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Relationship of constipation, body mass index increase and cigarette craving with nutrition in the smoking cessation process: A cross-sectional study from Turkey

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ABSTRACT

This cross-sectional study was conducted to determine the complaints of constipation, increase in body mass index (BMI) and cigarette craving levels and their relationship with nutrition at the end of the 1st month following quit smoking. Individuals who applied to a Smoking Cessation Clinic in Izmir, Turkey were included in the study ($N=87$, mean age 44.13 ± 12.67 years). Frequent constipation in daily life and greater than 30 g fat consumption increased constipation complaints, whereas increasing the number of cigarettes smoked before quitting decreased constipation complaints. BMI increase was higher in those who experienced severe constipation after quitting smoking. Cigarette cravings increased as the educational level of the participants increased. Individuals who were obese before quitting had lower levels of cigarette craving. During the smoking cessation process, it will be useful to question the situation of constipation in daily life. Studies examining types of fat and fatty acids should be planned.

KEYWORDS

Smoking cessation; diet; constipation; body mass index; weight gain; craving

Introduction

Tobacco is one of the biggest health threats the world has to face, killing more than 8 million people a year (World Health Organization [WHO], 2019). WHO recommends quitting smoking due to its negative effects on health (WHO, 2022). Globally, there are around 1.1 billion tobacco users aged 15 and over (WHO, 2017a). According to the report prepared by WHO, the global rate of smoking in men is 35%, while this rate is 6% in women. In Turkey, this rate was reported as 43.7% for men and 18.2% for women (WHO, 2017b). In addition, the literature shows that social risk is increasing especially against women due to socio-economic inequalities in Turkey (Hassoy et al., 2021).

During the process of quitting smoking, symptoms such as weight gain, increased appetite, constipation, mouth sores, dry mouth and lips may be observed. These complaints and additional symptoms of smoking craving are common problems in the process of quitting smoking (Çan et al., 2007). Quitting smoking is a challenging process due to the addiction caused by tobacco. Complaints experienced while quitting smoking may make this process more difficult (Çan et al., 2007) and may prevent the quit attempt if they are not specifically taken into account and actively managed (Gratziou, 2009).

Constipation is one of the complaints that can be seen among patients who quit smoking and impairs the quality of life (Demir et al., 2004). Nicotine stimulates defecation (Sloots et al., 2005). Lagrue et al. (2006) reported cases who experienced constipation during smoking cessation and experienced a decrease in constipation complaints after relapse (Lagrue et al., 2006).

Since smoking is a metabolic stimulant and appetite suppressant, quitting smoking or reducing the number of cigarettes may lead to weight gain (Courtemanche et al., 2018). One study showed that the risk of type 2 diabetes increased in the 6 years following smoking cessation. The researchers reported that 64.8% of this increase in type 2 diabetes risk was due to weight gain (Hu et al., 2018). Pánková et al. (2017) reported that 34% of patients who applied to treatment for smoking cessation were concerned about weight gain at the time they applied for treatment, and this was associated with a delay in setting a quit date (Pánková et al., 2017). Another study showed that fear of weight gain was a factor to continue smoking in 30.6% of patients who applied to a smoking cessation clinic (Balbay et al., 2003).

Craving is included in the diagnostic criteria for tobacco use disorder as “craving to use tobacco or having an overwhelming desire or feeling compelled to use tobacco” (American Psychiatric Association [APA], 2013). Craving is one of the most important contributing factors to relapse (Allen et al., 2008).

The aim of this study is to determine the constipation status, BMI changes and craving levels of the participants who completed 1 month without contact with cigarettes during the smoking cessation process and to reveal whether these conditions are related to nutrition. Within the scope of this aim, the focus of the study was to examine the relationship of nutritional status with constipation complaints, BMI increase and cigarette craving in individuals in the process of quitting smoking.

