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Effect of Mindfulness on Treatment Motivation in Patients with Substance Use Disorder

Madde Kullanım Bozukluğu Olan Hastalarda Bilinçli Farkındalığın Tedavi Motivasyonu Üzerindeki Etkisi

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Abstract

Objective: This research aimed to assess the mindfulness levels among individuals with substance use disorder (SUD) and investigate its influence on treatment motivation.
Method: A descriptive and cross-sectional study was carried out involving 184 SUD patients. Data collection utilized a Personal Information Form, The Mindful Attention Awareness Scale (MAAS), and the Treatment Motivation Questionnaire (TMQ).
Results: A strong positive correlation was identified between MAAS and TMQ levels (r: 0.796, p<0.001). Furthermore, the mindfulness predictor variable was found to account for 63% of the variance in the treatment motivation predicted variable (R2: 0.632, p<0.001). The Beta coefficient of the predictor variable in the regression model was 0.795, indicating a significant positive impact of mindfulness on treatment motivation (p<0.001).
Conclusion: The study revealed that the conscious awareness levels of participants were below average, suggesting that conscious awareness may be a suitable target for SUD treatment. Additionally, individuals with high mindfulness exhibited elevated treatment motivation, emphasizing the importance of incorporating mindfulness-enhancing practices in clinics for individuals with SUD.

Keywords: Mindfulness, motivation, substance use disorder, treatment

Öz

Amaç: Bu çalışma madde kullanım bozukluğu olan hastalarda bilinçli farkındalık düzeylerini ve bunun tedavi motivasyonuna etkisini değerlendirmek amacıyla yapılmıştır.
Yöntem: Tanımlayıcı ve kesitsel tipteki bu çalışma 184 madde kullanım bozukluğu olan hastayla gerçekleştirildi. Veri toplama sürecinde Kişisel Bilgi Formu, Bilinçli Farkındalık Ölçeği (BİÖ), Tedavi Motivasyonu Anketi (TMA) kullanılmıştır.
Bulgular: BİÖ ile TMA düzeyleri arasında pozitif yönde yüksek düzeyde bir ilişki olduğu görüldü (r: 796, p<0.01). Ayrıca tespit edildi ki, bilinçli farkındalık yordayıcı değişkeninin tedavi motivasyonu yordanan değişkenindeki varyansın %63'ünü açıklamıştır (R2: 0.634, p<0.001). Regresyon modeline dâhil edilen yordayıcı değişkenin Beta katsayısı 0.796'dır. Buna göre bilinçli farkındalığın tedavi motivasyonu üzerine pozitif yönde anlamlı bir etkisinin olduğu görülmektedir (p<0.001).
Tartışma: Çalışmaya katılan hastaların bilinçli farkındalık düzeylerinin ortalamanın altında olduğu tespit edilmiştir. Bilinçli farkındağın madde kullanım bozukluğu tedavisi için uygun bir odak noktası olabileceği düşünülmektedir. Bunun yanında bilinçli farkındalığı yüksek olan hastaların tedavi motivasyonunun yüksek olduğunu tespit etmiştir. Bu bulgular madde kullanım bozukluğu olan hastaların bilinçli farkındalıklarını arttıran uygulamaların kliniklerde rutin olarak uygulanmasını desteklemektedir.

Anahtar kelimeler: Bilinçli farkındalık, motivasyon, madde kullanım bozukluğu, tedavi

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Introduction

Motivation is a multifaceted psychological construct that plays a fundamental role in human behavior. Motivation encompasses external and internal factors that energize the behavior to initiate, direct, and sustain the behavior toward the achievement of goals (1). Although there are different theories about motivation (2,3), the concept broadly includes an interest or concern about an individual's need for change, goals and intentions, and the desire to take responsibility and commit oneself to something (4, 5). Motivation for treatment of substance use disorder (SUD) is a critical determining factor for commitment to abstinence and sustainable remission (6). Current efforts to treat SUD have often yielded limited results due to high relapse rate. A prerequisite for successful treatment and relapse prevention of SUD is that patients have a high level of treatment motivation (7,8). High motivation in patients with SUD enables patients to seek treatment possibilities, follow treatment instructions and maintain behavioral changes (9,10). The most serious consequence of lack of treatment motivation is early termination of treatment and relapse to substance use (8,11).

