Clinical Research

Evaluation of the Relationship Between Level of Nicotine Dependence and Risk of Anxiety, Depression and Some Socio-Demographic Variables

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ABSTRACT

Objective: Nicotine addiction remains the leading cause of preventable disease and premature death in many countries. The aim of this study is to determine the frequency of high levels of nicotine dependence and related factors in patients admitted to the smoking cessation clinic.

Material and Method: The study is a cross-sectional study conducted on patients who applied to Smoking Cessation Polyclinic affiliated with a district health department. The Hospital Anxiety Depression Scale, which is a screening scale, was used in the psychological evaluation of individuals, and the Fagerström Nicotine Dependence Test was used to evaluate nicotine addiction. Logistic regression analysis was performed to determine the independent variables associated with nicotine addiction.

Results: The study group consisted of a total of 318 patients. 60.4 % of the study group was male. The age of the study group ranged from 19 to 70 years. In the study, the frequency of those with high levels of nicotine addiction was found to be 25.8 % (n =82) . In a multivariate analysis, the risk of high levels of nicotine addiction was higher in men, singles, smokers with tea or coffee and those with anxiety ($p < 0.05$).

Conclusion: Nicotine dependence is an important public health problem. In patients with anxiety, it was detected 10.154 times higher than those without high level of nicotine dependence.

Keywords: *Nicotine, Anxiety, Depression, Addiction.*

ÖZ

Nikotin Bağımlılığı Düzeyi ile Anksiyete, Depresyon Riski ve Bazı Sosyo-Demografik Değişkenler Arasındaki İlişkinin Değerlendirilmesi

Amaç: Nikotin bağımlılığı birçok ülkede önlenebilir hastalıkların ve erken ölümün önde gelen nedeni olmaya devam etmektedir. Bu çalışmanın amacı sigara bırakma polikliniğine başvuran hastalarda yüksek düzeyde nikotin bağımlılığı sıklığını ve ilişkili faktörleri belirlemektir.

Gereç ve Yöntem: Araştırma bir ilçe sağlık müdürlüğüne bağlı Sigara Bırakma Polikliniğine başvuran hastalar üzerinde gerçekleştirilen kesitsel bir çalışmadır. Bireylerin psikolojik değerlendirilmesinde tarama ölçeği olan Hastane Anksiyete Depresyon Ölçeği, nikotin bağımlılığının değerlendirilmesinde ise Fagerström Nikotin Bağımlılığı Testi kullanıldı. Nikotin bağımlılığı ile ilişkili bağımsız değişkenleri belirlemek için lojistik regresyon analizi yapıldı.

Bulgular: Çalışma grubu toplam 318 hastadan oluşmaktadır. Çalışma grubunun %60,4' ü erkektir. Çalışma grubunun yaşları 19 ile 70 arasında değişmektedir. Araştırmada nikotin bağımlılığı yüksek olanların sıklığı %25,8 (n =82) olarak belirlendi. Çok değişkenli bir analizde yüksek düzeyde nikotin bağımlılığı riski erkeklerde, bekârlarda, çay veya kahve içenlerde ve anksiyetesi olanlarda daha yüksekti ($p < 0,05$).

Sonuç: Nikotin bağımlılığı önemli bir halk sağlığı sorunudur. Anksiyetesi olan hastalarda nikotin bağımlılığı yüksek olmayanlara göre 10.154 kat daha fazla tespit edildi.

Anahtar Sözcükler: *Nikotin, Anksiyete, Depresyon, Bağımlılık.*

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Tobacco use is a common public health problem in our country as well as all over the world. It causes fatal health problems due to direct or passive smoke exposure. Tobacco use is decreasing in developed countries and increasing in underdeveloped and developing countries. It is predicted that 80 % of tobacco-related deaths will occur in developing societies by 2030 (1, 2).

Smokers are not aware that it is an addiction. He thinks it is a habit, but cigarettes are an addictive substance with nicotine. Although a significant portion of smokers are not satisfied with smoking, they continue their smoking behavior due to nicotine addiction. Important studies are carried out in our country in the fight against tobacco, which has a higher prevalence of addiction than any other substance at any age. One of the studies in the global fight against addiction is smoking cessation polyclinics. In our country, the ban on smoking indoors, the social awareness created through the media, the diseases it causes and economic reasons have increased the demands for smoking cessation outpatient clinics (3-5).

