# Follow-Up Study Results of Patients of a Cigarette Cessation Clinic and Factors Affecting These Results

Sigara Bırakma Kliniği Hastalarının İzlem Sonuçları ve Bu Sonuçları Etkileyen Faktörler

ABSTRACT Objective: One third of approximately 1.5 billion smokers live in 10 countries, which involves Turkey. Smoking cessation clinics are increasing day by day. However, long term smoking cessation rates are unsatisfactory. The aim of this research is to calculate success rates for the patients who admitted to smoking cessation outpatient clinic in light of the data that will be obtained from follow-ups, to determine their tobacco-use behaviours, the complicating and facilitating factors that are encountered during smoking cessation process and calculate effectiveness of different therapy modalities for tobacco cessation, thereby to contribute to tobacco control strategies, and to increase the success of tobacco cessation interventions. Material and Methods: 114 patients who admitted to smoking cessation clinic were followed up for 6 months. Patients' status of restarting smoking during follow-up was calculated based on even if smoking just a draw (slip) criterion. Results: The periods without smoking for participants whose spouses do not smoke, who used treatment for 28 days and more and whose type of treatment is varenicline were longer. In multivariate analyses, non-smoker spouse, long treatment period and varenicline use as treatment option were found to be factors positively affecting the success rate. Conclusion: The mean period without smoking for the participants in the first month found to be 12.8 days, have revealed that close follow-up of the patient in this early period is very critical in smoking cessation process. In addition to provision of proper treatment to patients, ensuring that the patient uses this treatment for a sufficient amount of time is also important in tobacco cessation process. Concomitant treatment of tobacco using partners or encouraging the non-smoker partner to actively participate in treatment process may increase the success rate of tobacco cessation.

Key Words: Smoking; smoking cessation; varenicline; bupropion

ÖZET Amaç: Dünya genelinde sigara içen yaklaşık 1,5 milyar insanın üçte biri 10 ülkede yaşamaktadır. Türkiye de bu on ülke arasında yer almaktadır. Bu amaçla hizmet veren sigara bırakma polikliniği sayıları ve bu polikliniklere yapılan başvuru sayıları gün geçtikçe artmaktadır. Ancak uzun dönemde sigara bırakma başarı oranları istenildiği gibi değildir. Bu araştırmanın amacı sigara bırakma polikliniğine yardım için başvuran hastaların sigara kullanma özelliklerini belirlemek ve izlemlerinden elde edilecek bilgiler ışığında başarı oranlarını hesaplamak, sigara bırakma sürecinde karşılaştıkları zorlaştırıcı ve kolaylaştırıcı faktörleri belirlemek, farklı tedavi yöntemlerinin etkinliğini hesaplamak bu yolla tütün kontrolü stratejilerine katkıda bulunmak ve tütün bırakma girişimlerinin başarısını artırmaktır. Gereç ve Yöntemler: İleriye dönük kohort türündeki bu araştırmada sigara bırakma polikliniğine başvuran 114 hasta 6 ay süresince izlenmiş, sigara içme konusundaki düşünce, algı ve davranışlarındaki özellikler belirlenmiş, izlem süresince sigaraya yeniden başlama durumu bir nefes de olsa sigara içme (kayma) kriterine göre hesaplanmış ayrıca sigara içilmeyen süreler de değerlendirilmiştir. **Bulgular:** Eşi sigara içmeyen, 28 gün ve üzerinde tedavi kullanan, tedavi şekli vareniklin olan katılımcıların sigara içmedikleri süreler istatistiksel olarak anlamlı düzeyde daha uzun bulunmuştur. Çoklu analizlerde de eşin sigara içmemesi, tedavi süresinin uzun olması, tedavi seçeneği olarak vareniklin kullanımı sigara bırakma başarısını olumlu etkileyen faktörler olarak bulunmuştur. Sonuç: Katılımcıların ilk ayda sigara içmedikleri süre ortalamasının sadece 12,8 gün oluşu da sigara bırakma sürecinde erken dönemin ve bu dönemde hastanın yakın izleminin ne kadar kritik olduğunu gözler önüne sermiştir. Doğru tedavinin sunumunun yanında hastanın bu tedaviyi yeterli süre kullanmasının sağlanması da tütün bırakma sürecinde önem taşımaktadır. Tütün kullanan partnerlerin birlikte tedavi edilmesi ya da tütün kullanmayan partnerin eşinin tedavi sürecine aktif olarak katılmaya teşvik edilmesi tütün bırakma başarısını yükseltebilir.

