Original Article

Journal of Iranian Medical Council, Volume 7, Issue no. 3
http://dx.doi.org/10.18502/jimc.v7i3.15725

The Role of Psychological Variables on Medication Adherence in Patients with Obsessive-Compulsive Disorder

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Received: 18 Apr 2023
Accepted: 20 Jan 2024

Citation to this article
Saberi-Zafarghandi MB, Masoumian S, Yaghmaeizadeh H, Beyhaghi M, Pouladi S, Zahirian Moghadam M. The Role of Psychological Variables on Medication Adherence in Patients with Obsessive-Compulsive Disorder. *J Iran Med Counc.* 2024;7(3):484-93.

Abstract

Background: The aim of this study was to investigate the role of psychological variables in medication adherence in OCD.

Methods: This descriptive and correlational study was carried out at Tehran Institute of Psychiatry in Tehran. The statistical population of the present study includes all OCD patients referred to the Tehran Institute of Psychiatry. The participants were selected by available sampling method. The patients completed the demographic questionnaire, Yale Brown Obsessive-Compulsive Disorder Scale-Second Edition (Y-BOCS-II), Vancouver Obsessional Compulsive Inventory (VOCI), Medication Adherence Rating Scale (MARS), Drug Attitude Questionnaire (DAI-10), Multidimensional Scale of Perceived Special Support (MSPSS), Coping strategies scale of Lazarus and Folkman (WOCQ), and Temperament and Character Inventory (TCI). Multiple Linear Regression (MLR) was used to analyze the data.

Results: The variable of education status (r=0.18) had a positive relationship and the variable of hospitalization history (r=-0.26) had a negative relationship with medication adherence. Medication adherence is only negatively associated with obsessive thoughts (r=-0.18, r=-0.20). Duration of drug use (r=0.27), attitude to treatment (r=0.25) and social support (r=0.54) had a positive relationship with medication adherence. Among the various dimensions of temperament and character, four dimensions of harm avoidance (r=-0.29), reward dependence (r=-0.44), persistence (r=-0.20) and self-transcendence (r=0.32) had a significant correlation with medication adherence. Variables of social support, reward dependence, persistence, harm avoidance and education status had the highest regression effect on medication adherence.

Conclusion: Medication adherence is one of the behaviors that predicts successful treatment and reduces the negative side effects and severity of the OCD.

Keywords: Medication adherence, Obsessive-Compulsive Disorder, Psychiatry

Introduction

The essential features of Obsessive-Compulsive Disorder (OCD) are the repeated occurrence of personally distressing or functionally impairing obsessions and/or compulsions. Obsessions are unwanted, unacceptable, and repetitive intrusive thoughts, images, or urges that are resisted, difficult to control, and generally produce distress even though the person may recognize, to varying degrees, that the thoughts are excessive or senseless (1,2). In response to these obsessions, compulsions are observed with neutralizing behaviors such as washing, checking, grooming, and mental formalities and avoiding situations. This disorder intensifies in response to stressful events and becomes chronic if left untreated (3). The World Health Organization (WHO) has identified this disorder as the tenth leading cause of disability, which manifests itself as a disability in social functioning and a poor quality of life (4). Although the mechanism of OCD is not exactly known, several etiological theories have reported the role of Selective Serotonin Reuptake Inhibitors (SSRIs) such as fluoxetine in reducing the symptoms of this disorder (5). However, it is reported that about 50% of patients do not recover with these drugs (6). OCD shows the lowest response to treatment among all anxiety disorders, and new findings have led to the classification of this disorder as a separate disorder from anxiety disorders. In fact, in most clinical trials with the control group, the response to treatment for OCD is reported to be about 30%, and only 30 to 40% of the patients may show such a response, and many others are resistant to common existing treatments (7). According to available reports, 85% of the patients have experienced long periods of illness (5).

