Research Paper: Effectiveness of Acceptance and Commitment Therapy on Improving Symptoms and Increasing Quality of Life in Patients with Obsessive-Compulsive Disorder in Interacting with OCD Family History

Masoume Maleki Pirbazari[1*], Mohammad Narimani[2], Niloofar Mikaeili[2], Abbas Abolghasemi[3]

[1] Assistant Professor, Psychology Department, Rahman Institute of Higher Education, Ramsar, Iran

[2] Professor, Psychology Department, University of Mohaghegh Ardabili, Ardabil, Iran

[3] Professor, Psychology Department, University of Guilan, Rasht, Iran

Abstract

The present study aimed to investigate the effectiveness of Acceptance and Commitment Therapy (ACT) on improving symptoms and increasing quality of life among the patients with obsessive-compulsive disorder (OCD) in interacting with OCD Family History: This is a quasi-experimental and pretest-posttest study with control and follow-up groups. The study population entirely consisted of over-18-years of age OCD patients referred to private consultation centers, and rural and urban healthcare centers in Rasht city during 2014. The sample selected through purposive sampling consisted of 60 OCD patients who were randomly included in two experimental (ACT with and without OCD Family History) and two control (control with and without OCD Family History) groups. The experimental groups received eight ACT 45-minute sessions of Yale-Brown Obsessive Compulsive Scale was used to determine the severity of OCD. In addition, the brief version of WHO Quality of Life Scale was used to measure life quality and the clinical interview was used to investigate OCD family history. Multivariate analysis of variance test with repeated measures was used to examine the differences in pretest-posttest and follow-up scores. The results show that ACT caused a significant decrease in OCD symptoms and a significant increase in patients' quality of life while OCD family history had no impact on the effectiveness of ACT. Therefore, all patients can benefit from this therapy regardless of their OCD Family History.

* Corresponding author:
Masoume Maleki Pirbazari
Address: Psychology Department, Rahman Institute of Higher Education, Ramsar, Iran
Tel: 01155230511
E-mail: maleki.m@rahman.ac.ir

1. Introduction

Obsession is continuous and recurrent thoughts, intense desires and images which one intentionally and unintentionally experiences. People often attempt to ignore or stop their obsessive thoughts or neutralize them through thinking about other subjects or performing neutralizing actions. The thoughts or actions one uses to neutralize obsession are called compulsion; a repeated behavior or action which should be performed with obligatory rituals such that one feels obligated to do. In obsessive-compulsive disorder (OCD), people experience compulsions and obsessions with such an intensity that sometimes make daily activities extremely difficult (Halgin, & Whitborne, 2013). The 12-month prevalence of OCD at the international level is 11-1.8%. This disease is considered as the fourth most common disorder in the U.S.

World Health Organization reported that, as the tenth disabling disorder, OCD has intense detrimental effects on social function and quality of life (Fisher, & Wells, 2008). WHO defines Quality of Life as individuals' perception of their position in life in the context of the culture and value systems related to their goals, expectations, standards and concerns. It is a broad-ranging concept influenced in a complex way https://psycnet.apa.org/record/1998-07751-011 by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment (World Health Organization, 1996). The youth are mainly affected by this disorder as they have often high energy levels in all aspects of life. In addition, high comorbidity of OCD with other psychological disorders significantly deteriorates the quality of life and has consequential outcomes on social and occupational aspects of patients' life (Srivastava, & Bhatia, 2008). Since OCD is a chronic disorder that initiates in early life, one's whole life is affected by its several consequences. Further, OCD influences patients' financial status. Even, regardless of the costs such patients and their families should pay, this disorder still affects the patients' occupational situation as it has negative effects on one's work-life effectiveness and causes a financial burden on the family. The patients suffering from OCD have a higher unemployment rate, lower mean income, less achievement and more dependence on financial assistance and maintenance allowance benefits.

According to the results of international surveys on the prevalence of psychological disorders, only 48% of OCD patients had a personal income, 16% were unemployed and 36% were financially inactive. Furthermore, 3% of non-hospitalized OCD patients never had a job, indicating the possible early beginning of this disorder (Foster, Meltez, Gill, & Hinds, 1996).