Materials and methods

This cross-sectional study was conducted between September-2017 and June-2019 with patients who applied to the Smoking Cessation Clinic at

Ege University Institute of Substance Abuse, Toxicology and Pharmaceutical Sciences, Izmir, Turkey. Among the 209 people who applied to the clinic during the data collection period, 87 people who met the criteria of never smoking for 1 month, not having a special nutrition program or treatment, and not having another addiction process were included in the study. Approval was obtained from Ege University Medical Research Ethics Committee for the study (Decision no: 17-5-2/15). The consent of each participant was obtained with the "Informed Voluntary Consent Form".

The data were collected by the researcher through face-to-face interviews with the help of scales and forms lasting approximately 15 min. "Demographic Data Form", "Healthy Eating Questionnaire Form" and "Questionnaire of Smoking Urges-Brief (QSU-Brief)" were used for data collection in the study.

The first independent variable group of the study is socio-demographic and economic characteristics. Respondents' age, gender, education level, occupation and monthly income were questioned. The second group of independent variables are characteristics related to health status. In this group, the participants' height, initial weight, weight change at the end of 1 month, history of illness, use of medication and supplements, frequency of constipation in daily life, whether they have ever applied to a health institution due to constipation, duration of smoking, number of cigarettes consumed at the time of application, number of previous attempts to quit smoking, reason for starting smoking again, pharmacological treatment method deemed appropriate by the physician to quit smoking, Fagerström Nicotine Dependence Test Scores, other problems encountered in the process of quitting smoking (e.g. intraoral sores, dry mouth and lips, etc.), and the constipation problem they experienced in the first 1 month after quitting smoking were examined, and the weekly exercise time was questioned in minutes. Participants' weights were measured during clinic visits. The third group of independent variables is about nutritional status. The Healthy Eating Questionnaire Form was used to collect data on nutrition. Within the scope of the form; water consumption, bread type preference (whole grain bread-white bread), vegetable-fruit consumption, consumption of cereals and cereal products, consumption of milk and dairy products, consumption of meat, eggs and legumes, sugar/sweet consumption, fat consumption and salt consumption were questioned.

The dependent variables of the study were constipation, BMI change and smoking craving during the quitting process. Participants were asked to rate their constipation on a scale of 1-never experienced constipation to 10-very severe constipation. In pairwise comparisons, those who did not experience constipation at all were grouped as "no constipation" and those who experienced constipation to different degrees were grouped as "constipated". Participants' cigarette cravings were assessed with the

(QSU-Brief). The scale developed by Cox et al. in 2001 consists of 10 seven Likert-type items (Demirezen & Kurçer, 2013).

IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp. program was used; chi-square test, Mann-Whitney-U and Kruskal Wallis Tests were used for pairwise comparisons. After Kruskal Wallis Tests, for adjusting the multiple comparisons appropriate post-hoc tests (Mann-Whitney-U Tests) were performed. Logistic regression analysis and linear regression analysis were used for multivariate analyses. Reference categories were determined as “male” for gender, “none” for constipation in daily life, “below 20 g” for fat consumption, “none or mild” for constipation after quitting smoking, “high school and below” for education variables. During the linear regression analysis, the data were fit to the normal distribution. *p* values less than 0.05 were considered significant.

Results

The study included 87 participants, 46 men and 41 women, with a mean age of 44.13 ± 12.67 years. 37.9% of the participants were university graduates and there were no illiterate or primary school graduates among the study participants. At the time of application, 50.6% of the participants were in the normal, 37.9% in the overweight and 9.2% in the obese BMI category. Before quitting smoking, 56.3% of the participants smoked 20 cigarettes or less, while 43.7% smoked more than 20 cigarettes. The findings regarding the socio-demographic and economic characteristics and health status of the participants are shown in Table 1.

28.7% of the participants reported that they consumed less than 20 grams of fat, 58.6% consumed 20–30 grams, and 12.6% consumed more than 30 grams. The findings regarding the nutritional status of the participants are shown in Table 2.

At the end of the 1st month following quitting smoking, 40.2% of the participants experienced constipation, 62.1% experienced BMI increase and 93.1% experienced cigarette craving. Percentages of constipation, BMI increase and cigarette craving experienced by the participants at the end of the 1st month following smoking cessation are presented in Figure 1.

