. The findings revealed that 13.7% of participants had additional substance and/or behavioral addictions, which is consistent with research showing that individuals with one addiction, such as tobacco dependence, are at higher risk for developing others (9, 12). This study also found that increased tobacco consumption during social media use could reflect an association between social media engagement and tobacco-related behaviors that warrants further investigation.

Approximately one fifth of the participants used more than one type of tobacco product, which indicates more complex tobacco use patterns in this population. Additionally, 13.7% of participants reported having addictions other than tobacco, compared to 7% in the general population (11). The mean FTND score was 4.0, indicating moderate nicotine dependence. However, there were no significant differences in FTND scores based on gender or the number of tobacco products used, aligning with previous studies (24,25). These findings suggest that nicotine dependence severity, as measured by FTND, may not be strongly influenced by gender or the variety of tobacco products used.

Tobacco use remains a significant public health issue globally, with cigarettes being the most commonly used product (26). Past studies have shown that men traditionally smoke more than women (27). However, as gender roles evolve, women have increasingly been targeted by tobacco marketing, which positions cigarettes as symbols of modernity and freedom, leading to higher tobacco use among women (28). The lack of a significant gender difference in tobacco use in this study may reflect evolving gender patterns in tobacco use within this context in Turkey, where women's tobacco consumption is aligning more closely with that of men as societal roles evolve.

Regarding internet and social media addiction, no significant gender differences were found, although studies have reported varying results depending on age and cultural context (29,30). The relationship between gender and internet addiction is complex, with women using social media for social connections and men for entertainment, which may lead to varying addiction levels depending on developmental stages and socio-cultural influences (31).

Although a trend was observed, the FTND score was higher among those who reported technology addiction (4.1 ± 2.9), suggesting a potential link between tobacco and technology addiction. Shared neurobiological, behavioral, and social mechanisms between tobacco addiction and internet addiction may explain the

co-occurrence of these addictions (32,33). Further studies should explore these mechanisms and integrated approaches for prevention and treatment of co-occurring addictions.

In this study, nicotine dependence was found to be higher in those who smoked more while using social media. This may be associated with the promotion of tobacco products on social media platforms, where tobacco-related content may contribute to perceived normalization, particularly among vulnerable populations like adolescents (26,34). Social media's role in promoting tobacco use underscores the need for research on the impact of digital marketing on tobacco behaviors.

Exposure to tobacco content on social media has been linked to increased tobacco use, particularly among young people (35). A study by Mo et al. suggests that problematic internet use may be a risk factor for smoking, particularly in younger populations (36). The internet may function as a context for exposure to tobacco content and as a coping mechanism for stress, may be associated with increased vulnerability to addictive behaviors. This highlights the need to address both digital addiction and substance use in prevention and intervention efforts.

In a study on young adults, impulsivity was associated with both internet use and smoking (37), and smoking and internet gaming disorders were found to interact on brain activity (38). These results imply shared psychological and neurobiological mechanisms between these addictions, emphasizing the need for further research.

Younger individuals may be more prone to social media and internet addiction, which may contribute to a pattern of repetitive or sustained engagement of internet and social media use, which often exacerbates addictive behaviors (21,39). Moreover, social media addiction has been associated with poor mental health outcomes, such as anxiety and depression, highlighting the need for mental health support alongside addiction treatment (38).

The study also found significantly higher YIAT-SF and BSMAS scores among those reporting technology addiction. These findings support previous evidence suggesting that technology addiction, encompassing internet use, social media, online shopping, and other forms of digital dependency, is a growing public health concern that warrants further attention (40). Since technology addiction was assessed using a single self-reported item, findings should be interpreted with caution.

Limitations

This study has several limitations. The cross-sectional design precludes any inference of causality between nicotine dependence, internet addiction, and social media addiction. Additionally, data were collected via an online self-administered survey, which may have introduced selection bias. Participation was limited to individuals with internet access and willingness to complete the survey, potentially restricting the representativeness of the sample. Therefore, the findings may not be fully generalizable to all tobacco users.

All variables were assessed using self-reported measures. Self-report data are inherently susceptible to recall bias and social desirability bias, which may have resulted in underreporting or overreporting addictive behaviors. Moreover, certain behavioral addictions were evaluated without the use of structured clinical interviews or gold-standard diagnostic tools, potentially limiting measurement precision.

Conclusion

Our findings indicate that increased tobacco consumption during social media use is significantly associated with higher levels of nicotine dependence. These results highlight a potential behavioral co-occurrence between tobacco use and digital media engagement, suggesting that social media contexts may represent as environments in which tobacco-related behaviors could be reinforced or normalized. Although causality cannot be inferred due to the cross-sectional design,

understanding these associations provides important groundwork for future longitudinal and experimental studies aimed at clarifying underlying mechanisms.

