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Evaluation of Nicotine Dependence Level and Factors Affecting the Success of Smoking Cessation in an Outpatient Clinic

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Abstract:

AIM: We aimed to determine the sociodemographic characteristics of those who applied to the smoking cessation outpatient clinic and to determine the factors affecting their smoking cessation success.

MATERIALS AND METHODS: A total of 97 people who applied to Başkent University Hospital Family Medicine Smoking Cessation Outpatient Clinic between May 2019 and May 2020 were included in the descriptive cross-sectional study. A questionnaire form including demographic characteristics and smoking history, the Fagerström Test for Nicotine Dependence (FTND), and the Hospital Anxiety and Depression Scale (HADS) were applied to the participants. A pulmonary function test was performed; carbon monoxide (CO) and carboxyhemoglobin (COHb) levels were measured of the participants.

RESULTS: The mean age of the participants was 42.9 ± 11.9 , and 56.7% ($n = 55$) were male. The average number of cigarettes smoked daily was 23.2 ± 10.6 , and the duration was 23.2 ± 11.7 years. FTND scores of the participants were determined as 14.4% ($n = 14$) very low, 18.6% ($n = 18$) low, 22.7% ($n = 22$) medium, 21.6% ($n = 21$) high, and 22.7% ($n = 22$) very high. The mean of FTND score was 5.4 ± 2.5 , and the mean of CO and COHb levels was 11.2 ± 7.0 and 2.4 ± 1.1 , respectively ($r = 0.345$, $P = 0.001$; $r = 0.342$, $P = 0.001$). A positive correlation was found between the FTND and HDS scores of participants and observed that depression scores increased as the level of nicotine addiction increased ($r = 0.303$, $P = 0.003$). Finally, 54.6% ($n = 53$) of the applicants were a quitter. There was a significant relationship between smoking cessation success and the number of drug boxes used in pharmacotherapy ($P = 0.005$).

CONCLUSION: In this study, the most critical factor affecting smoking cessation success is ensuring that pharmacotherapy is completed within the recommended treatment period.

Keywords:

Carbon monoxide level, Fagerström test, family medicine, nicotine dependence, smoking cessation

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Introduction

Smoking is the leading cause of many respiratory system diseases and is a significant risk factor for cardiovascular diseases, most cancers, and many other pathological conditions. Furthermore, it has become a significant health problem today as it is associated with the morbidity and mortality of many diseases.^[1] According to the Global Adult Tobacco Survey Turkey, 19.2 million people (31.6%) use tobacco products, and it is higher in men (44.1%) than women (19.2%).^[2] It is estimated that approximately 100 million people worldwide died due to tobacco in the 20th century, and this number will rise to 1 billion in the 21st century.^[3] It is estimated that 100 thousand people die early due to smoking per year in our country, and this number is expected to increase to 240 thousand people by 2030.^[4]

Nicotine in cigarettes is the primary substance that causes addiction. Assessing a person's nicotine dependence level is the first step in determining the appropriate treatment for smoking cessation. The Fagerström Test for Nicotine Dependence (FTND) is commonly used to measure nicotine dependence in the clinic.^[5-7] Another method frequently used in studies and shows that the degree of tobacco dependence is the measurement of carbon monoxide (CO) level in the expiratory air. CO replaces oxygen in erythrocytes and forms carboxyhemoglobin (COHb). There is a high correlation between COHb and CO in expiratory air. These are frequently used as biomarkers in the diagnosis, treatment, and follow-up stages of smoking addiction.^[6-8]

In addition to nicotine, psychological factors and habits also play a role in smoking addiction.^[9] Therefore, it is essential to identify possible underlying psychiatric diseases before treatment. The Hospital Anxiety and Depression Scale (HADS) is frequently used because it is easy to apply and provides sufficient information.^[10,11] Today, behavioral therapy (motivation) and pharmacotherapies (nicotine patch, nicotine gum, varenicline, and bupropion) are included in the treatment of smoking addiction.^[2,4,12]

Although smoking cessation polyclinics contributed to significant decreases in the prevalence of smoking, in recent years, the rate of smoking cessation and thinking of quit smoking have been decreasing relatively in Turkey^[2] and raise the need for us to reconsider the efforts to fight nicotine dependence today. This study aimed to determine the sociodemographic characteristics, nicotine dependence, and depression levels of the people who applied to the smoking cessation outpatient clinic and evaluate the factors affecting the smoking status.

