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# Gender Differences in Terms of Psychological Symptoms and Nicotine Dependence among Smokers

Dilek Sarıkaya,<sup>1</sup> Eser Sağaltıcı,<sup>2</sup> Muhammed Mustafa Uzan,<sup>3</sup>  
 Ömür Günday Toker,<sup>2</sup> Selim Polat<sup>4</sup>

<sup>1</sup>Department of Psychiatry, Uskudar University Medicine Faculty, Istanbul, Turkey

<sup>2</sup>Department of Psychiatry, Bağcılar Training and Research Hospital, Istanbul, Turkey

<sup>3</sup>Department of Family Medicine, Tepecik Training and Research Hospital, Izmir, Turkey

<sup>4</sup>Department of Psychiatry, Adana City Training and Research Hospital, Adana, Turkey

## ABSTRACT

**Objectives:** This study aims to determine the differences between genders in terms of nicotine dependence severity and psychological symptom levels in individuals applied to the smoking cessation clinic.

**Methods:** This cross-sectional study was conducted in the smoking cessation outpatient clinic of Kackar State Hospital between June 1 and December 30, 2017. Sociodemographic form, Symptom Checklist-90-revised (SCL-90-R) and Fagerström Test for Nicotine Dependence (FTND) were administered to the participants.

**Results:** A total of 224 participants were enrolled in this study and 124 (55.4%) were male. The median FTND score was 7.0 [5.0-9.0] in female and 8.0 [6.0-8.0] in male ( $p=0.232$ ). FTND score was associated with somatization symptom level of SCL-90-R and daily tea consumption in male participants ( $r=0.215$  and  $p=0.017$ ;  $r=0.244$  and  $p<0.006$ ). Also, the number of cigarettes smoked per day was associated with subgroups of SCL-90-R in male participants ( $r=0.193$  and  $p=0.032$  for somatization;  $r=0.177$  and  $p=0.049$  for depression;  $r=0.257$  and  $p<0.004$  for anxiety;  $r=0.225$  and  $p=0.012$  for phobic anxiety;  $r=0.238$  and  $p=0.008$  for psychoticism;  $r=0.272$  and  $p=0.002$  for additional symptoms;  $r=0.220$  and  $p=0.014$  for general symptoms).

**Conclusion:** Clinicians should keep in mind that patients who want to quit smoking may also suffer from psychological symptoms that need to be addressed. There was no difference in the level of nicotine dependence between men and women smokers, however the psychological symptom levels were noted to be higher in women, and the severity of nicotine dependence was correlated with somatization score in men.

**Keywords:** Tobacco use disorder, gender role, psychological factors, smoking cessation, nicotine dependence



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### Address for correspondence:

Dr. Dilek Sarıkaya. Department of Psychiatry, Uskudar University Medicine Faculty, Istanbul, Turkey

Phone: +90 505 215 58 54

### E-mail:

dilek\_sarkaya@yahoo.com

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## INTRODUCTION

The prevalence of smoking worldwide has been approximated to be 40% in men and 9% in women according to data of the World Health Organization.<sup>[1]</sup> The Global Adult Tobacco Survey conducted in Turkey stated that 27.4% of the population aged 15 years old and over in the country are smokers, of which the smoking rate was 43.8% for men and 11.6% for women.<sup>[2]</sup> Smoking prevalence among men in Turkey ranks 11<sup>th</sup> among European countries.<sup>[3]</sup> However, Turkey is among the 10 countries with the lowest smoking prevalence among women in European countries. Although the smoking rate among women in Turkey is lower than that in men, it is stated that this rate has increased continuously since the 1950s.<sup>[4]</sup> A large-scale study

conducted in Canada found that the frequency of smoking in women between the ages 15 and 19 was 18%, whereas in men, it was 17%.<sup>[5]</sup> According to the Global Adult Tobacco Survey results, 6.8% of women between the ages 15 to 24 were smokers in Turkey, and the highest smoking age range was noted between ages 35 to 44 years, with a rate of 21.4%.<sup>[2]</sup>

Worldwide, smoking prevalence in men has been determined to be higher in middle-income countries (37%–39%) compared to that in high-income countries (32%).<sup>[2]</sup> However, this situation is the opposite in women. In middle-income countries, the smoking prevalence of women (4%–15%) is lower than that in high-income countries (19%). According to the Global Adult Tobacco study results in Turkey, the smoking frequency in women living in the urban area was 15.5%, whereas it was 6.7% in the rural area.

