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RESEARCH ARTICLE

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Effects of the COVID-19 Pandemic on Smoking

ABSTRACT

Objective: The aim of this study is to examine the changes in characteristics of smoking habits during the pandemic period.

Methods: This study was conducted on the patients who admitted to Düzce University Medical Faculty Smoking Cessation Outpatient Clinic between June 2020 and January 2021 and a control group with similar age, gender, and educational background characteristics.

Results: The study group with 165 patients who quit smoking during the pandemic period and the control group with 163 patients were included in the study. It was detected that patients who quit smoking during the pandemic period had attempted to quit smoking significantly less compared to those who continue smoking ($p < 0.04$). The fagerström cigarette addiction scale scores of the patients who quit smoking during the pandemic period were found to be significantly lower than the patients who continued to smoke ($p < 0.001$). A significant difference was found between patients who quit smoking during the pandemic period and patients who continued to smoke, in terms of psychological resilience scale total score and all subgroups ($p < 0.001$).

Conclusions: The results of our study show that the rate of efforts to quit smoking increased during the pandemic period, because smokers were affected by the negative relationship between COVID-19 and smoking, and more cessation behavior. We suggest that every patient who admitted to health institutions should be questioned in terms of smoking behavior and the psychological resilience of the patients should be evaluated.

Keywords: Smoking, Smoking Cessation, COVID-19, Psychological Resilience.

COVID-19 Pandemisinin Sigara Kullanımı Üzerindeki Etkileri

ÖZET

Amaç: Bu çalışmanın amacı, pandemi döneminde sigara içme alışkanlıklarının özelliklerinde meydana gelen değişiklikleri incelemektir.

Gereç ve Yöntem: Bu çalışma Düzce Üniversitesi Tıp Fakültesi Sigara Bırakma Polikliniğine Haziran 2020-Ocak 2021 tarihleri arasında sigara bırakmak için başvuran hastalar ile benzer yaş, cinsiyet ve eğitim özelliklerine sahip kontrol grubu hastalar üzerinde yapılmıştır.

Bulgular: Pandemi döneminde sigarayı bırakan 165 hastadan oluşan çalışma grubu ve 163 hastadan oluşan kontrol grubu çalışmaya dahil edildi. Pandemi döneminde sigarayı bırakan hastaların sigarayı bırakmaya devam edenlere göre anlamlı düzeyde daha az denediği saptandı ($p < 0.04$). Pandemi döneminde sigarayı bırakan hastaların fagerström sigara bağımlılığı ölçeği puanları, sigara içmeye devam eden hastalara göre anlamlı derecede düşük bulundu ($p < 0,001$). Pandemi döneminde sigarayı bırakan ve içmeye devam eden hastalar arasında psikolojik dayanıklılık ölçeği toplam puanı ve tüm alt gruplar açısından anlamlı fark bulundu ($p < 0,001$).

Sonuç: Çalışmamızın sonuçları, sigara içenlerin COVID-19 ile sigara arasındaki olumsuz ilişkiden ve daha fazla bırakma davranışından etkilenmesi nedeniyle pandemi döneminde sigarayı bırakma çabalarının arttığını göstermektedir. Sağlık kuruluşlarına başvuran her hastanın sigara içme davranışı açısından sorgulanmasını ve hastaların psikolojik dayanıklılıklarının değerlendirilmesini öneriyoruz.

Anahtar Kelimeler: Sigara, Sigara Bırakma, COVID-19, Psikolojik Dayanıklılık.

INTRODUCTION

The whole world has been struggling with the Covid-19 pandemic for about a year. Many factors that can affect the course of this disease, which has high biological, psychological and sociological consequences in the society, have been investigated, since the last year. The relationship between smoking and COVID-19 has also been one of the most discussed topics. As patient data results are shared, it has been stated that smoking has a significant worsening effect in terms of the severity of the course of the COVID-19 disease (1). It has been noticed that the negative interaction between smoking and COVID-19 creates a desire to quit smoking in many users (2). On the other hand, it is also noteworthy that an unexpectedly low smoking prevalence has been observed in COVID-19 patients (3,4). However, it was emphasized that these results were not proven and may lead to speculative information. Current epidemiological findings indicate that active smoking is associated with increased disease severity and mortality in hospitalized COVID-19 patients (5). The results of the studies conducted on this subject have been followed and discussed by many people who are smokers or non-smokers, and it is emphasized that the information shared in both scientific literature and other communication networks can affect the attempts of quitting smoking (6).