Medication adherence is one of the behaviors associated with the disease that predicts successful treatment and reduces the negative side effects and severity of the disease in patients following the treatment instructions. According to the WHO, non-adherence to the medication is one of the major clinical chalange in management of patients with chronic illness (8).

Although physicians spend a lot of time and energy on diagnostic procedures, many patients for various reasons abandon the recommended drug regimen or pay little attention to it. No adherence to medication, defined as "the extent to which individuals' behavior does not conform to health or treatment recommendations," is a complex behavioral process with multiple factors such as patients' personal characteristics, physician-patient interaction, and the health care system. Studies suggest a relationship between social support and coping strategies in OCD (9-11). These factors may affect the effectiveness of drug treatments in various ways such as non-adherence to medication plans, discontinuation of treatment, *etc.*, and in fact, one of the important factors in treatment is not following the medication instructions.

In one study, a key finding was the high prevalence of non-adherence to CBT and pharmacotherapy, including elevated rates of treatment refusals and dropouts, among patients with OCD (12). Also, the most common reasons for not adhering to medication included disliking the side effects of medication (78%), perceived poor efficacy of treatment (41%), and feeling too anxious/fearful about taking medications (41%) (13) and disliking the side effects of medication (41%), perceived environmental barriers (31%), and feeling too anxious/fearful about taking medication (26%) (12). Various studies have dealt with variables in drug adherence of patients, but the present study focuses on cognitive variables that the role of these variables in drug adherence has not been studied so far. OCD is ofen treated with a combination of non-pharmacological interventions and medication. The disorder relapses usually due to non-adherence treatment, and after stopping medications. It is important to consider various factors and variables, especially psychological variables in the medical treatment of the patients.

Although studies have investigated the relationship between these factors in OCD and emphasized this relationship, but so far, few studies have been conducted on the role of these factors in drug treatments. The present study investigates the role of psychological variables in relation to medication adherence of patients with OCD. The results of the present study can help experts in this field to provide better drug therapies, as well as complementary therapies that increase the adherence of patients with OCD and the effectiveness of the treatments and in addition to the importance of drug therapy,

considering taking as many psychological variables as possible helped to improve the patients' condition.

Materials and Methods

Procedure

This descriptive and correlational study was carried out at Tehran Institute of Psychiatry in Tehran, Iran. The statistical population of the present study includes all OCD patients referred to the Tehran Institute of Psychiatry. The samples were 120 patients with OCD and were selected by available sampling method. The inclusion criteria included: no psychotic disorder, no drug dependence, and minimum intermediate education. The age of entry into the research was 20 to 60 years. The criterion for exclusion was the patient's unwillingness to cooperate. Variables such as drug type, severity of OCD, time and type of OCD, status of treatments received, marital status, employment and education status were all considered as underlying variables.

Data collection

At first, after referring to the patients who were diagnosed with OCD by a psychiatrist in the clinic of the Faculty of Behavioral Sciences and Mental Health, the trained examiners were invited to participate in the study. After obtaining the initial consent (confidentiality, how to participate in research, withdrawal from research whenever they wish, and non-participation in continuing treatment at the current treatment center), the patients entered the study to cooperate. The patients who announced their readiness to participate in the study, after conducting an initial interview that included explanation of the plan, principles of confidentiality, *etc.*, if the criteria were not met, entry was excluded from the study, and in case of inclusion criteria, at the beginning of the study, the patients completed the demographic questionnaire, Yale Brown Obsessive-Compulsive Disorder Scale-Second Edition (Y-BOCS-II), Vancouver Obsessional Compulsive Inventory (VOCI), Medication Adherence Rating Scale (MARS), Drug Attitude Questionnaire (DAI-10), Multidimensional Scale of Perceived Special Support (MSPSS), Coping strategies scale of Lazarus and Folkman (WOCQ), and Temperament and Character Inventory (TCI).

Study measures

Demographic questionnaire: This researcher-made questionnaire was used to obtain demographic information of the patients such as age, sex, marital status, employment status, educational status and previous history and duration of the OCD and a history of medical deasese and other psychological disorders (clinical and personality disorders) and received treatments (pharmacological and non-pharmacological).