Anahtar Kelimeler: Sigara içme; sigarayı bırakma; vareniklin; bupropion

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obacco use is the major preventable cause of death in the world. Tobacco use is the risk factor for six of the eight most common causes of death globally. Today, tobacco is the single greatest preventable cause of death in the world. Every year, tobacco kills more than 5 million people, dramatically more than the sum of deaths caused by tuberculosis, HIV/AIDS and malaria. This figure will exceed 8 million by 2030. Approximately one third of 1.5 billion smokers around the world live in 10 countries, and despite ranking last, Turkey is among these ten countries.<sup>1</sup> According to the results of the Global Adult Tobacco Survey (GATS) in 2012, the prevalence of tobacco use among adults at and above the age of 15 in Turkey is 27.1%. This corresponds to 14.8 million adults.<sup>2</sup> Led by the World Health Organization (WHO), the Framework Convention on Tobacco Control (FCTC), representing the most significant step in the fight against the tobacco epidemic, was launched in 2003. FCTC is guiding for the efforts of controlling tobacco in all areas. One of the signatories of this treaty, which has the highest number of parties in the history of United Nations, is Turkey.<sup>3</sup> Further, in an aim to help the countries to this end, WHO developed the Global Tobacco Epidemic Report, MPOWER in 2008.<sup>2</sup> This package addresses 6 most effective policies for controlling tobacco. Of them, one is the 'Offer help to quit tobacco use'. In line with this policy, number of smoking cessation clinics has recently risen in our country, and also pharmacological treatment options including behavioural training are being offered to the patients admitted to these clinics. There are many studies investigating the smoking cessation success of such clinics, however most of them are retrospective. Furthermore, none of these studies involve a standard defining criterion for the assessment of relapse. While some studies define relapse as the use of tobacco during a period of generally 1 week and sometimes a couple of days after quitting, some others describe relapse as the use of tobacco over the last month. On the other hand, some of the studies define relapse as starting to use tobacco consistently as before.<sup>4</sup> It can be seen that there is a consensus on the definition of the term

'slip' in the literature. 'Slip' refers to a one-time tobacco use (even a single draw). Due to the clarity on the use of the term, in this study, the success of smoking cessation has been evaluated based on the presence of slip. This study represents a unique one in this field as there is already no study assessing this criterion in the tobacco cessation literature.

The purpose of this research is to identify the factors complicating or facilitating the smoking cessation process and thus to contribute to the tobacco control strategies and promote the success of tobacco cessation initiatives.

# MATERIAL AND METHODS

The local ethics committee of Marmara University approved the study protocol. Written informed consent was obtained from all participants before any procedures were performed.

#### SUBJECTS

Structured as a prospective cohort study, the research was conducted in a Smoking Cessation Clinic of a Chest Diseases and Thoracic Surgery Training and Research Hospital in Istanbul, Turkey during the February-March-April, 2015 period. The inclusion criteria were as follows: being older than 18 years, not being pregnant and being literate. During the recruitment period 114 subjects were qualified and included in the study. At different stages of the follow-up period in the study, 14 subjects were excluded for not responding to the phone, refusing to talk and giving a wrong number, whereby the whole follow-up process was completed with the involvement of 100 subjects (87.7%) after 6 months.

