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Evaluation of Smoking Quittal with Psychological Scales in Hendek State Hospital Smoking Quittal Clinic

Hendek Devlet Hastanesi Sigara Birakma Polikliniğinde Sigarayı Bırakmanın Psikolojik Ölçeklerle Değerlendirilmesi

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ABSTRACT

Objective: This study retrospectively evaluated the effects of treatment methods (bupropion and varenicline) used in the smoking cessation process on depression and anxiety among individuals who applied to the Hendek State Hospital Smoking Cessation Polyclinic.

Materials and Methods: The Fagerström Nicotine Dependence Test (FNDT) and a questionnaire form developed specifically for this study by a pulmonologist working in the outpatient clinic were prepared. In addition, the scores obtained from the Hamilton Depression (HAM-D) rating and Hamilton Anxiety (HAM-A) rating scales were also analyzed.

Results: In Spearman correlation analysis, a positive, high-level, statistically significant relationship was found between the HAM-D rating scale scores received by individuals in the first interview and the HAM-A rating scale scores (n=20, r=0.704, p=0.001). A positive, high-level, and statistically significant relationship was found between the scale scores they received in the second interview (n=20, r=0.784, p=0.001). The decrease in anxiety levels was not found to be statistically significant. Statistically significant reductions in depression levels were observed in participants (bupropion group: p=0.016; varenicline group: p=0.028). However, the decrease in anxiety levels was not statistically significant (bupropion group: p=0.069; varenicline group: p=0.150).

Conclusions: The findings showed a statistically significant decrease in depression levels in individuals who received both bupropion and varenicline treatment. The research results emphasize that attention should be paid not only to the physical dependence level of individuals but also to their psychological state in the smoking cessation process.

Keywords: Psychological scales, smoking quittal, smoking quittal clinic

ÖZ

Amaç: Bu çalışmada, Hendek Devlet Hastanesi Sigara Bırakma Polikliniğine başvuran bireylerde sigarayı bırakma sürecinde kullanılan tedavi yöntemlerinin (bupropion ve vareniklin) depresyon ve anksiyete üzerine etkileri retrospektif olarak değerlendirilmiştir.

Materyal ve Metot: Fagerstörm Nikotin Bağımlılığı Testi (FNBT) ve poliklinikte görev yapan göğüs hastalıkları uzmanı tarafından bu çalışmaya özel olarak geliştirilen bir anket formu hazırlanmıştır." Ayrıca Hamilton Depression (HAM-D) derecelendirme ve Hamilton Anxiety (HAM-A) derecelendirme ölçeklerinden elde edilen puanlar da analiz edilmiştir.

Bulgular: Spearman korelasyon analizinde, bireylerin ilk görüşmede aldıkları HAM-D derecelendirme ölçeği puanları ile HAM-A derecelendirme ölçeği puanları arasında pozitif, yüksek düzeyde, istatistiksel olarak anlamlı bir ilişki bulunmuştur (n=20, r=0,704, p=0,001). İkinci görüşmede aldıkları ölçek puanları arasında pozitif, yüksek düzeyde, istatistiksel olarak anlamlı bir ilişki bulunmuştur (n=20, r=0,784, p=0,001). Anksiyete düzeylerindeki azalmanın istatistiksel olarak anlamlı olmadığı saptanmıştır. Katılımcılarda depresyon seviyelerinde istatistiksel olarak anlamlı bir azalma gözlenmiştir (bupropion grubu: p=0,016; vareniklin grubu: p=0,028). Ancak, anksiyete seviyelerindeki azalma istatistiksel olarak anlamlı bulunmamıştır (bupropion grubu: p=0,069; vareniklin grubu: p=0,150).

Sonuç: Çalışma hem bupropion hem de Vareniklin tedavisi alan bireylerde depresyon seviyelerinde istatistiksel olarak anlamlı bir azalma olduğunu göstermiştir. Anksiyete düzeylerindeki azalma istatistiksel olarak anlamlı bulunmamıştır. Ancak, depresyon düzeylerinde anlamlı bir düşüş olduğu belirlenmiştir. Araştırma sonuçları, sigara bırakma süreçlerinde bireylerin yalnızca fiziksel bağımlılık düzeyine değil, aynı zamanda psikolojik durumlarına da dikkat edilmesi gerektiğini vurgulamıştır.