Yale Brown Obsessive Compulsive Scale-Second Edition (Y-BOCS-II): The Y-BOCS-II (14) is conducted as a semi-structured interview and the severity and measures type of obsessions. In some cases, it is different from the first version of this Scale: (1) 'Resistance to obsession' (item 4) has been replaced by 'obsessive distance'; (2) All items in a 5-point Likert scale (0-4); There are 6 points (0-5), (3) The evaluation of avoidance behaviors is emphasized, and (4) Changes are made in the content and format of the symptom checklist. The psychometric properties of this scale in Iran have also been studied. The general scale of present and past symptoms of Y-BOCS-II have good reliability. In the review of past symptoms, Y-BOCS-II had significantly higher reliability of past symptoms than present symptoms, and all the factors had acceptable reliability. Also, the results show high correlation and as a result, the reliability of the retest is appropriate for the present and past versions and the intensity scale. Also, Cronbach alpha was reported for the general scale of present and past symptoms as 0.84, 0.88 and for severity as 0.91, respectively, and the validity report using factor analysis and construct validity also indicated the appropriate validity of this scale (15).

Vancouver Obsessional Compulsive Inventory (VOCI): The VOCI is a self-assessment tool for measuring a wide range of obsessive-compulsive symptoms (16) and measures a wide range of obsessive thoughts, obsessive actions, avoidant behavior and related personality traits. Unlike the Madzley questionnaire, VOCI were graded on a five-point Likert scale to enhance sensitivity to therapeutic changes. All the questions refer to the patients' current concerns and behavior. The questionnaire has 55 questions and includes six subscales of

Contamination, Checking, Obsessions, Hoarding, and Indecisiveness/Perfection/Concern over mistakes, Routine/Counting/Slowness. This questionnaire has shown internal stability, retest reliability, concurrent validity, diagnostic and appropriate structure (16). The VOCI-Persian had good internal consistency, test-retest reliability, convergent and divergent validity, and the results demonstrated that the factor structure of the questionnaire consisted of five main factors: VOCI Contamination, Checking, Obsessions, Hoarding and Perfectionism/Indecisiveness (17).

Medication Adherence Rating Scale (MARS): This scale contains 10 questions with yes and no answers, developed by Thompson (18) and simply assesses patients' drug adherence. A score between zero and 7 indicates a weak and low cooperation and a score between 5 and 10 shows a high cooperation. MARS is a reliable scale and is more stable than the previous scales used for psychiatric patients (18,19).

Drug Attitude Questionnaire (DAI-10): This questionnaire contains 10 questions with yes and no answers that can be easily answered by the patient or therapist. This scale was developed by Hogan *et al* (20) to examine various aspects of patients' perceptions and therapeutic experiences. Shariati *et al* (21) evaluated the reliability and validity of the Persian version of this questionnaire and showed that the reliability of the test-retest is 0/80, Cronbach's alpha 0.78, and predictive validity at the time of evaluation was 0.67.

Multidimensional Scale of Perceived Special Support (MSPSS): This scale was developed by Zimet *et al* (22) and consists of 12 questions and three subscales based on a 5-point Likert scale from completely opposite to strongly agree. The validity and reliability of this scale has been satisfied (23). In the preliminary study of the psychometric properties of this scale in samples of Iranian students and the general population, Cronbach's alpha coefficients for the whole scale and the items of the three subscales of family, social and friends social support were 0.91, 0.87, 0.83 and 0.89, respectively. 0 was calculated and confirmed the internal consistency coefficients of the multidimensional scale of perceived social support (24).