Mindfulness is a cognitive skill characterized by directing one's attention to what is currently occurring in a non-judgmental and accepting manner. Mindfulness is a significant means of enabling individuals to observe their thoughts and emotions without becoming reactive to them (12,13). As a result, it promotes greater self-regulation, improves attention, reduces stress, and enhances overall mental health (14). Addiction may be conceptualized as stereotyped and habitual responses that may be executed automatically without conscious volition. Mindfulness of one’s automatized emotional and behavioral reactions may allow for greater self-regulation of habitual addictive behavior (15). In SUD, substance use by patients is typically a reaction to an increase in negative affect and cravings. Mindfulness trainings aim to reduce cognitive, emotional and behavioral reactivity in patients (16). By increasing mindfulness in individuals with substance use disorders (SUDs), main focus can be achieved and as a result, patients may experience an increase in positive mood, a decrease in depressive relapses, a decrease in substance use, and an increase in motivation (17,18). Despite the increasing number of mindfulness-based treatments targeting patients with SUDs (16,19), there is a limited number of studies investigating mindfulness disorders in substance-using populations (20).

Although there are studies in the literature examining the relationship between mindfulness trainings and depressive mood, craving and substance use (16,19,21,22), there is no study examining the effect of mindfulness on treatment motivation, which is a very significant concept in the treatment of SUD. This study will evaluate both the levels of mindfulness in patients with SUD and the effect of mindfulness on treatment motivation.

Method

This was a correlational and descriptive study. The study was conducted in the Alcohol and Substance Addiction Treatment Training Center of a Mental Health and Diseases Hospital in Turkey, between July 2022 and March 2023, with patients diagnosed with SUD according to Diagnostic and Statistical Manual of Mental Disorders 5 (DSM 5) (23). Our study has two hypotheses (H0: Mindfulness has no impact on treatment motivation in patients with SUD, H1: Mindfulness has an impact on treatment motivation in patients with SUD).

Prior to study, permissions were obtained from the institutions where the research would be conducted. After the participants were informed about the voluntary response, the purpose of the study and how the results of the study would be processed, their consent (informed consent principle) was obtained both verbally and written. Patients participating in the study were informed that information about them would not be disclosed to anyone else and the "principle of confidentiality" was complied with. This study was approved by Ethics Committee of Malatya Turgut Özal University (Decision No: 2022/208). The study was conducted in accordance with the principles of the Declaration of Helsinki.

Sample

The population of the study consisted of 226 patients diagnosed with SUD between July 2022 and March 2023 in the Alcohol and Substance Addiction Treatment Training Center. The research was conducted with patients hospitalized at the Alcohol and Substance Addiction Treatment Training Center. One of the researchers is an experienced physician working in the clinic. The sample size calculated using the sample size formula in a known population was determined as 143 individuals with a 95% confidence interval and a 5% error margin. This indicates the minimum number of individuals to be included in the sample. However, it was tried to reach the maximum number of patients who met the inclusion criteria. Data were collected using face-to-face interview technique. The forms were distributed to the patients and they were asked to fill them out. 226 patients were verbally informed about the study and invited to participate. The data collection process was completed with 198 patients who agreed to participate in the study. However, it was determined that 14 patients entered incomplete data and the study was terminated with the data of 184 patients.

The inclusion criteria encompassed being diagnosed with substance use disorder (SUD) in accordance with the DSM-5 diagnostic criteria, being between the ages of 18 and 65, lacking any psychiatric diagnosis apart from substance abuse, and exhibiting no cognitive disabilities that could hinder participation in the interview..

Measures

The data of this study were gathered by face-to-face interviews with patients with SUD after obtaining ethics committee approval. Firstly, the informed consent form was read and consent was obtained from the patients. Personal Information Form, The Mindful Attention Awareness Scale (MAAS), Treatment Motivation Questionnaire (TMQ) prepared by the researchers were utilized for data collection. The data collection form was also read to the patients and the answers were marked and recorded by the researcher.

Personal Information Form

Personal Information Form is a form prepared by the researcher and includes the identity information of the patients who participated in the study.

The Mindful Attention Awareness Scale (MAAS)

In the study, the mindfulness scale developed to assess the mindfulness level of the participants was employed. This scale, developed by Brown and Ryan in 2003, measures individual differences in the ability to be aware of and attentive to momentary experiences (13). This scale consists of fifteen items and gives a single total score. MAAS is a 6-point Likert-type scale (1=almost always, 2=most of the time, 3=sometimes, 4=rarely, 5=very rarely, 6=almost never). High scores obtained from the scale indicate high levels of mindfulness. The scale was translated into Turkish and its validity and reliability study was conducted by Özyeşil et al. (24). The internal consistency coefficient of the original scale was found to be α=0.82, while in this study, MAAS Cronbach's alpha coefficient was found to be α=0.937.