Anahtar Kelimeler: Psikolojik ölçekler, sigara bırakma, sigara bırakma polikliniği

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INTRODUCTION

Smoking is a habit that has negative effects on the physical and psychological health of individuals and is one of the leading preventable causes of death in the world. Nicotine addiction is the main reason for the difficulties encountered in the process of quitting smoking, and both physical and psychological support play important roles. The desire to smoke, through psychological addiction and physical dependence, is a vital factor in the smoking cessation process. ^{1, 2}

In Türkiye, smoking cessation clinics provide important health services that facilitate individuals' recovery from addiction.

The psychological dimension of this process is critical, particularly in managing comorbidities such as depression and anxiety. 3-6 This study aims to retrospectively examine the sociodemographic characteristics, smoking cessation processes, and effectiveness of treatment methods among individuals who applied to the Hendek State Hospital Smoking Cessation Clinic in the Hendek district of Sakarya province in 2011. Additionally, it aims to evaluate the changes in depression and anxiety levels accompanying the smoking cessation process.

MATERIALS AND METHODS

Ethics Committee Approval: Approval for the study was obtained from the Sakarya University Faculty of Medicine Ethics Committee (Date: 02.09.2015, decision no: 10983). Permissions from the authors of the scales used in the study were obtained via email. The Declaration of Helsinki criteria were followed to protect the data of participants during the study, and written approval was obtained via e-mail from all healthcare professionals participating in the study.

Study Design and Participants: This is a retrospective, descriptive study based on a file review. In this study, the files of 124 people who applied to the Smoking Cessation Polyclinic of Hendek State Hospital in the Hendek district of Sakarya province in 2011 were retrospectively examined, and a questionnaire was prepared by a chest disease specialist serving in the polyclinic. Individuals were included in the study if they had completed both psychiatric evaluations (HAM-D and HAMD-A) during the first and second interviews and were treated with either bupropion or varenicline. Patients who did not attend the second interview, had incomplete psychiatric scale data, or had missing file information were excluded. The questionnaire gathered the age, gender, and education status of the individuals who applied to the polyclinic. The forms also contained questions regarding sociodemographic characteristics and smoking habits. The results of the

Fagerstörm Nicotine Dependence Test (FNDT) were obtained from the same individuals by the same specialist physician.^{7,8} In addition to the questionnaire forms and the FNDT, the scores obtained from the Hamilton Depression Rating Scale (HAM-D) and Hamilton Anxiety Rating Scale (HAM-A) among individuals who presented to the smoking cessation polyclinic by a psychiatrist working in the same hospital at the time, approximately one month apart, were also scanned. The FNDT is a six-item test developed by Fagerstörm in 1989 to determine the level of nicotine addiction in individuals. It is widely used as a screening test in smoking cessation clinics to determine the course of treatment planning and addiction. 6.8.9 A validity and reliability study of this test in the Turkish language was conducted by Uysal et al. in 2004.8 The scores that can be obtained from the test are between 0 and 10, with high scores indicating high addiction. As a result of this test, those who score 0-2 are considered to be very mildly addicted; those who score 3-4 are mildly addicted; those who score 5 are moderately addicted; those who score 6-7 are highly addicted; and those who score 8-10 are very highly addicted. 10 The HAM-D is a scale developed by Max Hamilton in 1960. It is applied to individuals with depressive symptoms by the clinician by measuring the severity of depression and changes in severity. 11 The validity and reliability study of the Turkish language form was conducted by Akdemir et al. in 1996. 11 The scores that can be obtained from the scale, which consists of 17 items, range from 0 to 53 points, with an increase in score indicating an increase in the severity of depression. A score of 7 and below on the scale indicates normal; 8-13 indicates mild; 14-18 indicates moderate; 19-22 indicates severe; and 23 points and above indicates very severe depressive symptoms. HAM-A was developed by Max Hamilton in 1959. It is a 14item scale applied by a clinician interviewer and aims to determine the severity of anxiety in individuals, changes in severity, and the distribution of symptoms. The validity and reliability study of the Turkish language form of the scale was conducted by Yazıcı and colleagues in 1998. 12 The scores that can be obtained from the scale range between 0 and 56 points, with an increase in the score indicating an increase in the severity of anxiety. Cut-off scores were not calculated for the Turkish form.