#### PROCEDURES

During their first clinic visit, subjects were subjected to a 42-item questionnaire prepared by the researcher, the Fagerstrom Test for Nicotine Dependence (FTND) and the Beck Depression Inventory (BDI).<sup>5,6</sup> Then, subjects were called after 1, 3 and 6 months following their cessation of smoking, and asked whether they restarted smoking, even a single draw, to evaluate their slip condition. In addition, 'period of staying free of tobacco' was evaluated in the analyses. Subjects reporting smoking, even a single draw, were considered to restart smoking.

#### STATISTICAL ANALYSIS

Chi-square test, Student's t test, Mann Whitney U test and Kruskal-Wallis significance test were used for comparing groups. Next, the Kaplan-Meier survival analysis was used to evaluate the continuity of smoking cessation during the six-month followup period and the log rank test was used to evaluate differences between the groups. In multivariate analysis, independent factors were explored with the Cox regression analysis through the backward selection method and risk factors were identified for resumption of smoking.

# RESULTS

### DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

Of 114 participants of the study, 30 (26.3%) are female and 84 (73.7%) are male. While mean age of female participants was 42.7 (sd=9.0, age range=27-59 years), mean age of male participants was 40.9 (sd=11.7, age range=24-76 years). All of the participants were literate and majority of them were primary school graduates (32.5%). Majority of the participants were employees (49.1%). Ratio of participants reporting an income level equal to the expenditure level was 51.8%. Majority of the participants were married (76.4%). All participants were urban residents.

## CHARACTERISTICS ASSOCIATED WITH TOBACCO-USE BEHAVIOURS OF PARTICIPANTS

In the research, it was found that number of cigarettes daily consumed by participants was higher for men compared to women (p=0.036). Mean smoking duration of participants was 25.0 (sd=11.0) years. The mean age when participants started smoking was found as 16.4 (sd=4.2, minimum=6, maximum=31) years. This mean was 17.8 (sd=4.5) for the women and 15.9 (sd=3.9) for the men. Compared to women, men start smoking at a statistically significant earlier age (p=0.032). Additionally, participants were asked for the public tobacco cessation methods they think to be the most effective. Majority of the participants stated that no method was effective in their opinion (37.7%). On the other hand, the method most commonly considered effective is the 'illustrations and warnings on the cigarette packs' (25.4%).

and then 'wonder' (11.4%) in the third rank.

# FINDINGS FOR DIFFERENCES IN TOBACCO USE BY PARTICIPANTS DURING THE FOLLOW-UP PERIOD

In the research, differences in tobacco use by participants were evaluated with the '*smoking cessation condition*' and '*period of staying free of smoking*' variables.

The first follow-up (end of the first month) revealed that 28.2% of participants (n=29) stayed free of smoking, while the second follow-up (end of the third month) revealed 12.8% (n=13). For 100 participants included in the research and followed up throughout the entire period, the success of smoking cessation is 5% (n=5) (Table 1).

Of patients who quit smoking at the end of the sixth month, 4 were treated with varenicline and 1 was treated with nicotine gum. Table 2 shows smoking cessation success rates depending on the type of treatment each patient received (Table 2).

Considering the period of staying free of smoking for given treatments in participants, mean period was 33.0 days with a median of 10 days for patients receiving nicotine gum treatment; mean period was 19.5 days with a median of 7 days for patients receiving nicotine patch treatment; mean period was 4.1 days with a median of 0 days for patients receiving bupropion treatment; and mean period was 44.0 days with a median of 20 days for patients receiving varenicline treatment; and difference between the groups found statistically significant (p=0.001).

TABLE 1: S	Status of stayin	g free of smok	ing after ead	ch follow-up.				
	Staying Free of Smoking							
	Yes		No		Total			
	n	%	n	%	n	%		
First follow-up (end of first month)	29	28.2	74	71.8	103	100.0		
Second follow-up (end of third month)	13	12.8	88	87.1	101	100.0		
Third follow-up (end of sixth month)	5	5.0	95	95.0	100	100.0		