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Studies have shown that the probability of quitting without the support of a smoking cessation outpatient clinic is 3-5 %, and the rate of quitting with outpatient support is 40 % (6). Smoking cessation treatment should be comprehensive and continuous, as should the approach to substance abuse. This comprehensive evaluation should include many factors such as the person's sociodemographic information, medical history, smoking frequency and psychological evaluation. Examination of these factors in interviews to be held in smoking cessation outpatient clinics will guide the determination of the treatment method.

It is known that approximately half of the patients with psychiatric disorders in our country and 40-90 % of the psychiatric patients are cigarette addicts (7). The American Psychiatric Association defines tobacco habit as a psychiatric disorder that includes cognitive, behavioral and physiological symptoms (8). Therefore, the treatment of a smoker should be similar to the approach to substance abuse. The effectiveness of the service offered to voluntary individuals who want to quit smoking increases in proportion to the extensive interviews. The Nicotine Addiction Level and Anxiety Depression Level to be determined are important factors in shaping the treatment.

The treatment of a smoker should be like the approach to substance abuse. The effectiveness of the service offered to voluntary individuals who want to quit smoking increases in proportion to the comprehensive interviews. The aim of this study is to determine the frequency of high levels of nicotine dependence and related factors in patients admitted to the smoking cessation clinic. In addition, it is to evaluate the relationship between the level of nicotine addiction and the risk of anxiety and depression.

MATERIAL AND METHOD

The study is a cross-sectional study conducted on patients who applied to Smoking Cessation Polyclinic affiliated with a district health department between September 2020 and January 2021. When the smoking frequency was accepted as 27 %, the margin of error was 5 % and the confidence interval was 95 %, the minimum number of patients to be reached was calculated as 302. A total of 318 patients who agreed to participate constituted the study group. Volunteer patients who applied to Smoking Cessation Clinic for the first time were included in the study. In our study, the sociodemographic characteristics and detailed smoking history of the participants were recorded in the forms by face-to-face interview method. Age grouping was based on age 45 because there is a rapid increase in smoking cessation rates at age 45 (9). Detailed smoking history includes questions such as 'The reasons that increase the desire to smoke' and 'The reason for starting smoking'. Frequently seen reasons from the literature were taken as basis when creating question options (10-14).

The individuals participating in the study read and approved the Informed Consent Form. The Fagerström Nicotine Dependence Test (FNBT), which is the most common method, was used to evaluate the nicotine addiction level of individuals. FNBT was developed by Fagerstrom et al. (15) and consists of 6 questions. The Turkish validity and reliability study of the Fagerstrom Nicotine Dependence Test was conducted by Uysal et al. in 2004 (16). The Turkish version of FTND had moderate reliability (Cronbach alpha: 0.56). Each question has certain points according to the answer. It is evaluated as low (0 - 4 points); medium (5 -6 points); high (7 - 8 points) and very high (9 - 10 points).

The Hospital Anxiety Depression Scale (HAD), a screening scale, was used in the psychological evaluation of individuals. HAD was developed by Zigmond and Snaith in 1983 (17). The Turkish validity and reliability study performed by Aydemir et al. (18) and the Cronbach alpha coefficient was found to be 0.8525 for the anxiety subscale and 0.7784 for the depression subscale. HAD contains a total of 14 questions, 7 of which measure anxiety and 7 of which measure depression. In the Turkish version of the scale, the cut-off point for the anxiety subscale (HAD-A) was determined as 10, and the depression subscale (HAD-D) was determined as 7. Accordingly, those who score above these points are considered at risk.

Data were analyzed in the IBM SPSS (version 21.0) statistical package program. Continuous variables are given as mean ± standard deviation, and categorical variables are given as frequency and percentage. Logistic regression analysis was performed to identify independent variables associated with nicotine addiction.

RESULTS

Sixty-four% of the study group was male. The age of the study group ranged from 19 to 70, with a mean (SD) of 40.10 (10.63) years (Table 1).