Data Collection: According to the information obtained from the retrospective scanned files of 124 people who applied to the Hendek State Hospital Smoking Cessation Polyclinic in 2014 and whose questionnaire forms were filled out by a chest disease specialist in the first interview, it was determined that the HAM-D and HAM-A were applied entirely to 20 people by a psychiatrist in the first and

second interviews.

Psychiatric Evaluation: It was determined that after the HAM-D and HAM-A were applied by the psychiatrist during the first interview, 13 of these 20 people were given bupropion treatment, the chest disease specialist gave 7 varenicline treatment, and an appointment was given for the second interview, one month later.

Follow-up and Re-evaluation: It was observed that the same scales were applied again in the second appointment, approximately one month later.

Statistical Analysis: Normality of the data was assessed using the Kolmogorov-Smirnov test. Since the data did not show a normal distribution, non-parametric tests were preferred. Accordingly, the Wilcoxon Signed-Rank Test was used for withingroup comparisons. Due to the small sample size (n=20), parametric tests were deemed inappropriate. IBM Statistical Package for Social Sciences (SPSS) for Windows 23.0 statistical package program was used for statistical analyses. The statistical significance level of 0.05 was accepted.

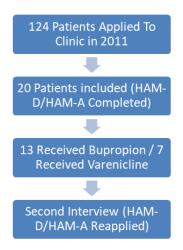


Figure 1. Flowchart of participant selection and evaluation process.

RESULTS

There was a total of 20 participants. The main age of participants was 42.50 ± 11.97 (median = 41). 65% were male (n=13), while 60% of the participants were primary school graduates (n=12), 95% were married (n=19), and 55% (n=11) were unemployed. According to their smoking history, it was found that the participants had been smoking for an average of 24.20 ± 12.65 years, with a median of 20 years. The mean value of the number of cigarettes smoked per day was found to be 25.0 ± 9.5 , and the median value was found to be 20. When the smoking history was calculated in terms of pack years, the mean value was found to be 31.93 ± 23.46 pack years, and the median value was found to be 20.50 pack years. It was determined that 50% (n=10) of the participants stated they had to question whether they had a chronic disease diagnosed by a physician. It was determined that 7 of the 10 individuals with chronic disease had chronic bronchitis, four had hypertension, two had coronary artery disease, and two had diabetes. The mean value of the scores obtained by the participants in the FNDT was calculated as 5.75 ± 2.94 , while the median value was calculated as 6.00. It was determined that 55% (n=11) of the individuals had a score of 6 or above on the test,

meaning that they had a high or very high level of nicotine dependence. Other descriptive characteristics of the individuals in the bupropion and varenicline treatment groups are shown in Table 1.

The mean and standard deviation values of the scores for all individuals (n=20) from the HAM-D applied in the first interview were calculated as 12.80 ± 8.33 points. It was determined that five individuals had mild, five individuals had moderate, three individuals had severe, and two individuals had very severe depressive symptoms. The mean of the scores received by all individuals from the HAM-A in the first interview was calculated as 13.25 ± 8.74 points. In Spearman correlation analysis, a positive, high-level, statistically significant relationship was found between the HAM-D received by individuals in the first interview and the HAM-A (n=20, r=0.704, p=0.001). A positive, high-level, and statistically significant relationship was found between the scale scores they received in the second interview (n=20, r=0.784, p=0.001) (Table 2). The mean and standard deviation values of the HAM -D scores among the 13 individuals who were given bupropion treatment were 13.77±9.28, and the median value was 15.00 in the first interview. The mean value of the scores obtained from the second interview was 9.08±6.50, and the median value was 8.00.