Although OCD had been considered as a therapy-resistant problem requiring lifetime therapy, experimental research works in the recent decades resulted in detecting and introducing effective behavioral therapy methods known as Exposure and Response Prevention Therapy, cognitive and behavioral therapies (Mokmeli, Neshatdoost, & Abedi, 2006). The effectiveness of this therapy ranges 60-85% (Foa, Franklin, Kozak, 1998) though this method has its limitations. In addition to 15-40% of unresponsiveness to exposure and response prevention therapy, almost 25% of patients reject the exposure and 3-12% leave the

therapy prematurely (Salkovskis, & Westbrook, 1989). Furthermore, low motivation and insufficient therapeutic compliance of patients reduce therapeutic benefits, leading to low satisfaction from the therapy. Indeed, exposure is a difficult therapy for obsession as the client is asked to face his/her greatest fear without any avoidance behavior, leaving the anxiety to diminish by itself. This is the main cause of the high failure rate and rejection by patients. Cognitive theories of OCD emerged in the response of such limitations. Unfortunately, despite consensus related to the involvement of cognitive dimensions in OCD, cognitive interventions either individually or collectively did not lead to better results (Abramowitz, 1997).

Recently, alternative theories have been proposed for this approach by which clinical progress requires the direct change of thought contents, emotions or body symptoms. Such theories, known as the third wave of behavioral therapy, target the functions of cognitions and emotions instead of their transformation, frequency and situational sensitivity such as Dialectical Behavior Therapy, Integrative Behavioral Couple Therapy, Mindfulness-Based Cognitive Therapy and ACT (Heyes, & Strosahl, 2010). These therapies focus on acceptance instead of challenging beliefs. Besides, such therapies are mainly focused on symptom tolerance rather than its reduction (Heyes, Masuda, Bissett, Luoma & Guerrero, 2004). Among these therapies, acceptance and commitment therapy (ACT) has attracted much clinical attention during the past few years. ACT originates from a philosophical theory called functional contextualism (Heyes, Strosahl, & Wilson, 1999) which is based on a research program about language and cognition called

rational frame theory (Heyes, Barness-Holmes, & Roche, 2001). Functional contextualism evaluates behavior in its context and assesses its functions. Rational frame theory shows how natural language processes significantly changes human experiences. Such processes result in negatively evaluating almost all aspects of human experience (Flaxman, Blackledge, & Bond, 2011/2013). ACT focuses on increasing behavioral effectiveness in the presence of intrusive emotions and thoughts rather than direct change and reduction in their intensity and frequency (Heyes et al,. 1999). However, the ACT therapists' efforts may ironically lead to the final decrease of psychological agitation, while they directly do not try to change the patient's confusing thoughts or decrease their unpleasant emotions. Although such psychological interventions do not improve patients' emotions and thoughts but there is a research-based logic beyond it. ACT aims to increase psychological flexibility, which is the ability to contact the present moment in life and to bring about changes in a way to persist in behaviors that are appropriate for situations in line with personal values. Indeed, ACT helps people have a more rewarding life despite unpleasant thoughts, emotions and feelings. ACT has six core processes that lead to psychological flexibility (Hayes, Luoma, Bond, Masuda, & Lilis, 2006). These six processes are: 1) Acceptance, in which the act does not include craving for disturbing emotions and experiences and merely tolerating them, but it means the desire to experience unpleasant events - i.e., internal events that act in the direction of behavior consistent with values. Acceptance of the opposite pole is therefore experiential avoidance - one of the main elements of emotional inflexibility - 2) Cognitive defusion, which means

breaking the rules of language in ways that cause problematic words to lose much or all of their meaning; That is, thoughts should be just words or thoughts, not real things. 3) Self as a context, which implies that one should not be considered equal to thoughts, feelings and bodily senses, but they should be considered equal to a person who acquires or realizes these experiences, 4) Contact with the present moment, which means acting with full awareness of what is happening in the present, 5) Values, which are expressions that indicate what situations a person always desires to experience in his life and 6) Committed action that at its most fundamental level is the implementation of behavior that is truly in line with the individual's values which do not promise nor agree to implement (Flaxman et al,. 2011/2013).

