

Investigation into the efficacy of an integrated educational approach for obsessive-compulsive disorder at Milad Hospital

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Received: 30 July 2023 **Revised:** 21 August 2023 **Accepted:** 25 August 2023 **Available online:** September 2023

DOI: 10.55131/jphd/2023/210318

ABSTRACT

Obsessive-Compulsive Disorder (OCD) is one of the most prevalent and incapacitating psychological disorders. This quasi-experimental study endeavors to examine the impact of three concurrent psychological interventions—namely, cognitive-behavioral therapy (CBT), existential therapy (ET), and transactional analysis (TA)—on individuals afflicted with Obsessive-Compulsive Disorder (OCD) at Milad Hospital. A total of 60 patients were systematically divided into two groups: the experimental group and the control group, during the period from October to December 2021. The assessment tools utilized included the Yale-Brown Obsessive-Compulsive Scale. The experimental and control groups underwent medicinal treatment, while the experimental group participated in an integrated educational intervention consisting of eight 60-minute sessions. The data collected underwent analysis using the SPSS software. The results of the covariance analysis highlighted the impact of the combined educational regimen, which incorporates Cognitive Behavioral Therapy (CBT), Exposure Therapy (ET), and Thought Analysis (TA), on the obsessive-compulsive beliefs inherent in patients with Obsessive-Compulsive Disorder (OCD) ($P < 0.001$).

These findings suggest that education can be effectively integrated with CBT, ET, and TA to develop psychological therapeutic strategies for individuals with OCD. Given the multifaceted nature of OCD symptoms, exploring a personalized and integrated educational approach for each patient in future research endeavors shows excellent potential.

Key words:

obsessive-compulsive disorder; cognitive-behavioral therapy; existential therapy; transactional analysis; psychological disorders

Citation:

Ebrahim karimnejad, Bahareh Ahmadinejad, Alireza Jalali, Arash Taqavi. Investigation into the efficacy of an integrated educational approach for obsessive-compulsive disorder at Milad Hospital. J Public Hlth Dev. 2023;21(3):232-245 (<https://doi.org/10.55131/jphd/2023/210318>)

INTRODUCTION

Obsessive-compulsive disorder, separated from other anxiety disorders in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders, is considered one of the most pervasive, debilitating, and treatment-resistant psychological disorders.¹ OCD is often accompanied by high levels of distress and is characterized by obsessive thoughts and compulsive behaviors.² Obsessions are recurring and persistent thoughts, desires, or perceptions that are experienced as disturbing and unwanted.³ Conversely, compulsions are repetitive behaviors or mental actions that one feels compelled to perform in response to an obsession or according to rules that must be strictly enforced.⁴ OCD can be highly debilitating, leading the patient to inflexible, repetitive, and out-of-control behaviors⁵ to reduce disturbing thoughts and anxiety or avoid unwanted consequences.⁶ People with OCD may have obsessions, compulsions, or both.⁷ The compulsive symptoms associated with OCD can manifest in four main dimensions: checking, the need for symmetry and order, cleanliness, and hoarding.⁸ People with obsessions tend to recognize the trigger fast, accept the reality of their ideas, and feel obligated to strive to stop any potential harmful outcomes as a result of these thoughts.⁹ Researchers estimate that the prevalence of OCD among outpatients in medical offices and clinics is around 10%¹⁰, making it the fourth most common psychological disorder after phobias, substance-related disorders, and major depressive disorder.¹¹ OCD affects 3% of the general population during their lifetime.¹² According to a study by Jeisuiria et al.¹³, the highest risk of developing OCD has been reported between 18 and 25.

Due to the high prevalence of obsessive-compulsive disorder, several psychological therapy approaches have

been used in addition to medication, including psychoanalysis, acceptance, and commitment therapy, and family therapy.¹⁴ One of the psychological treatment methods that has a long history in the treatment of symptoms of OCD is cognitive-behavioral group therapy.¹⁵ Cognitive-behavioral group therapy improves adaptation, reduces problems, and provides patients with peer modeling and support.¹⁶ CBT aims to increase patients' awareness of their obsessive beliefs, misinterpretation of their unwanted thoughts, and compulsive behaviors.¹⁷ The central premise of CBT is that maladaptive cognitions play a role in maintaining emotional distress and behavioral problems. CBT focuses on reducing distress by modifying physical emotions, catastrophic thinking, and maladaptive behaviors.¹⁸ CBT is developed within psychotherapeutic situations and reflects psychotherapists' growing interest in modifying cognition to influence behaviors and emotions.¹⁹ This treatment method effectively combines two behavioral and cognitive approaches to improving decision-making abilities, motivation, sense of responsibility, positive communication with others, happiness, problem-solving, self-regulation, self-efficacy, and mental health.² CBT promotes mental health by facilitating positive and constructive self-talk, improving coping skills, helping patients modify misinterpretations, and overcoming inhibitions.²⁰ CBT is effective in making neurochemical changes in the hippocampus of patients with OCD.²¹

