ARAŞTIRMA / RESEARCH

Association between treatment motivation, addiction characteristics, craving and temperament traits in male patients with alcohol addiction

Erkek alkol bağımlılığı hastalarında tedavi motivasyonu, bağımlılık özellikleri, aşerme ve mizaç özellikleri ilişkisi

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Abstract

Purpose: The aim of this study is to investigate the relationship between the treatment motivation, addiction characteristics, craving and temperament traits in male patients with alcohol addiction having inpatient treatment.

Materials and Methods: Male patients diagnosed with alcohol addiction according to DSM-IV-TR having inpatient treatment at Ankara Numune Training and Research Hospital's Alcohol and Substance Abuse Treatment and Training Center (AMATEM) were included in the study. The patients were evaluated by sociodemographic data form, Penn Alcohol Craving Scale (PACS), Addiction Profile Index (API), The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES), Temperament Evaluation of Memphis, Pisa, Paris and San Diego Autoquestionnaire (TEMPS-A).

Results: 85 male patients were included in the study. The mean age of the participants was 46.36 ± 9.66. The mean of the years of using alcohol was 23.32 ± 10.33. A positive correlation was found between API total score and PACS total score according to the study.

Conclusion: Increasing craving severity aligned with increasing addiction severity may suggest that patients with high addiction severity should be given more care in terms of craving. The relationship between having a dominant temperament and craving, motivation and severity of addiction could not be determined in our study.

Keywords:. Alcohol; addiction, craving, motivation

Öz

Amaç: Bu araştırmanın amacı, yatarak tedavi gören erkek alkol bağımlılarında tedavi motivasyonu, bağımlılık özellikleri, aşerme ve mizaç özellikleri arasındaki ilişkiyi incelemektir.

Gereç ve Yöntem: Ankara Numune Eğitim ve Araştırma Hastanesi, Alkol-Madde Araştırma, Tedavi ve Eğitim Merkezi'nde (AMATEM) yatarak tedavi gören DSM-IV-TR'ye göre alkol bağımlılığı tanısı almış erkek hastalar çalışmaya dahil edilmiştir. Hastalar, sosyodemografik veri formunun yanı sıra, Penn Alkol Aşerme Ölçeği (PAAÖ), Bağımlılık Profil İndeksi (BAPİ), Değişime Hazır Olma ve Tedavi İsteği Ölçeği (SOCRATES), Memphis, Pisa, Paris ve San Diego - Self Mizaç Değerlendirme Ölçeği (TEMPS-A) kullanılarak değerlendirildi.

Bulgular: Çalışmaya 85 erkek hasta dahil edildi. Çalışma kapsamındaki hastaların ortalama yaşı 46.36 ± 9.66'ydı. Katılımcıların ortalama alkol kullanma süreleri ise 23.32 ± 10.33 yıldı. Çalışmanın sonuçlarına göre BAPİ toplam puanı ve PAAÖ toplam puanı arasında pozitif korelasyon hesaplanmıştır.

Sonuç: Bağımlılık şiddetinin artmasıyla aşerme şiddetinin artması bağımlılık şiddeti yüksek olan hastalarda aşerme konusunda daha dikkatli olmak gerektiğini düşündürebilir. Baskın mizaç özelliğine sahip olup olmamanın aşerme, motivasyon ve bağımlılık şiddeti ile olan ilişkisi çalışmamızda saptanmamıştır.

Anahtar kelimeler: Alkol, bağımlılık, aşerme, motivasyon

INTRODUCTION

Alcohol addiction is a psychiatric disorder that is caused by psychosocial, biochemical and genetic structures. It comprises of relapse and remission phases[1,2]. Keeping the individual sober as long as possible is the first aim of all alcohol addiction treatment programs, while the main purpose is to bring the individual back to society[2,3].

As a result of an alcohol addiction treatment, the individual became free and clear of alcohol. After the treatment process, physical, mental and social effects that are thought to be caused or determined to cause alcohol use are tried to be reduced and treated. However, the desired result from the treatment may not always be obtained depending on many factors. The most common reasons of unpleasant result are not having enough motivation to participate in the treatment, abandoning the treatment, not having enough motivation to stay in the treatment, and not being able to cope with craving[4-6].