Treatment Motivation Questionnaire (TMQ)

This scale, which was developed by Ryan et al. (25) , translated into Turkish by Evren et al. (26), and validity and reliability studies were conducted, is a self-report based 5-point Likert-type scale designed to measure the reasons for participating in and staying in alcohol/substance addiction treatment. The questionnaire consists of 26 items; 22 items have positive and four items have negative statements. The scale includes four identifiable factors; (1) intrinsic motivation (internalized motivation, although not entirely self-determined), (2) extrinsic motivation (the feeling that the individual has no other choice but to seek treatment and external pressure for treatment), (3) interpersonal help-seeking (motivation to share one's problems with others), and (4) trust in treatment (individual's expectations from treatment). The range of scores obtained from the scale varies between 26 and 130, and the higher the score obtained from the scale, the higher the motivation levels. In the Turkish version of the scale, the internal consistency coefficient of the scale was found to be α=0.84, while ,n this study, the TMQ Cronbach's alpha coefficient was found to be α=0.896.

Statistical Analysis

IBM SPSS Statistics 25.0 (IBM SPSS) program was employed for statistical analyses in the evaluation of the findings obtained in the study. The compatibility of the variables with normal distribution was evaluated by Kurtosis and Skewness test and it was determined that the data demonstrated normal distribution. Pearson's correlation test and simple linear regression analysis, as well as descriptive statistics such as frequency, percentage, mean, standard deviation, median, and minimum-maximum values, were used in the analyses of the data. Besides, the Cronbach's alpha coefficient as the measure of internal consistency was employed to test the reliability of the scales used in the study. In the evaluations of the results, the level of statistical significance was accepted as a p-value smaller than 0.05 ($p < 0.05$).

Results

Table 1 demonstrates the sociodemographic characteristics of patients with SUD. It was determined that all of the participants were male, the mean age was 30.2±9.6 years, 52.7% were primary school graduates, 47.8% were not employed and 61.4% were single. It was determined that 47.8% of the participants had multiple substance use (Table 1).

Table 1. Sociodemografic and descriptive characteristics of individuals

Variables	Patients with SUD (n=184)
Sex, n Men	184
Age, years	30.2±9.6
Marital status	
Married	58 (31.5%)
Single	113 (61.4%)
Widowed	13 (7.1%)
Working status	
Yes	96 (52.2%)
No	88 (47.8%)
Educational status	
Elementray School	97 (52.7%)
High School	74 (40.2%)
University	13 (7.1%)
Polysubstance use, n	88 (47.8%)

n= number of patients, SUD: Substance use disorder

Table 2. Individuals' MAAS and TMQ Mean Scores

Measures	Patients with SUD (n=184)
Total MAAS	45.9±15.8
Total TMQ	74.7±25.2
Internal Motivation	31.4±9.6
Extrinsic Motivation	11.6±4.6
Interpersonal Help Seeking	16.6±6.8
Confidence in treatment	15.0±5.3

n= number of patients; SUD: Substance use disorder; MAAS: The Mindful Attention Awareness Scale; TMQ: Treatment Motivation Questionnaire

Table 2 displays the mean MAAS and TMQ scores of patients with SUD. The level of mindfulness was 45.9±15.8 (below average) and the mean TMQ score was 74.4±17.9 (below average) (Table 2). Treatment

motivation sub-dimensions were as follows: (1) intrinsic motivation 31.4±9.6, (2) extrinsic motivation 11.6±4.6, (3) seeking interpersonal help 16.6±6.8 and (4) confidence in treatment 15.0±5.3 (Table 2).

Table 3. MAAS and TMQ scores in patients with polysubstance use and mono-substance use

Measures	Patients with polysubstance use (n=88)	Patients with monosubstance use (n=96)	p
Total MAAS	39.8±13.5	51.5±15.7	<0.001
Total TMQ	67.3±22.6	81.4±25.8	<0.001
Internal Motivation	28.6±8.9	34.1±9.6	<0.001
Extrinsic Motivation	10.2±4	12.9±4.7	<0.001
Interpersonal Help Seeking	14.8±6.1	18.3±7	<0.001
Confidence in treatment	13.7±4.9	16.1±5.4	0.017

n= number of patients; SUD: Substance use disorder; MAAS: The Mindful Attention Awareness Scale; TMQ: Treatment Motivation Questionnaire

Table 3 presents the relationship between polysubstance use and mono-substance use and the mean MAAS and TMQ scores of the participants. Accordingly, it was detected that the MAAS levels of polysubstance users were significantly lower than those of mono-substance users (p<0.01). Moreover, another important finding was that the TMQ total score and all sub-dimension scores were significantly lower in polysubstance users compared to mono-substance users (p<0.001; p=0.017 confidence in treatment subscale).

