Are Sociodemographic Properties or is Carbon Monoxide Measured in Exhaled Air More Effective in the Treatment of Tobacco Addiction?

Aydin Balci[*], Sule Cilekar

Afyonkarahisar Health Sciences University, Faculty of Medicine, Chest Diseases Policlinic, C Block Floor: 5, Izmir Highway 3. km, 03200, Afyonkarahisar, Turkey

*Corresponding Author: Aydin Balci, Afyonkarahisar Health Sciences University, Faculty of Medicine, Chest Diseases Policlinic, C Block Floor: 5, Izmir Highway 3. km, 03200, Afyonkarahisar, Turkey, Tel: 05543576963; E-mail: draydnbalc@gmail.com

Introduction

According to the World Health Organization (WHO), the use of tobacco products ranks first as the most preventable health problem in the world. According to the data of the World Health Organization, 1.3 million people worldwide use tobacco products and approximately 5 million people die every year due to tobacco use-related causes. Approximately 100 thousand people die every year due to tobacco products in our country. While the mortality rate due to tobacco use is expected to be approximately 8.4 million people by 2030 in the entire world, it is expected to be around 240,000 in Turkey [1]. While the use of tobacco products is gradually decreasing in developed countries, it is increasing in underdeveloped and developing countries. It is estimated that 80% of deaths expected to occur due to tobacco use in 2030 will be in underdeveloped and developing countries [1,2]. There are three main cases in terms of the use of tobacco products (cigarettes etc.). The first one is people who do not smoke tobacco products (cigarettes, etc.) or have not used them at any time in their life. The second case is people who have quit using tobacco products or used tobacco products in the past but have not been

smoked for a certain period of time (at least 6 months).

The third case describes people who use tobacco products and who still smoke tobacco products regularly or non-regularly [3]. According to the data of 2016, Turkey's current rate of tobacco product use is 40.1% in men, 13.3% women, while it is 26.5% in the general population [4]. Turkey is among the countries in the first place in terms of rates of the use of tobacco derivatives and is among the countries with the highest tobacco product addiction among the male population in Europe, according to WHO [5]. In Turkey, one of the widespread uses of tobacco products will also cause a decrease in the rates of quitting tobacco-product. Although tobacco users are often unaware of this addiction, they consider it more of a habit, but it is addictive due to nicotine in tobacco products. Tobacco products are among the substances with high addiction potential. While 70% of the people who use tobacco products in our country think that they are thinking of getting rid of their addictions, 80% reported that they tried to quit tobacco products with or without support at a certain time in their lives [6,7]. Most tobacco users try to get rid of their addiction without help, and many result in relapse after a short time [8]. There are many studies reporting different results on the factors affecting the success of quitting in tobacco users. Motivation and determination, sociodemographic features, addiction, psychological and environmental factors, chronic diseases are the significant factors [3]. About 75-80% of tobacco addicts want to quit these habits [9]. There are two approaches that have been shown to be beneficial in quitting tobacco products. These are supportive therapy and pharmacotherapy, consisting of behavioral therapy and motivation (Nicotine Replacement Therapy, Bupropion, and Varenicline) [10]. Better results are achieved with the combined use of these two approaches [11].

In 2010, the Tobacco Products Cessation Hotline (ALO 171) was introduced by the Ministry of Health in order to encourage those using tobacco products in our country to get rid of these habits [12]. Addicts of tobacco products calling ALO 171 are directed to the nearest tobacco product (smoking cessation) cessation clinic. Socioeconomic and cultural factors often play an important role in determining who will start tobacco products or who and how they will continue this habit. In our country, an increase in the level of social awareness causes an increase in polyclinic admissions of people who use tobacco products. The process of quitting tobacco products in these polyclinics is supported by pharmacological treatment and behavioral education. In our study, patients who were admitted to our tobacco products outpatient clinic in a district state hospital within 1 year and who were registered to the Ministry of Health's tobacco addiction treatment monitoring system were included. In our study, it was evaluated whether the sociodemographic features or the level of carbon monoxide (CO) measured in exhaled air are effective in the success of quitting tobacco products (commercial tobacco and rolling tobacco) in the light of the literature.