Although the information about the relationship between COVID-19 and smoking is controversial, smoking is generally accepted harmful to health. Although it is known to be harmful, it is a point to be emphasized to continue smoking. It has been reported that continuing to smoke despite all its harmful effects has also been related to the psychological weakness of the person (7). Behavioral interventions that increase the psychological resilience of smokers who have problems in this regard are recommended (8).

Our aim in the study is to investigate the effect of the COVID-19 pandemic on smoking cessation and to compare the psychological resilience of patients who quit smoking during the pandemic and those who do not intend to quit smoking.

MATERIAL AND METHODS

Study Procedures: In this study, power analysis was performed to determine the number of individuals to be included in the patient and control groups. According to the results of the power analysis, it was aimed to reach data of at least 163 patients who quit smoking during the pandemic period and at least 160 patients with similar age, gender, education status and who were smokers as the control group. The data were collected between June 2020 and January 2021.

Data Collection Tools: Demographic information form, fagerstrom nicotine dependence test and psychological endurance scale were applied to all participants.

Demographic Information Form: Age at starting smoking, previous attempts of quitting smoking, and whether the pandemic affected the decision to quit smoking were questioned as well as sociodemographic data of the patients. A pilot form of the information form was applied to 10 patients who decided to quit smoking after the pandemic and 10 control patients who are still smoking and the information form was finalized after the questions that were not understood in the pilot application were reviewed.

Fagerström's Nicotine Dependence Test: FBNT consists of six questions and each question is scored separately. According to the total score obtained from the test, nicotine dependence is classified under three groups including low (0-3 points), medium (4-6 points), and high (7 points) (9). The Turkish adaptation of FBNT was made by Uysal et al (10).

Psychological Hardiness Scale (PHS): Psychological Hardiness Scale consists of 21 items under three sub-dimensions and scored on a 5-point Likert type scale ranging from "Strongly disagree" and "Strongly agree". Turkish validity and reliability study of the scale was conducted by Işık (11). The scale involves individuals expressing their own perceptions. The commitment sub-dimension consists of 1, 2, 3, 5, 6, 18 and 21st items, including expressions such as "I enjoy working very much" and "I think there are interesting and worthwhile things in my life". The control sub-dimension consists of 4, 10, 11, 12, 15, 19 and 20th items, including expressions such as "I anticipate the problems that may arise and take precautions" and "I generally react strongly to the limitation of my personal freedoms". The challenge sub-dimension consists of 7, 8, 9, 13, 14, 16 and 17th items, including expressions such as "I think every new experience will enrich my life" and "Someone learns and develops from mistakes". The second and 15th items are scored reversely. The higher scores obtained from the sub-dimensions and the overall scale indicate a high level of psychological hardiness.

RESULTS

In this study, 165 patients who quit smoking during the pandemic period and 163 controls who continued smoking were included in the study. The two groups were similar in terms of gender, age, presence of chronic disease, and educational status. Socio-demographic data and chronic disease status of both groups are given in Table 1.

Table 1. Sociodemographic characteristics of patients who quit smoking and continued smoking during the pandemic period

	Quitted (n=165)	Smoking (n=163)	<i>P Value</i>
Age	38.82±13.20	40.81±11.32	0.143
Gender			
Male	94 (57.0)	94 (57.7)	0.898
Female	71 (43.0)	69 (42.3)	
Education			
Primary	51 (30.9)	47 (28.8)	0.919
High school	55 (33.3)	56 (34.4)	
University	59 (35.8)	60 (36.8)	
Marital status			
Married	91 (55.2)	100 (61.3)	0.158
Single	60 (36.4)	57 (35.0)	
Widow	14 (8.5)	6 (3.7)	
Occupation			
Housewife	18 (10.9)	16 (9.8)	0.157
Officer	29 (17.6)	40 (24.5)	
Worker	38 (23.0)	40 (24.5)	
Self-employed	32 (19.4)	36 (22.1)	
Retired	19 (11.5)	10 (6.1)	
Student	21 (12.7)	10 (6.1)	
Unemployed	8 (4.8)	11 (6.7)	
Chronic disease	47 (28.5)	42 (25.8)	0.580
Chronic disease (n=47 vs n=42)			
At least 1	40 (85.1)	33 (78.6)	0.423
More than 1	7 (14.9)	9 (21.4)	

When the groups were evaluated according to the smoking cessation experiences before the pandemic; it was found that the patients who quit smoking during the pandemic period had attempted to quit smoking significantly less times compared

to the control group ($p < 0.04$). It was found that the patients who quit smoking during the pandemic period started smoking at a significantly earlier age compared to the control group ($p < 0.016$, Table 2).