Some differences exist between men and women when considering the use of addictive substances in terms of gender, which affects the rates and patterns of substance use.<sup>[5]</sup> Women have been noted that they tend to use cigarettes, alcohol, or other addictive drugs for increasing self-confidence, reducing tension, dealing with problems, reducing pressure, or losing weight. In addition, it is stated that there is a significant association between having a traumatic history and addictive substance use in women. Some studies showed that it is harder for women to quit smoking than men, and when they quit, they are more susceptible to stress, depression, loss of weight control, and negative withdrawal effects.<sup>[1]</sup>

In recent years, with the increasing awareness on the harms of smoking and the enactment of anti-tobacco policies, a significant decrease has been observed in smoking, especially in developed countries. In developing countries such as Turkey, smoking remains a serious public health problem.<sup>[6]</sup> The low smoking rate of women in developing countries has directed the tobacco industry to shift their focus on women in developing countries. Therefore, the latest trend in developed countries is to determine the differences in terms of smoking prevalence rate between men and women and address the problem with gender-specific approaches. In Turkey, studies which compare the differences between genders as regards smoking behavior remain inadequate. Thus, this study aims to determine the differences between genders in terms of nicotine dependence and psychological symptom levels among individuals admitted to the smoking cessation clinic and to determine the relationship between smoking behaviors and gender, addiction severity, and psychological symptoms.

## METHOD

This cross-sectional study was conducted in the Kackar State Hospital between June 1 and December 30, 2017. This study included consecutively selected 214 eligible patients who applied to the hospital smoking cessation outpatient clinic. Inclusion criteria in the study were the patients aged between 18–65 years, literate, and able to a sufficient level of Turkish to fill out the questionnaire. The sociodemographic form, Symptom Checklist-90 Revised (SCL-90-R), and Fagerström Test for Nicotine Dependence (FTND) were then administered to all participants.

Sociodemographic form included gender, age, marital status, education levels, additional chronic disease, history of psychiatric disorders, psychiatric drug therapy history, alcohol use, gambling, daily tea consumption, daily coffee consumption, and daily network use. Regarding the smoking behaviors of the participants, the form included smoking status of partner, smoking status of parents, reason to onset smoking, ever attempted to quit smoking, professional support in the smoking cessation attempt, why decided to quit smoking now, the longest time one abstained from smoking, reasons for intention to quit now, age at smoking initiation, and number of people smoking at home.

Smoking behaviors form included factors that trigger smoking (stress, tea/coffee, postprandial, and alcohol) in which case the desire to smoke increases, thus resulting in more (stress/trouble, relax time, and both) the number of cigarette consumption per day (NCPD). In withdrawal symptoms forms, participants were asked about what they experienced when they quit smoking, such as irritability, discomfort, insomnia, distractibility, appetite, and excessive smoking.

Psychological symptoms were assessed using the SCL-90-R. The SCL-90-R is a 90-item four-point Likert-type scale developed by Derogatis. It is used to determine the psychological symptom levels of individuals and its validity and reliability have been proven in different patient groups. This scale is made up of 10 sub-dimensions (somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, anger-hostility, phobic anxiety, paranoid symptoms, psychotic symptoms, and additional scale), and each of the subscale can be scored between 0 and 4.<sup>[7]</sup> A general symptom score above 1 shows the presence of a psychopathological condition. The Turkish version of the scale was made by Dağ, and Cronbach alpha value was found to be 0.97.<sup>[8]</sup> The results indicate that the Turkish form of the scale is at a reliable level. Moreover, the criterion-related validity of the scale was found to be at an acceptable level. The Cronbach alpha value was 0.91 in that study.

Nicotine dependence was assessed using the FTND.<sup>[9]</sup> It was first put forward by Fagerström in 1978 and was reconsidered by Heatherton and colleagues in 1991. The Turkish validity and reliability studies of the test were conducted by Uysal and colleagues.<sup>[10]</sup> The Turkish version of FTND was then administered to the participants. FTND consists of six questions, and each question is given a different score. According to the total scores obtained as a result of the evaluation of this test, nicotine addiction was identified in three groups, depending on the score, that is, low (0–3 points), medium (4–6 points), and high (7 points and above).