Conversely, genetics has recently been proposed to be the cause of OCD. Although there is no consensus among researches on certain effective gene or genes responsible for OCD, plenty of evidence is available indicating that genetic factors will finally be identified as the main mediator at least in some certain symptoms of OCD (Steketee, Piggott, 2006/2020). It was found that such a disorder is familial (e.g. Grados, Walkup, & Walford, 2003, Hanna, Himle, Curtis, & Gillespie, 2005). In this study, OCD family history variable is used to investigate the genetic factors.

Therefore, the present study aims to investigate the effectiveness of ACT on managing OCD and improving patients' quality of life. Since inheritance has been proposed as a risk factor of developing, ACT is assessed in interaction with OCD family history to answer the question whether OCD family history could be a

significant variable in the effectiveness of therapy.

2. Method

This was a quasi-experimental and pretest-posttest study with control and two-month - follow-up groups. The research population entirely consisted of over-18-years of age obsessive patients referred to private counseling centers, and rural and urban healthcare centers in Rasht City during 2014. The research sample included 60 OCD patients selected through purposive sampling method among visitors who gave their consent to the study conditions and were randomly included in experimental and control groups. The inclusion criteria were: 1) over-18-years-of-age; 2) not having comorbid psychological disorders like depression, bipolar, schizophrenia, drug abuse etc.; 3) not taking medication during therapy; 4) earning a score of 16 or higher in Yale-Brown Obsessive-Compulsive Scale (YBOCS). The researcher conducted clinical interviews with OCD patients referred to these centers based on DSM-5 criteria to confirm the diagnosis of OCD and comorbidity of other psychiatric disorders. Additionally, the presence or non-presence of OCD family history was determined through such interviews. Yale-Brown Obsessive-Compulsive Scale and a brief version of the World Health Organization Quality of Life Scale were used to measure life quality on the assessed subjects. After primary assessment, the subjects were randomly divided into 4 groups (n=15) (the experimental group for ACT with and without OCD family history, control group with and without OCD family history). Each treatment group received eight 45-

minute sessions once a week while control groups did not receive any therapy. After completing remedial sessions, Yale-Brown Obsessive Compulsive Scale and brief version of the World Health Organization Quality of Life Scale were performed two months later as follow-upstage. Multivariate analysis of variance test was used to examine the differences in pre-test scores in groups and multivariate analysis of variance test with repeated measures was used to examine the differences in pre-test, post-test and follow-up scores. The data required for this study were collected using three instruments.

DSM-5 criteria-based clinical interview: The researcher conducted clinical interviews based on DSM-5 criteria to confirm OCD and the lack of comorbid psychological disorders like depression, bipolar, schizophrenia, drug abuse, etc. In addition, the presence or non-presence of OCD family history was determined through this clinical interview.

Yale-Brown Obsessive-Compulsive Scale (YBOCS): this scale was first introduced in 1989 by Goodman et al 10 items (5 items focused on mental obsession and the other ones focused on compulsive obsessions). The highest score on this scale is 40. The assessors" reliability, internal consistency coefficient and test-retest reliability coefficient within 2 weeks have been reported as r=0.98 r=0.89, and r=0.84, respectively in Iran. Its discriminant validity with depression questionnaire and Hamilton's depression rating scale were obtained as r=0.64 and r=0.59, respectively (Dadfar, Bolhari, Dadfar, & Bayanzadeh, 2001). Dadfar (1998) reported its divergent validity with Maudsley's obsessive - compulsive questionnaire as 0.78.

World Health Organization's Quality of Life Scale-Brief Version (WHO-BRIEF): Several questionnaires have been developed to assess the quality of life but WHO's has attracted more attention due to its unique characteristics. The general instrument for measuring WHO's Quality of Life was designed as WHOQOL-100 and WHOQOL-BRIEF after combining some areas and removal of some questions to make a 100-item scale. The results indicated an acceptable compliance in different studies. WHOQOL-BRIEF form was selected for its fewer numbers of items and ease of use. This questionnaire measures four areas i.e. physical health, mental health, social relationships, and environmental health with 24 items. The first two items do not belong to any area and measure general health status and quality of life. Therefore, this questionnaire has 26 items that were rated on a scale of 1-5 (Nejat, Montazeri, Holakoei, Mohammad, & Majdzadeh, 2006). The reliability of the scale for physical health, mental health, social relationships, and environmental health was reported as 0.77, 0.77, 0.75, and 0.84, respectively. In Nejat et al. (2006)'s study, the discriminant validity of this questionnaire was investigated through the difference between healthy and patient people which was confirmed through the significance of group coefficient and control of potential confounding factors in different subscales through linear regression.