The mean weight of the participants before quitting smoking was 74.35 ± 13.37 kg, and the mean weight at the end of the 1st month following smoking cessation was 75.91 ± 14.00 . The mean BMI of the participants before quitting smoking was 25.21 ± 3.65 kg/m², and the mean BMI at the end of the 1st month following quitting smoking was 25.73 ± 3.80 kg/m². Participants' weight and BMI increases were statistically significant ($p < 0.001$). The change in BMI groups of the participants during the quitting process is shown in Figure 2.

Table 1. Findings on socio-demographic and economic characteristics and health status.

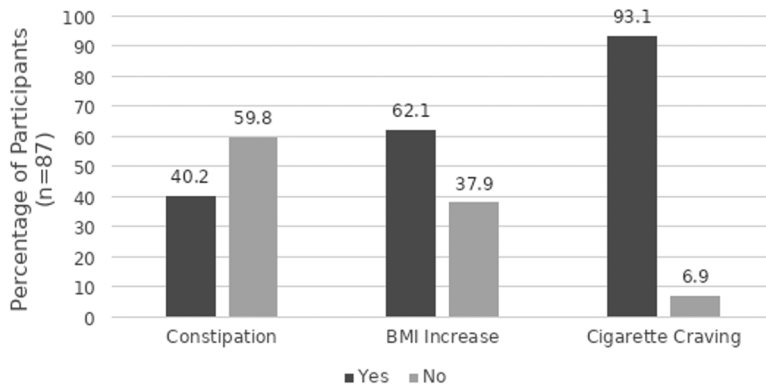
Variables	N	%
Age		
<i>Under 25 years of age</i>	4	4.6
<i>25–64 years</i>	78	89.7
<i>65 years old and above</i>	5	5.7
Gender		
<i>Male</i>	46	52.9
<i>Female</i>	41	47.1
Educational status		
<i>Primary School</i>	15	17.2
<i>Middle School</i>	9	10.3
<i>High School</i>	27	31
<i>The University</i>	33	37.9
<i>Post-graduate</i>	3	3.4
Level of income		
<i>Less than twice the minimum wage</i>	46	52.9
<i>2x or more</i>	10	11.5
BMI		
<i>Underweight</i>	2	2.3
<i>Normal</i>	44	50.6
<i>Overweight</i>	33	37.9
<i>Obese</i>	8	9.2
Weekly exercise time		
<i>Does not</i>	42	48.3
<i>Less than 150 min per week</i>	11	12.6
<i>150 min or more per week</i>	34	39.1
Smoking duration		
<i>Less than 10 years</i>	9	10.3
<i>10–19 years</i>	32	36.8
<i>20–29 years</i>	25	28.7
<i>30 years and more</i>	21	24.1
Number of cigarettes		
<i>20 and less</i>	49	56.3
<i>More than 20</i>	38	43.7
Previous quit attempts		
<i>No</i>	13	16.1
<i>Yes</i>	74	83.9
Reason for resuming smoking after previous quit attempts		
<i>Constipation</i>	6	6.9
<i>Increased appetite</i>	11	12.6
<i>Weight gain</i>	11	12.6
<i>Craving</i>	57	65.5
<i>Stress</i>	43	49.4
Pharmacological treatment		
<i>Nicotine replacement therapy</i>	28	32.2
<i>-Nicotine patch.</i>	23	26.4
<i>-Nicotine gum</i>	2	2.3
<i>-Patch and gum</i>	3	3.4
<i>Varenicline</i>	48	55.2
<i>Bupropion</i>	11	12.6
Fagerström nicotine addiction test score		
<i>Very low</i>	7	8
<i>Low</i>	12	13.8
<i>Moderate</i>	9	10.3
<i>High</i>	23	26.4
<i>Very high</i>	36	41.4

^a31 participants (35.6%) stated that they did not want to answer the question about income.

Female participants, those whose daily fat consumption was over 30 grams, those who frequently experienced constipation in daily life and those whose cigarette consumption was between 0 and 20 were statistically

Table 2. Findings regarding nutritional status.