Exclusion criteria in the study were pregnancy, illiteracy, substance abuse, severe psychiatric disorder that impedes decision making, or mental retardation.

The collected data were analyzed using the Statistical Pack-

age for the Social Sciences version 20.0 (SPSS 20.0, Chicago, IL, USA). Normality tests were carried out using one-sample Kolmogorov-Smirnov and Shapiro-Wilk tests and through histogram graphs. The descriptive statistics were presented in median and 25<sup>th</sup> and 75<sup>th</sup> percentiles for the quantitative variables and frequency and percentage for categorical variables. Chi-square test was used for categorical variables and Mann-Whitney U test and Spearman's correlation test were used for continuous variables. A p value <0.05 was considered statistically significant.

## RESULTS

A total of 224 smokers were included in the study. Mean age was 44.0 [35.0-54.0] years, median FTND score was 7.0 [6.0-8.75], and 124 (55.4%) of the participants were male. Sociodemographic features of participants according to gender are summarized in Table 1.

**Table 1.** Sociodemographic features of participants according to gender

|                                  | Overall (n=224)  | Female (n=100)   | Male (n=124)     | p                   |
|----------------------------------|------------------|------------------|------------------|---------------------|
| Marital status                   |                  |                  |                  |                     |
| Married                          | 32 (14.3)        | 70 (70.0)        | 101 (81.5)       | 0.002*              |
| Single                           | 171 (76.3)       | 13 (13.0)        | 19 (15.3)        |                     |
| Divorced/widow                   | 21 (9.4)         | 17 (17.0)        | 4 (3.2)          |                     |
| Working status                   |                  |                  |                  |                     |
| Regular job                      | 107 (47.8)       | 38 (38.0)        | 79 (63.7)        | <0.001*             |
| Unemployed                       | 117 (52.2)       | 62 (62.0)        | 45 (36.3)        |                     |
| Education status                 |                  |                  |                  |                     |
| Literate                         | 9 (4.0)          | 5 (5.0)          | 4 (3.2)          | 0.546*              |
| Primary Education                | 114 (50.9)       | 52 (52.0)        | 62 (50.0)        |                     |
| High School                      | 70 (31.3)        | 27 (27.0)        | 43 (34.7)        |                     |
| University                       | 31 (13.8)        | 16 (16.0)        | 15 (12.1)        |                     |
| Additional chronic disease       |                  |                  |                  |                     |
| No                               | 146 (65.2)       | 67 (67.0)        | 79 (63.7)        | 0.607*              |
| Yes                              | 78 (34.8)        | 33 (33.0)        | 45 (36.3)        |                     |
| Psychiatric disorders history    |                  |                  |                  |                     |
| No                               | 138 (61.6)       | 48 (48.0)        | 90 (72.6)        | <0.001*             |
| Yes                              | 86 (38.4)        | 52 (52.0)        | 34 (27.4)        |                     |
| Psychiatric drug therapy history |                  |                  |                  |                     |
| No                               | 191 (85.3)       | 79 (79.0)        | 112 (90.4)       | 0.017*              |
| Yes                              | 33 (14.7)        | 21 (21.0)        | 12 (9.6)         |                     |
| Alcohol                          |                  |                  |                  |                     |
| Less than once a week            | 196 (87.5)       | 95 (95.0)        | 101 (81.5)       | 0.006*              |
| 1-2 per week                     | 22 (9.8)         | 5 (5.0)          | 17 (13.7)        |                     |
| More than 2 times a week         | 6 (2.7)          | 0 (0.0)          | 6 (4.8)          |                     |
| Gambling                         |                  |                  |                  |                     |
| No                               | 200 (89.3)       | 96 (96.0)        | 104 (83.9)       | 0.004*              |
| Yes                              | 24 (10.7)        | 4 (4.0)          | 20 (16.1)        |                     |
| Age (years)                      | 44.0 [35.0-54.0] | 42.5 [35.0-49.0] | 45.5 [35.5-57.0] | 0.023 <sup>†</sup>  |
| Daily tea consumption (cup)      | 5.0 [2.0-10.0]   | 4.0 [1.0-10.0]   | 7.0 [2.0-14.0]   | 0.005 <sup>†</sup>  |
| Daily coffee consumption (cup)   | 0.0 [0.0-1.0]    | 0.0 [0.0-2.0]    | 0.0 [0.0-1.0]    | <0.001 <sup>†</sup> |
| Daily network use (hours)        | 0.0 [0.0-0.0]    | 0.0 [0.0-1.0]    | 0.0 [0.0-0.0]    | 0.581 <sup>†</sup>  |

Data is presented as n (%) and median [25<sup>th</sup> - 75<sup>th</sup> percentiles].