Materials and Methods

In this descriptive cross-sectional study, 97 people who applied to Başkent University Hospital Family Medicine Smoking Cessation Outpatient Clinic between May 2019 and May 2020 were included. All the participants' data were retrieved from medical records and analyzed retrospectively.

In our routine practice in the Smoking Cessation Outpatient Clinic, a form prepared by the polyclinic specialists is filled for the applicants. In this form, a registration section that includes social and demographic characteristics of participant (age, gender, marital status, education level, and occupation); the second part, which includes detailed smoking history (information about smoking such as number of cigarettes smoked per day, duration of smoking, age of starting smoking, previous smoking cessation history, presence of another smoker at home, and the reason for starting smoking); the FTND to determine the severity of nicotine dependence; the HADS to evaluate whether they are depressed or not; the clinical section that includes the first examination, system query, CO, COHb and pulmonary function test (PFT) results, accompanying medical or psychiatric diseases and the drug they use; and informed consent form are included. Patients are accepted after completing the form and signing the consent form.

Before the first examination, chest radiography, electrocardiography, and PFT are performed. Then, systemic examinations are performed, and CO and COHb levels in expiratory air are measured. After all, data are recorded. The first interview, which lasts about an hour, is made by a physician trained to quit tobacco. In this interview, the content of smoking, the possible harms of smoking, and the mechanism of addiction are explained, treatment methods are mentioned, and behavioral skills training is provided. Finally, the appropriate treatment for the person is decided.

Pulmonary function test

PFT is performed on patients in the pulmonary diseases outpatient clinic. PFTs are performed using Master Screen Diffusion (Erich Jaeger Inc., Germany) and in a sitting position using forced vital capacity maneuver.

The Fagerström Test for Nicotine Dependence

FTND is used to measure physical dependence on nicotine, and the Turkish version is valid and reliable.^[13] FBNT consists of six questions and each question has different score values. According to the total scores obtained on the test, nicotine addiction was graded as very low (0–2 points), low (3–4 points), medium (5 points), high (6–7 points), and very high (8–10 points).

Measurement of carbon monoxide and carboxyhemoglobin

CO measurements in expiratory air are made with piCO + Smokerlyzer (Bedfont Scientific, Harrietsham, England), a portable measuring device. CO is measured in parts per million (ppm). In the outpatient clinic, the patient is asked to perform deep inspiration and expiration and then hold the breath by making deep inspiration and exhaling 15 s into the interchangeable mouthpiece. Measured CO and COHb levels and approximately how long ago the patient last smoked are recorded.

The Hospital Anxiety and Depression Scale

It has two subscales that evaluate anxiety and depression separately. The Turkish form of the scale has been proven to be valid and reliable, and cutoff scores were determined as 10 for the anxiety subscale and 7 for the depression subscale.^[14]

Patient follow-up

Behavioral therapy and intensive motivational support were given to all cases, and pharmacotherapy was given to those who accepted. Pharmacotherapy was started if underlying schizophrenia or psychotic disorder, bipolar disorder, or a contraindicated condition to the use of varenicline was not detected. It is planned to continue pharmacotherapy for 3 months and supportive treatment for 1 year. After the first interview with these people, on the 14th day, on the 1st, 2nd, 3rd, 6th, 9th, and 12th months, outpatient clinic control or phone call is made to evaluate whether they use their treatment, whether there are side effects and their smoking status.

Those who stated that they did not smoke for at least 3 months and/or had a CO level ≤ 2 ppm in the expiratory air were evaluated as "quitter." Those who smoked two or more cigarettes a day were considered "nonquitter." Seven people (6.7%), who were not in the records of whether they could quit smoking or not and could not be reached by phone, were excluded from the study. The treatment initiated to quit smoking, and the number of drug boxes used by the person was recorded.

Ethical approval

This study was approved by Başkent University Medicine and Health Sciences Research on 11/10/2020 (Project number: KA 20/405).