The present study combines two other therapeutic approaches with CBT to increase the effectiveness of psychotherapy in decreasing compulsions. One of these approaches is existential therapy. The existential approach is centered on the importance of human existence, focusing on fundamental life issues such as life and

death, freedom, responsibility towards oneself and others, finding meaning in life, and the concept of meaninglessness.²² This approach examines human self-awareness and the ability of the individual to look beyond their problems and existential issues.²³ In addition, compared to other psychotherapy approaches, ET focuses on a broader range of issues related to the human psyche, including the essence of truth and reality, and refers to the personal ability to meet the challenges that life inevitably presents.²⁴ Despite its meaningful links to the questions of life and its long history, ET is rooted in philosophy and has mainly been studied in theory.²⁵ ET has been shown in numerous studies to be effective in reducing many psychological problems and improving quality of life and mental health.²⁶ This type of treatment introduces a clear structure about the nature of human existence, loneliness, isolation, anxiety, and despair, and instead of depriving the individual of authority, emphasizes the relationship between patient and therapist, honest confrontation, and viewing change as a courageous action by the patient.²⁷ The advantage of ET over other psychotherapy approaches is that it focuses on the choices and paths to personal growth. It emphasizes personal responsibilities, awareness of current situations, and a sense of commitment to decision-making and taking action.²⁸ Results from a study by Peran et al.²⁴ showed that ET could effectively modify beliefs in multiple sclerosis patients. Amanzadeh et al.²² found that existential group therapy can change life attitudes and improve the spiritual health of women with diabetes. Abdkhodaei et al.²⁵ found that ET effectively increases patients' quality and meaning of life with multiple sclerosis. One of the effective methods of improving mental health is using targeted therapies to promote positive emotions, habits, and cognitions.²⁹ Transactional analysis is a theory of communication psychology proposed by Eric Byrne in 1950. The psychological community has accepted it in

terms of its application to emotional and behavioral problems.³⁰ Transactional analysis (TA) is used to bring about change through appropriate methods based on the here and now. Its purpose is to increase the cognitive and emotional awareness of a patient towards the specific affected subject area.³¹ This method helps us understand the mechanism of stress, solve problems in human relationships, and discover new ways to enjoy a happy life.³² According to this approach, every human has three mental states: the child, the adult, and the parent, each having a time dimension. The child and the parent reflect our past and childhood; only the adult functions mainly at the current time and place and is not significantly influenced by history.³³ These three mental states have executive power, the ability to agree and compromise, adjust and change, and differentiate. In TA, it is assumed that if a person becomes aware of their three states of the self, he can differentiate between the various sources of his thoughts³⁴, recognize different emotions, identify his successful patterns, inner contradictions, and similarities³⁵, and gain more freedom of choice in the face of the issues encountered in life³⁶. In line with the purpose of the present study, Touzandeh Jani et al.⁶ found that the combination of modular cognitive-behavioral interventions and electromagnetic therapy can significantly reduce symptoms of OCD. Mohieddin et al.² showed that cognitive-behavioral group therapy was more effective in reducing OCD symptoms than pharmacological therapy (fluoxetine). A study by Alavi et al.⁸ showed that CBT and metacognitive therapy are effective in lowering thought fusion and symptoms of OCD. Batni et al.³⁷ showed that online CBT is effective in decreasing symptoms of OCD in women, with effects remaining at three-month follow-up. Cao et al.³⁸ showed CBT could reduce the clustering of the left lingual gyrus and improve OCD symptoms.

Due to the multidimensional nature of OCD, future research will likely examine different treatments for OCD subtypes. Finding effective and efficient short-term treatment methods is one of the necessities of research in the psychological treatment of OCD. Research has shown the effectiveness of CBT as a short-term treatment in improving obsessive and compulsive symptoms. So far, this treatment's effectiveness, combined with elements of ET and TA, on signs of OCD has not been examined. In addition, the study's results can help reduce the physical and psychological consequences of OCD, treatment costs, and the number of visits to psychologists or psychiatrists. The combined psychotherapy method may also be used with patients who have not responded well to pharmacological or behavioral treatments, especially CBT. Therefore, the present study aims to investigate the effectiveness of a combined psychotherapy method of CBT, TA, and ET in decreasing the symptoms of OCD.

METHOD

This study was a quasi-experimental study of two groups (one intervention group and one control group). The statistical population included all patients diagnosed with OCD referred to Milad Hospital in Iran from October to the end of December 2021. Cochran formula and Morgan's Table were used to determine the sampling size, and 60 patients were entered into the study. Inclusion criteria consisted of individuals having developed OCD in the last year based on a clinical interview by a psychiatrist or psychologist, fulfilling the requirements mentioned by DSM-5, and not simultaneously receiving other psychological or pharmacological interventions for at least two months before the implementation of the present psychotherapy method, being between the

ages of 18 and 40 years old, having at least a high school diploma, and completing the informed consent form to participate in treatment sessions. Exclusion criteria consisted of the following: absence from more than two sessions in the intervention, substance abuse, and unwillingness to continue participating in the sessions. The initial assessment used the Yale Brown (1989) Obsessive-Compulsive Scale. Then, from the participants who have obtained an average score on the test ($n=80$) in the pre-test stage, 60 were randomly selected and assigned to the experimental ($n=30$) or the control ($n=30$) group.