\*Chi-square tests, <sup>†</sup>Mann-Whitney U test.

The median age at smoking initiation of the participants was 16.0 [14.0-19.0] years. Smoking history and smoking behaviors of participants according to gender are summarized in Table 2.

The median FTND score in female was 7.0 [5.0-9.0] and in male was 8.0 [6.0-8.0] ( $p=0.232$ ). The nicotine dependence level and withdrawal symptoms according to gender are summarized in Table 3.

**Table 2.** Smoking history and smoking behaviors of participants according to gender

|   | Overall (n=224)   | Female (n=100)   | Male (n=124)     | p       |
|---|-------------------|------------------|------------------|---------|
| Smoking status of partner                         |                   |                  |                  |         |
| No  | 146 (65.2)        | 55 (55.0)        | 91 (73.4)        | 0.004*  |
| Yes   | 78 (34.8)         | 45 (45.0)        | 33 (26.6)        |         |
| Smoking status of parents                         |                   |                  |                  |         |
| Mother or father                                  | 142 (63.4)        | 64 (64.0)        | 78 (62.9)        | 0.150*  |
| Mother and father                                 | 25 (11.2)         | 15 (15.0)        | 10 (8.1)         |         |
| None  | 57 (25.4)         | 21 (21.0)        | 36 (29.0)        |         |
| Reason to onset smoking                           |                   |                  |                  |         |
| Wonder  | 93 (41.5)         | 37 (37.0)        | 56 (45.2)        | 0.065*  |
| Stress/sadness                                    | 45 (20.1)         | 24 (24.0)        | 21 (16.9)        |         |
| Winnable/self-prof                                | 74 (33.0)         | 30 (30.0)        | 44 (35.5)        |         |
| Another   | 12 (5.4)          | 9 (9.0)          | 3 (2.4)          |         |
| Ever attempted to quit smoking                    |                   |                  |                  |         |
| No  | 46 (20.5)         | 23 (23.0)        | 23 (18.5)        | 0.412*  |
| Yes   | 178 (79.5)        | 77 (77.0)        | 101 (81.5)       |         |
| Previous professional support to quit smoking     |                   |                  |                  |         |
| No  | 211 (94.2)        | 96 (96.0)        | 115 (92.7)       | 0.300*  |
| Yes   | 13 (5.8)          | 4 (4.0)          | 9 (7.3)          |         |
| Decided to quit smoking now                       |                   |                  |                  |         |
| Voluntarily                                       | 167 (74.6)        | 80 (80.0)        | 87 (70.2)        | 0.093*  |
| Family/Environment request                        | 57 (25.4)         | 20 (20.0)        | 37 (29.8)        |         |
| Longest time stayed quit                          |                   |                  |                  |         |
| Less than 1 month                                 | 134 (59.8)        | 62 (62.0)        | 72 (58.1)        | 0.900*  |
| 1-3 months  | 26 (11.6)         | 12 (12.0)        | 14 (11.3)        |         |
| 3-12 months                                       | 32 (14.3)         | 13 (13.0)        | 19 (15.3)        |         |
| More than 12 months                               | 32 (14.3)         | 13 (13.0)        | 19 (15.3)        |         |
| Reasons for intention to quit now                 |                   |                  |                  |         |
| Current disease                                   | 31 (13.8)         | 13 (13.0)        | 18 (14.5)        | 0.387*  |
| Worrying about sick in the future                 | 132 (58.9)        | 55 (55.0)        | 77 (62.1)        |         |
| Economical reason                                 | 3 (1.3)           | 2 (2.0)          | 1 (0.8)          |         |
| Disgust   | 14 (6.3)          | 9 (9.0)          | 4 (4.0)          |         |
| Not wanting to be bad example                     | 27 (12.1)         | 15 (15.0)        | 12 (9.7)         |         |
| Another   | 17 (7.6)          | 6 (6.0)          | 11 (8.9)         |         |
| Factors that trigger smoking‡                     |                   |                  |                  |         |
| Stress  | 121 (54.0)        | 62 (62.0)        | 59 (47.6)        | 0.031*  |
| Tea/Coffee  | 128 (57.1)        | 50 (50.0)        | 78 (62.9)        | 0.052*  |
| Postprandial                                      | 127 (56.7)        | 52 (52.0)        | 75 (60.5)        | 0.203*  |
| Alcohol   | 78 (34.8)         | 30 (30.0)        | 48 (38.7)        | 0.174*  |
| In which case the desire to smoking increase more |                   |                  |                  |         |
| Stress/Trouble                                    | 174 (77.7)        | 84 (84.0)        | 90 (72.6)        | 0.116*  |
| Relax time  | 24 (10.7)         | 7 (7.0)          | 17 (13.7)        |         |
| Both  | 26 (11.6)         | 9 (9.0)          | 17 (13.7)        |         |
| Age at smoking initiation (years)                 | 16.0 [14.0-19.0]  | 17.0 [15.0-20.0] | 16.0 [14.0-18.0] | <0.001† |
| Number of people smoking at home                  | 0.0 [0.0-1.0]     | 1.0 [0.0-1.0]    | 0.0 [0.0-1.0]    | <0.001† |
| NCPD  | 20.0 [18.50-30.0] | 20.0 [15.0-25.0] | 25.0 [20.0-30.0] | <0.001† |