In the present study, ACT was implemented based on the book "Acceptance and Commitment Therapy for Obsessive-Compulsive Disorder: Treatment Manual" (Twohing, 2004) in 8 sessions for 45 minute once a week. Home assignments were given to patients at the

end of each session and all sessions (except the first session) initiates with performance evaluation, observing reactions to the previous session, and home assignments. In

Table 1 a summary of ACT sessions is presented.

Table 1. Summary of ACT sessions

Sessions	Contents of sessions
Session 1	Making a good relationship with the visitor and gaining information related to obsession history; evaluating the history in which the symptoms of obsession occur and discussing thought differences and obsessive actions
Session 2	Asking the patient to draw a picture of him/her and specify the locus of thoughts and its obsessive action. Introducing the concept of "creative hopelessness" and expressing "tug-of-war" metaphor
Session 3	Proposing concepts like "control as the problem"," polygraph", "fall in love" and "chocolate cake" and introducing the concept of acceptance and "finger trap" exercise.
Session 4	Suggesting the concept of "diffusion", "milk, milk, milk" exercise, and "grocery store" and the concept of acceptance and "passengers on the bus" metaphors.
Session 5	Working on diffusion and take his/her mind for a walking exercise, acceptance concept and "two scales" metaphor and "obsessions on paper" exercise.
Session 6	Working on the concept of values, "heart-shaped box" and "bull's eye" exercises; the concept of acceptance and "annoying party guest" metaphor and committed acts.
Session 7	Including present moment awareness", "counting breaths" and "watching thought" concepts; mindfulness exercises and "kindergarten teacher" metaphor and the concept of "self as a context"; "TV set" and "chessboard" metaphors
Session 8	Including mindfulness "solders on parade" exercise; reviewing of all processes and using passengers on the bus metaphor and discussing the end of therapy.

3. Results

The subjects in the ACT group with OCD family history were 33.3% men and 66.7 women; 20% men and 80% women in ACT group without OCD family history; 26.7% men and 66.7% women in the control group with OCD family history and 40% men and 60% women in the control group without OCD family history. In addition, 26.7% of participants in ACT group with OCD family history were single and 73.3% were married; 60% single and 40% married in ACT group without OCD family history;

33.3% single and 66.7% married in control group OCD family history and 40% single and 60% married in the control group without OCD family history. In ACT group with OCD family history, 13.3% had under-high school diploma education, 53.3% high-school diploma and 33.3% B.Sc. Degree. In ACT group without OCD family history, 6.7% had under-high-school diploma, 60% high-school diploma and 33.3% B. Sc. Degree. In the ACT group with OCD family history, 33.3% had high-school diploma, 53.3% B. Sc. and 13.3% M. Sc. Degrees. In the control group

without OCD family history, 33.3% had high-school diploma, 53.3% B. Sc. and 13.3% M. Sc. Degrees. The mean age of participants in ACT group with OCD family history was 34.67, the ACT group without OCD family history was13.28, control group with OCD family history was 34.07 and control group without OCD family history was 32.53. The mean duration of disease in ACT group with

OCD family history was 5.13, ACT group without OCD family history was 4.07, control group with OCD family history was 2.93, and control group without OCD family history was 2.67.

Table 2 shows the mean and standard deviation of pretest, posttest, and follow-up related to OCD and quality of life variables in the experimental and control group.