Table 1. *The sociodemographic attributes and factors associated with nicotine dependence of the study group.*

Sociodemographic characteristics and factors associated with nicotine dependence	Number (n)	Percentage (%)
Gender		
Female	126	39.6
Male	192	60.4
Age group		
<45	216	67.9
≥45	102	32.1
Education status		
Primary education	128	40.3
High school education or higher	190	59.7
Marital status		
Married	234	73.6
Not married	84	26.4
The reasons that increase the desire to smoke		
Stress	124	39.0
Postprandial	88	27.7
Tea/Coffee	106	33.3
The reason for applying to the smoking cessation clinic		
Doctor's recommendation	46	14.5
Voluntarily	272	85.5
The presence of another smoker at home		
No	172	54.1
Yes	146	45.9
The presence of a smoker at work		
No	116	36.5
Yes	202	63.5
The reason for starting smoking		
Curiosity	92	28.9
Wannabe	144	45.3
Stress/Worry	40	12.6
The others	42	13.2
Hospital Anxiety		
No	193	60.7
Yes	125	39.3
Hospital Depression		
No	165	51.9
Yes	153	48.1

When the factors related to nicotine addiction of the individuals in our study were examined, it was determined that 60.4 % were male, 67.9 % (n =216) were under 45 years old, 73.6 % were married (n =234), 39.0 % (n =124) of them were stress and 85.5 % (n =272) of the applications to the smoking cessation outpatient clinic were voluntary.

In the study group, anxiety was found in 39.3% (n =125) and depression in 48.1% (n =153).

The frequency of those with a high level of nicotine dependence was found to be 25.8 % (n =82).

In a multivariate analysis, the risk of high level of nicotine dependence were higher among male (OR: 2,360), unmarried (OR: 1.942), in those who smoked alongside tea or coffee (OR: 2.219), in those with anxiety (OR: 10.154) (for each; p <0.05).

Additionally, no relationship was found between nicotine addiction level and age, educational status, the reason for applying to the smoking cessation clinic, the presence of another smoker at home, the presence of a smoker at work, the reason for starting smoking, the type of treatment, depression (Table 2).

Table 2. *Multivariate logistic regression analysis outcomes.*

Variables		High Levels of Nicotine Dependence(%)	OR (95% CI)	p
Gender	**Female**	19.0	1	**0.011**
	Male	30.2	2.360 (1.221-4.562)	
Marital status	**Married**	21.4	1	**0.042**
	Not married	38.1	1.942 (1.023-3.685)	
The reasons that increase the desire to smoke	**Stress**	19.4	1	0.072
	Postprandial	20.5	1.219 (0.564-2.634)	0.615
	Tea/Coffee	37.7	2.219 (1.103-4.465)	**0.025**
Hospital Anxiety	**No**	10.4	1	**<0.001**
	Yes	9.6	10.154 (4.894-21.067)	
Hospital Depression	**No**	15.8	1	0.804
	Yes	36.6	0.915 (0.453-1.847)	

OR: *Odd's ratio,* ***CI:*** *Confidence interval.*

DISCUSSION

Smoking addiction is a condition that requires long-term follow-up and struggle. It is known that psychiatric disorders such as lifelong mood disorders, anxiety disorders, substance abuse and personality disorders are more common in smokers (19). Psychological disorders accompanying cigarette addiction affect the success of treatment, and it would be beneficial to evaluate it as a risk factor. All psychiatric illnesses are serious risk factors for nicotine addiction. Smoking cessation outpatient clinics play an important role in the follow-up and treatment of this addiction. There is no current study evaluating the interviews in the Healthy Life Centers Smoking Cessation Polyclinics in our province.

In our study, it was observed that the rate of admission to the smoking cessation outpatient clinic was higher in males with a rate of 60.4 %. Similarly, in many studies, men are more likely to apply to smoking cessation outpatient clinics. We can explain this situation with the high rate of smoking among men in our country (20-22).