NCPD: Number of cigarettes per day.

Data is presented as n (%) and median [25<sup>th</sup> - 75<sup>th</sup> percentiles].

\*Chi-square tests, †Mann-Whitney U test.

‡Multiple-choice question.

**Table 3.** The nicotine dependence level and withdrawal symptoms according to gender

|                              | Overall (n=224) | Female (n=100) | Male (n=124) | p     |
|------------------------------|-----------------|----------------|--------------|-------|
| Withdrawal symptoms          |                 |                |              |       |
| Irritability                 |                 |                |              |       |
| No                           | 92 (41.1)       | 34 (34.0)      | 58 (46.8)    | 0.053 |
| Yes                          | 132 (58.9)      | 66 (66.0)      | 66 (53.2)    |       |
| Discomfort                   |                 |                |              |       |
| No                           | 131 (58.5)      | 62 (62.0)      | 69 (55.6)    | 0.337 |
| Yes                          | 93 (41.5)       | 38 (38.0)      | 55 (44.4)    |       |
| Insomnia                     |                 |                |              |       |
| No                           | 201 (89.7)      | 88 (88.0)      | 113 (91.1)   | 0.443 |
| Yes                          | 23 (10.3)       | 12 (12.0)      | 11 (8.9)     |       |
| Distractibility              |                 |                |              |       |
| No                           | 180 (80.4)      | 81 (81.0)      | 99 (79.8)    | 0.828 |
| Yes                          | 44 (19.6)       | 19 (19.0)      | 25 (20.2)    |       |
| Appetite                     |                 |                |              |       |
| No                           | 175 (78.1)      | 77 (77.0)      | 98 (79.0)    | 0.715 |
| Yes                          | 49 (21.9)       | 23 (23.0)      | 26 (21.0)    |       |
| Excessive desire for smoking |                 |                |              |       |
| No                           | 97 (43.3)       | 41 (41.0)      | 56 (45.2)    | 0.532 |
| Yes                          | 127 (56.7)      | 59 (59.0)      | 68 (54.8)    |       |
| FTND groups                  |                 |                |              |       |
| Low                          | 28 (12.5)       | 12 (12.0)      | 16 (12.9)    | 0.256 |
| Medium                       | 45 (20.1)       | 25 (25.0)      | 20 (16.1)    |       |
| High                         | 151 (67.4)      | 63 (63.0)      | 88 (71.0)    |       |

FTND: Fagerstrom test for nicotine dependence.

Data is presented as n (%).

Chi-square tests.