Table 2. The mean and standard deviation of pretest, posttest, and follow up related to OCD and quality of life variables in the experimental and control group

Variables	Group	ACT with OCD family history		ACT without OCD family history		Control with OCD family history		Control with OCD family history	
	Test	M	S	M	S	M	S	M	S
OCD	Pretest	30.20	2.808	30.80	2.484	29.27	8.058	29.60	4.968
	Posttest	18.80	1.821	21.87	2.232	29.53	7.357	29.80	4.004
	Follow up	19.07	1.831	22.40	2.694	29.87	6.760	30.07	4.877
Quality of life	Pretest	68.93	8.379	73.13	8.132	73.20	1.455	72.60	11.407
	Posttest	82.60	8.365	86.93	8.405	73.60	9.508	72.93	11.417
	Follow up	82.07	7.941	86.67	8.182	73.13	9.899	72.93	11.285

As shown, the mean intensity of OCD in both ACT group in posttest and follow-updecreased while the results of the posttest and follow-up in two control groups was not different from the pretest. In addition, the average quality of life in both ACT group in posttest and follow-upincreasedfrom pretest while the results of the posttest and follow-up in two control groups was not significantly different.

The multivariate analysis of variance was used to measure the significant differences in the pre-test scores of OCD and quality of life in 4 groups. In this type of analysis, the following conditions should be met to reach the satisfactory results.

The normality of the variables was measured by the Smirnov- Kolmograph test

which was not significant. The homogeneity of covariance variance matrix was investigated using Box test. The significance of the box test is more than 0.05, indicating that the variance-covariance matrix is homogeneous (Mbox= 30.15, F= 5.67 and p=0.123). To investigate the homogeneity of variances, the test Homogeneity of Levin variances was used. Levin's test calculated for OCD and quality of life were not statistically significant (OCD F= 5.28 P= 0.435, quality of life F= 0.996 P=0.446). Therefore, the assumption of homogeneity of variances was confirmed. Table 3 shows the results of the multivariate analysis of variance test for the variables of OCD and quality of life.

Table 3. The result of Multivariate Tests for pretest of four groups in OCD and Quality of Life

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.995	5887.409[b]	2.000	55.000	.000
	Wilks' Lambda	.005	5887.409[b]	2.000	55.000	.000
	Hotelling's Trace	214.088	5887.409[b]	2.000	55.000	.000
	Roy's Largest Root	214.088	5887.409[b]	2.000	55.000	.000
Group	Pillai's Trace	.090	.881	6.000	112.000	.511
	Wilks' Lambda	.911	.871[b]	6.000	110.000	.519
	Hotelling's Trace	.096	.860	6.000	108.000	.527
	Roy's Largest Root	.072	1.349[c]	3.000	56.000	.268

The results of Wilkes-Lambda test in Table 3 show that is no significant difference among the four groups. Accordingly, multivariate analysis of variance with repeated measures was used to test the difference in the pre-test, post-test, and follow-up scores in both OCD and quality of life. Table 4 represents the results of multivariate analysis of variance with repeated measures for OCD and quality of life.

Table 4. Results of multivariate analysis of variance with repeated measures for OCD and quality of life

Source	Measure		Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
factor1	OCD	Sphericity Assumed	1929.244	2	964.622	45.567	.000	.440
		Greenhouse-Geisser	1929.244	1.171	1647.645	45.567	.000	.440
		Huynh-Feldt	1929.244	1.201	1606.297	45.567	.000	.440
		Lower-bound	1929.244	1.000	1929.244	45.567	.000	.440
	Quality of life	Sphericity Assumed	5849.644	2	2924.822	43.571	.000	.429
		Greenhouse-Geisser	5849.644	1.045	5598.916	43.571	.000	.429
		Huynh-Feldt	5849.644	1.066	5489.946	43.571	.000	.429
		Lower-bound	5849.644	1.000	5849.644	43.571	.000	.429
factor1 * OCDfamily history	OCD	Sphericity Assumed	14.444	2	7.222	.341	.712	.006
		Greenhouse-Geisser	14.444	1.171	12.336	.341	.596	.006
		Huynh-Feldt	14.444	1.201	12.027	.341	.601	.006
		Lower-bound	14.444	1.000	14.444	.341	.561	.006
	Quality of life	Sphericity Assumed	580.844	2	290.422	4.326	.015	.069
		Greenhouse-Geisser	580.844	1.045	555.948	4.326	.040	.069
		Huynh-Feldt	580.844	1.066	545.128	4.326	.039	.069
		Lower-bound	580.844	1.000	580.844	4.326	.042	.069
Error(factor1)	OCD	Sphericity Assumed	2455.644	116	21.169			
		Greenhouse-Geisser	2455.644	67.913	36.159			
		Huynh-Feldt	2455.644	69.661	35.251			
		Lower-bound	2455.644	58.000	42.339			
	Quality of life	Sphericity Assumed	7786.844	116	67.128			
		Greenhouse-Geisser	7786.844	60.597	128.501			
		Huynh-Feldt	7786.844	61.800	126.000			
		Lower-bound	7786.844	58.000	134.256			