Materials and Methods

Among the 209 patients enrolled in the Ministry of Health Tobacco Addiction Treatment Monitoring System (TUBATİS) who were admitted to a district State Hospital Tobacco Products Cessation Clinic between 01 May 2018 and 1 May 2019; those whose CO measurements in exhaled air was measured and

who were initiated on pharmacological treatment were included in the study. A total of 120 tobacco cessation patients were included during the 6th month and 1st year of their treatment, which could be reached by phone or face-to-face interview method.

Approximately 30 minutes was reserved at first visit for our patients who were admitted to the tobacco products cessation clinic for treatment and improvement. At the initial admission of our patients, all of them underwent a general disease history questioning and physical examination. Afterward, all of our patients were asked to undergo a pulmonary function test (PFT), posteroanterior chest X-ray (PA-AC), electrocardiography (ECG), complete blood count kidney, and liver function tests. Those who completed the required laboratory tests had no medical contraindications (with active cardiac disease, pregnant women, lactating women, and those with a dermatological disease), and those who accepted to receive treatment were registered in the TUBATIS system. The CO levels in the exhaled air of the patients were measured with our Micro CO (Micro Medical Limited-England) device and the values obtained were recorded in the system.

The pharmacological treatment (Varenicline or Nicotine Replacement Therapy) suitable for the individual was initiated and a 3-month treatment was planned under normal conditions. After explaining how to use pharmacological treatment and side effects, the day of quitting tobacco products was determined with the patient. At the end of the 1st, 3rd, 6th, and 12th months of treatment, the patients were evaluated by polyclinic follow-ups or, if possible, by phone calls. With the campaign of quitting tobacco products carried out by the Ministry

of Health, the patients were provided with free varenicline and nicotine replacement therapy (NRT). During the study period, only the pharmacological agents required for the treatment of NRT and Varenicline were available in the tobacco product departments within the Ministry of Health tobacco cessation program. In addition, in patients who were initiated on Varenicline pharmacologically, there was an insufficient supply of treatment, so the treatment had to be discontinued in the 1st and 2nd months, while some of our patients continued treatment with NRT.

The success of quitting tobacco products within the scope of the study was considered as never smoking any tobacco products at the end of the first year on phone calls or outpatient follow-up.

Ethics Committee Approval

Ethics committee approval was received from the Clinical Research Ethics Committee of the Rector's Office of Afyonkarahisar Health Sciences University with the decision numbered 2018/380 and dated 03.10.2018.

Data Statistics

Descriptive statistics of the data were given as mean ± standard deviation for continuous variables and as percentages for categorical variables. In the first and sixth months, the success of quitting tobacco products, the sociodemographic features of the patients, and the CO levels measured in the exhaled air were evaluated with univariate analysis using the chi-square test. The normality distribution of continuous variables was evaluated with the Kolmogorov-Smirnov test. The correlation between the success of quitting tobacco and tobacco products

in the first month and the sixth month and continuous variables were evaluated by the t-test in univariate analysis. The variables with statistical significance in the analyses were evaluated with logistic regression analysis. The odds ratio (OR) determined in the logistic regression analysis is given at a 95% confidence interval (CI). The level of statistical significance was set at p<0.05. The "Statistical Package for Social Sciences (SPSS) 20.0 for Windows" software was used for statistical analysis.

Results

Of the 120 patients in our study, 94 (78.3%) were male and 26 (21.7%) were female. The mean age of the patients was 37.8167±11.591 years. The mean age of starting the use of tobacco products was 17.433±4.039 years. It was determined that 5 (4.2%) of our patients were illiterate, 10 (8.3%) were literate, 13 (10.8%) were primary school, 14 (11.7%) were secondary school, 47 (39.2%) were high school and 31 (25.8%) were university graduates. The sociodemographic features of the patients were given in Table 1.