Variables (daily)	N	%
Water consumption		
Less than 2.5 liters	37	42.5
2.5 liters or more	50	57.5
Bread consumption		
Whole meal or whole grain	50	57.5
White bread	37	42.5
Vegetable-fruit consumption		
5 portions and above	20	23
Under 5 portions	67	77
Cereal product consumption		
Less than 4 portions	23	26.4
4–6 portions	32	36.8
More than 6 portions	32	36.8
Milk and dairy product consumption		
Less than 2 portions	40	46
2 portions	36	41.4
More than 2 portions	11	12.6
Consumption of meat, eggs and legumes		
Less than 2 portions	19	21.8
2 portions	58	66.7
More than 2 portions	10	11.5
Sugar consumption		
Under 25 grams	34	39.1
25 grams	30	34.5
More than 25 grams	23	26.4
Fat consumption		
Less than 20 grams	25	28.7
20–30 grams	51	58.6
More than 30 grams	11	12.6
Salt consumption		
5 grams or less	47	54
Over 5 grams	40	46

**Figure 1.** Constipation, BMI increase and cigarette craving experienced by participants at the end of the 1st month following smoking cessation.

significantly more likely to experience constipation ($p < 0.05$). No statistical significance was found for other variables.

The change in BMI of participants who reported constipation as severe was statistically significantly higher ($p < 0.05$). No statistical significance was found for other variables.

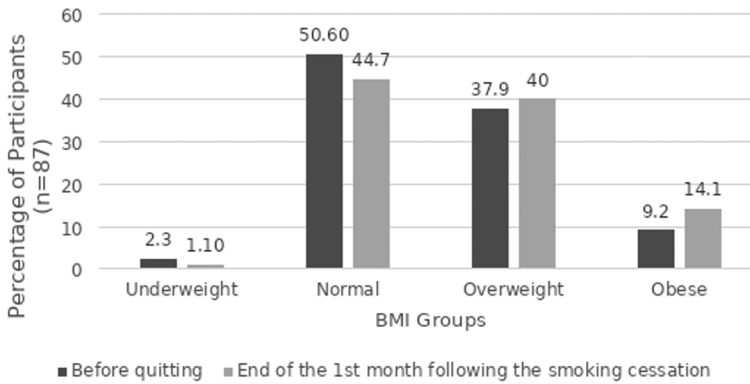


Figure 2. The change in BMI groups of the participants during the quitting process.

The cigarette craving scores of the participants whose educational level was university and above, those whose fat consumption was less than 30 grams, and those whose pre-smoking cessation BMI was overweight or below were statistically significantly higher ($p < 0.05$). No statistical significance was found for other variables. Factors associated with constipation status, BMI change and craving level are presented in Table 3.

Table 4 shows the logistic analyses of factors affecting constipation and linear regression analyses of factors affecting BMI change and cigarette craving. Experiencing constipation in daily life (OR = 6.03, CI = 1.46–24.91), number of cigarettes consumed (OR = 0.94, CI = 0.90–0.99) and fat consumption (OR = 5.61, CI = 1.17–26.87) were the factors affecting constipation at 1 month following quitting smoking ($p < 0.05$). The factors given in Table 4 explain 32.2% of the constipation experienced.

Constipation experienced after quitting smoking affects the increase in BMI in individuals ($B = 0.56$, CI = 0.10–0.82). The factors given in Table 4 explain 4.7% of the BMI increase.

Participants' educational status ($B = 6.12$, CI = 0.20–12.05) and pre-smoking cessation BMI ($B = 10.58$, CI = 0.59–20.58) were the factors affecting the level of cigarette craving. The factors given in Table 4 explain 11% of the cravings.

Discussion

The aim of this study, which was conducted at Ege University; Institute of Substance Abuse, Toxicology and Pharmaceutical Sciences; Smoking Cessation Clinic in Izmir, Turkey and included smoking cessation patients over the age of 18, was to reveal the complaints of constipation and BMI increase and cigarette craving levels experienced by individuals at the end of the 1st month following smoking cessation and their relationship with nutrition.

Table 3. Effect of variables on constipation status, BMI and craving level.