Statistical analysis

Mean, standard deviation, median, minimum, and maximum values are given in descriptive statistics for continuous variables, and percentages are given in discrete variables. The compliance of the variables to normal distribution was examined using the Shapiro–Wilk test. A *t*-test was used to compare

normally distributed variables with those who were quitter and those who not, and Mann–Whitney U-test was used to compare variables that did not show normal distribution. Chi-square and Fisher's exact test were used in group comparisons of categorical or qualitative variables. The correlation between variables was analyzed with the spearman correlation coefficient. Multivariate logistic regression analysis was used to examine risk factors. SPSS (IBM Corp., Armonk, NY, USA) version 21 package program was used for the statistical analysis, and $P < 0.05$ was accepted as the statistical significance level.

Results

The age of the participants was 42.9 ± 11.9 . The average number of cigarettes smoked daily was 23.2 ± 10.6 , and the duration was 23.2 ± 11.7 years. The age of the study participants to smoke for the first time was 18.33 ± 4.43 years. The mean age for starting smoking in females was 19.8 ± 4.9 , while it was 17.2 ± 3.7 for males ($P = 0.012$). The most common reason for starting was curiosity (30.2%) and wannabe (29.2%) [Table 1].

Table 1: General characteristics of the participants

	<i>n</i> (%)
Gender	
Female	42 (43.3)
Male	55 (56.7)
Education status	
Below university	47 (48.5)
Above university	50 (51.5)
Smoking status at home	
No	49 (50.5)
Yes	48 (49.5)
Level of decisiveness	
None	2 (2.1)
Some	8 (8.4)
Pretty much	18 (18.9)
Very	34 (35.8)
Too much	33 (34.8)
Reason to start	
Curiosity	29 (30.2)
Wannabe	28 (29.2)
Peer pressure	10 (10.4)
Reaction to the ban	2 (2.1)
Prove yourself	5 (5.2)
Stress-sadness	14 (14.6)
Other	8 (8.2)
Previous quit attempt	
No	15 (15.5)
Yes	82 (84.5)
Obesity	
Normal	51 (52.6)
Overweight	28 (28.9)
Obese	18 (18.6)

FTND scores of the participants were found to be very low in 14 (14.4%), low in 18 (18.6%), moderate in 22 (22.7%), high in 21 (21.6%), and very high in 22 (22.7%). Anxiety was detected in 20.6% ($n = 20$) and depression in 29.9% ($n = 29$) of the participants [Table 2].

The FTND scores were calculated as 6.0 ± 2.4 in female and 4.9 ± 2.5 in male ($P = 0.022$). There was a positive correlation between the number of cigarettes smoked per day and the FTND score ($r = 0.593, P = 0.001$) and between CO and COHb levels ($r = 0.407, P = 0.000$ and $r = 0.375, P = 0.000$). There was a positive correlation between the mean FTND score and the measured mean CO and COHb levels ($r = 0.345, P = 0.001$ and $r = 0.342, P = 0.001$). There was a negative correlation between the spirometric measurements FEV1, FEV1%, FVC, and FVC% ($r = -0.344, P = 0.003; r = -0.326, P = 0.005; r = -0.382, P = 0.001; and r = -0.274, P = 0.020$). There was no significant correlation between the participants' FTND score and HAS scores ($r = 0.132, P = 0.198$), while there was a positive correlation between HDS scores ($r = 0.303, P = 0.003$). It was found that as nicotine dependence increased, levels of depression increased significantly [Table 3].

In this process, 26.8% ($n = 26$) of those who applied to the smoking cessation outpatient clinic were given only behavioral therapy, and others were given pharmacological treatment (3.1% [$n = 3$] nicotine replacement therapy and 70.1% [$n = 68$] varenicline) in addition to behavioral therapy. Considering the number of drug boxes used in pharmacological treatment areas, it was found that while 41.2% used one box and 23.5% two boxes, 35.3% completed the 3-month full treatment. Nearly 54.6% of the applicants were a quitter.

Three of the participants started smoking again 3 months after treatment, and two of them started smoking again 6 months after treatment. Mild side effects were observed in 33.8% ($n = 23$) of those who received pharmacological treatment, and drug treatment was discontinued due to an allergic reaction in one of them. It was observed that there were frequent nausea and dyspeptic complaints that were not at a level to discontinue the drug and less vivid dreams and sleep disorders.