Table 1: Sociodemographic Features of Patients

		N	%
Gender	Female	26	21,7
	Male	94	78,3
Medikal ilness	Yes	72	40
	No	48	20
Pre- Smoking history	Yes	42	35
	No	78	65
Tobacco status	Commercial tobacco	82	68,3
	Wrap tobacco	38	31,7
Reason to aplly	Her/His own Wisch	61	50,8
	Doctor's recommendation	30	25
	Family Pressure	29	24,2
Reason to start	Environment	39	32,5
	Prove yourself	18	15
	Affectation	43	35,8
	Stress	20	16,7
Educatin	illiterate	5	4,3
	Literate	10	8,3
	Primary School	13	10,8
	Middle school	14	11,7
	High school	47	39,2
	University	31	25,8

Nicotine replacement therapy	Yes	48	40
Varanicline	Yes	43	35,84
Nicotine replacement therapy and varenicline combine	Yes	29	24,16
Age	Young (16-35)	55	45,83
	Middle aged (36-55)	56	46,66
	Oldu (55-)	9	7,5
Marial status	The married	105	87,5
	Single	15	12,5

In our patients, the carbon monoxide (CO) level measured in exhaled air was evaluated as 26.4583 ± 13.4880 ppm. When we analyzed the correlation between the patients' CO level and package per year status with the Spearman correlation test, a significant correlation was found ($P<0.05$). All of our patients were initiated on pharmacotherapy. Of these, 48 (40%) were initiated on only Nicotine Replacement Therapy (NRT), 43 (35.84%) were initiated on only Varenicline, and 29 (24.16%) were initiated on Combined NRT and Varenicline. Table 2. Factors effective in quitting tobacco.

Table 2: Effective Factors in Tobacco Smoking

	Mean±sd	p
Age	37,81±11,59	$P<0,05$
Fagerström test result	9,28±1,23	0,200
Tobacco product start age	17,43±4,03	$P<0,05$
Package year	21,98±14,19	$P<0,05$
Average vareniclin package	0,95 ±1,003	$P<0,05$
Carbon monoxide level in exhaled air	26,45±13,48	$P<0,05$

When we evaluated the side effects and withdrawal symptoms seen during and after tobacco cessation treatment, the patients stated that they had difficulty in quitting tobacco use due to desire to smoke in 80 (66.7%), anxiety in 75 (62.5%), followed by dyspnea in 58 (48.3%), difficulty in concentrating in 58 (48.3%), a sleep disorder in 58 (48.3%), nausea-vomiting, and insomnia in 52 (43.3%), respectively.

As a result of a one-year follow-up, 88 (73.3%) quit using tobacco products in the first month ($p<0.05$), and recurrence was detected in 33 people in the 6th month. Table 3 Tobacco cessation and sociodemographic characteristics after the first month.