Further research is needed to address the addictive aspects of internet and social media use. A deeper understanding of the relationship between tobacco addiction and internet addiction could facilitate the development of more comprehensive approaches for intervention in both areas. To create more effective interventions, future studies could focus on specific age groups to explore how these addictions manifest across different developmental stages and social contexts.

References

1. World Health Organization, Tobacco. Available from: URL: <https://www.who.int/news-room/fact-sheets/detail/tobacco>. (Access Date: 12/10/2025).
2. Başara BB, Çağlar Sİ, Aygün A, Özdemir TA, Kulali B. Turkish Republic Minister of Health Health Statistics Yearbook 2022, Ministry of Health Publication No: 1279;60. Available from: URL: <https://www.saglik.gov.tr/TR-84930/saglik-istatistikleri-yilliklari.html>. (Access Date: 12/10/2025).
3. We Are Social & Meltwater. Digital 2023 Global Overview Report. Available from: URL: <https://datareportal.com/reports/digital-2023-global-overview-report>. (Access Date: 12/10/2025).
4. Turkish Statistical Institute. Household Information and Communication Technology (ICT) Usage Survey 2023. Available from: URL: [https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-\(BT\)-Kullanim-Arastirmasi-2023-49407](https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-(BT)-Kullanim-Arastirmasi-2023-49407). (Access Date: 12/10/2025).
5. Young KS. Internet addiction: A new clinical phenomenon and its consequences. *American Behavioral Scientist* 2004;48(4):402-415.
6. Shapira NA, Lessig MC, Goldsmith TD, Szabo ST, Lazoritz M, Gold MS, et al. Problematic internet use: Proposed classification and diagnostic criteria. *Depress Anxiety* 2003;17:207-216.
7. Aparicio-Martínez P, Ruiz-Rubio M, Perea-Moreno, et al. Gender differences in the addiction to social networks in the Southern Spanish university students. *Telematics and Informatics* 2020;46:1-12.
8. Stănculescu E, Griffiths MD. Social media addiction profiles and their antecedents using latent profile analysis: The contribution of social anxiety, gender, and age. *Telematics and Informatics* 2022;74:1-11.
9. Vally Z, Laconi S, Kaliszewska-Czeremska K. Problematic internet use, psychopathology, defense mechanisms, and coping strategies: a cross-sectional study from the United Arab Emirates. *Psychiatr Q* 2020;91(2):587-602.
10. Nakhoul L, Obeid S, Sacre H, et al. Attachment style and addictions (alcohol, cigarette, waterpipe and internet) among Lebanese adolescents: a national study. *BMC Psychol* 2020;8:33.
11. TURBAHAR. The Turkey addiction risk profile and mental health map project final report 2019. Available from: URL: <https://uuyayinlari.com/turbahar-turkiye-bagimlilik-risk-profil-ve-ruh-sagligi-haritasi-proje-sonuc-raporu-2019>. (Access Date: 12/10/2025).
12. Ko CH, Yen JY, Yen CF, et al. The association between Internet addiction and problematic alcohol use in adolescents: the problem behavior model. *Cyberpsychol Behav* 2008;11(5):571-6.
13. Ge X, Sun Y, Han X, et al. Difference in the functional connectivity of the dorsolateral prefrontal cortex between smokers with nicotine dependence and individuals with internet gaming disorder. *BMC Neuro* 2017;18(1):1-10.
14. Thorens G, Wullschlegel A, Khan RA, et al. What is addictive in Internet? *The Open Addiction Journal* 2012;5(1):14-19.
15. Morioka H, Itani O, Osaki Y, et al. Association between smoking and problematic internet use among Japanese adolescents: large-scale nationwide epidemiological study. *Cyberpsychology, Behavior, and Social Networking* 2016;19(9):557-561.
16. Emre N, Edirne T, Ozsahin A. Waterpipe smoking, internet addiction and depression: A public health problem trio? *International Journal of Clinical Practice* 2021, 75(4), e13852.
17. Alaçam H, Çulha FA, Şengül AC, Tümkaya S. Üniversite öğrencilerinde internet bağımlılığının sigara ve alkol kullanımı ile ilişkisi. *Anadolu Psikiyatri Dergisi* 2015;16:383-388.
18. Özsoy F, Kulu M. Sağlık çalışanlarında bağımlılık: sigara, alkol, internet, akıllı telefon bağımlılığı ve dikkat eksikliği düzeylerinin incelenmesi. *Genel Tıp Dergisi* 2021, 31(1), 82-90.
19. Pawlikowski M, Altstötter-Gleich C, Brand, M. Validation and psychometric properties of a short version of Young's Internet Addiction Test. *Computers in Human Behavior* 2013;29(3):1212-1223.
20. Kutlu M, Savcı M, Demir Y, et al. Turkish adaptation of Young's Internet Addiction Test-Short Form: a reliability and validity study on university students and adolescents. *Anatolian Journal of Psychiatry* 2016;17:69-76.
21. Schou Andreassen C, Billieux J, Griffiths M, et al. The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychol Addict Behav* 2016;30(2):252-262.