The concept of craving is either defined as "the strong compulsive desire or intention to use alcohol" 7 or "the strong subjective impulse to use alcohol"[8]. While motivation is seen as the readiness for a change, the most common cause of adverse course of treatment is reported to be low motivation[9-12]. Therefore, it is important to keep the motivation of the individual high and to determine the factors that cause the craving. In order to detect these conditions; various scales such as Penn Alcohol Craving Scale (PACS), Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) have been developed to measure treatment motivation and craving in alcohol addicts. While evaluating the SOCRATES scores, subscales concerning three factors are calculated. These subscales provides information about the different phases of readiness process. These subscales can be listed as ambivalence, recognition and taking steps. Ambivalence subscale refers to the level of conflict between the benefits and harms of alcohol use; the recognition subscale measures the level of perception that the person is experiencing substance / alcohol use problems and how much damage he may suffer if not changed; taking steps subscale shows the level of active participation in the change process[13-21]. These subgroups are important for determining the status of motivation and relationship between these subgroups and craving is important too.

In previous studies, craving has been found to be associated with various affective conditions and stress, including depression and anxiety[22-23]. In other words, craving and motivation can be influenced by internal conditions such as severity of addiction and affective temperament traits. Therefore, in order to better understand the possible causes of low motivation and craving, it is important to examine its relationship with affective temperament traits. In this study, we aimed to investigate the relationship between alcohol craving, motivation, affective temperament and addictive traits in male patients with alcohol addiction having inpatient treatment.

Our hypothesis is that the dependence severity may be higher in alcohol dependents with dominant temperament characteristics, there may be a positive relationship between high severity of addiction and craving, and there may be a positive relationship between high addiction severity and motivation.

MATERIALS AND METHODS

Study sample

This study was carried out by obtaining the consent form from male patients diagnosed with alcohol addiction according to DSM-IV-TR at Ankara Numune Training and Research Hospital Alcohol and Substance Abuse Treatment Center (June 2013-November 2013). None of the patients included in the study were taking medications that could affect their craving (eg, naltrexone, acamprosate, topiramate, benzodiazepine), and interviews with patients were conducted after the purge period and about 4 to 6 weeks after the last alcohol use.

Before the application of the scales, it was expected for metabolites of benzodiazepine to be negative in the urine test, if benzodiazepine treatment was started during the abstinence period. Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) was applied to each participant in order to exclude the additional psychiatric disorders. The patients included in the study had completed their alcohol addiction treatment, did not receive benzodiazepine treatment at the time of this study and were between 18-65 years of age. The exclusion criteria were determined as mental retardation, dementia and other organic mental disorders, non-alcohol substance abuse, co-diagnosis of other psychiatric and neurological disorders.

Ethics committee approval for our study was obtained from Ankara Numune Training and Research Hospital Ethics Committee. All patient provided informed consent before participation into study.

There were 122 patients having inpatient treatment when the study was performed. 102 of them were completed their detoxification phase. 17 people in total were excluded from the study. 2 people who were not willing to participate in the study, 2 people who were not seen as trustworthy, 13 people who were not compliant to inclusion criteria did not included in the study. Participants were included in the study within 2 to 4 weeks after their detoxification was complete, with no signs of neurological and autonomic withdrawal after the detox.

Measures

Sociodemographic data form

It is a form prepared by the researchers to collect information about the participants regarding age, marital status, education level and employment status.

Penn Alcohol Craving Scale (PACS)

PACS is a five-item self-report questionnaire was developed to assess alcohol craving severity (frequency, intensity, duration, resistance and general craving) for the previous week. Each item in the scale is evaluated between 0 to 6 points. Thus, the maximum total craving score is 30 24. The Turkish version of the scale was found to be valid and reliable in male alcohol addicts receiving inpatient treatment 25. While measuring the internal consistency of the scale, the Cronbach alpha coefficient was obtained to be 0.88 for the first measurement and 0.94 for the second measurement[25].

Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES)

The SOCRATES 5.0 version consists of 19 items[26,27]. Three factors were found to serve as the subscale of SOCRATES. (I) Recognition; (II) Taking Steps; and (III) Ambivalence. It is a 5-point Likert-type scale that answers the questions ranging from "Strongly Disagree" (1 point) to "Strongly Agree" (5 points). For the sake of clarity, the original numbering system defined by Miller and Tonnigan[27] was used in this study. Validity and reliability of the scale in Turkish was conducted by Evren et al.[4]. While measuring the internal consistency of the scale, the Cronbach alpha coefficient was obtained to be 0.77 for the first scale (recognition), 0.74 for the second scale (taking steps), 0.78 for the third scale (ambivalence) and 0.85 for all the scales (SOCRATES) in patients with alcohol dependence[4].