Ways of Copying Questionnaire of Lazarus and Folkman (WOCQ): This scale examines the thoughts and reactions that individuals use to deal with stressful events that they use on a daily basis. This scale is based on the phenomenological cognitive theory of stress and coping, which is known as the theory of stress, evaluation and coping, developed by Lazarus and Folkman (25). The questionnaire consists of 66 items based on a four-point Likert scale. This questionnaire evaluates eight coping methods that are ultimately in two general styles: problem-oriented (Seeking Social Support, Accepting Responsibility, Planful Problem-Solving and Positive Appraisal) and emotion-oriented (Confrontive Coping, Distancing, Escape/Avoidance and Self-Control). Lazarus (26) reported the internal stability of scales from α=0.66 to α=0.79 for each of the coping styles. In Iran, the validity of this test has been recognized as acceptable. The value of the agreement coefficient regarding the clarity of the questions was reported as 0.76. The reliability coefficient using Cronbach's alpha method was reported as 0.93 (27).

Temperament and Character Inventory (TCI): This 125-item questionnaire was developed by Cloninger *et al* (28) to measure biological genetic temperament and acquired character. This questionnaire includes 4 components of temperament (Novelty Seeking, Harm Avoidance, Reward Dependence and Persistence) and 3 components of secretarial (Self-directedness, Co-operativeness, Self-transcendence). The validity of this questionnaire has been reported to be favorable (29) and the Cronbach's alpha coefficient of this questionnaire has been 0.68 and its reliability coefficient of retesting in seven scales from 0.61 to 0.96 has been obtained. No significant correlation was found between the four scales of temperament and the three scales of character. This means that the scales are independent of each other (30).

Statistical analysis

In the present study, the data were analyzed by IBM SPSS Statistics 19. Nominal information including the prevalence of disorders was first described through frequency and percentage tables. Then, through Spearman correlation, the relationship between treatment adherence and demographic variables was examined. Pearson correlation was used to examine the relationship between adherence to treatment and

other variables. Multiple Linear Regression (MLR) was used to determine the predictive factors affecting adherence to treatment.

Results

The present study included 120 patients, of whom 46 (38.3%) were male and 74 (61.7%) were female. The age range of the patients was between 20 and 59 years with an average of 34.73 years. 10.8% of the patients were undergraduate, 39.2% were diploma and 29.2% were associate and bachelor, 20.8% were master's and PhD. Also, regarding the marital status of the subjects, 45.8% were single, 53.3% were married and 0.8% were divorced. 77 patients (64.2%) had a history of psychological therapies. Thirty patients (25%) had a chronic physical illness that lasted at least 6 months. 34 of them (28.3%) have been hospitalized at least once due to psychiatric disorders. And 16 patients (13.3%) had at least once committed suicide. 42.5% of the patients had only a diagnosis of OCD and 39.2% of them also had Major Depression Disoder (MDD) at the same time (Table 1).

Among the non-parametric variables, education status had a positive relationship and the hospitalization history had a negative relationship with medication adherence (Table 2).

Medication adherence is only negatively related to the dimension of obsessive thoughts (r=-0.18, r=-0.20) (Table 3). Duration of drug use, attitude to treatment and social support had a positive relationship with medication adherence (Table 4). Also, among the various dimensions of temperament and character, four dimensions of harm avoidance (r=-0.29), reward dependence (r=-0.44), persistence (r=-0.20) and self-transcendence (r=0.32) had a significant correlation with medication adherence (Table 5).

Multiple linear regressions were used to investigate the role of predictor variables that were significantly associated with medication adherence. As the results of simultaneous regression analysis (Table 6) show, the value of correlation coefficient 0.741 indicates a strong correlation between predictor and criteria variables and the adjusted coefficient r shows that 50.8% of the total changes of medication adherence depends on the predictors variables of research. Also, considering that F=13.27 is significant at the level ($p<0.001$), it can be stated that the studied predictor variables can predict medication adherence. According to the significance level, five variables of social support with a coefficient of 0.36, reward dependence with a coefficient of 0.33, persistence with a coefficient of 0.23, harm avoidance with a coefficient of 0.18, respectively. Education status with a coefficient of 0.17 had the highest regression effect on medication adherence. The variables of obsessive thoughts, time of drug use, attitude to treatment, history of hospitalization and harm avoidance were not able to predict medication adherence (Table 7).