First, the experimental and control group received Fluvoxamine, Sertraline, and Fluoxetine as routine treatments. Then, after receiving the code of ethics in the research and completing the ethical protocols (completing the informed consent form, freedom to leave the study, protecting the rights of the control group to receive treatment after the end of the research, keeping the information confidential, and entering participant codes on the questionnaires and files), the questionnaire was given out to experimental and control group before the educational sessions. Then, the experimental group received eight 60-minute weekly psychotherapy face-to-face sessions performed by a certified clinical psychologist (Table 1). According to Johnson et al., oral education is preferable to written instruction.³⁹ The content of the education sessions included cognitive-behavioral therapy (CBT), existential therapy (ET), and transactional analysis (TA). Ultimately, the questionnaire was distributed to the experimental and control group again three months after the last integrated educational session, and data was examined using SPSS (v.22).

Integrated approach

Treatment was a combination of three different approaches to psychotherapy, including Transactional Analysis + Existentialism + Cognitive Behavioral Therapy + Innovative Treatment, with the main application and effectiveness in Obsessive-compulsive disorders. Any therapeutic approach is more effective for a specific group of people, and certain requirements need to be met to increase the effectiveness of that therapeutic approach as much as possible. In this new treatment method, these criteria included 1. having at least a high school diploma, 2. having an average emotional intelligence, 3. being highly flexible, 4. being young (Adolescence and youth), 5. voluntarily attending treatment sessions. It should also be noted that the treatment protocol is designed effectively so that each technique can be implemented in one session. The following is a description of the treatment sessions.

Measures

Yale-Brown Obsessive Compulsive Scale was developed by Goodman et al. in 1989.⁴⁰ This scale has ten terms and two subscales. The first five phrases are related to the obsession subscale, and the following five are related to the compulsion subscale. Items are scored on a 5-point Likert scale, ranging from zero (asymptomatic) to 4 (very severe). Therefore, the overall score and obsession and compulsion subscales range from 0 to 40 and 0 and 20, respectively. Interpretation of overall scores is as follows: a score of less than 8 (very mild OCD), 8 to 15 (mild OCD), 16 to 23 (moderate OCD), 24 to 31 (severe OCD), and a 32 to 40 (very severe OCD).⁴¹ In Yang et al.'s study (27), the convergent

validity of the instrument with Maudsley's Obsessive-Compulsive Inventory was 0.72. The scale's reliability was calculated using Cronbach's alpha coefficient (0.92) on 40 patients with OCD in New Haven, US.⁴² In a meta-analytic study, Lopez et al. reported Cronbach's alpha coefficients of 0.86 for the overall scale, 0.88 for the two-month retest correlation, and 0.92 for the intra-class correlation.⁴³ Yale-Brown test reliability Obsessive-Compulsive scale in Iranian samples was calculated previously by Shameli et al., who showed Cronbach's alpha coefficient as 0.71 on 30 women with OCD in the city of Ahvaz⁴⁴. Meanwhile the reliability of the scale in a sample of 170 patients with OCD in Tehran for the obsession and compulsion subscales was 0.97 and 0.95 respectively, using Cronbach's alpha coefficient and 0.93 and 0.89 using the split-half method.⁴⁵

The intervention

The intervention program is a combination of three approaches to psychotherapy: TA (Eric Byrne), ET (Irvin Yalom), and CBT (Aaron Beck), and includes novel additions by the researchers. Like other psychotherapy methods, the present intervention may be more effective on a subset of the population. This psychotherapy method requires 1. having at least a high school diploma, 2. average emotional intelligence, 3. high flexibility, 4. being relatively young, and 5. voluntarily attending treatment sessions. It should also be noted that the intervention schedule is designed to allow each technique to be implemented in one session. The description of each session is given in table 1.

Table 1. Description of treatment sessions of the combined CBT, ET, and TA program.