When evaluated according to smoking status, there was only a difference between the number of drug boxes used and the success rates in smoking cessation ($P < 0.001$). The success rate of patients using one box of drugs in smoking cessation was significantly lower than those using two and three boxes ($P = 0.002, P = 0.001$, respectively). No difference was found between those using two boxes and three boxes of drugs ($P = 0.373$) [Table 4].

According to smoking cessation status, there was only a statistically significant difference between the FEV1%

Table 2: Fagerström test for nicotine dependence, Hospital Anxiety and Depression Scale, and pulmonary function test values of the participants

	Mean±SD	Median (minimum-maximum)
FTND	5.4±2.5	5 (0-10)
HAS	7.3±3.8	7 (0-17)
HDS	5.9±3.7	5 (0-19)
CO	11.2±7.0	9 (2-36)
COHb	2.4±1.1	2.1 (0.8-6.4)
FVC	4.1±1.1	4.2 (1.8-6.5)
FVC%	102.1±14.7	103 (51-132)
FEV1	3.3±1.04	3.4 (0.8-5.1)
FEV1%	97.9±20.2	97.5 (32-200)
FEV1/FVC	79.3±11.0	81.2 (26.8-100)

SD: Standard deviation, FTND: Fagerström test for nicotine dependence, HAS: Hospital Anxiety Scale, HDS: Hospital Depression Scale, CO: Carbon monoxide, COHb: Carboxyhemoglobin, PFT: Pulmonary function test, FVC: Forced vital capacity, FEV1: Forced expiratory volume in 1 s

Table 3: Correlation between Fagerström test for nicotine dependence scores and other variables

Variables	FTND scores	
	r*	P
Age	-0.110	0.282
Number of cigarettes smoked per day	0.593	0.000
HAS	0.132	0.198
HDS	0.303	0.003
CO	0.345	0.001
COHb	0.342	0.001
FVC	-0.382	0.001
FVC%	-0.274	0.020
FEV1	-0.344	0.003
FEV1%	-0.326	0.005
FEV1/FVC	0.115	0.338
MMEF25/75	-0.207	0.082
MEF50	-0.273	0.020
PEF	-0.379	0.001

*Spearman's correlation coefficient. FTND: Fagerström test for nicotine dependence, HAS: Hospital Anxiety Scale, HDS: Hospital Depression Scale, CO: Carbon monoxide, COHb: Carboxyhemoglobin, FVC: Forced vital capacity, FEV1: Forced expiratory volume in 1 s, MMEF: Maximal mid-expiratory flow, MEF: Maximum expiratory flow, PEF: Peak expiratory flow

levels ($P = 0.012$). The FEV1% values of successful patients were significantly higher than those who failed.

In examining the risk factors that affect the smoking cessation failure, independent variables (dependency level, number of boxes, and FEV1%) found to be significant in the univariate analysis were included in the multivariate logistic regression analysis, and only the number of boxes used was found to be significant as a result of the model obtained by backward elimination. Smoking cessation failure in patients using one box of drugs was found twice as high as those using three boxes of drugs ($P = 0.005$). However, the failure in patients using two boxes of drugs was not found to be significant compared to those using three boxes ($P = 0.494$) [Table 5].

Table 4: Evaluation of smoking success

	Nonquitter, n (%)	Quitter, n (%)	Test statistics (χ^2)	P*
Gender				
Female	19 (45.2)	23 (54.8)	0.000	0.983
Male	25 (45.5)	30 (54.5)		
Education status				
Below university	21 (44.7)	26 (55.3)	0.017	0.896
Above university	23 (46.0)	27 (54.0)		
Smoking status at home				
No	23 (46.9)	26 (53.1)	0.099	0.752
Yes	21 (43.8)	27 (56.2)		
Quit attempt				
No	9 (60.0)	6 (40.0)	1.534	0.215
Yes	35 (42.7)	47 (57.3)		
Addiction level				
Very low	3 (21.4)	11 (78.6)	9.403	0.052
Low	11 (61.1)	7 (38.9)		
Moderate	9 (40.9)	13 (59.1)		
High	7 (33.3)	14 (66.7)		
Very high	14 (63.6)	8 (36.4)		
Anxiety				
No	32 (41.6)	45 (58.4)	2.179	0.140
Yes	12 (60.0)	8 (40.0)		
Depression				
No	31 (45.6)	37 (54.4)	0.005	0.945
Yes	13 (44.8)	16 (55.2)		
BMI level				
Normal	24 (47.1)	27 (52.9)	1.353	0.508
Overweight	14 (50.0)	14 (50.0)		
Obese	6 (33.3)	12 (66.7)		
Number of drug box				
1	19 (67.9)	9 (32.1)	22.557	<0.001
2	3 (18.8)	13 (81.2)		
3	2 (8.3)	22 (91.7)		