According to the above results, it can be mentioned that:

Among the demographic variables of patients with

Table 1. Comorbidity of OCD with other disorders in patients

Diagnosis	Number	Percentages
No comorbid diagnosis	51	42.5
Major depression disorder	47	29.2
Panic disorder	2	1.7
Tic disorder	1	0.8
Social anxiety disorder	4	3.3
Generalized anxiety disorder	6	5
Bipolar disorder	7	5.8
Obsessive-compulsive personality disorder	2	1.7

Table 2. The relationship between nominal variables and medication adherence

Variables	Gender	Education status	Marital status	History of psychological treatment	History of hospitalization	Existence of comorbid psychological disorder	Chronic physical illness
Medication adherence	-0.02	0.18*	0.08	-0.03	-0.26**	0.03	-0.03

*p<0.05 , ** p<0.01.

Table 3. The relationship between obsessive compulsive dimensions and medication adherence

	VOCI						Y-BOCS-II		
	Contamination	Checking	Obsessions	Hoarding	Perfecionism	Doubt	Obsessions	Compulsions	Avoidance
Medication adherence	-0.08	-0.01	-0.18*	-0.12	-0.00	0.05	-0.20*	0.00	0.04

*p<0.05, ** p<0.01.

Table 4. The correlation coefficients between age, duration of drug use, coping approach, attitude to treatment and social support variables and medication adherence

	Age	Duration of drug use	Attitude to treatment	Social support	Coping strategies	
					Emotion-oriented	Problem-oriented
Medication adherence	0.17	0.27**	0.25**	0.54**	0.16	0.13

* p<0.05, ** p<0.01.

Table 5. The relationship between temperament and character dimensions with medication adherence

	Novelty Seeking (NS)	Harm Avoidance (HA)	Reward Dependence (RD)	Persistence (PS)	Self-Directedness (SD)	Cooperativeness (CO)	Self-Transcendence (ST)
Medication adherence	-0.06	-0.29**	-0.44**	-0.20*	0.07	0.01	0.32**

Table 6. Simultaneous multiple regression analysis to predict medication adherence

Pattern	Total squares	Degree of freedom	Mean squares	F	Significant
Regression	5.48	10	0.55	13.27	0.001
Remaining	4.50	109	0.04	-	-
Total	9.99	119	-	-	-

R=0.741, Adjusted coefficient r=0.508.

OCD, only their education status had an important role in following medication adherence.

Social support for patients with OCD had a significant role in following their medication adherence.

Attitudes toward the treatment of patients with OCD have no significant role in their medication adherence.

Coping strategies of patients with OCD have no significant role in following their medication adherence.

Among the obsessive-compulsive dimensions, only

Table 7. Regression coefficients to predict medication adherence

Variables	Non-standardized coefficients		Standardized coefficients	T	Significant level
	β	Standard error			
Obsessive thoughts	-0.00	0.00	-0.05	-0.83	0.40
Duration of drug use	0.00	0.00	0.12	1.61	0.11
Attitude to treatment	0.01	0.01	0.01	0.16	0.873
Social support	0.01	0.00	0.36	4.94	0.001
Education	0.03	0.01	0.17	2.48	0.014
Hospitalization history	-0.02	0.05	-0.03	-0.37	0.714
Harm avoidance	-0.00	0.00	-0.00	-0.09	0.923
Reward dependence	-0.04	0.01	-0.33	-2.49	0.000
Persistence	-0.05	0.02	-0.23	-2.69	0.008
Self-transcendence	0.02	0.01	0.18	2.10	0.038

the dimension of obsessions was related to patients' medication adherence, which was also unable to predict patients' medication adherence.

Among the different dimensions of temperament and character, the four dimensions of harm avoidance, reward dependence, perseverance and self-avoidance were related to patients' medication adherence, but harm avoidance failed to predict patients' medication adherence.