Addiction Profile Index (API)

It is self-report scale and consists of 37 questions and 5 subscales. The subscales measure alcohol use characteristics, addiction diagnostic criteria, the effect of alcohol use on the life of individuals, craving for alcohol use, and motivation to quit alcohol use. The development, validity and reliability research of the clinical form of API was conducted by Ögel et al.[28]. Cronbach alpha coefficient of whole scale was found to be 0.89, while the same coefficient was found to be between 0.63-0.86 for the subscales[28].

Addiction profile index, which was also used in this study was not developed to determine whether addiction exists or not, but to provide a dimensional approach to the addiction[28]. It provides with determining the severity of the addiction. For example, more intense treatment will be required in individuals with high addiction severity[29]. There are several sub-scales of the clinical form of API. Since separate scales were used to measure motivation and craving in our study, the subscales of API that measure these conditions were not included in the analysis, but only the API's impact on life subscale score and total score were analyzed within the extent of this study.

TEMPS-A (Temperament Evaluation of Memphis, Pisa, Paris, San Diego Autoquestionnaire) Temperament Scale

It is designed to evaluate the dominant affective temperament[30]. Its Turkish version is composed of 100 items to determine depressive, hyperthymic, irritable and anxious temperaments. The individual responds to items in the form of yes or no, considering his whole life. "Yes" answers are evaluated with 1 point and "No" answers with 0 points. The depressive is questioned with 19 items; cyclothymic is questioned with 19 items; hyperthymic is questioned with 20 items; irritable is questioned with8 items and anxious is questioned with 24 items in the scale. To evaluate the dominant temperament, the cut-off points were 13; 18; 20; 13 and 18 points. The validity and reliability of the Turkish version was also conducted[31]. Test and repetition reliability of the scale's Turkish version is between 0.73-0.93 and Cronbach alpha coefficient is between 0.75-0.84 32.

Statistical analysis

Statistical analyses were performed using IBM SPSS 22.0 (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.) Shapiro-wilk test was used to determine whether the variables were normally distributed. Mann-Whitney U test was used for comparison of two groups for continuous variables that did not conform to normal distribution, and independent sample t test was used for variables with normal distribution. Pearson Chi-square test was used to compare categorical variables. Pearson correlation coefficient was used for variables with normal distribution and Spearman correlation coefficient was used for variables without normal distribution. Statistical significance level was determined as p <.05.

RESULTS

The study included 85 male inpatients who had alcohol addiction and completed alcohol withdrawal syndrome treatment and were discontinued from benzodiazepine treatment by reducing. The mean age of the patients included in the study was 46.36 ± 9.66. 46 (54%) of the patients were working before hospitalization and the rate of married patients was 49%. Most of the patients were secondary school (36%) and high school (32%) graduates, while only 7 patients (8%) were university graduates (Table 1).

Clinical characteristics of the patients' total API score, impact on life API score, SOCRATES ambivalence, recognition and taking steps scores and total PENN score mean and standard deviation (sd) values are reported in Table 2.

According to the TEMPS-A scale, those without dominant temperament were 50.00%, with depressive 23.50%, with cyclothymic 6.10%, with hyperthymic 4.10%, with irritable 6.10%, with anxious 4.10% and having two temperaments at the same time 6.10% of all subjects. In the Mann-Whitney U test, according to TEMPS-A, between those patients with and without dominant temperament traits; there was no statistically significant difference in total API score, impact on life API score, SOCRATES ambivalence, recognition and taking steps scores and total PACS score (p>.05). In the evaluation using the TEMPS-A scale, no statistically significant difference was found between those with and without dominant temperament traits and age (p=.91) (Table 3)

There were positive correlation between API total score and SOCRATES ambivalence, recognition, take steps scores (respectively p=.012 r=.27; p=<.001 r=.379; p.001 r=.351). There was a positive correlation between API total score and PACS total score (p=.013 r=.269). The correlation between age, total API score, impact on life API score, SOCRATES ambivalence, recognition and taking steps, TEMPS temperament traits sub-scores, and total PENN score were examined and shown in Table 4. There was a negative correlation between age and impact on life API score (p=.01 r=-.28) (Table 4)

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Table 1. Sociodemographic characterization of the patients