Sessions	Sessions' Content
Session 1	Introduction and initial rapport-building between the patient and therapist, general acquaintanceship with obsessive-compulsive disorder symptoms based on Freudian theory. Introduction to the four dimensions of human

Sessions	Sessions' Content
	existence—physical, psychological, emotional, social, and spiritual. Familiarize with the three treatment phases: acquisition of knowledge and awareness, acceptance, and transformative change.
Session 2	Examination and analysis of the three facets of existence—adult, parent, and child. Exploration of how adult contamination arises due to subpar parenting, educational norms, traditional values, and cultural influences. Discussion of the dysfunctional cycle engendered between parent and child.
Session 3	The session includes an introduction to logotherapy, differentiating genuine values and pseudo-values, and applying cognitive techniques to enhance client awareness and insight.
Session 4	During this session, participants become acquainted with the cognitive approach, encompassing events, thoughts, beliefs, emotions, and behaviors.
Session 5	The cognitive approach is applied in various contexts related to obsessive fixations, with a particular emphasis on accurately delineating guilt.
Session 6	During these sessions, the cognitive approach is applied across various scenarios, leading to the resolution of internal contradictions and cognitive discord, the mitigation of guilt and negative emotions, and the fulfillment of suppressed needs.
Session 7	During this session, participants gain insight into self-awareness and engage in cognitive exercises that encompass semantic and spiritual dimensions.
Session 8	During the final session, a comprehensive review of all the preceding sessions takes place, accompanied by an in-depth analysis of incongruities, conflicts, unspoken concerns, and unresolved intellectual issues within the patient.

RESULTS

Participants were 60 people with OCD. In the experimental group, 53.33% of the participants were female, and 46.67% were male, and in the control

group, 60% were female, and 40% were male. Also, the mean age of participants in the experimental group was 28 +/- 5, and the control group was 29 +/- 2. Most of the participants in the study had a bachelor's degree and were married (Table 2).

Table2. Descriptive Statistics

	Status	Experimental	Control
Gender	Female	16	18
	Male	14	12
Marital status	single	7	11
	married	23	19
Education	Associate degree	6	8
	Bachelor's degree	15	12
	Mater degree and above	9	10

The mean and standard deviation of pre-test and post-test scores of variables in the experimental and control groups are reported in table 3. Also, in table 3, the results of the Shapiro-Wilk test for the normal distribution are reported.

Table 3. Results of analysis of variance of obsessions and compulsions scores in experimental and control groups

Variable	Time	Condition	M	SD	S-W	P value
Obsessions	Pre-test	Experimental	28.74	3.65	0.953	0.396
		Control	30.74	3.55	0.970	0.742
	Post-test	Experimental	11.36	3.84	0.973	0.790
		Control	30.11	4.05	0.951	0.456
Compulsions	Pre-test	Experimental	22.10	3.34	0.974	0.832
		Control	21.00	2.52	0.912	0.095
	Post-test	Experimental	16.47	2.56	0.977	0.831
		Control	20.61	2.67	0.920	0.097

Note→ M: Mean, S-W Shapiro-Wilks test, SD: Standard Deviation

Source: Research outputs

According to the table 3, the results of the Shapiro-Wilk test are not statistically significant for any of the variables; therefore, it can be concluded that the distribution of these variables is normal. One-way multivariate analysis of covariance was used to investigate the moderating effect of the combination of CBT, ET, and TA on each component of obsessions and compulsions in patients with OCD. The test results showed that the regression slopes of OCD components in the experimental and control groups were equal ($P = 0.082$, $37 = 2.131$, and $1F$). The results of Levine test to examine the

homogeneity of variance of the dependent variable in the two groups showed that the variance of obsessive components ($P = 0.347$, $37 = 1$ and $901 = F$) and compulsions ($P = 0.651$, $0.205 = 37$ and $1F$) are equal. The results of Box's test for equivalence of the covariance matrix of the dependent variables are equal in the two groups ($P = 0.405$, $F = 0.96$, $BOX = 0843$). The results of Bartlett's Chi-square test to examine the significance of sphericity of the relationship between the components of OCD showed that the relationship between these components is significant ($P < 0.01$, $df = 54$, $XX = 78.08$). After examining the

assumptions of multivariate analysis of covariance, the test results showed a significant difference between the two groups in the components of OCD ($P < 0.001$, $37 = 486.921$ and $1F$, Wilks

$\Lambda = 0.034$). Components of OCD differ in the experimental and control groups; the multivariate analysis of variance results are reported in table 4.

Table 4. Results of variance of difference between control and experimental conditions in OCD components

Component	Condition	M	ΔM	SD	F	P	Effect size
Obsessions	Experimental	22.031	7.036	0.316	487.861	0.001	0.930
	Control	28.065					
Compulsions	Experimental	20.731	7.682	0.327	548.632	0.001	0.937
	Control	27.414					

Note→ M: Mean, SD: Standard Deviation, F: F value, P: P value

According to table 4, the F statistic is significant for obsessions (487.861) and compulsions (548.632) at the level of 0.001. This finding indicates a significant difference between the groups in these components. The results of the study of the experimental group's mean in the components of obsession (22.031) and compulsion (20.731) are less than the mean of the control group in these components. Effect size measures the importance of the difference between groups or the link between variables (ranges from 0 to 1). Higher values indicate a stronger correlation between the two variables. According to these findings, it can be said that the intervention program of combined CBT, ET, and TA has reduced each of the components of OCD.