Table 4. Correlation analysis between scales and sub-dimensions

		Total MAAS	Total TMQ	Internal Motivation	Extrinsic Motivation	Interpersonal Help Seeking	Confidence in treatment
Total MAAS	r	1	0.795	0.780	0.737	0.798	0.714
	p		<0.001	<0.001	<0.001	<0.001	<0.001
Total TMQ	r	0.795	1	0.978	0.946	0.968	0.934
	p	<0.001		<0.001	<0.001	<0.001	<0.001
Internal Motivation	r	0.780	0.978	1	0.911	0.922	0.878
	p	<0.001	<0.001		<0.001	<0.001	<0.001
Extrinsic Motivation	r	0.737	0.946	0.911	1	0.899	0.844
	p	<0.001	<0.001	<0.001		<0.001	<0.001
Interpersonal Help Seeking	r	0.798	0.968	0.922	0.899	1	0.882
	p	<0.001	<0.001	<0.001	<0.001		<0.001
Confidence in treatment	r	0.714	0.934	0.878	0.844	0.882	1
	p						

n= number of patients; SUD: Substance use disorder; MAAS: The Mindful Attention Awareness Scale; TMQ: Treatment Motivation Questionnaire

The correlation analysis between MAAS and TMQ is depicted in Table 4. There was a high positive correlation between MAAS and TMQ levels (r: 0.795, p<0.001). In other words, as the conscious awareness of the patients increased, their treatment motivation levels also increased (Table 4). In addition, a high positive correlation was also detected between MASS and TMQ sub-dimensions of intrinsic motivation, extrinsic motivation, interpersonal help seeking, confidence in treatment (r: 0.780, 0.737, 0.798, 0.714; p<0.001, respectively) (Table 4).

Simple regression analysis was performed to determine the effect of mindfulness of individuals on treatment motivation and the resulting model was determined to be significant (F: 312.430, p<0.001). The R2 value indicated as the explanatory power of the model was calculated as 0.632. Accordingly, it is observed that the mindfulness predictor variable explains 63% of the variance in the treatment motivation predicted variable (R2 : 0.632). Beta coefficient of the predictor variable included in the regression model is 0.795.

Accordingly, it is found that mindfulness has a significant positive effect on treatment motivation ($p<0.001$) (Table 5).

Table 5. Regression analysis of the effect of individuals' mindfulness on treatment motivation levels

Predictor variable	Predicted variable	B	Std. Dev.	ß	t	p	R	R^2	F	p
MAAS	Constant	8.783	2.215		3.966	<0.001	0.795	0.632	312.430	<0.001
	TMQ	.497	.028	.795	17.676	<0.001				

MAAS: The Mindful Attention Awareness Scale; TMQ: Treatment Motivation Questionnaire

Discussion

This study aimed to examine the level of mindfulness and its impact on treatment motivation in individuals with SUD. Many addiction theories assume that negative moods play an essential role in the etiology, severity and prognosis of SUD (27-29). By improving emotion regulation through mindfulness practices, negative moods, distress and pain are prevented. The person can manage the emotions and increase well-being (18). Mindfulness training can be an effective treatment for SUDs. However, to our knowledge, only one study has been conducted on baseline levels of mindfulness in the substance-using population (20). Although the literature suggests that impairments in mindfulness may play an important role in SUD (e.g., impaired self-regulation, increased reactivity to drug cues, and decreased insight), the levels and nature of mindfulness in this patient group have not been adequately examined. In a study investigating mindfulness impairments in patients with SUD, Dakwar et al. revealed that the mindfulness levels of individuals with SUDs were much lower than the national average and that polysubstance users had a lower score on the MAAS than mono-drug users (4 vs. 3.6, $p = 0.04$) (20). In this study, the level of mindfulness was 45.9±15.8 (below average). However, one of the most important findings of the study was that participants who used multiple substances had lower levels of mindfulness compared to participants who used single substances (51.5±15.7 vs. 39.8±13.5, $p<0.001$). There is substantial evidence indicating that polysubstance use results in more severe neurocognitive deficits than single-drug use (30). For instance, when compared to patients with alcohol use disorder, polysubstance users show lower performance on multiple measures of learning and memory, and score higher on measures of impulsivity (31). Mindfulness is defined as focusing one's attention on what is happening in the present, which is possible with healthy cognitive abilities. Polysubstance use, which is associated with impaired cognitive functions more than single substance use, will negatively affect conscious awareness skills.