	Constipation ^a			BMI Change ^{b,c}			Craving ^{b,c}		
	N	%	p	Median	IQR	p	Median	IQR	p
Gender			0.048*			0.753			0.293
Male	14	30.4		0.39	1.010.98		27.50	244	
Female	21	51.2		0.48			23.00	211	
Educational status			0.510			0.965			0.010*
High school and below	22	43.1		0.49	0.905		22.00	207	
University and Above	13	36.1		0.33	1.11		34.50	2010	
Age			0.153			0.171			0.381
Under 25 years of age	2	50.0		0.00	1.703		23.00	27	
25–64 years	29	37.2		0.54	1.02		25.50	20	
65 years old and above	4	80.0		0.00	0.51		40.00	302	
Level of income			0.738			0.202			0.167
Less than twice the minimum wage	20	43.5		0.29	0.91		22.00	20	
2x or more	5	50.0		0.47	1.13		31.00	266	
Weekly exercise time			0.452			0.659			0.969
Less than 150 min	12	35.3		0.39	0.91		27.00	21	
150 min or more per week	23	43.4		0.57	1.05		25.00	228	
Daily fat consumption			0.024*			0.785			0.019*
–30 grams and below	27	35.5		0.49	1.03		27.50	23	
–Above 30 grams	8	72.7		0.26	0.75		19.00	31	
Experiencing constipation in daily life	8		0.005*			–			–
None	14	22.9		–	–		–	–	
Rare	13	(42.4)		–	–		–	–	
Frequent		68.4		–	–		–	–	
Complaint of constipation	–	–	–			0.022*			0.856
None or mild				0.17	0.980.72		25.00	20	
Severe				0.74			29.50	26	
Initial BMIs			0.357			0.219			0.015
Overweight and under	33	41.8		0.38	0.98		26.00	23	
Obese	2	25.0		0.90	1.01		19.50	12	
Smoking duration			0.344			0.918			0.216
9 years and below	5	55.6		0.00	1.14		14.00	26	
10–19 years	11	34.4		0.64	1.03		24.00	23	
20–29 years	8	32.0		0.37	0.87		30.00	19	
30 years and above	11	52.4		0.53	1.09		27.00	186	
Number of cigarettes			0.001*			0.927			0.306
0–20	27	55.1		0.47	0.98		22.00	215	
21 & Above	8	21.1		0.42	1.00		28.50	21.00	
Pharmacological Treatment			0.599			0.704			0.555
Nicotine replacement therapy	11	39.3		0.44	0.84		27.00	19.60	
Varenicline	21	43.8		0.57	1.06		26.00	231	
Bupropion	3	27.3		0.12	0.98		24.00	28	
FTND score			0.122			0.384			0.236
Less than 5	24	47.1		0.37	0.99		22.00	259	
5 and more	11	30.6		0.54	1.01		31.00		

^a: Chi-square test, ^b: Mann-Whitney-U test, ^c: Kruskal Wallis test.*: $p < 0.05$, SD: standard deviation.

Table 4. Logistic and linear regression analyses for constipation status, BMI change and craving scores.

Variables	Constipation		BMI change		Craving	
	OR	95% CI	B	95% CI	B	95% CI
Age	1.02	0.98–1.07	0.004	–0.08–0.02	0.19	–0.04–0.42
Gender	1.07	0.36–3.20	0.15	–0.17–0.46	4.91	–0.97–10.802
Constipation in daily life	2.94	0.93–9.28	–	–	–	–
Experiencing constipation in daily life	6.03	1.46–24.91*	–	–	–	–
Number of cigarettes	0.94	0.90–1.00*	–	–	–	–
Fat consumption	5.61	1.17–26.87*	–	–	6.25	–2.60–15.101
Constipation after quitting smoking	–	–	0–0.46	0.10–0.82*	–	–
Educational status	–	–	–	–	6.12	0.20–12.05*
Initial BMIs	–	–	–	–	10.58	0.59–20.58*
Nagelkerke R ²	0.322		–		–	
R ²	–		0.080		0.161	
Adjusted R ²	–		0.047		0.110	

*: $p < 0.05$, OR: odds ratio, CI: confidence interval, R²: coefficient of determination.