As shown above, to check the assumptions of repeated measures analysis of variance test, Mauchly's sphericity test was used. Mauchly's Test of Sphericity was significant for OCD and quality of life. Therefore, the results of the Green-Haas

Grazer statistic are reported. The results indicated that a significant difference exists between pre-test, post-test, and follow-up scores in OCD and quality of life. OCD family history has no significant effect. Partial Eta Squared is strong for OCD and quality of life. In Table 5 the results of Bonferroni post hoc test for comparing the pre-test, post-test and follow-up of OCD and quality of life among 4 groups is presented.

Table 5. The results of Bonferroni post hoc test for comparing the pre-test, post-test and follow-up of OCD and quality of life among 4 groups

Variable	Group	Assessment period	mean difference (I-J)		
			Pre (J)	Post (J)	Follow (J)
OCD	ACT with OCD family history	Pretest (I)	----	14.267*	11.600*
		Posttest (I)	-14.267*	⸺	-2.667
		Follow (I)	-11.600*	2.667	—
	Control with OCD family history	Pretest (I)	⸺	-.333	-.400
		Posttest (I)	.333	⸺	-.667
		Follow (I)	.200	.667	⸺
OCD	ACT without OCD family history	Pretest (I)	⸺	15.400*	13.800*
		Posttest (I)	-15.400*	⸺	-1.600
		Follow (I)	-13.800*	1.600	⸺
	control without OCF family history	Pretest (I)	⸺	0.533	0.067
		Posttest (I)	-0.533	⸺	-0.467
		Follow (I)	-0.067	0.467	⸺
Quality of life	ACT with OCD family history	Pretest (I)	----	-19.200*	-14.067*
		Posttest (I)	19.200*	⸺	15.133
		Follow (I)	14.067*	-5.133	⸺
	Control with OCD family history	Pretest (I)	0.467	-0.200	⸺
		Posttest (I)	-0.467	⸺	-0.667
		Follow (I)	0.200	0.667	⸺
Quality of life	ACT without OCF family history	Pretest (I)	⸺	15.400	13.800
		Posttest (I)	-15.400	⸺	-1.600
		Follow (I)	-13.800	1.600	⸺
	control without OCF family history	Pretest (I)	⸺	0.800	-0.533
		Posttest (I)	-0.800	⸺	-1.333
		Follow (I)	0.533	1.333	⸺

The mean difference is significant at the .05 level.*

As shown, post-test and follow-up scores of OCD decreased significantly compared to pre-testing ACT groups with and without OCD family history while post-test scores did not change significantly compared to follow-up's. However, there is no significant difference between the post-test scores from the pre-test and the follow-up scores from the post-test in the control groups. In addition, post-test and follow-up scores of quality of life increased significantly from pre-test, and post-test scores did not change significantly compared to follow-up in ACT groups with and without OCD family history. However, there is no significant difference between

the post-test scores from those of the pre-test and the follow-up scores from those of the post-test in the control groups.

4. Discussion

The present study aimed to investigate the effectiveness of ACT on improving symptoms and increasing quality of life in patients with OCD in interaction with OCD family history.

The results of multivariate analysis of variance with repeated measures in OCD show that there is a significant difference between the pretest-posttest scores. In addition, symptoms of OCD among the patients have decreased as a result of ACT, and the lack of significant differences in post-test and follow-up scores indicates the reliability of treatment outcomes in the follow-up phase. Additionally, OCD family history had no effect on the treatment and the effectiveness of ACT was the same in both groups with and without OCD family history.