DISCUSSIONS

The severe anxiety illness known as obsessive-compulsive disorder (OCD) is characterized by disturbing obsessions and recurrent compulsions. Compulsions are habitual actions or mental acts used to reduce anxiety, whereas obsessions are intrusive, undesired thoughts, ideas, or impulses that cause worry.⁹ Aggravating

factors for mental health issues are restrictive surroundings, a lack of meaningful community engagement, and identity upheaval brought on by disease and prejudice.⁴⁶ Education, training, and growth' are regularly recognized as the best way to improve skill acquisition and, more continually, the only way to improve patient care.⁴⁷ The primary objective of this study was to scrutinize the impact of the integrated educational approach (CBT, ET, and TA) on obsessive-compulsive disorder. The findings revealed that the training program amalgamating CBT, ET, and TA yields notable efficacy for OCD patients, corroborating the outcomes presented by Tuzandeh Jani et al.⁶, Mohi el-Dini et al.², Bethany et al.³⁷, Roxing et al.³⁸, Alavi et al.⁸ These studies underline the efficacy of combining CBT with pharmacotherapy and electromagnetic therapy to mitigate OCD symptoms. Additionally, the research of Abdolkhodaei et al.²⁵, Amanzadeh et al.²², and Pern et al.²⁴ supports the assertion that ET positively impacts disease-related beliefs.

One of the underlying triggers of OCD is the adherence to pervasive obsessive thoughts. When faced with a triggering stimulus (e.g., soiled dishes or

clothing), patients experience intense anxiety about bodily or environmental contamination. As a result, this anxiety triggers repetitive washing rituals to achieve a sense of cleanliness.⁴⁸ Consequently, a distressing cycle of compulsive behaviors ensues, exacerbating the condition. Addressing these thoughts' distorted or dysfunctional nature through education can empower patients to master their behavioral symptoms. Patients can modify their thinking patterns and replace them with adaptive, healthy thoughts by comprehending the origins of their behaviors, correcting cognitive distortions, cultivating thought records, countering negativity, and honing problem-solving skills. Cognitive techniques facilitate recognizing how thoughts perpetuate compulsive behaviors, allowing for substituting constructive and efficient thought patterns. Moreover, applying behavioral methods tailored to specific issues aids in mitigating washing-related behaviors, employing techniques like gradual desensitization, cognitive defusion, and suppression of obsessive actions throughout sessions.⁶ In addition, group therapy allows participants to learn from one another, fostering mutual symptom alleviation and enhanced mental well-being. This aspect plays a pivotal role in group therapy that amalgamates CBT, ET, and TA, ultimately contributing to decreasing OCD symptoms. Notably, the group therapy program devised for this study boasts several strengths. These include acquainting patients with distressing thoughts and actions, normalizing OCD, highlighting cognitive distortions, encouraging the documentation of daily thoughts, enhancing awareness via Socratic questioning, introducing relaxation techniques, reducing excessive responsibility, and teaching coping and problem-solving skills.²

The existential approach implemented during sessions emphasizes mindfulness, psychological presence, and

self-awareness. The core objective revolves around bolstering one's agency in decision-making. Patients are encouraged to acknowledge their limitations across various life domains (physical, social, psychological, and spiritual) while embracing the capacity to make deliberate choices in light of these constraints. This mindful choice-making alleviates stress and enables patients to chart a course in alignment with their aspirations. By identifying factors that prevent people from changing, such as extreme self-awareness (excessive introspection), neglect of the role of society, wishful thinking, doubts, pleasures from the previous self, and idealism, the program helps the patient to change into the person they want to be.⁴⁹ By pinpointing barriers to change—such as hyper-self-awareness, societal neglect, wishful thinking, doubt, attachment to prior self, and idealism—the program empowers patients to mold themselves by their desired selves. Central to this process is the recognition that the realization of individual potential lies within personal control rather than being automatic or haphazard. OCD emanates from distorted and erroneous self-world attitudes, thus prompting a recalibration of these cognitive underpinnings. During confrontational scenarios, patients are encouraged to engage in obsessive rituals with a shift in purpose. Instead of employing these rituals to quell distressing thoughts or minimize perceived threats, the emphasis is on awareness and acknowledgment of the obsessive thoughts.²⁵

On the other hand, when OCD patients cannot avoid or control negative emotions and it is claimed the ability to recognize and express feelings emphasized in TA can effectively prevent compulsions. During the education sessions, the OCD patients received proper education, which helped the patients to reach balance and coordination and control their behavior⁵⁰. In fact, by illogical rules modification and distressing compulsions and managing the

child's impulsivity and feelings of inadequacy by the adult, an emotional reconstruction can occur, and adverse effects of these factors, such as confusion, anxiety, and ritualistic and compulsive behaviors of OCD can be reduced.

CONCLUSIONS

One of the requirements of study in the psychological therapy of OCD is identifying effective and efficient short-term treatment techniques. According to research, obsessive and compulsive symptoms can be improved with CBT as a short-term therapy. The practicality of this therapy in treating OCD symptoms when combined with aspects of ET and TA was not researched. In this research, combined CBT, ET, and TA intervention programs were provided to OCD patients, and it was reported that each symptom of OCD has lessened.