Discussion

The purpose of this study was to determine the role of psychological variables in following the medication adherence of patients with OCD. According to the results of the present study, educational status, social support, obsessions, and harm avoidance, reward dependence, persistence and self-control had a significant role in patients with OCD. But attitudes toward treatment and coping strategies of patients with OCD have no significant role in following their medication adherence.

One of the main components of treatment in patients with psychiatric disorders is to follow medication, since not following medication may lead to recurrence of the disease and disrupt the treatment process. Therefore, considering individual-social variables (such as age, educational and occupational status and social support), disease-related variables (type and severity of symptoms, individual insight and attitude towards the disease), treatment-related variables (length and the duration of treatment and side effects caused by medication and multidrug regimens) are very important and necessary. Regarding OCD, very few studies have been performed on psychological and non-psychological factors following drug treatment; but more studies have been conducted on other psychiatric disorders such as schizophrenia and medical deseases as diabetes and cancer.

The results of a recent study have shown the frequency of patients with a positive attitude toward their medications increased over time. All the patients reported a positive attitude at the last follow-up based on the DAI-10. Medication adherence should be an essential aspect of treatment after discharge from psychiatry inpatient wards in patients with methamphetamine-induced psychotic disorder, more specifically, through the first months (31) and the results of this study are in line with the findings of the present study and the drug attitude and its importance in the medication adherence have been emphasized.

In a study that examined the factors affecting the follow-up of drug treatment in patients with schizophrenia, it was shown that the existence of a supportive family, fear of relapse, hospitalization and a positive attitude towards medication are the most important reasons for following and not existence

of correct attitude towards disease and medication, experience of side effects and existence of economic problems are the most important reasons for the patient not following the prescribed medication correctly (32).

On the other hand, non-adherence to drug treatment is a major component in the treatment of bipolar patients. One study examined the demographic and clinical variables associated with drug acceptance in 76 bipolar patients receiving mood stabilizers. In this study, no relationship was observed between the variables of age, sex, marriage, recurrence of the disease and hospitalization, *etc.* However, the rate of drug acceptance by the patients clearly decreased with the distance from the recurrence of the disease and the administration of the drug to the patient. In another study that looked at the effects of drug therapy training on drug adherence in patients with mental disorders, drug therapy training interventions had a positive effect on adherence to drug therapy in patients with mental disorders. The results showed that the rate of drug adherence of most mental patients in both groups before the intervention was low (33). In another study, it was shown that the acceptance of treatment in patients with bipolar disorder and schizophrenia was very low due to patients' lack of awareness of side effects (34).

One of the limitations of this study is being conducted in a specific geographical area and also the small sample size, the impossibility of longer follow-up to achieve clearer and more conclusive findings. Therefore, it is suggested that a study be conducted in different centers and cities with a larger sample size and the results be compared with each other. Also, conducting a study in other psychiatric disorders on the factors affecting the follow-up of medication adherence, allows clinicians to compare and consider these factors in the treatment of psychiatric disorders and further improve the treatment methods.

Conclusion

The current study demonstrated that the education status and hospitalization history, social support, obsessive thoughts and some dimensions of temperament and character (harm avoidance, reward dependence, persistence, self-transcendence) have a significant role in medication adherence of patients with OCD. Based on the findings of this study, it seems that more accurate studies are required to identify and determine the main causes of non-adherence in patients with OCD. In patients who undergo difficulty maintaining adequate adherence, innovative strategies are needed and clinicians should consider main factors in improving adherence.

Funding

This study was supported by Mental Health Research Center, Iran University of Medical Sciences (IUMS).

Acknowledgement

We would like to thank the Mental Health Research Center for its financial support (IR.IUMS.REC. 1398.092), as well as all the participants who, through their cooperation in the present study, made it possible to implement it.

Conflict of Interest

The authors declare that there is no conflict of interest.

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