According to the sub-dimensions of SCL-90-R, median somatization score was 0.9 [0.5-1.5], median obsessive-compulsive symptoms score was 1.0 [0.6-1.4], median interpersonal sensitivity score was 0.7 [0.3-1.2], median depression score was 0.8 [0.4-1.3], median anxiety score was 0.6 [0.2-1.1], median anger-hostility score was 0.7 [0.3-1.2], median paranoid thoughts score was 0.5 [0.2-1.2], median psychotism score was 0.4 [0.1-0.8], median additional symptoms score was 0.9 [0.4-1.3], and median general symptom score was 0.7 [0.4-1.1]. The psychological symptom levels according to gender are summarized in Table 4.

In female participants, while there was a relationship between FTND score and NCPD and age, no relationship was found between age at smoking initiation, daily tea consumption, daily coffee consumption and daily network time ( $r=0.684$  and  $p<0.001$ ;  $r=-0.209$  and  $p=0.037$ ;  $p>0.05$ , respectively). In addition, there was no significant relation-

ship between NCPD and age, age at smoking initiation, daily tea consumption, daily coffee consumption, daily network time ( $p>0.05$ ). In male participants, while there was a relationship between FTND score and NCPD and age at smoking initiation, daily tea consumption, no relationship was found between age and daily coffee consumption ( $r=0.557$  and  $p<0.001$ ;  $r=-0.238$  and  $p=0.008$ ;  $r=0.244$  and  $p=0.006$ ;  $p>0.05$ , respectively). Besides, while there was a relationship between NCPD and daily tea consumption, no relationship was found between age, age at smoking initiation, daily coffee consumption, daily network time ( $r=0.231$  and  $p=0.010$ ;  $p>0.05$ , respectively). The relationship between psychological symptom levels and FTND and NCPD according to gender are summarized in Table 5.

## DISCUSSION

The sociodemographic and clinical characteristics, gender differences, and smoking behaviors of smokers have been identified as important factors that can affect their decision

**Table 4.** The psychological symptom levels according to gender

|                               | Female (n=100) | Male (n=124)  | p      |
|-------------------------------|----------------|---------------|--------|
| Somatization                  | 1.4 [0.9-2.1]  | 0.7 [0.3-1.0] | <0.001 |
| Obsessive compulsive symptoms | 1.2 [0.9-1.7]  | 0.8 [0.4-1.2] | <0.001 |
| Interpersonal sensitivity     | 0.9 [0.4-1.4]  | 0.5 [0.1-1.0] | <0.001 |
| Depression                    | 1.2 [0.7-1.8]  | 0.6 [0.2-0.9] | <0.001 |
| Anxiety                       | 0.9 [0.4-1.4]  | 0.4 [0.2-0.8] | <0.001 |
| Anger-hostility               | 0.8 [0.5-1.7]  | 0.5 [0.2-1.0] | <0.001 |
| Phobic anxiety                | 0.4 [0.0-0.9]  | 0.3 [0.0-0.6] | 0.088  |
| Paranoid thought              | 0.7 [0.3-1.5]  | 0.5 [0.0-1.0] | 0.001  |
| Psychotism                    | 0.4 [0.1-1.0]  | 0.3 [0.0-0.7] | 0.009  |
| Additional symptoms           | 1.0 [0.6-1.6]  | 0.6 [0.3-1.1] | <0.001 |
| General symptoms level        | 1.0 [0.3-1.4]  | 0.5 [0.3-1.0] | <0.001 |

Data is presented as median [25<sup>th</sup>-75<sup>th</sup> percentiles].

Mann-Whitney U test.