Table 1. Some descriptive characteristics of individuals in the bupropion and varenicline groups.

| | | Bupropion (n=13)n (%) | Varenicline (n=7) n (%) | Total (n=20) n (%) |
|---------------------------|------------------------|--------------------------|----------------------------|-----------------------|
| Gender | Man | 6 (46.2) | 7 (100) | 13 (65) |
| | Woman | 7 (53.8) | 0 (0) | 7 (35) |
| Age | 21-30 | 3 (23.1) | 1 (14.3) | 4 (20) |
| | 31-40 | 3 (23.1) | 2 (28.6) | 5 (25) |
| | 41-50 | 5 (38.5) | 0 (0) | 5 (25) |
| | 51-60 | 0 (0) | 4 (57.1) | 4 (20) |
| | 61-65 | 2 (15.3) | 0 (0) | 2 (10) |
| Civil Status | Single | 0 (0) | 1 (14.3) | 1 (5) |
| | Married | 13 (100) | 6 (85.7) | 19 (95) |
| Educational Back- | Elementary school | 7 (53.8) | 5 (71.4) | 12 (60) |
| ground | Middle school | 2 (15.4) | 0 (0) | 2 (10) |
| | High school | 3 (23.1) | 2 (28.6) | 5 (25) |
| | University | 1 (7.7) | 0 (0) | 1 (5) |
| Working Status | Yes | 5 (38.5) | 4 (57.1) | 9 (45) |
| | No | 8 (61.5) | 3 (42.9) | 11 (55) |
| Chronic Disease Diagnosis | No | 7 (53.8) | 3 (42.9) | 10 (50) |
| | Yes | 6 (4.2) | 4 (57.1) | 10 (50) |
| Package-Year Amount | 5-15 | 5 (38.5) | 2 (28.6) | 7 (35) |
| - | 16-30 | 4 (30.7) | 0 (0) | 4 (20) |
| | 31-45 | 1 (7.7) | 3 (42.8) | 4 (20) |
| | 46 and above | 3 (23.1) | 2 (28.6) | 5 (25) |
| Addiction Level Ac- | Very little | 3 (23.1) | 0 (0) | 3 (15) |
| cording to FNAT | Little | 3 (23.1) | 2 (28.6) | 5 (25) |
| | Middle | 1 (7.6) | 0 (0) | 1 (5) |
| | High | 3 (23.1) | 2 (28.6) | 5 (25) |
| | Very high | 3 (23.1) | 3 (42.8) | 6 (30) |
| HAM-D(First Inter- | Normal symptoms | 3 (23.1) | 2 (28.6) | 5 (25) |
| view) | Mild depression | 3 (23.1) | 2 (28.6) | 5 (25) |
| | Moderate depression | 1 (7.6) | 2 (28.6) | 5 (25) |
| | Severe depression | 3 (23.1) | 1(14.3) | 3 (15) |
| | Very severe depression | 3 (23.1) | 0 (0) | 2 (10) |
| HAM-D (Second In- | Normal symptoms | 6 (46.2) | 6 (85.7) | 12 (60) |
| terview) | Mild depression | 4 (30.8) | 1 (14.3) | 5 (25) |
| | Moderate depression | 2 (15.4) | 0 (0) | 2 (10) |
| | Severe depression | 0 (0) | 0 (0) | 0 (0) |
| | Very severe depression | 1 (7.7) | 0(0) | 1 (5) |

SD: Standard Deviation; HAM-D: Hamilton Depression Rating Scale; HAM-A: Hamilton Anxiety Rating Scale.