Table 3: Tobacco Cessation And Sociodemographic Features After The First Month

		Who stopped using tobacco		Who cannot stop using tobacco		p
		N	%	N	%	
Gender	Female	20	22,7	6	18,8	0,640
	Male	68	77,3	26	81,3	
Medikal ilness	Yes	49	55,7	23	71,9	0,567
	No	39	44,3	9	28,1	
Pre- Smoking history	Yes	29	33	13	40,6	0,436
	No	59	67	19	59,4	
Tobacco status	Commercial tobacco	63	71,6	19	59,4	0,203
	Wrap tobacco	25	28,4	13	40,6	
Reason to aplly	Her/His own Wisch	42	47,7	19	59,4	0,496
	Doctor's recommendation	24	27,3	6	18,8	
	Family Pressure	22	25	7	21,9	
Reason to start	Environment	32	36,4	7	21,9	0,366
	Prove yourself	14	15,9	4	12,5	
	Affectation	29	33	14	43,8	
	Stress	13	14,8	7	21,9	
Educatin	illiterate	4	4,5	1	3,1	0,851
	Literate	7	8	3	9,4	
	Primary School	9	10,2	4	12,5	
	Middle school	11	12,5	3	9,4	
	High school	32	36,4	15	46,9	
	University	25	28,4	6	18,8	
Nicotine replacement therapy	Yes	56	63,6	21	65,6	0,841
	No	32	36,4	11	34,4	
Varanicline	Yes	51	58	21	65,6	0,448
	No	37	42	11	34,4	
Age	Young(16-35)	44	50	11	34,4	0,315
	Middle aged (36-55)	38	43,2	18	56,3	
	Oldu (55-)	6	6,8	3	9,4	
Marial status	The married	78	88,6	27	84,4	0,533
	Single	10	11,4	5	15,6	

The success rate decreased to 55 (45.8%) at the end of the 6th month (p<0.05). while at the end of one year, a further relapse developed in 16 patients compared to the 6th month, and a total of 39 (32.5%) patients quit using tobacco products in total, and 55 patients stated that there was a decrease in tobacco use compared to the previous period (P>0.05). Asthma developed 24 (40%) patients, HT (Hypertension) in 17 (14.2%), COPD (Chronic Obstructive Pulmonary Disease) in 15 (12.5%), 10 (8.3%), DM (Diabetes Mellitus), and 6 (5%) patients were found to have other diseases. Along with or without comorbidity, it was observed that it did not affect the success of quitting tobacco products and there was no statistical significance (P>0.05).

Table 4: Tobacco Cessation And Sociodemographic Features After The First year

		Who stopped using tobacco		Who cannot stop using tobacco		p
		N	%	N	%	
Gender	Female	10	25,6	16	19,8	0,463
	Male	29	74,4	65	80,2	
Medikal ilness	Yes	21	53,8	51	63	0,755
	No	18	46,2	30	37	
Pre- Smoking history	Yes	13	33,3	29	35,8	0,791
	No	26	66,7	52	64,2	
Tobacco status	Commercial tobacco	27	69,2	55	67,9	0,883
	Wrap tobacco	12	30,8	26	32,1	
Reason to aplly	Her/His own Wisch	23	59	38	46,9	0,464
	Doctor's recommendation	8	20,5	22	27,2	
	Family Pressure	8	20,5	21	25,9	
Reason to start	Environment	11	28,2	28	34,6	0,647
	Prove yourself	8	20,5	10	12,3	
	Affectation	13	33,3	30	37	
	Stress	7	17,9	13	16	
Educatin	illiterate	1	2,6	4	4,9	0,323
	Literate	5	12,8	5	6,2	
	Primary School	3	7,7	10	12,3	
	Middle school	3	7,7	11	13,6	
	High school	13	33,3	34	42	
	University	14	35,9	17	21	

Nicotine replacement therapy	Yes	26	66,7	51	63	0,692
	No	13	33,3	30	37	
Varanicline	Yes	22	56,4	50	61,7	0,578
	No	17	43,6	31	38,3	
Age	Young(16-35)	20	51,3	35	43,2	0,408
	Middle aged (36-55)	15	38,5	41	50,6	
	Oldu (55-)	4	10,3	5	6,2	
Marial status	The married	34	87,2	71	87,7	0,941
	Single	5	12,8	10	12,3	

There was a statistically significant difference between the mean CO levels measured, age, age of onset, and exhaled air of the groups that quit and those who cannot quit using tobacco products, and the mean of package years of use ($p<0.05$). There was no significant difference between the groups who quit and did not use tobacco products in terms of gender, age, the reason for starting tobacco, the reason for applying to tobacco cessation treatment, the tobacco type, and education type ($P>0.05$). A significant difference was observed in terms of CO level measured in exhaled air ($p<0.05$). The addiction rates of the patients included in our study were higher than the similar studies; therefore, there was no significant difference in the rate of addiction and tobacco cessation. Table 2. Factors effective in quitting tobacco.