When we look at the reasons that increase the desire to smoke in our study, it was seen that the most 39.0 % (n =124) of them was stress. In a study conducted with Medical Faculty students in our country, stress factor was found to be the reason for starting smoking at a rate of 38.3 %, similar to our study (23). In another study conducted in our country, the causes that increase the desire to smoke the most were found to be post-meal and stress (24). The serotonergic system is responsible for the etiology of both anxiety and depression, as well as addiction. 5-HT1A receptors play a role in coping with depression, anxiety, and stress, and 5-HT1B receptors play a role in substance addiction. It has been reported that irregularities in this system cause mood disorders, substance addiction, and suicide (25). In addition, studies have reported that addicts generally use emotion-focused and avoidant coping methods in stress management. In these methods, the person resorts to substance use to stay away from stress and to escape from problems. Tolerance develops over time, causing addiction (26, 27).

It was determined that 85.5 % (n =272) of the applications to the smoking cessation outpatient clinic were voluntary. In the study conducted by Özsahin et al. (28), it was found that approximately 20 % of women and 10 % of men quit smoking voluntarily. In our study, we think that there were applications due to social media or illness, but this was at high rates because individuals voluntarily expressed this situation.

In a multivariate analysis, we found that the risk of high-level nicotine addiction is 2.360 times greater in men than in women. Similarly, in the study conducted by Esen et al. (29), the level of addiction was found to be high in 60.40 % of men. In another study conducted in India, a high level of addiction was observed in men (30).

In a multivariate analysis, we found that the risk of high-level nicotine addiction was 1.942 times higher in singles. Again, in a large population-based study conducted on Nicobar and Andamar Islands, nicotine addiction rates were found to be higher in divorced individuals (30). In a study conducted in our country by Şahbaz et al. (31), it was found that smoking cessation rates were higher in married individuals than in single individuals. It is known that partner support during the smoking cessation process increases quitting rates. The lack of partner support during the smoking cessation process in single individuals may be the reason why nicotine addiction rates are higher than in married individuals (32, 33).

We did not find a significant relationship between the level of nicotine addiction and age and educational status. The data of a similar study conducted in the smoking cessation outpatient clinic in our country supports our study (29). Orsel et al. (34) in another study, it was found that there was a significant difference between cigarette addiction and age groups.

When we evaluate to the reasons that increase the desire to smoke in a multivariate analysis, we found that the risk of high-level nicotine addiction was 2.219 times higher in those who drink tea/coffee than stress and postprandial. There are publications in the literature that support our study and that smoking rates are higher after drinking tea. (10, 11, 35). In the study conducted by Kanık et al. (36), it was determined that individuals with coffee drinking habits had a significantly higher nicotine addiction level, and there was no significance between tea drinking habits and nicotine addiction levels. Drinking tea/coffee, which is one of the activities that accompanies smoking, is identified with smoking. The presence of one of these substances taken together causes a desire for the other (37, 38).

In our study, we found that the risk of high level of nicotine addiction was 10.154 times higher in those with anxiety. There are studies that support our study and found that anxiety is higher in smokers compared to non-smokers. It has been reported that anxiety is more effective than depression in cigarette addicts (39). Dorner et al. (40) reported that depression and anxiety were associated with high smoking frequency, high level of addiction and increased nicotine withdrawal complaints. In support of this study, the risk of nicotine addiction was not found to be significantly high in patients with depression in our study. In a meta-analysis study, it was determined that the risk of depression increased approximately 2 times in smokers compared to non-smokers or people who quit smoking (41). In another study, in which the relationship between smoking addiction and depression and anxiety was tried to be determined, the depression level was determined as 22.44 ± 13.54 and the anxiety level as 19.7 ± 12.5 (42). In the study conducted by McClave et al. (43) with cigarette addicts, it was reported that 20.3 % experienced lifelong depression, 14.9 % experienced lifelong anxiety, and 10.1 % experienced both depression and anxiety. Caykara et al. (44) when compared

according to gender, it was shown that there was a very high significant difference between anxiety levels and a high significant difference between depression levels.

Conclusion

The developing social awareness and awareness in our country increases the applications of smokers to smoking cessation outpatient clinics. When we evaluate these applications, anxiety and depression appear as risk factors in individuals with cigarette addiction. For this reason, it will be more effective to carry out medical treatment, psychosocial support and rehabilitation services together in the treatment of smoking addiction. Preventive studies should be conducted to address the causes of anxiety and rehabilitation and social support services should be provided to reduce anxiety levels which has been identified as a risk factor for high levels of smoking addiction.

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