The results of this study were in line with those of Izadi, and Abedi (2013), Safari, Esfahani, Sepanta, and Amiri (2013), Twohing, Heyes, and Masuda (2006), Twohing (2007). In early sessions, ACT mainly focuses on providing the patient with a model treatment (although not necessarily the disorder). Particularly, it mainly emphasizes to (a) engage the patient in a discussion of how previous attempts to solve the problem have failed to work, and (b) identify attempts to control thoughts and feelings as a factor in the maintenance of the illness. The emphasis in later sessions is placed on a) clarifying values and (b) discussing the importance of adaptive (or value-directed) functioning despite having unwanted thoughts and feelings (Tolin,

2009). ACT therapists frequently instruct patients to monitor the frequency of attempts to control thoughts and feelings, and such control attempts become direct targets of the intervention (Hayes et al., 1999). The behavioral commitment exercises described by Twohig (2009) consist of direct instructions to refrain from compulsions (e.g., "having a meaningful conversation without engaging in compulsions" or choosing "not to mentally protect people for one hour per day"). ACT emphasizes modification of metacognition (i.e., thoughts about one's thoughts and feelings). The ACT patient is taught (frequently using metaphors and experiential exercises, rather than direct didactic instruction) not to interpret their obsession as literally true, and that the most effective way to respond might be to 'observe' some of the obsessive thoughts without directly responding to them mentally or behaviorally. As in ACT, however, the underlying message is: "The way you have been thinking about things might be part of the problem, and you may be able to feel better by practicing another way of looking at things." The patient is told that it is impossible to control obsessive thoughts and emotional distress directly and it is unhelpful to attempt to do so. However, the patient is encouraged to focus his/her efforts on changing his/her overt behavior (compulsions, avoidance, and value-directed behavior). The ACT therapist encourages the patient to experience unwanted thoughts through the strategies such as repeating the thought over and over again out loud, or deliberately thinking the thoughts and watching them "come and go".

The results of multivariate analysis of variance test with repeated measures for the

quality of life variable indicate the significant difference exists between pretest-posttest scores and the quality of life in people with OCD increased as a result of ACT. Furthermore, the lack of significant differences in posttest and follow-up scores indicates the consistency of treatment outcomes in the follow-up phase. Besides, OCD family history has no effect on the treatment and the effectiveness of ACT was the same in both groups with and without OCD family history. These results are in line with those of Borghei, Roshan, & Bahrami (2020), Narimani, Maleki-Pirbazari, Mikaeili, & Abolghasemi (2016).

This finding indicates that ACT reduces the level of stress in OCD patients by increasing the level of acceptance and reducing mental inhibition, leading to physiological stress and physical pain and discomfort. In addition, ACT helps OCD patients to experience obsessive thoughts in a new way by increasing cognitive defusion and conscious acceptance, and engage with and accept such thoughts, which they had previously sought to avoid. Reducing physical pain and the avoidance of obsessive thoughts and using the energy to move toward values rather than fighting obsessive thoughts will improve the quality of life of OCD patients.

The limitations of the present study is that pre-test, post-test and follow-up were performed by the therapist which can cause biased results. In addition, the duration of the disorder and the age of patients affect the outcome of treatment, which is not studied in this study and is considered as a limitation. Therefore, it is recommended that an independent assessor unaware of the treatment procedure be used.

5. Conclusion

This study provided empirical evidence for the effectiveness of ACT for OCD. Therefore, psychologists and psychiatrists can benefit from this therapy to decrease the symptoms of OCD and increase the quality of life in patients.

Acknowledgment

Conflict of interest

The authors declare that there is no conflict of interest.

References

Abramowitz J.S. (1996). Variants of exposure and response prevention in the treatment of obsessive-compulsive disorder: A meta-analysis. *Behavior Therapy*; 27, 583-600. http://www.ocdtherapist.com/PDFs/1996m etaanalysis.pdf

Abramowitz J.S. (1997). Effectiveness of psychological and pharmacological treatments of obsessive-compulsive disorder: A quantitative review. *Journal of Consulting and Clinical Psychology*, 65(1): 44-52: https://10.1037//0022-006x.65.1.44

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders*, 4th ed., Text Revision Washington, DC: Author.