LIMITATIONS

One of the limitations of this research is using only partially random sampling in all stages of selecting and assigning participants. In addition, due to this study's time constraints, it was impossible to conduct a follow-up analysis due to the coronavirus outbreak. Thus, it is suggested that in future studies, while eliminating these limitations and helping to increase the level of generalization of the results of this study, the effectiveness of this combined program on anxiety disorders could be investigated. Based on the results obtained in this study at the practical level, it is suggested that the education and treatment of OCD at the clinical level are emphasized.

ETHICAL CONSIDERATIONS

Following the principles of research ethics: This study holds the ethics code (IR.IUMS.REC.1400.1232), and all ethical considerations, such as the informed consent of the participants, were fully observed.

FINANCIAL SPONSORS

This study was conducted without the financial support of any public or private institution or organization.

CONFLICT OF INTEREST

The authors state that there is no conflict of interest in the results of this study.

ACKNOWLEDGMENTS

At this moment, the authors thank Milad hospital for providing access to the research participants.

REFERENCES

1. Abolghasemi A, Bagheri Sheykhangafshe F, Hosseinzadeh Kalsari B, Yousefi Siakouche A. Prediction Obsessive-Compulsive Symptoms Based on Anxiety Sensitivity and Social Problem Solving. *Rooyesh*. 2020;9(3):109-16.
2. Mohyadini H, Bakhtiarpoor S, Pasha r, Ehteshamzadeh P. Comparison the Effectiveness of Cognitive Behavioral Group Therapy” and Drug Therapy (Fluoxetine) on Symptoms of Obsessive-Compulsive Disorder. *jhpmmir*. 2021;10(1):23-33.
3. Torres AR, Cruz BL, Vicentini HC, Lima MC, Ramos-Cerqueira AT.

- Obsessive-Compulsive Symptoms in Medical Students: Prevalence, Severity, and Correlates. *Acad Psychiatry*. 2016;40(1):46-54.
4. Espay AJ, Aybek S, Carson A, Edwards MJ, Goldstein LH, Hallett M, et al. Current Concepts in Diagnosis and Treatment of Functional Neurological Disorders. *JAMA Neurol*. 2018; 75(9):1132-41. doi: 10.1001/jamaneurol.2018.1264
 5. Rozenman M, Piacentini J, O'Neill J, Bergman RL, Chang S, Peris TS. Improvement in anxiety and depression symptoms following cognitive behavior therapy for pediatric obsessive compulsive disorder. *Psychiatry Res*. 2019;276:115-23.
 6. Seah R, Fassnacht D and Kyrios M. Attachment anxiety and self-ambivalence as vulnerabilities toward Obsessive Compulsive Disorder. *J Obsessive Compuls Relat Disord*. 2018;18: 40-6.
 7. Sadok BJaZ, Virginia. Summary of Kaplan and Zadok Psychiatry based on DSM-5. Tehran:Savalan Publishing, 2014.
 8. Drubach DA. Obsessive-compulsive disorder. *Continuum (Minneap Minn)*. 2015;21:783-8.
 9. Williams MT, Mugno B, Franklin M, Faber S. Symptom dimensions in obsessive-compulsive disorder: phenomenology and treatment outcomes with exposure and ritual prevention. *Psychopathology*. 2013; 46(6):365-76. doi: 10.1159/000348582.
 10. Cervin M, Perrin S. Incompleteness and Disgust Predict Treatment Outcome in Pediatric Obsessive-Compulsive Disorder. *Behav Ther*. 2021;52(1):53-63. doi: 10.1016/j.beth.2020.01.007.
 11. Ameri N, Najafi M. Prediction of obsession and compulsion symptoms based on anxiety sensitivity, psychological distress and psychological flexibility in students. *Rooyesh*. 2021;9:85-96.
 12. Arnold PD, Askland KD, Barlassina C, et al. Revealing the complex genetic architecture of obsessive-compulsive disorder using meta-analysis. *Mol Psychiatry*. 2018; 23: 1181-.
 13. Jaisoorya TS, Janardhan Reddy YC, Nair BS, Rani A, Menon PG, Revamma M, et al. Prevalence and correlates of obsessive-compulsive disorder and subthreshold obsessive-compulsive disorder among college students in Kerala, India. *Indian J Psychiatry*. 2017;59(1):56-62. doi: 10.4103/0019-5545.204438.
 14. McKay D, Sookman D, Neziroglu F, Wilhelm S, Stein DJ, Kyrios M, et al. Efficacy of cognitive-behavioral therapy for obsessive-compulsive disorder. *Psychiatry Res*. 2015;225(3): 236-46. doi: 10.1016/j.psychres.2014.11.058.
 15. Strayhorn J, Jr. Editorial: Cognitive-Behavioral Therapy Versus Serotonin Reuptake Inhibitors for Pediatric Obsessive-Compulsive Disorder. *J Am Acad Child Adolesc Psychiatry*. 2020;59(2):219-21. doi: 10.1016/j.jaac.2019.03.015.
 16. Hayes-Skelton SA, Lee CS. Changes in Decentering Across Cognitive Behavioral Group Therapy for Social Anxiety Disorder. *Behav Ther*. 2018; 49(5):809-22. doi: 10.1016/j.beth.2018.01.005.
 17. Wheaton MG, Gallina ER. Using Cognitive-Behavioral Therapy to Treat Obsessive-Compulsive Disorder With Co-Occurring Depression. *J Cogn Psychother*. 2019;33(3):228-41. doi: 10.1891/0889-8391.33.3.228.
 18. Asadi J, Aghaei M. Comparison the effectiveness of Cognitive-Behavioral therapy and Cognitive-Behavioral Hypnotherapy on Resiliency and sleep quality of women with Fibromyalgia syndrome. *RRJ*. 2021;10:21-34.
 19. Charmchi N, Asgari P, Hafezi F, Makvandi B, BakhtiarPour S. The effect of "cognitive behavior therapy"