22. Demirci İ. The adaptation of the Bergen Social Media Addiction Scale to Turkish and its evaluation of relationship with depression and anxiety symptoms. *Anatolian Journal of Psychiatry* 2019;20:15-22.
23. Faul F, Erdfelder E, Lang AG, et al. G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods* 2007;39:175-191.
24. Komiyama M, Yamakage H, Satoh-Asahara N, et al. Sex differences in nicotine dependency and depressive tendency among smokers. *Psychiatry Res* 2018;Sep(267):154-159.
25. Kanık MK, Tözün M. Smoking and other tobacco use characteristics and nicotine dependence status of those who applied to smoking cessation polyclinics in İzmir. *ESTÜDAM Halk Sağlığı Dergisi* 2020;5(1):84-95.
26. World Health Organization. WHO report on the global tobacco epidemic 2021: addressing new and emerging products. Available from: URL: <https://www.who.int/publications/i/item/9789240032095>
27. Çelepkolu T, Atli A, Palancı Y, et al. The relationship between nicotine dependence level and age-gender among the smokers: Diyarbakir sample. *Dicle Medical Journal* 2014;41(4):712-716.
28. Öztoprak S, Günay T. Gender and tobacco control for health. *Turkish Journal of Public Health* 2013;11(3):197-206.
29. Germani A, Lopez A, Martini E, et al. The Relationships between Compulsive Internet Use, Alexithymia, and Dissociation: Gender Differences among Italian Adolescents. *Int J Environ Res Public Health* 2023;20(14):6431.
30. Yebo YY. Associations between personality and problematic internet use among Chinese adolescents and young adults: A network analysis. *Journal of Affective Disorders* 2024;365:501-508.
31. Su W, Han X, Yu H, Wu Y, et al. Do men become addicted to internet gaming and women to social media? A meta-analysis examining gender-related differences in specific internet addiction. *Computers in Human Behavior* 2020; 113, 106480.
32. Tereshchenko SY. Neurobiological risk factors for problematic social media use as a specific form of Internet addiction: A narrative review. *World J Psychiatry* 2023;13(5):160-173.
33. Wang J, Hao QH, Tu Y, et al. Assessing the association between internet addiction disorder and health risk behaviors among adolescents and young adults: a systematic review and meta-analysis. *Frontiers in Public Health* 2022; 10, 809232.
34. Cavazos-Rehg P, Xiao L, Kasson E, et al. Exploring how social media exposure and interactions are associated with ENDS and tobacco use in adolescents from the PATH study. *Nicotine and Tobacco Research* 2021;23(3):487-494.
35. Donaldson SI, Dormanesh A, Perez C, et al. Association between exposure to tobacco content on social media and tobacco use: a systematic review and meta-analysis. *JAMA Pediatrics* 2022; Sep 1;176(9):878-885.
36. Mo PK, Li JB, Jiang H, et al. Problematic internet use and smoking among Chinese junior secondary students: The mediating role of depressive symptomatology and family support. *International Journal of Environmental Research and Public Health* 2019; Dec 11;16(24):5053.
37. Liu SJ, Lan Y, Wu L, et al. Profiles of impulsivity in problematic internet users and cigarette smokers. *Frontiers in psychology* 2019;10:772.
38. Qiu X, Han X, Wang Y, et al. Interaction between smoking and internet gaming disorder on spontaneous brain activity. *Frontiers in Psychiatry* 2020;11:5856114.
39. Ünlü N. TÜBİTAK BİLGEM. Teknoloji Bağımlılığı Araştırması Raporu 2020. Available from: URL: https://www.tuba.gov.tr/files/yayinlar/bilim-ve-dusun/TUBA-978-605-2249-48-2_Ch11.pdf. (Access Date: 12/10/2025).
40. Ergün N, Özkan Z, Griffiths MD. Social media addiction and poor mental health: examining the mediating roles of internet addiction and phubbing. *Psychological Reports* 2023;128(2):723-743.