Variable	mean ± Standard deviation Sapma (N - %)
Age	46.36 ± 9.66
Marital Status	
Single	% 18 - 21
Married	% 42 - 49
Divorced	% 25 - 30
Duration of education	10.44 ± 3.82
Employment Status	
Employed	% 46 - 54
Student	% 5 - 6
Retired	% 14 - 16
Non-employed	% 20 - 24
Education Status	
Primary School	% 20 - 24
Secondary School	% 31 - 36
High School	% 27 - 32
University	% 7 - 8

Table 2. Alcohol use characterization and scales scores of the patients

Variables	Mean ± Standard Deviations
Duration of alcohol use	23.32 ± 10.33
SOCRATES score	
SOCRATES ambivalence	23.48 ± 6.01
SOCRATES recognition	19.56 ± 5.22
SOCRATES taking steps	20.32 ± 4.62
PACS score	14.16 ± 7.03
API total score	11.86 ± 3.60
API-the effect of alcohol use on the individuals' life	25.06 ± 9.20

SOCRATES: Stages of Change Readiness and Treatment Eagerness Scale; PACS: Penn Alcohol Craving Scale; API: Addiction Profile Index

Table 3. Relationship between the scales in patients with and without dominant temperament traits

	Non-dominant temperament trait group according to TEMPS median (min-max)	Dominant temperament trait group according to TEMPS median (min-max)	p
SOCRATES ambivalence	26 (7-30)	25(11-30)	0.47
SOCRATES recognition	20 (6-25)	20.5(5-25)	0.89
SOCRATES take steps	21(5-25)	21 (8-25)	0.95
PACS total score	13 (1-28)	13 (4-28)	0.88
API life event	26 (0-40)	27 (0-39)	0.73
API total score	12.87 (1.28-17.37)	12.76 (1.28-15.95)	0.80

Mann Whitney-U test was used

.Tablo 4. The correlation of SOCRATES and PENN scales with the variables

		Age	SOCRATES Ambivalence	SOCRATES Recognition	SOCRATES Taking Steps	PACS	Temps Depressive	Temps cyclothymic	Temps hyperthymic	Temps nervous	TEMPS anxiety	BAPI life events	BAPI total score
Age	r	-	-.162	-,243*	-,235*	-.020	.024	.013	.119	-.097	-.089	-,277*	-.186
	p	-	.139	.025	.030	.856	.827	.909	.279	.377	.418	.010	.088
Socrates ambivalence	r	-.162	-	,579**	,617**	.037	-.036	-.173	.161	.001	-.106	,271*	,395**
	p	.139	-	.000	.000	.736	.745	.114	.141	.990	.335	.012	.000
Socrates recognition	r	-,243*	,579**	-	,600**	-.050	.000	-.148	.117	-.053	-.055	,379**	,449**
	p	.025	.000	-	.000	.652	.997	.177	.287	.629	.616	.000	.000
Socrates taking steps	r	-,235*	,617**	,600**	-	.008	.023	-.104	.034	-.047	-.010	.188	,351**
	p	.030	.000	.000	-	.940	.833	.342	.757	.668	.926	.084	.001
PACS total score	r	-.020	.037	-.050	.008	-	-.080	.103	.027	-.102	-.052	.034	,269*
	p	.856	.736	.652	.940	-	.466	.350	.807	.352	.635	.756	.013
API-life effect	r	-,277*	,271*	,379**	.188	.034	-.027	-.009	.070	.063	-.031	-	,772**
	p	.010	.012	.000	.084	.756	.809	.934	.523	.565	.779	-	.000
API total score	r	-.186	,395**	,449**	,351**	,269*	-.019	.064	.109	-.081	-.043	,772**	-
	p	.088	.000	.000	.001	.013	.864	.559	.322	.459	.696	.000	-

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).
Note: For each variable, the first row in front of it shows the correlation coefficient and the second row shows the p value. The statistically significant correlation coefficients were emphasised with bold.
API life effect: the effect of alcohol use on the individuals' life

DISCUSSION

A major problem of the recovery from alcoholism is high alcohol craving and the chronic, relapsing nature of the illness[32,33]. High alcohol craving has been associated with poor clinical outcome and repeated relapse behaviors[34]. There are a number of models to understand the role of craving in addiction to account for craving's contributions to the severity of addiction[35]. Similar to the previous studies in the literature, we found a positive correlation between PACS and API total score in our study. API total score indicates the severity of the individual's addiction, in our study, as the severity of alcohol addiction increases, the level of craving also increases[36]. This may indicate that craving may be higher in individuals with high levels of alcohol dependence. Therefore, it may indicate that the treatment continuation is needed to be planned more carefully to prevent craving.