Discussion

In our study, the factors that are effective in getting rid of tobacco addiction are examined in light of the literature. Accordingly, demographic data such as gender, marital status were not effective in getting rid of this addiction, besides, it was evaluated that the level of CO measured in the tobacco product pack year, and exhaled air was statistically significant in getting rid of addiction.

The Tobacco Cessation Hotline (ALO 171) was launched by the Ministry of Health in 2010 in order to encourage and support smokers to quit [12]. Tobacco addicts calling the ALO 171 line are directed to the nearest tobacco cessation clinic. The number of tobacco products outpatient clinics is increasing in our country. In these polyclinics, behavioral education and pharmacological treatment are administered together. The patient is acted in cooperation with the patient and pharmacological treatment is initiated by providing motivation support to the patient and as a result, the success of dropping tobacco products is targeted [12]. In addition, with the campaigns that started in December 2017, treatment is provided free of charge for patients willing to quit tobacco products. Nearly two-thirds of tobacco users want to completely abandon the use of tobacco [9].

There are cognitive, behavioral, and physiological effects in the use of tobacco products. Patients applying for the cessation of tobacco products face various difficulties. Tobacco cessation activities have been called "good clinical practice", which can be carried out in all areas and locations. Despite the existence of difficulties in these services, tobacco

cessation counseling, and pharmacological treatments at the Tobacco Cessation Polyclinics with a good organization increase the success rates of tobacco cessation [13]. Nicotine is a strong addictive substance and therefore, in case of its absence, it gives patients a difficult process. In this process, in order to increase the success of the treatment, it is considered as a proactive interview to continue the support and motivation by telephone calls other than the invitation to outpatient clinic controls [14]. Of the 120 patients included in our study, 94 (78.3%) were male and 26 (21.7%) were female. A large number of men are in parallel with other similar studies [15,16].

In our study, it was found that age, gender, occupational status, marital status, having or not having a child had no effect on the result of starting tobacco products, the reason for quitting tobacco products, the success of quitting tobacco [17]. Unlike our study, there are studies reporting that factors such as educational status and socioeconomic level affect the success of quitting tobacco [17]. There are studies that state gender is effective in the success of tobacco cessation treatment. However, there are studies that state that the rates of quitting tobacco products in men are higher than that of women, as well as studies that reveal that gender is ineffective [18-20]. In our study, although the success rate in men appears to be high, this result is attributed to the high number of men, and indeed, it was not statistically significant. (p=0.357) In short, when the effect of gender on quitting tobacco products was examined in our study, no significant relationship was found and overlapped with other studies [21,22].

In our study, when the educational status of our cases was evaluated, 5 (4.2%) of them were illiterate, 10

(8.3) were literate, 13 (10.8%) primary school, 14 (11.7%) secondary school, 47 (39.2%) were high school graduates and 31 (25.8%) were university graduates. In our study, there was no significant increase in the success of quitting tobacco products as the level of education increased. (P=0.481) When the effect of educational status on the success of smoking tobacco products was examined, there were studies indicating that the rate of quitting tobacco products increases as the level of education increases in some studies [23]. In some studies, it was found that there was no significant relationship between the level of education and the success of quitting smoking [24].

When we evaluate the side effects and withdrawal symptoms seen during and after tobacco cessation treatment, the patients stated that they had difficulty in quitting tobacco use due to desire to smoke in 80 (66.7%), anxiety in 75 (62.5%), dyspnea, 58 (48.3%) difficulty concentrating, 58 (48.3%) sleep disorder, 52 (43.3%) nausea, vomiting, and insomnia respectively. Our results overlap with many other works of literature [22,25].