*Chi-square test. BMI: Body mass index

Table 5: Factor affecting smoking cessation failure logistic regression model

Variable	Regression coefficient (SE)	OR	95% CI (lower-upper)	P
Number of box 1	2.485 (0.893)	12.00	2.084-69.085	0.005
Number of box 2	0.693 (1.014)	2.00	0.274-14.587	0.494

SE: Standard error, OR: Odds ratio, CI: Confidence interval

Discussion

In this study, completing the treatment period of smoking cessation drug to 3 months was the most critical factor affecting smoking cessation success. With the amendment of the law in 2008 in our country, some new applications were made in the fight against smoking, and success was achieved in the smoking cessation outpatient clinics established for this purpose. However, it is known that tobacco is a powerful addiction, and it is observed that more than half of the addicts resume smoking within the first 6 months after treatment.^[15] In this process, besides adequate behavioral

therapy for all smokers, initiation of individualized pharmacotherapy in noncontraindicated situations is the best-recommended approach.^[10,16-19] We applied behavioral therapy to all participants. In pharmacological treatment, we preferred varenicline in conditions where there is no contraindication because it is provided free of charge by the Ministry of Health, and it is easier to access the drug. Eventually, in the multivariate logistic regression analysis, completion of drug treatment was an independent factor in quitting smoking.

In the literature, smoking cessation rates were reported between 36.5% and 65% at the end of the 3rd month and between 29% and 45% at the end of the 1st year for those who applied to the smoking cessation outpatient clinic in Turkey.^[16-18,20-22] This study evaluated the 1-year study of the smoking cessation outpatient clinic, and a smoking cessation rate of 54.6% was found. We think that this rate is higher than the literature, as those who have quit smoking at least 3 months were also evaluated in the study.^[10,16,18,22] We anticipate that this rate will decrease

when examined over a longer term, as the cessation success rate is higher in the early period.^[10,22,23] However, we consider that one reason for the high cessation rate in this study is the emphasis on behavioral therapy and the provision of motivational support to the participants through frequent phone calls.^[22,24]

The scope of the fight against tobacco is emphasized and examined; those sociodemographic factors, which are often determinant in tobacco cessation, should be examined more comprehensively.^[2,12,22,25] In many studies on smoking cessation, sociodemographic and smoking characteristics (mean age, gender, education status, starting age of smoking, number of daily cigarettes, and duration of smoking) of those who applied to the outpatient clinic were similar in our study.^[16-18,20,21] In this study, as in most studies, men applied to the smoking cessation outpatient clinic more. Nicotine dependence levels were higher in women. However, in our study, it was determined that gender is not important for smoking cessation. In the literature, in the vast majority, gender has not been found to affect smoking cessation.^[10,11,16-18,21,22]

It was observed that one-third of those who applied to the outpatient clinic had depressive symptoms, according to HDS. While there was no relationship between FTND and HAS scores, it was observed that there was a positive correlation with HDS score. Similar studies also show that as nicotine dependence increases, depression levels increase.^[9-11] In another study, when nonsmokers and those with low and high addiction levels were compared, it was found that depression levels increased significantly as nicotine dependence increased.^[26] The relationship between depression and cigarette addiction is not fully known, but its frequent association will influence our treatment approach. For this reason, we consider that the depression assessment performed in the interviews will significantly affect the possibility of psychiatric treatment of the patient and the success of smoking cessation.