Table 2. Comparison of the starting age and quitting experiences of patients who quitted smoking and who continued to smoke during the pandemic period

	Quitted (n=165)	Smoking (n=163)	<i>P Value</i>
Smokers in the family	115 (69.7)	92 (56.4)	0.013
Previous attempts of quitting	91 (55.2)	108 (66.3)	0.040
Number of attempts of quitting			
1	28 (30.8) ^a	55 (50.9) ^b	0.015
2	34 (37.4) ^a	25 (23.1) ^b	
3	12 (13.2) ^a	7 (6.5) ^a	
4+	17 (18.7) ^a	21 (19.4) ^a	
Age of beginning smoking	16.79±4.41	17.85±3.48	0.016

Of the patients who continued smoking during the pandemic period 65.6% (n = 107) stated that they knew that being unmasked for a longer time to smoke increases the risk of COVID-19 transmission and 70.6% (n = 115) of them stated that they knew that smoking impairs the immune system. Again, 17.2% (n = 28) of the patients who continued smoking after the pandemic stated that

they reduced smoking because they were affected by the pandemic and smoking-related bad news, 8.6% (n = 14) stated that they reduced smoking because they join social environments less, while 10.4% (n = 17) stated that they increased smoking after the pandemic and 63.8% (n = 104) stated that there was no change in their smoking status.

Table 3. Comparison of the smoking behaviors of patients who quit smoking and who continue to smoke during the pandemic period.

	Quitted (n=165)	Smoking (n=163)	<i>P Value</i>
I know that being unmasked for a longer time to smoke increases the risk of COVID-19 transmission	121 (73.3)	107 (65.6)	0.130
I know that smoking impairs the immune system	142 (86.1)	115 (70.6)	0.001
I know that smokers have COVID-19 more severely	138 (83.6)	114 (69.9)	0.003
The pandemic affected my decision of quitting	122 (73.9)	-	-
<i>Change of smoking habits for who continue to smoke</i>			
No change at all		104 (63.8)	
I tried to reduce	-	28 (17.2)	-
It increased		17 (10.4)	
I was smoking more in social environments it reduced		14 (8.6)	

The fagerström nicotine dependence scale scores of the patients who quit smoking during the pandemic period were found to be significantly lower compared to the patients who continued to smoke ($p < 0.001$). A significant difference was

found between the patients who quit smoking during the pandemic period and those who continue to smoke, in terms of the total score and all sub-dimensions of the psychological hardiness scale ($p < 0.001$, Table 4).

Table 4. Fagenström scores and Psychological Hardiness Scale scores of patients who quit smoking and continue to smoke during the pandemic period

	Quitted (n=165)	Smoking (n=163)	<i>P Value</i>
Fagenström	5.23±1.86	6.80±1.18	<0.001
Commitment	18.09±4.77	14.33±4.64	<0.001
Control	20.27±3.06	10.89±3.95	<0.001
Challenging	16.70±7.36	20.37±6.01	<0.001
Total	55.06±10.08	45.58±10.02	<0.001

DISCUSSION

The results of the study show that significantly more number of individuals who had never attempted to quit smoking before the pandemic, decided to quit smoking during the pandemic. Similarly, studies show that more number of smokers started thinking about quitting after the pandemic (12, 13). In addition, in our study, it was determined that some of the patients who continued to smoke after the pandemic reduced cigarette consumption both because they were affected by the limitation of social life and the negative relationship between smoking and COVID-19. These results suggest that the pandemic period can be considered as an opportunity to reduce smoking. It has been emphasized that smoking has reduced due to indirect reasons during the pandemic, and people should be encouraged for quitting smoking (14). However, a small number of patients who go on smoking stated that they have increased their smoking during this period. This increase was suggested to be due to the boredom and stress experienced in quarantine. One of the

most frequently associated factors with smoking is psychological stress (15, 16). This risk factor, which was also detected in our study, with the addition of feelings of uncertainty and helplessness during the pandemic that has been going on for about a year, may cause smokers to increase the amount of cigarettes they consume or may cause those who quit to start again (17). It is recommended that patients be supported by methods of coping with stress, in order to prevent an increase in smoking such a risky period (18).