In a study conducted by Can et al., The success of leaving a 1-year tobacco product was 43.3% [21]. In the studies of Uzaslan et al., One-year tobacco product success rates were evaluated as 40% [26]. Looking at the data in the 3rd-month cessation rates and tobacco cessation treatment results in Turkey were found in the range of 54-65%. In yet another study conducted in Turkey, the success rate of tobacco cessation was reported to be between 21.6% and 45% at the end of the first year [9]. In our study, 88 (73.3%) of the patients stopped using tobacco products in the first month in intermittent follow-up

as a result of a one-year follow-up, and 33 of these cases recurred and the success rate decreased to 55 at the end of the sixth month. At the end of the year, a further relapse developed in 16 patients compared to the 6th month, and a total of 39 (32.5%) patients stopped using tobacco products, and 55 patients had decreased tobacco use compared to the previous one. However, varenicline and NRT treatment have not been shown to show significant superiority to one-year success in quitting tobacco products [9].

In our study, it was observed that the Fagerström Nicotine Addiction Test (FNBT) score was high in all our patients. The score was evaluated as an average of 9.32±1.28 and the CO level measured in exhaled air was an average of 26.45±13.48 ppm and there was a negative correlation between the success of quitting tobacco products as the amount of CO in the exhaled air increases. Our results are statistically significant (P<0.05). Table 2. In a study conducted by Salepci et al., no significant difference in terms of these parameters was found [27]. In our study, Fageström nicotine addiction scores were similar between those who could stop using tobacco products and those who could not. There are publications in the literature that the success of quitting tobacco products is low in patients with high nicotine dependence [28,29]. In our study, it was found that the nicotine addiction score was not effective in the success of quitting tobacco products. The reason for this was thought to be related to the moderate-high (mean: 9.28±1.23) levels of nicotine addiction scores in the majority of patients. In the study of Kanatsiz et al., Tobacco cessation treatment has been found to increase the success of cessation for at least 3 months [29]. In the study of Argüder et al., it was reported that prolonging the treatment period increased the

success of quitting tobacco [30]. In our study, although the treatment success was found to be high in those who continued treatment for a longer period and completed the treatment, the treatments were completed with NRT for 3 months due to the periodic delay in the free campaign of the pharmacological drug of the ministry. We believe that it is important to explain the importance of completing the treatment to the patients and to increase the compliance of the patients by controlling them regularly.

In the study of Fai et al., The success of quitting tobacco products for 6 months was found to be 42.6% by providing regular use of tobacco products for 3 months free of charge. The number of tobacco products used daily and the low level of nicotine dependence was found to be factors affecting the success of the 6-month tobacco product quitting [31].

In our study, the patients who completed the addiction relief treatment for 3 months in patients using tobacco products were found to have a 6-month tobacco product quitting success rate and were statistically significant (p<0.05). However, statistically significant results could not be obtained in the follow-up of these patients due to recurrences observed in the success of leaving a 1-year tobacco product quitting (p=0.357). In some literature, it has been reported that patients with the chronic pulmonary disorder had more difficulty in quitting the use of tobacco [32]. In another study done in Turkey the rates of quitting tobacco products of patients with the tobacco-related disease were evaluated, but no significant difference was found [33]. In another study, in the presence of accompanying medical illness or psychiatric illness, there was no significant difference in the treatment of

quitting tobacco products [30]. In the study of Politis et al., 1-year tobacco product quitting success was 52.3% with varenicline and behavioral education treatment in patients with chronic lung disease, whereas 1-year tobacco product quitting success was only 14.0% with behavioral education [34]. In our study, the presence of medical disease status was not seen on tobacco products quitting. The most important limitations in our study were the use of recorded data and telephone data, besides that the pharmacological treatment initiated and the pharmacological treatment at the end of treatment was not the same due to the delay in the provision of free pharmacology treatment, as required by the Ministry of Health treatment policies. This affects treatment success and results. In addition, the number of patients with CO measurements in the exhaled air included in our study is composed of patients with high average measurement results. It is both a difficult and long process to ensure that tobacco addicted patients give up their addiction. The reason for the low rate of quitting among those using tobacco products in our study was that despite our diligent follow-ups, our patients could not come to their appointments regularly due to seasonal labor and seasonal changes. In addition, the presence of patients with high addiction score averages as well as not using their recommended pharmacological treatments in an adequate amount and time were also thought to be additional factors. In order to increase the success of quitting compared to the treatment, we think that regular psychological and familial support will increase the success of the treatment along with the close follow-up of the patients and completion of pharmacological treatment.