	F	irst follow-u	<b>1</b>	Staying Free of Smoking Second follow-up			Third follow-up		
	Yes	No	Total	Yes	No	Total	Yes	No	Total
Treatment type	n/%	n/% n/%	n/%	n/%	n/%	n/%	n/%	n/%	
Nicotine gum	2	7	9	1	8	9	1	8	9
	28.5	71.4	100.0	11.1	88.8	100.0	11.1	88.8	100.0
Nicotine patch	7	22	29	2	26	28	0	27	27
	17.9	82.0	100.0	7.1	92.8	100.0	0.0	100.0	100.0
Bupropion	1	11	12	0	12	12	0	11	12
	8.3	91.6	100.0	0.0	100.0	100.0	0.0	100.0	100.0
Varenicline	19	34	53	10	42	52	4	48	52
	35.8	64.1	100.0	19.2	80.7	100.0	7.6	92.3	100.0
Total	29	74	103	13	88	101	5	95	100
	28.1	71.8	100.0	12.8	87.1	100.0	5.0	95.0	100.0

The pairwise analysis performed to identify what treatment method accounts for differences has revealed that participants treated with 'bupropion' started smoking earlier compared to all other treatment groups. In particular, the non-smoking period of participants treated with 'varenicline' was significantly longer than those treated with 'bupropion' (p <0.00).

Additionally, as a result of the study, there was no significant relationship between BDI and FTND scores of participiants and their smoking cessation status after follow up period (p=0.307 and p=0.404, respectively).

## FINDINGS OF THE SURVIVAL ANALYSES FOR DIFFERENCES IN THE USE OF TOBACCO BY PARTICIPANTS DURING THE FOLLOW-UP PERIOD

Variables found by pairwise analyses to be creating statistically significant or nearly significant differ-

ences during the non-smoking period have also been evaluated by means of the survival analyses.

Evaluation of continued smoking cessation by gender revealed that while non-smoking period of women was 19.6 days in mean with a median of 5 days, it was 35.6 days with a median of 10 days in men. However, this difference was not statistically significant (log rank=3.5 p=0.061).

The correlation between 'presence of a smoking partner and non-smoking period' that contains a statistically significant difference in pairwise analyses has also been evaluated with the survival analysis. Non-smoking period of participants with a smoking partner was 11.5 days with a median of 5 days. On the other hand, for participants with non-smoking partners, it is 40.8 days in mean with a median of 15 days. Difference revealed by the survival was also found to be statistically significant. Participants with non-smoking partners more



FIGURE 1: Continuing smoking cessation depending on the smoking condition of the partner.

likely continue smoking cessation compared to participants with smoking partners (log-rank=8.5, p=0.003). Figure 1 shows the variation in continuing smoking cessation depending on the smoking condition of the partner (Figure 1).

Pairwise comparisons of treatment modalities to continue smoking cessation were evaluated by the log-rank analysis. This analysis revealed that, compared to all other treatment modalities, participants treated with bupropion exhibit a less probability of continuing smoking cessation (Table 3). The survival chart, too, shows that varenicline users exhibit the highest ratio of continuing smoking cessation. This was followed by nicotine gum, nicotine patch and bupropion users in the last rank (Figure 2).

The effect of the duration of treatment on continuing smoking cessation has been evaluated with the survival analysis. Again, participants were divided in two groups based on the duration of their treatment as '<28 days of treatment period' and '>=28 days of treatment period'. In this comparison, the analysis was conducted after adjustment for treatment modality to avoid the counfoundability thereof. In conclusion, it was found that subjects with a <28 days of treatment period less likely tend to continue smoking cessation compared to those with >=28 days of treatment period and this was independent from the modality of treatment (log rank=5.3, p=0.021) (Figure 3).

Further, Cox regression analysis was employed to identify risk factors through multiple analyses in evaluating the resumption of smoking and relative risks (RR) were calculated. Variables of gender, smoking condition of the partner, treatment modality and duration of treatment were included in the analysis (Table 4).

## ACCORDING TO THE RESULTS OF THE COX REGRESSION ANALYSIS

In Model 1 developed based on the duration of treatment, treatment modality, smoking condition of the partner and gender:

■ It was found that subjects treated with bupropion were 4.452 folds more likely to restart smoking than the subjects treated with varenicline (p=0.001).