According to the findings of the study, at the end of the 1st month following smoking cessation, participants experienced constipation, increased BMI and cigarette cravings. Frequent constipation in daily life and fat consumption above 30 grams increase constipation complaints during the smoking cessation process, while there is an inverse relationship between the amount of cigarettes smoked and constipation complaints. BMI change increased as the severity of constipation complaint increased after smoking cessation. As the educational level of the individuals increased, the level of cigarette craving also increased, while higher BMI before smoking cessation was associated with lower levels of cigarette craving.

In the study conducted by Hajek et al. the rate of constipation in individuals who quit smoking was 17% (Hajek et al., 2003). In smoking cessation clinic-oriented studies conducted in Turkey, the rate of constipation was reported with results ranging from 4.1–16% (Çan et al., 2007; Tezcan et al., 2012; Yasar et al., 2014). Our study reported a rate of 40.2% constipation, which is higher than the general distribution in the literature. In this case, it is thought that the detailed questions focusing on constipation status and the scoring system between 1–10 instead of a response of "experienced" or "did not experience" may have been effective, and that this may have helped to reveal the complaints of slight to severe constipation that were considered insignificant and not voiced.

During the smoking cessation process; those who experienced constipation frequently in daily life; experienced more than 6 times more constipation problems than those who never experienced constipation. It is thought that this may be caused by the disappearance of the laxative effect of nicotine. It was observed that those who smoked fewer cigarettes at

the time of admission had more constipation problems. This difference is thought to be explained by the knowledge that nicotine stimulates intestinal activity and therefore smoking may cause a laxative effect in those with little or no tolerance to tobacco (Advokat et al., 2014). Participants with a fat consumption more than 30 g were about 6 times more likely to suffer from constipation than participants with 30 g or under consumption. The number of studies examining the relationship between dietary fat consumption and constipation is limited. One study found that diets with more than 30 grams of saturated fat were associated with a high prevalence of constipation (Vakili et al., 2015). A study examining the relationship between functional constipation and dietary habits in children aged 3–8 years reported that constipation was associated with high fat consumption and suggested that high fat consumption should be avoided in its treatment (Fujitani et al., 2018). Although the type of fat consumed by individuals was not questioned in this study; according to Turkey Nutrition Guide 2015 data, the contribution of saturated fats to total energy intake is over 10% in 56% of individuals aged 18–64 (Republic of Turkey Ministry of Health, General Directorate of Public Health, 2015). These literature insights may explain the increased constipation in participants with higher than 30 g fat consumption.

At the end of the one-month smoking cessation period, an upward change was found in the BMI groups of the individuals. The prevalence of obesity in adults in Turkey is increasing day by day. According to the Turkey Nutrition and Health Survey –2019 study report, the prevalence of adult obesity in Turkey is 26.3% in men, 42.6% in women and 34.1% in total. In total, overweight individuals were 36.6%, overweight and obese individuals were 70.7% and morbidly obese individuals were 4.1%. In the Aegean region, which includes the province of Izmir, where the study was carried out, the prevalence of obesity is 33.1% (Republic of Turkey Ministry of Health, General Directorate of Public Health, 2019). These data are representative of the general population and the patients who applied to our clinic for smoking cessation and participated in the study differ from the general population in terms of BMI. It has been reported that as smoking frequency increases, BMI decreases (Harris et al., 2016).

Findings from a randomized trial suggest that the long-term increase in BMI after smoking cessation is 1.8–1.9 units (Courtemanche et al., 2018). In our study, an increase in BMI was also observed.

In this study, participants had an increase of 1.55 ± 2.13 kg after one month. A meta-analysis study on weight gain during the smoking cessation period reported that the weight gain at the end of 1 year was 4–5 kg, the period with the highest rate of weight gain was the first 3 months following smoking cessation, and this increase was 1 kg for each month on average (Aubin et al., 2012).