Table 2. Results of Spearman correlation analysis between the scores obtained from the Hamilton Depression and the Anxiety Rating Scales.

| Comparisons | | HAM-D (First Meeting) | HAM-D (Second Meeting) |
|------------------------|---|-----------------------|------------------------|
| HAM-A (First Meeting) | n | 20 | - |
| | r | 0.704 | - |
| | р | 0.001* | - |
| HAM-A (Second Meeting) | n | - | 20 |
| | r | - | 0.784 |
| | p | - | 0.001* |

 $\label{eq:ham-D:Hamilton Depression Scale; HAM-A: Hamilton Anxiety Scale; SD: Standard deviation; *: Considered statistically significant when calculated as p<0.05.$

The mean and standard deviation values of the HAM -D scores of the seven individuals who were given varenicline treatment were 11.00±6.46, and the median value was 12.00 in the first interview. The mean value of the scores obtained from the second interview was 4.14 ± 4.26 , and the median value was 3.00. The mean HAM-A scores of the 13 individuals who were given bupropion treatment were 13.92±9.27 in the first interview, with a median value of 16.00. The mean HAM-A scores obtained in the second interview were 10.69±6.65, with a median value of 10.00. The mean HAM-A scores of the seven individuals who were given varenicline treatment were 12.00±8.21 in the first interview, with a median value of 10.00. The mean HAM-A scores obtained in the second interview were 7.43±7.19, with a median value of 4.00. According to the Wilcoxon Signed Rank Test applied to the 13 individuals who were given bupropion treatment, the HAM-D scores obtained from the second interview were found to be significantly lower than the scores obtained from the first interview (z=-2.415, p=0.016). In addition, according to the Wilcoxon Signed Rank

Test applied to the 7 individuals who were given varenicline treatment, the HAM-D scores obtained from the second interview were found to be significantly lower than the scores obtained from the first interview (z=-2.201, p=0.028). According to the Wilcoxon Signed Rank Test applied to the 13 individuals given bupropion treatment, the HAM-A scores obtained from the second interview were also lower than the scores obtained from the first interview. Still, this decrease was not statistically significant (z=-1.821, p=0.069). According to the Wilcoxon Signed Rank Test applied to the seven individuals given varenicline treatment, the HAM-A scores obtained from the second interview were also lower than the scores obtained from the first interview. Still, this decrease was not statistically significant (z=-1.439, p=0.150) (Table 3).

The findings showed that there was a statistically significant decrease in depression levels in individuals receiving both bupropion and varenicline. However, the decrease in anxiety levels was not found to be statistically significant (Figure 2).

Table 3. Comparison of HAM-D and HAM-A scores of individuals in the bupropion and varenicline groups.

| | Bupropion Group (n=13) | | z-value p-value | | Varenicline Group (n=7) | | z-value | p-value |
|---------------------------|---------------------------|--------|-----------------|--------|----------------------------|--------|---------|---------|
| | Mean ± SD | Median | | | Mean ± SD | Median | | |
| HAM–D (First Meeting) | 13.77±9.28 | 15.00 | 2.415 | 0.016* | 11.00±6.46 | 12.00 | 2.201 | 0.028* |
| HAM-D (Second Meeting) | 9.08 ± 6.50 | 8.00 | | | 4.14±4.26 | 3.00 | | |
| HAM-A (First Meeting) | 13.92±9.27 | 16.00 | 1.821 | 0.069 | 12.00±8.21 | 10.00 | 1.439 | 0.150 |
| HAM-A (Second Meeting) | 10.69±6.65 | 10.00 | | | 7.43±7.19 | 4.00 | | |

HAM-D: Hamilton Depression Scale; HAM-A: Hamilton Anxiety Scale; SD: Standard deviation; *: A statistically significant difference was found as p < 0.05 in the Wilcoxon Signed Rank Test.

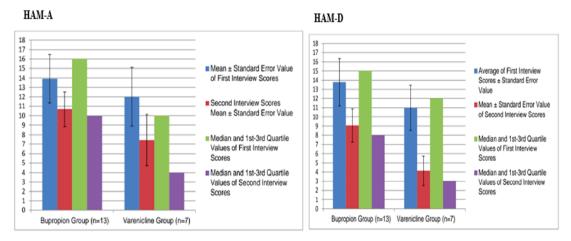


Figure 2. Distribution of the Hamilton Depression and Anxiety Rating Scales among individuals in the bupropion and varenicline groups.