Conclusion

Measuring the level of CO in the exhaled air is an easy, non-invasive and fast method to assess the smoking status of tobacco products and it was determined that it increased in correlation with the degree of addiction. In addition, ensuring the continuity of the pharmacological agent used in the treatment of smoking tobacco products and completing the treatment and ensuring that those willing to supply the drug free of charge to increase the use of tobacco increase the success of stopping smoking. However, we think that it is necessary to compare more similar groups in order to fully evaluate the factors affecting tobacco cessation success. The authors undertake that the financing of this research will not be reflected in any way, partially or wholly, to health insurance companies or hospital revolving funds.

References

1. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. PLoS Medicine 3 (2006): e442.

2. World Health Organization. Health Report 2002. Geneva 2002. http://www.who.int/whr/2002/en/whr02-en.pdf (2013).

3. Turkish Thoracic Society Smoking Cessation Diagnosis and Treatment Consensus Report, Ankara 2014. Access point: http://www.toraks.org.tr/book.aspx? List = 1655 & menu = 240 (2018).

4. Republic of Turkey Ministry of Health Directorate General for Health Research Health Statistics Yearbook 2017. Access Place: http://ohsad.org/wp-content/uploads/2018/09/27344saglik-

istatistikleri-yilligi-2017-haber-bultenipdf.pdf (2018).

5. Bilir N, Ozcebe H, Aslan D, et al. Global Hold Outbreak Report. MPOWER package. Ankara; 2008 http://whqlibdoc.who.int/publications/2008/9789241596282-tur.pdf (2013).

6. Centers for Disease Control and Prevention (CDC). Cigarette smoking among adults--United States, 1995. MMWR. Morbidity and Mortality Weekly Report 46 (1997): 1217.

7. US Department of Health and Human Services. Reducing the health consequences of smoking: 25 years of progress; a report of the Surgeon General. Rockville MD: US Department of Health and Human Services, Public Health Service, Centers for Disease Control, Centers for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 1989; DHHS Publication No.(CDC) 89-8411.

8. Hughes JR, Gulliver SB, Fenwick JW, et al. Smoking cessation among self-quitters. Health Psychology 11 (1992): 331.

9. Fiore MC, Bailey WC, Cohen SJ . Treating tobacco use and dependence. Clinical practice guideline. JAMA 283 (2000): 3244-3254.

10. Treating tobacco use and dependence. Clinical practice guideline Rockville, MD. US Department of Health and Human Service, Public Health Service; 2000. Erişim yeri:https://www.ncbi.nlm.nih.gov/books/NBK63952/ (2008).

11. West R, McNeill A, Raw M. Smoking cessation guidelines for health professionals: an update. Thorax 55 (2000): 987-999.

12. Republic of Turkey Ministry of Health Tobacco Control Process in Turkey, 2016. Access Place: http://havanikoruorg.tr/surec/104-kategorisiz.html (2018).

13. Demir T, Aytemur ZA, Elbek O. Structuring the Smoking Cessation Clinic, Tobacco and Tobacco Control Book, Thorax Books (2010): 439.

14. Raw M, Mcneill AN, West R. Smoking Cessation Guidelines for Health Professionals—A guide to effective smoking cessation interventions for the health care system. Thorax 53 (1998): S1-S8.