■ It was found that subjects with a smoking partner were 2.094 folds more likely to restart smoking than the subjects with a non-smoking partner (p=0.023).

# In Model 2 developed based on the duration of treatment, treatment modality and smoking condition of the partner:

■ It was found that subjects treated with bupropion were 3.775 folds more likely to restart

<b>TABLE 3:</b> Pairwise Comparisons of Treatment Modalities to Continue Smoking Cessation.*								
Treatment type	Nicotine gum		Nicotine patch		Bupropion		Varenicline	
	log rank	р	log rank	р	log rank	р	log rank	р
Nicotine gum			0.4	0.52	9.8	0.002	0.01	0.89
Nicotine patch	0.4	0.52			16.8	0.000	2.4	0.11
Bupropion	9.8	0.002	16.8	0.000			19.1	0.000
Varenicline	0.01	0.89	2.4	0.11	19.1	0.000		

\* Adjusted for duration of treatment.



FIGURE 2: Continuing smoking cessation depending on the treatment modality.



FIGURE 3: Continuing smoking cessation depending on the treatment duration.

smoking than the subjects treated with varenicline (p=0.001).

■ It was found that subjects with a smoking partner were 1.865 folds more likely to restart smoking than the subjects with a non-smoking partner (p=0.029).

### In Model 3 developed based the treatment modality and smoking condition of the partner:

■ It was found that subjects treated with bupropion were 3.750 folds more likely to restart smoking than the subjects treated with varenicline (p=0.001).

■ It was found that subjects with a smoking partner were 2.141 folds more likely to restart smoking than the subjects with a non-smoking partner (p=0.005).

# DISCUSSION

When asked for causes underlying the resumption of smoking, participants state 'friend/social influences', 'emulation' and then "curiosity' as the 3 most common reasons. In previous studies, 'emulation' always represented the most common cause. This is followed by wonder, friend/social influences and stress at different ranks.7-12 'Emulation', 'friend/social influences' and 'curiosity' all emphasize the important role of the social environment in starting smoking. 'Role model' and 'peer effect' concepts stand out, reflecting that social interventions outperform individual measures in controlling the tobacco use. Because an individual is involved in an interaction with his social environment and this interaction seems to be the key initial factor behind tobacco addiction.

TABLE 4: Cox regression analysis results to identify

Risk Factors*	RR	95% CI	р
Model 1			
Treatment duration <28	1.480	0.854-2.564	0.162
Varenicline (=Reference)	1	-	-
Nicotine gum	1.044	0.460-2.369	0.918
Nicotine patch	1.252	0.664-2.361	0.48
Bupropion	4.452	1.817-10.905	0.00
Smoking partner	2.094	1.106-3.964	0.023
Female	0.765	0.369-1.585	0.47
Model 2			
Treatment duration <28	1.454	0.841-2.516	0.18
Varenicline (=Reference)	1	-	-
Nicotine gum	0.991	0.442-2.222	0.982
Nicotine patch	1.291	0.688-2.423	0.42
Bupropion	3.775	1.742-8.178	0.00
Smoking partner	1.865	1.066-3.262	0.029
Model 3			
Varenicline (=Reference)	1	-	-
Nicotine gum	0.970	0.433-2.174	0.94
Nicotine patch	1.513	0.837-2.734	0.170
Bupropion	3.750	1.740-8.083	0.001
Smoking partner	2.141	1.261-3.634	0.005

\*Participants who have non-smoking partners; >=28 days of treatment period; varenicline users; and males are reference groups.