In our study, more number of patients who quit smoking during the pandemic period stated that they knew that smoking significantly impaired their immune system compared to the patients who continued smoking. Similarly, we observed that, those who quit smoking during the pandemic period were more knowledgeable about the relationship between smoking and severity of COVID-19 disease. In the study, both groups were asked from where they obtained information regarding the relationship between smoking and COVID-19.

Most of them stated that they obtained this information mostly through social media and public service announcements. We suggest that the power of social media and information spots should be facilitated efficiently to quit smoking in the pandemic. In our study, it was found that some of the participants did not know that the risk of infection increased with removing the mask while smoking. We think that this information should be reminded to through public service announcements. It has been stated that avoiding the increased risk of contamination in smoking environments is a motivating factor for quitting smoking (19).

However, in our study, it was observed that patients who smoke in the pandemic continued to smoke despite knowing that smoking worsens the COVID-19 disease. Similarly, the majority of these patients also knew that smoking impaired the immune system. However, the continuation of smoking despite knowing this negative interaction between smoking and COVID-19 is noteworthy. In our study, it was observed that self-control sub-dimension scores of the patients who continued smoking were significantly lower compared to the patients who quit smoking during the pandemic. Smoking addiction is a common characteristic of individuals who have self-control issues. It is known that people who can get rid of addiction are more successful in controlling their behavior. People with a high level of self-control believe that they can manage a stressful situation rather than being collapsed against it (20).

It was observed that the challenge sub-dimension scores of the patients who continued smoking during the pandemic period were higher compared to the patients who quit smoking during the pandemic. Continuing smoking despite the pandemic can be associated with this risk-taking behavior. It has also been stated that smoking habit is associated with risk taking behavior. It is emphasized that smoking cessation strategies that focus on risky health behaviors should be developed (21). In addition, it is shown that, the perception that cigarette consumption poses low risk in terms of harmful effects leads to a weak intention to quit smoking (22). All these results may explain why individuals still continued smoking despite knowing the harmful effects during the pandemic. We suggest that evaluating the psychological hardiness and risk-taking behaviors can help patients to quit smoking during the pandemic, since it is a period of anxiety and uncertainty.

The fagerström addiction levels of the patients who continued to smoke during the pandemic period were found to be significantly higher compared to the patients who quit smoking. In addition, it was observed that the psychological hardiness of patients with high addiction levels was lower. It has been reported that people who cannot cope with stressful situations tend to engage in

addictive behaviors such as smoking (23). In another study, a negative and significant relationship was found between nicotine addiction and psychological hardiness (24). These findings support the results of our study. Fagerström scale scores have been used to determine the addiction level and treatment options, in many smoking cessation centers. We suggest that the psychological dependence level of the patients should be evaluated as well as the Fagerström scale scores, in the planning of smoking cessation. Thus, behavioral therapy can be useful in smoking cessation.

In our study, we found that approximately half of the smokers tried to reduce it, even if they continued smoking. This suggests that this group can be motivated to quit smoking, easily. Besides all other negative effects, the pandemic can be an opportunity to quit smoking. Cross-sectional studies show that smokers have increased willingness and motivation to quit smoking during the pandemic (13). Since it has been proven that smoking worsens lung symptoms and prognosis in COVID-19, public health messages should focus on smoking cessation during epidemic.

Limitations and Strengths

The results of our study will provide effective discussion in the literature in terms of power analysis and the correct method with similar demographic characteristics of the compared groups. Strength of the study is that it is the first study investigating the relationship between smoking and psychological hardiness during the pandemic process. However, the study has some limitations. The fact that our study evaluated only quantitative data and that there were no qualitative data that can be used to express the difficulties caused by cigarette addiction during the pandemic are limitations of the study. In addition, the lack of long-term results of patients who quit smoking is another limitation of the study.

Conclusion

The results of the study show that smokers are affected by the negative relationship between COVID-19 and smoking and attempted to quit smoking, more frequently during the pandemic period. Motivating patients to quit smoking during pandemic may be easier than in other periods. However, it has been observed that the psychological hardiness of patients who continue smoking during the pandemic is lower. Counseling services can be provided to patients who have behavior control problems, so that they can cope with depression in stress situations. Smoking behavior of every patient who admits to the health institution during the pandemic period should be questioned and evaluated in terms of increased respiratory system risk. In addition, given the stress caused by the pandemic in society and individuals, increased psychological vulnerability should be evaluated.

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