15. Lichtenstein E, Glasgow RE, Lando HA, et al. Telephone counseling for smoking cessation: rationales and meta-analytic review of evidence. Health Education Research 11 (1996): 243-257.

16. Solak ZA, Telli CG, Erdinç E. Results of smoking cessation therapy. Toraks Dergisi 4 (2003): 73-77.

17. Osler M, Prescott E. Psychosocial, behavioural and determinants of succesful smoking cessation: a longitudinal study of Danish adults. Tobacco Control 7 (1998): 262-267.

18. Demir T, Tutluoğlu B, Koç N, et al. One-year follow up results of smoking cessation outpatient clinic. Tuberkuloz ve toraks 52 (2004): 63-68.

19. Renaud JM, Halpern MT. Clinical management of smoking cessation: patient factors affecting a reward-based approach. Patient Prefer Adherence 4 (2010): 441-450.

20. Sağlam L. Investigation of result of smoking cessation clinic and the factor associated

with succes. Turk J Med Sci 42 (2012): 515-522.

21. Çan G, Öztuna F, Özlü T. Evaluation of the results of the smoking cessation outpatient clinic of Karadeniz Technical University Medical Faculty. Tuberculosis and Thorax 52 (2004): 69-74.

22. Demir T, Tutluoğlu B, Koç N, et al. One-year follow-up results of our smoking cessation clinic. Tuberkuloz ve toraks 52 (2004): 63-68.

23. Şahbaz S, Kılınç O, Günay T, et al. Effects of smoking and demographic characteristics on the results of smoking cessation treatments. Turkish Thoracic Journal 8 (2007): 110-114.

24. Argüder E, Karezli A, Hezer H, et al. Factors affecting the success of smoking cessation. Turkish Thoracic Journal 14 (2013): 81-87.

25. Yaşar Z, Kurt Ö, Talay F, et al. Our one-year smoking cessation outpatient clinic results: factors affecting smoking cessation. Eurasian J Pulmonol 16 (2014): 99-104

26. Uzaslan EK, Özyardımcı N, Karadag M, et al. The physician's intervention in smoking cessation: results of the five years of smokingcessation clinic. Ann Med Sci 9 (2000): 63-69.

27. Salepçi B, Fidan A, Oruç Ö, et al. Success rates and success factors in our smoking cessation clinic. Toraks Dergisi 6 (2005): 151-158.

28. Breslau N, Peterson EL. Smoking cessation in young adults: age at initiation of cigarette smoking and other suspected influences. Am J Public Health 86 (1996): 214-220.

29. Wingless B, Başlılar Ş, Şaylan B, et al. Factors Affecting Success of Smoking Cessation and Evaluation of Medical Treatments. Euras J Fam Med 6 (2017): 65-71.

30. Argüder E, Karalezli A, Hezer H, et al. Factors affecting the success of smoking cessation. Turk Thorac J 14 (2013): 81-87.

31. Fai SC, Yen GK, Malik N. Quit rates at 6 months in a pharmacist-led smoking cessation service in Malaysia. Can Pharm J 149 (2016): 303-312.

32. Önen ZP, Şen E, Gülbay BE, et al. Long-term smoking cessation rates and differences between the two groups in patients with chronic obstructive pulmonary disease and asthma. Turk Thorac J 12 (2011): 6771.

33. Solak ZA, Göksel T, Erdinç E, et al. Success of smoking cessation treatment in the smokers' vicinity of those with serious lung disease associated with smoking. Turk Thorac J 3 (2002): 248-252.

34. Politis A, Ioannidis V, Gourgoulianis KI, et al. Effects of varenicline therapy in combination with advanced behavioral support on smoking cessation and quality of life in inpatients with acute exacerbation of COPD, bronchial asthma, or community-acquired pneumonia: A prospective, open-label, preference-based, 52-week, follow-up trial. Chronic Respiratory Disease 15 (2018): 146-156.