87.7% of participants have previously decided to quit smoking; and 78.9% have actually attempted to quit. Previous surveys on this subject reveal that vast majority of smokers decided and actually attempted to quit smoking.<sup>8,9,13,14</sup>

Among the reasons driving the will of participants to quit smoking in this research, 'doctor's recommendation' is inferior as none of the participants state that doctor's recommendation is the key factor driving his/her will to quit smoking. However, in a survey conducted by Sağlam<sup>12</sup>, individuals deciding to quit smoking after doctor's recommendation display a significantly higher achievement in quitting smoking. This demonstrates that, regardless of the reason of patients' visit, doctors should investigate the patient's tobacco use and assume a guiding role for treatment.

One of the striking findings of the study is revealed when participants are asked for their opinion of the most effective social method for quitting the tobacco use. The opinion of most of the participants is that there is no effective method. Since 2000, there are illustrated warnings on cigarette packs in Canada. One study has revealed that, after this practice, smoking rate decreased by 2.87-4.68% while smoking rates declined by 12.1%-19.6% in Canada.<sup>15</sup> And according to the results of the International Tobacco Control Survey (ITC) conducted in Canada and the United States of America (USA) with a national inclusiveness in two countries, illustrated warnings applied in Canada are more effective than only-text warnings applied in the USA. Further, in the survey covering Canada, the USA, Australia and the UK conducted again based on the findings of the ITC survey, multivariate analysis reveals that warnings on cigarette packs principally affect positively the attempt to quit smoking.<sup>16,17</sup> These results suggest that conducting more researches on the effect mode of illustrations and warning texts provided on cigarette packs and focusing on those found to be more effective may positively contribute to the smoking cessation process.

In the research, participants that have not smoked, even a single draw, during the follow-up period at the end of the six months have been considered smoking quitters. As expected, this has led to the result that success of quitting smoking found in this research appeared lower compared to other researches in the literature.<sup>5,11,18-20</sup> In addition, some of the researches on this subject in the literature have a retrospective design. In a retrospective research, probability of reaching no-smokers or probability of no-smokers' acceptance to participate in the research is high and thus this may lead to apparently more positive results. In conclusion, distinct evaluation criteria employed in this research have led to the result that the success of quitting smoking in this research is lower compared to other researches. However, despite this, it is striking that only 5 of the participants in this research could manage to fully stay free of smoking during the followup period. Even during the first follow-up covering the initial month, 71.8% of the participants failed. Mean no-smoking period for all participants during the first month is only 12.8 days, revealing how critical the early stage is in quitting smoking. Previous researches have revealed that, smoking during the initial week or the 15-day period adversely affect the success of quitting smoking.<sup>21,22</sup> In this critical period, observing the patients closely is important.

Further, evaluating the success of quitting smoking through survival analyses reveals that varenicline users display the highest success of continuing smoking cessation. Next, in pairwise survival analyses, while varenicline proves to be superior to nicotine patch and bupropion, bupropion users display lower success of continuing smoking cessation compared to users on all other treatment modalities. And also in multivariate analysis, use of varenicline proves a significant advantage over bupropion. Bupropion was initially manufactured as an antidepressant and its mode of action in quitting smoking has not been fully elucidated. Therefore, in some of the resources, it is addressed as a second-line drug for controlling tobacco.<sup>23</sup> In a compilation in the Cochrane Library, varenicline was found to be most effective in terms of its effectiveness in quitting smoking, with NRT and bupropion having similar performance, yet, varenicline revealed significantly better results compared to bupropion.<sup>24</sup> In a meta-analysis where randomized controlled studies were re-evaluated, varenicline proved to be successful in both the no-treatment group and the bupropion group.<sup>25</sup>

According to the results of this research, participants remaining longer in their treatment regardless of the modality stay free of smoking for longer periods. In their research, Schnoll et al. found that participants remaining for 24 weeks in their treatment proved to be more successful in quitting smoking compared to participants remaining for 8 weeks in their treatment.<sup>26</sup> This suggests that ensuring the patient's stay in his/her treatment for an adequate period is as important as administrating the proper treatment.