The FTND score and CO in breathing air and COHb levels gave us an idea about the level of nicotine dependence.^[6-8] As expected, there was a positive correlation between FTND score and CO and COHb levels. However, similar to recent studies conducted in our country, no significant relationship was found between FTND score and smoking cessation status.^[10,18]

In PFT, which enables us to measure lung function, the FEV1 value was frequently used to evaluate the effect of smoking on lung age. Smoking has been shown to harm FEV1.^[24,27] It has even been suggested that demonstrating the damage of smoking on the lungs with concrete evidence due to PFT can be threatening enough and may

encourage smoking cessation.^[27] A negative correlation was found between nicotine dependence and FEV1, FEV1%, FVC, FVC%, MEF50, and PEF in PFT, but only FEV1% was significantly associated and lower in those who failed smoking cessation. A negative correlation was found in our study between FEV1% values and the number of cigarettes per day in successful smoking cessation patients. In the outpatient clinic, considering that the smoking cessation rate may be lower in those who smoke more cigarettes per day and have a lower FEV1%, close follow-up and more behavioral support can be planned for these patients.

Among those who quit smoking and those who do not, there was no difference in gender, education, whether there was a quit attempt before, addiction level, BMI, FTND score, number of daily cigarettes, starting age of smoking, duration of smoking, HADS score, CO and COHb levels. In our study, the most important factor affecting the failure of smoking cessation was determined as not using the pharmacotherapy given for a sufficient time. Like most studies in the literature, as seen in our study, giving the appropriate treatment in sufficient time will increase the success rate.^[10,11,16]

Furthermore, it was observed that the most common reasons for participants to start smoking were curiosity (30.2%) and wannabe (29.2%), and this emphasizes that primary prevention should be given priority in preventing start smoking, which is one of the basic strategies of tobacco control.^[3] In primary prevention, the most critical task of the physician is to ask each person who applies to them whether they smoke and record the data, support nonsmokers, encourage and assist smokers to quit. Family physicians will be the ones who can easily reach most of the society in this regard. Since family medicine can evaluate every age group with a biopsychosocial approach, it will prevent smoking and ensure quitting.

The most important limiting factor of our study is the low number of cases. Furthermore, the data obtained is limited because records have been kept for the last year with forms prepared for smoking cessation in our clinic. Simultaneously, as the study coincided with the COVID-19 pandemic period, there were difficulties in drug supply. Furthermore, most people were excluded from the study because they gave up smoking cessation due to increased anxiety. Nevertheless, 9 participants in the medical treatment process during the COVID-19 pandemic period had difficulty obtaining the drugs. While 5 of the participants took only one box of the drug, 2 of them were successful in smoking cessation. The other four were able to use two boxes of medication, and all of them were found to be successful in smoking cessation.

Conclusion

Determining the factors affecting smoking cessation is essential in tobacco control. Our study determined that the most critical factor in increasing smoking cessation success is ensuring pharmacological treatment for a sufficient time. However, it was observed that motivational behavior and close follow-up in smoking cessation outpatient clinics effectively increased smoking cessation. In the fight against nicotine dependence, evaluation with the continuous and biopsychosocial approach, which is one of the main features of Family Medicine, is an essential part of success in smoking cessation. We believe that tobacco control will be more successful with the family medicine approach in primary prevention and smoking cessation outpatient clinics, which are the two most important steps. This study results can determine factors affecting nicotine dependence and the development of effective tobacco control methods.

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Conflicts of interest

There are no conflicts of interest.