**Table 5.** The relationship between psychological symptom scores and FTND and NCPD according to gender

|                               | Female (n=100) |       |        |       | Male (n=124) |       |       |       |
|-------------------------------|----------------|-------|--------|-------|--------------|-------|-------|-------|
|                               | FTND           |       | NCPD   |       | FTND         |       | NCPD  |       |
|                               | r              | p     | r      | p     | r            | p     | r     | p     |
| Somatization                  | 0.094          | 0.352 | 0.049  | 0.627 | 0.215        | 0.017 | 0.193 | 0.032 |
| Obsessive compulsive symptoms | 0.042          | 0.679 | -0.007 | 0.949 | 0.028        | 0.761 | 0.094 | 0.300 |
| Interpersonal sensitivity     | 0.156          | 0.121 | 0.066  | 0.516 | 0.032        | 0.723 | 0.174 | 0.054 |
| Depression                    | 0.127          | 0.209 | 0.034  | 0.740 | 0.088        | 0.330 | 0.177 | 0.049 |
| Anxiety                       | 0.149          | 0.138 | 0.026  | 0.799 | 0.148        | 0.101 | 0.257 | 0.004 |
| Anger-hostility               | 0.155          | 0.124 | 0.105  | 0.299 | 0.061        | 0.503 | 0.111 | 0.221 |
| Phobic anxiety                | 0.169          | 0.092 | 0.151  | 0.133 | 0.056        | 0.538 | 0.225 | 0.012 |
| Paranoid thought              | 0.186          | 0.064 | 0.153  | 0.128 | 0.050        | 0.584 | 0.164 | 0.069 |
| Psychotism                    | 0.095          | 0.348 | 0.024  | 0.812 | 0.082        | 0.365 | 0.238 | 0.008 |
| Additional symptoms           | 0.011          | 0.915 | -0.049 | 0.628 | 0.096        | 0.291 | 0.272 | 0.002 |
| General symptoms level        | 0.135          | 0.181 | 0.056  | 0.577 | 0.107        | 0.237 | 0.220 | 0.014 |

FTND: Fagerstrom test for nicotine dependence; NCPD: Number of cigarettes per day.

Spearman's correlation test.

to start, maintain, and quit smoking; thus, these should be taken into consideration when developing public health policies to prevent smoking addiction.<sup>[11]</sup> In this study, no difference was noted between male and female individuals who applied to the smoking cessation clinic in terms of the severity of nicotine dependence. However, psychological symptom levels were found to be higher in females, but they were not related with the severity of nicotine dependence. In males, their psychological symptom levels were lower than that in females, and they were related with the severity of nicotine dependence.

It is known that one first encounter cigarettes during his/her adolescence. Generally, women start smoking later than men, and the NCPD is lower in women.<sup>[12]</sup> According to the Global Adult Tobacco Survey results in Turkey, the mean age of smoking initiation among men was at 16.7 years, whereas it was 17.9 years in women.<sup>[2]</sup> In a survey conducted among university students in Turkey, the average age to start smoking was found to be 16.9 years, with men starting at an earlier stage to begin smoking compared to women.<sup>[13]</sup> In our study, consistent with the previous studies, the mean age of men starting to smoke cigarette was

significantly lower in men. In another study, it was showed that starting smoking at an early age can make it harder to quit.<sup>[14]</sup> This result highlights that effective interventions and preventive health measures are needed to prevent early smoking, especially in men.

Tiwari et al. found that smoking rates in unmarried women were significantly higher than in married women.<sup>[15]</sup> In our study, majority of the women were single. Conversely, Wee et al. reported that among those who applied to the smoking cessation clinic, the number of married participants was higher and that those who were married were more successful to quit smoking.<sup>[16]</sup> The motivation in married individuals to quit smoking may be their desire not to harm their spouses and children or it could be their spouse's and children's demand or wish for them to quit such bad habit. These results suggest that additional social support programs may be necessary to encourage unmarried individuals to quit smoking and to ensure successful attempts of those who want to quit. In our study, smoking togetherness was found higher in the spouses of married females than spouses of married males. Homish et al. reported that nearly half of the smokers have smoker spouses. They reported that women whose husbands were smokers were more likely to become one than men whose wives were smokers. They also reported that most women tend to smoke to relate more with their spouses and be more social.<sup>[17]</sup> It was stated that having someone else who is smoking at home can negatively affect one's success to quit smoking, whereas those people whose partners stop smoking were more likely to be successful to quit.<sup>[18]</sup> These results indicate that inviting the partner to the treatment and offering some lifestyle changes to improve women's social life and interpersonal relations may positively affect the results of smoking cessation in women whose partner is smoking.

Alcohol use is more common in men than women not just in our country but of countries across the world.<sup>[5]</sup> It had been found that alcohol consumption increases one's desire to smoke.<sup>[19]</sup> In our study, alcohol use and gambling were found to be higher in men than in women. This result suggests that alcohol use and gambling should be examined especially in men, and if these two exist together, limiting these behaviors during smoking cessation treatment may affect the process positively.