Perhaps the most striking finding of this research is that, participants with a smoking partner are more prone to restarting smoking compared to those with non-smoking partners as revealed by both the pairwise survival analysis and the multivariate analysis. Further, in a survey conducted by Falba and Sindelar, it was found that participants with partners who have quit smoking are more successful in quitting smoking as well.<sup>27</sup> In the twoyear follow-up study by Homish and Leonard, it was found that risk of relapse in women with partners who are active smokers is higher by 5.5 folds.<sup>28</sup> These results also demonstrate the importance of administering the treatment to partners together, or active involvement of the non-smoking partner in his/her partner's treatment process. In the clinical practice, patients may be recommended to come to visits with their partners.

# CONCLUSION

This research have shown that in addition to provision of proper treatment to patients, ensuring that the patient uses this treatment for a sufficient amount of time is also important in tobacco cessation process. Concomitant treatment of tobacco using partners or encouraging the non-smoker partner to actively participate in treatment process of his/her spouse may increase the success rate of tobacco cessation. As smoking cessation status was evaluated based on slip criterion in this research, smoking cessation success was found to be lower compared to other researches. Despite this, the fact that mean period without smoking for the participants in the first month was 12.8 days, have revealed that early period and close follow-up of the patient in this period very critical in smoking cessation process. More research on the mode of effect of image and warning texts on cigarette packages, a method of smoking cessation towards society, and using the more effective found ones more may increase the efficacy of the intervention.

#### Ethics Committee Approval

*Ethics committee approval was received from the local ethics committee of Marmara University.* 

#### Informed Consent

Informed consent forms were obtained from the participants.

#### Authorship Contributions

Concept: Ayşe Gülsen Teker, Nimet Emel Lüleci; Design: Ayşe Gülsen Teker, Nimet Emel Lüleci; Supervision: Ayşe Gülsen Teker, Nimet Emel Lüleci; Resource: Ayşe Gülsen Teker, Nimet Emel Lüleci; Materials: Ayşe Gülsen Teker, Nimet Emel Lüleci; Data Collection and/or Processing: Ayşe Gülsen Teker; Analysis and/or Interpretation: Ayşe Gülsen Teker, Nimet Emel Lüleci; Literature Search: Ayşe Gülsen Teker, Nimet Emel Lüleci; Writing: Ayşe Gülsen Teker, Nimet Emel Lüleci; Critical Reviews: Ayşe Gülsen Teker, Nimet Emel Lüleci;

#### Conflict of Interest

Authors declared no conflict of interest or financial support.

# REFERENCES

 World Health Organization. WHO Report on the Global Tobacco Epidemic. Geneva: WHO Press; 2008. p.103.

- The Ministry of Health Public Health Institution of Turkey. Global Adult Tobacco Survey Turkey 2012. Sağlık Bakanlığı Yayın No: 948. Ankara: Anıl Matbaa Ltd Şti; 2014. p.203.
- Ergüder T. [Worldwide tobacco control and World Health Organization Recommendations (MPOWER)]. Aytemur ZA, Akçay Ş, Elbek O, editörler. Tütün ve Tütün Kontrolü. 1. Baskı. Türk Toraks Derneği Yayını. İstanbul: Matsis Matbaa Hizmetleri San Tic Ltd Şti; 2010. p.81-92.
- 4. Piasecki TM. Relapse to smoking. Clin Psychol Rev 2006;26(2):196-215.
- Uysal MA, Kadakal A, Karşidağ Ç, Bayram NG, Uysal O, Yilmaz V. Fagerstrom test for nicotine dependence: reliability in a Turkish sample and factor analysis. Tuberk Toraks 2004;52(2):115-21.
- Hisli N. [Validation and reliability of Beck Depression Inventory for University Students]. Psikoloji Dergisi 1989;7(23):8-13.
- Argüder E, Hasanoğlu HC, Karalezli A, Kılıç H. [Factors that increasing tendency to smoking cessation]. Tuberk Toraks 2012;60(2):129-35.
- Eroğlu SA. [Health professionals' smoking status and influencing factors in a general state hospital in Istanbul]. Istanbul Med J 2013; 14:170-4.
- Fidan F, Pala E, Ünlü M, Sezer M, Kara Z. [Factors affecting smoking cessation and success rates of the treatments methods used]. The Medical Journal of Kocatepe 2015;6(3): 27-34.
- Sağlam L. Investigation of the results of a smoking cessation clinic and the factors as-

sociated with success. Turk J Med Sci 2012; 42(3):515-22.