Harris et al. mention two main mechanisms explaining the relationship between tobacco and weight. The first is that tobacco reduces food intake by suppressing appetite and increasing feelings of satiety. Secondly, nicotine in tobacco causes increased lipolysis in adipose tissue, increasing adrenaline-neuradrenaline levels and serum leptin levels, leading to energy expenditure (Harris et al., 2016). Nicotine increases basal metabolic rate. Smoking can increase 24-h energy expenditure by up to 10% (McGovern & Benowitz, 2011). In this study, the participants' nutritional status and physical activity did not play a statistically significant role in the weight and BMI increases they experienced during the smoking cessation period. It is thought that this increase in the participants may be due to decreased energy expenditure as a result of the elimination of the amount caused by nicotine.

Those who reported experiencing severe constipation at the end of the smoking cessation process increased BMI more than those who experienced slight constipation and those who never experienced constipation. While mean stool frequency is 1.10 motions per 24h period, the normal value of daily stool is 128 g (Rose et al., 2015). This may explain the association of constipation with increased BMI. Therefore, the disappearance of constipation may be a more appropriate period for determining the actual BMI change.

The participants' scores on the QSU-Brief were interpreted as indicating that cravings were present but of low severity. It should not be ignored that the participants were still undergoing pharmacological treatments for smoking cessation at the time the scale was administered, which may have had a decreasing effect on the scores.

It is thought that the reason why participants with an educational level of university and above had QSU-Brief scores more than 6 times higher than those with an educational level of high school and below may be skills such as self-listening and self-expression, which are assumed to increase with increasing educational level.

In our study, individuals who were obese at baseline had lower QSU-Brief scores than individuals in other groups. Tobacco, like other substances that cause addiction-related disorders, activates reward circuits in the brain (APA, 2013). Food and water are also stimuli that activate reward cycles (National Institute on Drug Abuse, 2019). Hyperpalatable foods are defined as foods high in salt, sugar and fat (Kalon et al., 2016), and a study showed that the reward system was activated even by showing pictures of these foods (Gearhardt et al., 2011). In another study, when participants were asked to evaluate different foods according to their addictive properties, it is known that foods with high fat content and high glycemic load stand out (Schulte et al., 2015). In our study, in obese individuals, eating may have become a reward and this may have helped these participants in the fight against cravings. It is also thought that food-related

cravings may have made these individuals more accustomed to the concept of craving.

Constipation complaints during smoking cessation progressively increased with the frequency of constipation in daily life and dietary fat consumption, and negatively correlated with the number of cigarettes smoked before quitting. Participants' BMI increased with constipation complaints. Individuals with baseline BMIs in the obese category had lower levels of cigarette craving than others. In addition, participants with a university degree or higher reported higher levels of cigarette craving.

One of the strengths of this study is that the conditions seen in the smoking cessation process such as constipation, BMI increase and cigarette craving and their relationship with nutrition were evaluated together. In the study, it is important that not only individuals' gain weight but also BMI changes were examined. Another strength of the study is that the participants' weight was measured by the researcher. Information about nutritional status during the study was obtained based on the self-report of the individuals. Forms regarding nutritional status were filled out in the presence of a dietitian, as it was thought that this would contribute to collecting this information in a healthy way. Self-report method can make nutrition information vulnerable to being affected by people's misremembering etc., however, due to the economic and temporal difficulties of methods such as observation, etc.; collecting information on nutritional status through self-report, has found its place in the literature and has been shown to be a valid method (Yuan et al., 2018).

The inclusion of a question about constipation in daily life in the anamnesis forms of smoking cessation clinics may help to take early measures for these patients. Low smoking consumption should also be considered as a risk factor for patients to experience constipation after quitting. In order to better understand the effect of high fat consumption on constipation complaints, studies examining different types of fat and fatty acids as well as the amount of fat should be planned. Since constipation is a factor affecting BMI increase, BMI increase evaluations to be performed after the constipation complaint disappears will give more accurate results for smoking cessation patients. In smoking cessation polyclinics, it will be beneficial to create nutrition recommendations specific to the quitting process. Further studies to identify the reasons for low cigarette craving in obese individuals are recommended.

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