- in method group on anxiety and psychological resilience of menopausal women. *Int J Workplace Health Manag.* 2016;5:15-22.
20. Eidelman P, Talbot L, Ivers H, Bélanger L, Morin CM, Harvey AG. Change in Dysfunctional Beliefs About Sleep in Behavior Therapy, Cognitive Therapy, and Cognitive-Behavioral Therapy for Insomnia. *Behav Ther.* 2016;47(1):102-15. doi: 10.1016/j.beth.2015.10.002.
 21. Hirschtritt ME, Bloch MH, Mathews CA. Obsessive-Compulsive Disorder: Advances in Diagnosis and Treatment. *JAMA.* 2017;317(13):1358-67. doi: 10.1001/jama.2017.2200.
 22. Amanzad Z, Hoseinian S. The Effect of Group Counselling Base on Existential Approach on Life Attitude and Spiritual well being of Patients with type 2 Diabetes. *Journal of Woman and Family Studies.* 2018;6:49-67.
 23. Prochaska JaN, John. Theories of psychotherapy. Tehran Roshd, 2011.
 24. Watter DN. Existential Issues in Sexual Medicine: The Relation Between Death Anxiety and Hypersexuality. *Sex Med Rev.* 2018;6(1):3-10. doi: 10.1016/j.sxmr.2017.10.004.
 25. Lind AB, Delmar C, Nielsen K. Searching for existential security: a prospective qualitative study on the influence of mindfulness therapy on experienced stress and coping strategies among patients with somatoform disorders. *J Psychosom Res.* 2014; 77(6):516-21. doi: 10.1016/j.jpsychores.2014.07.015.
 26. Bahmani B, Motamed Najjar M, Sayyah M, Shafi-Abadi A, Haddad Kashani H. The Effectiveness of Cognitive-Existential Group Therapy on Increasing Hope and Decreasing Depression in Women-Treated With Haemodialysis. *Glob J Health Sci.* 2015;8(6):219-25. doi: 10.5539/gjhs.v8n6p219.
 27. Joensuu M, Ahola P, Knekt P, Lindfors O, Saarinen P, Tolmunen T, et al. Baseline symptom severity predicts serotonin transporter change during psychotherapy in patients with major depression. *Psychiatry Clin Neurosci.* 2016;70(1):34-41. doi: 10.1111/pcn.12335.
 28. Yang W, Staps T, Hijmans E. Existential crisis and the awareness of dying: the role of meaning and spirituality. *Omega (Westport).* 2010; 61(1):53-69. doi: 10.2190/OM.61.1.c.
 29. Oraki M, Mehdizadeh, A, Dortaj A. Comparison of the effectiveness of cognitive-behavioral therapy focused on emotion regulation and acceptance and commitment-based therapy to reduce the symptoms of low back pain, depression and increase life satisfaction in women with chronic low back pain was associated with major depressive disorder. *Health Psychology.* 2018;7:25-43.
 30. Rahmati S, Hooshmandi, Rudabeh, Mousavi Anzahi, Arezoo Sadat, Dehaqin, Vahideh. The Effectiveness of Group Behavior Analysis of Mutual Behavior Analysis on Distress and Social Problem Solving of Delinquent Adolescents. *Social Psychology Research.* 2020;10:45-64.
 31. Kim M-S, Bang G, Ko I-J. The agent communication simulation based on the ego state model of transactional analysis. *Advances in Computer Science and Ubiquitous Computing.* Springe; 2016. p.360-5.
 32. Parvin SR, Ahmed KE, Hossain M. Psychotherapy services based on transactional analysis played an important role in the case of depression. *Curr Womens Health Rev.* 2019;2:1-5.
 33. Falligant JM, Hagopian LP. Further extensions of precision medicine to