Treatment motivation has been found to be a predictor of treatment success in patients with SUD (32), and has been reported to play an important role in reducing the risk of treatment dropout (8). Research indicates that treatment motivation is directly related to the reduction of alcohol/substance use and successful recovery (6, 33). Tekin et al. evaluated the effect of attachment styles and mindfulness on treatment motivation in patients with SUD and determined that the mean TMQ total score of the patients was low (66.78 ± 12.84) (34). In another study, the mean TMQ total score of the patients was found to be high (94.77±10.42) compared to the scale mean and it was determined that the mean extrinsic motivation score was below the mean value compared to other motivation domains (35). In this study, it was determined that the mean TMQ score of the participants was 74.4±17.9 (below average) and the mean intrinsic motivation score was below the average value compared to other motivation domains. It has been suggested that external pressure facilitates treatment demand in individuals who do not have sufficient intrinsic motivation to seek treatment on their own (36). Extrinsic motivation can only be effective in supporting intrinsic motivation (37). An significant finding of our study related to treatment motivation was that participants who used multiple substances had lower levels of treatment motivation compared to participants who used single substances (79.5±18.1 vs. 68.9±16.1, $p<0.001$). This finding is not included in the literature and is valuable in terms of the contribution of new information to the literature.

A limited number of studies have been found in the literature evaluating the effect of mindfulness on patients' treatment motivation. In the study conducted by Tekin et al., there was no significant relationship between mindfulness and total treatment motivation of patients, but a significant positive relationship was detected between mindfulness and confidence in treatment, which is a sub-dimension of the treatment motivation scale ($p<0.05$, R: 0.15) (34). In contrast to this study, there was a high positive correlation between MASS and TMQ levels of the participants in our study. Intrinsic motivation is expressed as an individual doing an activity because he/she naturally gets satisfaction from doing it. For an intrinsically motivated individual, it is important that the activity is interesting rather than external rewards or pressures. Extrinsic motivation is the type of motivation in which behavior is performed for a result. The individual exhibits a behavior for the consequences of the behavior rather than for the behavior, and there are external pressures (38). Most studies in the literature have found that mindfulness has an effect on intrinsic motivation, but not on extrinsic motivation (34,39,40). Unlike these studies, our study found that mindfulness is effective on both intrinsic and extrinsic motivation. Compared to extrinsic motivation, intrinsic motivation emphasizes individual autonomy, curiosity and interest more. Extrinsic motivation comes from external rewards such as money, material goods, and honor (3). We believe that individuals with a high level of mindfulness are better able to become aware of their needs and thus improve their motivation level by increasing their autonomy.It is well known that mindfulness has a stress-reducing effect and provides a positive perspective on events (41). With mindfulness, individuals gain the ability to control their own thoughts and feelings (42). Negative moods such as stress, which are known to have a negative impact on treatment motivation, will decrease with high mindfulness.

There are some limitations of this study. Cross-sectional design of this study was a limitation. We only assessed hospitalized patients in an Alcohol and Substance Addiction Treatment Training Center in Elazığ Mental Health and Disease Hospital. Assessment of the probation population and outpatients could provide a complementary view of the extent of the effect of mindfulness on treatment motivation. Another limitation is the limited number of participants in this study.

Current evidence suggests that relapse rates following SUD treatment are still as high as 60% (43). The search for newer interventions that can successfully reduce substance use and relapse rates has gained increasing attention in recent years. Mindfulness trainings are one of these interventions. In the study we conducted to evaluate the level of mindfulness in patients with SUD and its effect on treatment motivation, our findings revealed that patients have low levels of mindfulness and mindfulness training may be beneficial. High treatment motivation in patients with SUD allows patients to seek treatment possibilities, adhere to the treatment protocol, and maintain their behavioral changes in the long term. Our findings indicated that patients with high mindfulness have high treatment motivation. In this context, we recommended that mindfulness training become a clinical routine.

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