DISCUSSION AND CONCLUSION

This study retrospectively evaluated the effects of pharmacological treatment methods (bupropion and varenicline) used in the smoking cessation process on both nicotine addiction and depression and anxiety. The findings reveal that psychological factors should not be ignored in the smoking cessation process and that it is important to consider the effects of the treatments used on these factors. It was observed that depression scores decreased significantly from the first interview to the second interview among individuals receiving bupropion (p=0.016). Similarly, a significant decrease in depression levels was recorded among individuals receiving varenicline treatment (p=0.028). These results emphasize the positive effects of both treatment methods on depression during the smoking cessation process. Studies have demonstrated that bupropion can significantly reduce depression scores, as evidenced by reductions in Hamilton Depression Rating Scale scores in various patient populations. 13-15 Similarly, Berkeşoğlu et al. emphasized that pharmacological treatments such as bupropion significantly reduce depressive symptoms during smoking cessation. 16 This supports the current findings. However, the decrease in anxiety levels was not found to be statistically significant in both groups (p>0.05). In contrast, Stead et al. reported that while pharmacological treatments help reduce nicotine dependence, their isolated impact on anxiety is limited without concurrent behavioral or psychological support. 17 This indicates the necessity of additional interventions for anxiety during the smoking cessation process. It has been emphasized in previous studies that psychosocial support and biological dimensions of addiction should be considered together in the smoking cessation process.^{3,16} It has been shown that psychological symptoms, especially depression and anxiety, can affect the success rate of the smoking cessation process. 18 These findings are in line with Yığman et al., who suggested that integrating psychological support into cessation programs improves emotional outcomes and increases cessation success rates. 19 Our study also supports these findings and points to the importance of a multidisciplinary approach.

In conclusion, this study has some limitations. First, the small sample size limits the generalizability of the results. Second, due to the retrospective design, the data obtained are limited to the existing records only and may not reflect the individual experiences of the patients in detail. Third, the fact that the psychiatric assessment scales are limited to only two interviews makes it difficult to evaluate long-term changes in depression and anxiety levels. Despite these limitations, our study provides an important contribution to the literature evaluating the effects of

pharmacological treatments used in the smoking cessation process. In particular, the positive effects of bupropion and varenicline treatment on depression reveal the necessity of integrating psychological support programs into smoking cessation processes. 16.17 This situation once again reveals the importance of integrating psychological support programs in smoking cessation clinics. In line with the results obtained, it is recommended that psychological support programs be integrated in addition to interventions aimed at reducing physical dependence in smoking cessation clinics. In addition, a multidisciplinary approach should be adopted to reduce the effects of psychological factors such as depression and anxiety on smoking cessation. Moreover, a multidisciplinary approach should be adopted to reduce the impact of psychological factors such as depression and anxiety on smoking cessation success.²⁰ In this context, providing psychological support and individualized treatment approaches to individuals addicted to smoking can increase smoking cessation. Future studies with larger sample sizes, extended follow-up periods, and integrated behavioral interventions are recommended to evaluate better the longterm psychological impact of pharmacological treatments in smoking cessation.

Ethics Committee Approval: Approval for the study was obtained from the Sakarya University Faculty of Medicine Ethics Committee was obtained (Date: 02.09.2015, decision no: 10983). Permissions from the authors of the scales used in the study were obtained via e-mail. The Declaration of Helsinki criteria were followed to protect the data of healthcare professionals during the study, and written approval was obtained via e-mail from all healthcare professionals participating in the study.

Conflict of Interest: No conflict of interest was declared by the authors.

Author Contributions: Study design CB. Supervision: MBI. Data collection and processing: CB. Analysis and interpretation: CB, MBI, CT. Writing: CB, MBI, CT.

Peer-review: Externally peer-reviewed.

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