Craving of alcohol addicts was reported to have a significant negative correlation with the SOCRATES taking steps subscale[37]. In our study, however, there was no correlation between PACS scores and any subscales of SOCRATES.

A neural involvement of the emotional circuit in pathological craving was suggested by Koob and Volkow in 2010, which was also supported by findings of Lee et al. (2013), that the prefrontal lobe–inferior parietal lobe–limbic circuit was identified as a neural substrate of emotion involvement in pathological alcohol craving[38,39]. In the literature, low self-concept, neuroticism, cyclothymic affective temperament, depression, and hostility were found to be predictors of craving in sober patients with alcohol dependence[40]. There was no correlation between TEMPS dominant temperament traits subgroup scores and the scales. At the same time, there was no significant difference between craving level, motivation level, API total score and impact on life subscale scores when the patients those with dominant temperament traits and those without considered. The possible reason for this might be having a small number of samples in our study.

In alcohol use, symptoms generally start between 25-30 years of age and reach the highest point at the age of 35, as for the following years, it gradually decreases[41]. In our study, a negative correlation was found between age and impact on life API score. According to the results of our study, the effects of addiction on life decreases with age. This can be explained by the fact that the functionality expected from individuals at a young age is higher and the expected level of functionality from an individual decreases with age. In our study, it was found that SOCRATES recognition and SOCRATES taking steps subscale scores have a negative correlation with age. Decreased scores in these two subscales with age, may be the effect of increased cognitive dysfunction and its effect on treatment motivation. This finding is compliant with a previous study which reported that the treatment motivation was influenced by executive functions[42].

In our study, the temperament traits of individuals with alcohol dependence were also examined. In a previous study conducted with 70 individuals who were previously diagnosed with alcohol addiction, it was found that 43 of them had dominant temperament, 5.7% of them had depressive, 15.7% had cyclothymic, 25.7% had irritable and 14% had anxious[43]. In our study however, the nondominant temperament was 50.00%, depressive 23.50%, cyclothymic 6.10%, hyperthymic 4.10%, irritable 6.10% and anxious 4.10%. In our study, the rate of those with depressive temperament was higher, whereas in the other study the rate of those with irritable temperament was higher. This may be due to the fact that our patient group only consisted of inpatients and the previous study included outpatients too. According to temperament traits can affect the choice of the individual between inpatient or outpatient treatment and may have difficulty in completing the treatment. In the literature, temperament and character traits were compared between the individuals who completed and did not complete the inpatient program and Cloninger temperament and character inventory was used as a scale. Again in this study, it was found that temperament traits are in association with completing inpatient treatment[44]. The presence of depressive temperament in approximately one quarter of the patients may inform clinicians about the possible temperament traits in this patient group.

In our study, there was a positive correlation between ambivalence subscale scores, recognition subscale scores of SOCRATES and the effect of alcohol use on the individuals' life subgroup score of API. Also there was a positive correlation between API total score and recognition, ambivalence and taking steps subscales scores of SOCRATES. In another study which was using the SOCRATES scale, it was reported that these two subscales (ambivalence and

recognition) may actually be part of the same phenomenon[9]. In clinical observation and experience, we may see that some individuals have an ambivalence in the need to stop drinking or following treatment programs, although they are aware of their drinking problems 4. As the impact of addiction on life increases, the level of recognition of individuals may be increased both by the difficulties experienced in their social life and by their environment affecting the individual in reducing alcohol use. The increase in the severity of the addiction might cause the increase in the environment's effect on quitting alcohol use. This could be the reason behind the increase in scores of SOCRATES sub scales.

The strengths of the article can be listed as the participation of the patients in the study at the appropriate time and the inclusion-exclusion criteria are well planned in order not to affect the results of the study. Another strength of this study is that it is one of the limited number of studies in the literature on treatment motivation and craving, which is one of the most important factors in the treatment process and prevention of relapse in addictive situations.

The fact that our study was conducted only in male patients and the small sample size are among the limitations of our study. This study also demonstrated the need for larger sample prospective studies, including female patients and outpatients. One of the other limitations in our study was cross-sectional study, there is a need to do longitudinal study to predict the factors which may cause the relapse.

As a result, considering the prevalence of alcohol addiction, the number of studies on this issue is relatively low. In this study, we investigated the relationship between treatment motivation, addiction characteristics, craving and temperament characteristics in patients with alcohol dependence and we found that increasing craving severity aligned with increasing addiction severity may suggest that patients with high addiction severity should be taken more careful about craving.

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