References

1. World Health Organization. WHO Report on the Global Tobacco Epidemic, 2011: Warning about the Dangers of Tobacco. Geneva: World Health Organization; 2011.
2. Global Adult Tobacco Survey, 2012, Turkey Report, Ministry of Health, Publication No: 948, Ankara, 2014.
3. World Health Organization. WHO Report on the Global Tobacco Epidemic 2015: Raising Taxes on Tobacco. Geneva, Switzerland: World Health Organization; 2015.
4. TR General Directorate of Primary Health Care, Global Adult Tobacco Survey Turkey Report 2010. Ankara: Anıl Matbacılık; 2010.p. 37-75.
5. Esen AD, Arica S. The evaluation of nicotine dependence levels and sociodemographic characteristics among applicants admitted for smoking cessation. *Ankara Med J* 2018;3:328-36.
6. Sönmez CI, Aktaş T, Velioglu U, Başer DA. Assessment of the relationship between dependency scores and carbon monoxide levels in expiratory air of smokers. *Fam Pract Palliat Care* 2017;2:12-5.
7. Bozkurt N, Bozkurt AI. Assessment of the Fagerström Test for Nicotine Dependence (FTND) used in the determination of nicotine dependence and developing a new test for the nicotine dependence. *Pamukkale Med J* 2016;9:45-51.
8. Babaoğlu E, Karalezli A, Er M, Hasanoğlu HC, Öztuna D. Exhaled carbon monoxide is a marker of heavy nicotine dependence. *Turk J Med Sci* 2016;46:1677-81.
9. Velioglu U, Sönmez CI. Relationship of nicotine dependence with sociodemographic characteristics and depression in the patients admitted to smoking cessation clinic. *Dicle Med J* 2018;45:35-41.
10. Berkeşoğlu Ç, Özgür ES, Demir AU. Factors affecting the success of smoking cessation. *Mersin Univ Sağlık Bilim Derg* 2018;11:355-65.
11. Yaşar Z, Kurt ÖK, Talay F, Kargı A. One-year follow up results of smoking cessation outpatient clinic: Factors affecting the cessation of smoking. *Eurasian J Pulmonol* 2014;16:99-104.
12. Çalışma, Türk Toraks Derneği Tütün Kontrolü. Grubu. Sigara bırakma tanı ve tedavi uzlaşısı raporu. Ankara: Miki Matbaacılık, 2014.
13. Uysal MA, Kadakal F, Karşıdağ C, Bayram NG, Uysal O, Yılmaz V. Fagerstrom test for nicotine dependence: Reliability in a Turkish sample and factor analysis. *Tuberk Toraks* 2004;52:115-21.
14. Aydemir, O. Reliability and Validity of the Turkish version of Hospital Anxiety and Depression Scale. *Turkish Journal of Psychiatry* 1997;8:187-280.
15. Buturak ŞV, Günel N, Özçiçek G, Rezaki HÖ, Koçak OM, Kırıcı AG, *et al.* Sociodemographic characteristics and cigarette addiction severity of the patients admitted to smoking cessation clinic. *Turk J Clin Lab* 2016;7:72-6.
16. Mutlu P, Yıldırım BB, Açıkmış B. Results taken from a smoking cessation clinic at a second-level state hospital. *İstanbul Med J* 2015;16:145-8.
17. Pıçakçefe M, Akkaya V, Erbaş E, Doğu B. Evaluation of the referrals to the smoking cessation polyclinic between 2015-2016 in Muğla. *Nobel Med* 2019;15:21-7.
18. Sağlam L. Investigation of the results of a smoking cessation clinic and the factors associated with success. *Turk J Med Sci* 2012;42:515-22.
19. Gücük S, Kayhan M. The relationship between frequency of patients' visits to checkup sessions and smoking cessation behavior: First annual results of our polyclinics. *Osmangazi J Med* 2018;41:371-9.
20. Argüder E, Karalezli A, Hezer H, Kiliç H, Er M, Hasanoğlu HC, *et al.* Factors affecting the success of smoking cessation. *Turk Toraks Dergisi* 2013;14:81-7.
21. Demir T, Tutluoğlu B, Koç N, Bilgin L. One-year follow up results of smoking cessation outpatient clinic. *Tuberk Toraks* 2004;52:63-8.
22. Selçuk EB, Tetik BK, Karataş M. Evaluation of the first year results of smoking cessation therapy with varenicline or bupropion in outpatient clinic. *Konuralp Tıp Dergisi* 2016;8:47-50.
23. Salepci B, Fidan A, Oruç Ö, Torun E, Çağlayan B, Kader ŞN. Success rates in our smoking cessation clinic and factors affecting it. *Toraks Dergisi* 2005;6:151-8.
24. Aytemur Solak Z, Başoğlu OK, Erdinç E. Success of smoking cessation in patients with chronic obstructive pulmonary disease. *Tuberk Toraks* 2006;54:43-50.
25. Karlıkaya C, Öztuna F, Solak ZA, Özkan M, Örsel O. Tütün kontrolü. *Toraks Derg* 2006;7:51-64.
26. Rezvanfar M, Ekhtiari H, Mokri A, Djavid G, Kaviani H. Psychological and behavioral traits in smokers and their relationship with nicotine dependence level. *Arch Iran Med* 2010;13:395-405.
27. Demirbaş N, Kutlu R. Effect of smoking on lung age and respiratory function tests. *Cukurova Med J* 2018;43:155-63.