One of the most important factors which can affect the success of smoking cessation is the severity of nicotine addiction.<sup>[20]</sup> In our study, no significant difference was found as regards nicotine addiction severity between men and women. However, NCPD was significantly higher in men.

Similar to our study, Esen et al. stated that there was no significant difference between genders in terms of nicotine addiction severity, but the average of NCPD was higher among men.<sup>[21]</sup> In another study conducted by Şahin et al., it was also determined men smoke more cigarettes compared to women; thus, nicotine addiction severity was found to be higher in men.<sup>[13]</sup> Smoking behavior in men is more socially accepted than in women, and men start smoking at an earlier age than women. These factors may be associated with the higher NCPD and higher nicotine dependence levels in men than women. More studies are needed to define the differences in nicotine addiction severity between genders.

There already exist a number of studies stating that there is a relationship between nicotine addiction and psychiatric disorders. In these studies, nicotine addiction had been associated with numerous psychiatric disorders such as panic disorder, depression, anxiety disorder, alcohol use disorders, specific phobia, and schizophrenia and bipolar disorder.<sup>[22-25]</sup> Bush et al. reported that smoking was more common among adolescents with psychiatric disorders.<sup>[26]</sup> Lasser et al. suggest that 55% of people who had anxiety disorders were smokers.<sup>[27]</sup> Although there is research investigating the relationship between women's smoking behavior and anxiety symptoms, the results seem contradictory. Brook et al. stated that women with a previous history of anxiety disorder were more prone to develop nicotine addiction than men.<sup>[28]</sup> John et al. stated that women are more likely to develop anxiety disorder after a year of smoking than men.<sup>[29]</sup> In this study, the rates of psychiatric admission history and current use of psychiatric medication were higher in females than male participants. These results highlight the possibility of a psychiatric disorder in cases who admit to the smoking cessation clinic and the importance of detailed psychiatric evaluation in all smokers, especially women.

In our study, somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, anger-hostility, paranoid thinking, psychotism, and additional and general symptom levels of the SCL-90-R were significantly higher in women than in men. File et al. stated that nicotine decreases the anxiety caused by moderate stress factors in women but increases anxiety and negative affect in men.<sup>[30]</sup> Consistent with this result, in our study, the level of nicotine dependence in men was found to be positively correlated with somatization, depression, anxiety, phobic anxiety, psychotism, additional symptoms, and general symptom level in SCL-90-R. In addition, NCPD in men was positively associated with the level of somatization symptoms in SCL-90-R. In female participants, no relationship was de-

terminated with regard to the level of nicotine dependence, NCPD, and SCL-90-R levels. It was stated that women were smoking for social reasons (social acceptance, popularity, weight control, and increasing personal attractiveness in addition to stress management, being happy, and avoiding tiring lives).<sup>[30]</sup> In our study, psychological symptom levels were higher in females than in males. However, these levels were not found to be associated with nicotine dependence level and NCPD. This supports the result that smoking behavior of women may also be due to social reasons.

Worldwide, the smoking rate of women remains to be lower than that in men. According to the European Tobacco Control Report, the prevalence of smoking in men is higher than women in all European countries except for Iceland and Sweden. The gender gap in the prevalence of smoking in Eastern European countries such as Georgia, Armenia, and Belarus is over 40%.<sup>[3]</sup> This gender gap whets the appetite of the tobacco industry. Tobacco industry combined the image of western, modern, and strong women and smoking behavior with encouraging advertisements, to encourage women to smoke in developing countries. Therefore, we need effective anti-tobacco policies for women living in developing countries. Developing specialized protective and therapeutic methods for women is essential to prevent this important public health problem.

The limitations of this study are that it was cross-sectional study, and that smoking cessation treatment cannot be evaluated. It will be possible to contribute more to this concern with large-scale, prospective studies including the results of smoking cessation therapies.

## CONCLUSION

As a conclusion of this study, there was no difference in the level of nicotine dependence between men and women smokers who applied to the smoking cessation clinic, but the psychological symptom levels were noted to be higher in women, and the severity of nicotine dependence was correlated with somatization score in men. Therefore, different treatment strategies may be required between genders due to these differences in patients applying to quit smoking. Unfortunately, the number of studies examining the relationship of nicotine dependence between genders is still quite limited.

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