- behavior analysis: A demonstration using functional communication training. *J Appl Behav Anal.* 2020;53(4):1961-81. doi: 10.1002/jaba.739.
34. Torkaman M, Farokhzadian J, Miri S, Pouraboli B. The effect of transactional analysis on the self-esteem of imprisoned women: a clinical trial. *BMC Psychol.* 2020;8(1):3. doi: 10.1186/s40359-019-0369-x.
 35. Sundah A. The effectiveness of Transactional Analysis counseling to increase self esteem. *International Journal of Scientific Research and Management.* 2018;6:266-73.
 36. Maximo SI. A Scoping Review of Ethical Considerations in Spiritual/Religious Counseling and Psychotherapy. *J Pastoral Care Counsel.* 2019;73(2):124-33. doi: 10.1177/1542305019848656.
 37. Wootton BM, Diefenbach G. Internet-Delivered Cognitive Behaviour Therapy (iCBT) for Obsessive-Compulsive Disorder. *Clin Psychol (Aust Psychol Soc).* 2015;1:47-52.
 38. Cao R, Yang X, Luo J, Wang P, Meng F, Xia M, et al. The effects of cognitive behavioral therapy on the whole brain structural connectome in unmedicated patients with obsessive-compulsive disorder. *Prog Neuropsychopharmacol Biol Psychiatry.* 2021;104:110037. doi: 10.1016/j.pnpbp.2020.110037.
 39. Javadi M, Mirzaee F, Ahmadinejad B, Aslani H, Bahramian F and Sherafati M. The effects of educational intervention on improving the lifestyle of osteoarthritis patients undergoing total knee arthroplasty.
 40. Goodman WK, Price LH, Rasmussen SA, Mazure C, Fleischmann RL, Hill CL, et al. The Yale-Brown Obsessive Compulsive Scale. I. Development, use, and reliability. *Arch Gen Psychiatry.* 1989;46(11):1006-11. doi: 10.1001/archpsyc.1989.01810110048007.
 41. Bürgy M. Phenomenology of Obsessive-Compulsive Disorder: A Methodologically Structured Overview. *Psychopathology.* 2019; 52(3):174-83. doi: 10.1159/000501165.
 42. Yang X-Y, Luo J, Liu J, Ma Y, Guo Z-h, Yang X-j, et al. Effects of cognitive behavioral therapy on white matter fibers of patients with obsessive-compulsive disorder as assessed by diffusion tensor imaging: study protocol for a parallel group, controlled trial. *Asia Pacific Clinical and Translational Nervous System Diseases.* 2016;1.
 43. López-Pina JA, Sánchez-Meca J, López-López JA, Marín-Martínez F, Núñez-Núñez RM, Rosa-Alcázar AI, et al. The Yale-Brown Obsessive Compulsive Scale: A Reliability Generalization Meta-Analysis. *Assessment.* 2015;22(5):619-28. doi: 10.1177/1073191114551954.
 44. Shameli L, Mehrabizadeh Honarmand M, Naa'mi A, Davodi I. EFT in emotion regulation styles and severity of Obsessive-Compulsive symptoms in women with OCD. *Iranian Journal of Psychiatry and Clinical Psychology.* 2019;24:456-69.
 45. Esfahani SR, Motaghipour Y, Kamkari K, Zahiredin A, Janbozorgi M. Reliability and Validity of the Persian version of the Yale-Brown Obsessive-Compulsive scale (Y-BOCS). *Iranian Journal of Psychiatry & Clinical Psychology.* 2012; 17.
 46. Whybird G, Nott Z, Savage E, Korman N, Suetani S, Hielscher E, et al. Promoting quality of life and recovery in adults with mental health issues using exercise and nutrition intervention. *International Journal of Mental Health.* 2022;51(4):424-47. doi: <https://doi.org/10.1080/00207411.2020.1854023>
 47. Garzonis K, Mann E, Wyrzykowska A, Kanellakis P. Improving Patient Outcomes: Effectively Training Healthcare Staff in Psychological

- Practice Skills: A Mixed Systematic Literature Review. *Eur J Psychol.* 2015;11(3):535-56. doi: 10.5964/ejop.v11i3.923.
48. Lee YJ, Koo BH, Seo WS, Kim HG, Kim JY, Cheon EJ. Repetitive transcranial magnetic stimulation of the supplementary motor area in treatment-resistant obsessive-compulsive disorder: An open-label pilot study. *J Clin Neurosci.* 2017;44:264-8. doi: 10.1016/j.jocn.2017.06.057.
49. Nakao T, Okada K, Kanba S. Neurobiological model of obsessive-compulsive disorder: evidence from recent neuropsychological and neuroimaging findings. *Psychiatry Clin Neurosci.* 2014;68(8):587-605. doi: 10.1111/pcn.12195.
50. Skapinakis P, Caldwell DM, Hollingworth W, Bryden P, Fineberg NA, Salkovskis P, et al. Pharmacological and psychotherapeutic interventions for management of obsessive-compulsive disorder in adults: a systematic review and network meta-analysis. *Lancet Psychiatry.* 2016;3(8):730-9.