- Yaşar Z, Kurt ÖK, Talay F, Kargi A. One-year follow-up results of smoking cessation outpatient clinic: factors affecting the cessation of smoking. Eurasian J Pulmonol 2014;16:99-104.
- Çapık C, Cingil D. [Cigarette smoking, nicotine dependency level and associated farctors among nursing students]. Kafkas J Med Sci 2013;3(2):55-61.
- Bariş SA, Yildiz F, Başyiğit I, Boyaci H. [Smoking prevalence in Kocaeli]. Tuberk Toraks 2011;59(2):140-5.
- Turan PA, Ergor G, Turan O, Doganay S, Kilinc O. [Smoking related behaviours in İzmir]. Tuberk Toraks 2014;62(2):137-46.
- Huang J, Chaloupka FJ, Fong GT. Cigarette graphic warning labels and smoking prevalence in Canada: a critical examination and reformulation of the FDA regulatory impact analysis. Tob Control 2014;23(Suppl 1):i7-12.
- Hitchman SC, Driezen P, Logel C, Hammond D, Fong GT. Changes in effectiveness of cigarette health warnings over time in Canada and the United States, 2002-2011. Nicotine Tob Res 2014;16(5):536-43.
- Borland R, Yong HH, Wilson N, Fong GT, Hammond D, Cummings KM, et al. How reactions to cigarette packet health warnings influence quitting: findings from the ITC- Four Country survey. Addiction 2009;104(4):669-75.
- Onen ZP, Sen E, Eriş Gülbay B, Oztürk A, Akkoca Yıldız O, Acıcan T, et al. [Comparing the effectiveness of different treatment modalities on the smoking cessation rates]. Tuberk Toraks 2010;58(4):385-92.
- 19. Argüder E, Karalezli A, Hezer H, Kılıç H, Er M,

Hasanoğlu HC, et al. [Factors affecting the success of smoking cessation]. Turk Toraks 2013;14(3):81-7.

- Yilmazel Ucar E, Araz O, Yilmaz N, Akgun M, Meral M, Kaynar H, et al. Effectiveness of pharmacologic therapies on smoking cessation success: three years results of a smoking cessation clinic. Multidiscip Respir Med 2014;9(1):9.
- Ashare RL, Wileyto EP, Perkins KA, Schnoll RA. The first 7 days of a quit attempt predicts relapse: validation of a measure for screening medications for nicotine dependence. J Addict Med 2013;7(4):249-54.
- Demir T, Tutluoğlu B, Koç N, Bilgin L. [Oneyear follow up results of Smoking Cessation Outpatient Clinic]. Tuberk Toraks 2004;52(1): 63-8.
- McDonough M. Update on medicines for smoking cessation. Aust Prescr 2015;38(4): 106-11.
- Aubin HJ, Luquiens A, Berlin I. Pharmacotherapy for smoking cessation: pharmacological principles and clinical practice. Br J Clin Pharmacol 2013;77(2):324-36.
- Gibbons RD, Mann JJ. Varenicline, smoking cessation, and neuropsychiatric adverse events. Am J Psychiatry 2013;170(12):1460-7.
- Schnoll RA, Goelz PM, Veluz-Wilkins A, Blazekovic S, Powers L, Leone FT, et al. Long-term nicotine replacement therapy: a randomized clinical trial. JAMA Intern Med 2015;175(4):504-11.
- Falba TA, Sindelar JL. Spousal concordance in health behavior change. Health Serv Res 2008;43(1 Pt 1):96-116.
- Homish GG, Leonard KE. Spousal influence on smoking behaviors in a US community sample of newly married couples. Soc Sci Med 2005;61(12):2557-67.