Borghei, S., Roshan, R., Bahrami, H. (2020). Treatment Based on Acceptance and Commitment and Spirituality of Religious Therapy in a Group Method Improvement of the Severity of Obsessive-Compulsive Symptoms and Obsessive Beliefs and Quality of Life in People with Obsessive-Compulsive Disorder. *Middle Eastern Journal of Disability Studies*, 10, 6-6. http://jdisabilstud.org/article-1-1238-fa.html

Dadfar, M. (1998). *Investigation of comorbidity of personality disorders among obsessive-compulsive patients and comparison with normal people*. M. Sc. Thesis on clinical psychology, Tehran Psychiatric Institute.

Dadfar, M., Bolhari, J., Dadfar, K., Bayanzadeh, S. A. (2001). Prevalence of the obsessive-compulsive disorder symptoms. *Iranian Journal of Psychiatry and Clinical Psychology*. 7 (1 and 2):27-33. http://ijpcp.iums.ac.ir/article-1-1963-fa.html

Fisher PL, Wells A (2008). Metacognitive therapy for obsessive-compulsive disorder: a case series. *Journal of Behavior Therapy and Experimental Psychiatry*; 39(2):117-132. [DOI: 10.1016/j.jbtep.2006.12.001]

Flaxman, P. E., Blackledge, J. T., Bond, F., W. (2011). *Acceptance and Commitment Therapy: Distinctive Features*. (Translated by Mosleh Mirzaie and Saman Nonahal). Tehran: Arjmand publication, Original work published 2013.

Foa, E. B., Franklin, M. E., & Kozak, M. J. (1998). Psychosocial treatments for obsessive–compulsive disorder: Literature review. In R. P. Swinson, M. M. Antony, S. Rachman, & M. A. Richter (Eds.), *Obsessive-compulsive disorder: Theory, research, and treatment* (pp. 258–276). The Guilford   Press. https://psycnet.apa.org/record/1998-07751-011

Foster, K., Meltzer, H., Gill, B., Hinds, K. (1996). *Adults with a psychotic disorder living in the community OPCS Survey of Psychiatric Morbidity Report 8*. London, HMSO.

Goodman, W. K., Prince, L. H, Rasmussen, S. A., Mazure, C., Fleischmann, R. L., Hill, C. L., et al. (1989). The Yale Brown Obsessive-Compulsive Scale: Development, Use, and Reliability. *Archives of General Psychiatry*. 46(11):1006-1011.

Grados, M. A., Walkup, J., Walford, S. (2003). Genetics of obsessive-compulsive disorder: New findings and challenges. *Brain Development*, 25(suppl. 1): 55-61. https://pubmed.ncbi.nlm.nih.gov/14980374/

Halgin, R., & Whitbourne, S. K. (2014). *Abnormal psychology: Clinical perspective on psychological disorders (7th ed.). DSM-5 update* (Translated by Yahya Sied Mohammadi), Ravan Press. (Original work published 2013)

Hanna, G. L., Himle, J. A., Curtis, G. C., Gillespie, B. W. (2005). A family study of obsessive-compulsive disorder with pediatric probands. *American Journal of Medical Genetic*, 134: 9-13. [DOI: 10.1002/ajmg.b.30138]

Hayes, S. C., Strosahl, K. D. (2010). *A practical guide to acceptance and commitment therapy*. New York: Springer Press.

Hayes, S. C., Barnes-Holmes, D., & Roche, B. (2001). *Relational Frame Theory: A Post-Skinnerian Account of Human Language and Cognition*. Hingham, M. A., Kluwer Academic Publisher.

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. NewYork. Guilford Press.

Hayes, S.C., Luoma, J.B., Bond, F.W., Masuda, A, & Lillis, J. (2006). Acceptance and Commitment Therapy: Model, Processes

and Outcomes. *Behavior Research and Therapy*, 44 (1), 1-25. [DOI: 10.1016/j.brat.2005.06.006]

Hayes, S.C., Masuda, A., Bissett, R., Luoma, J., & Guerrero, L.F (2004). DBT, FAP, ACT: How Empirically Oriented are the New Behavior Therapy technologies? *Behavior Therapy*, 35 (1), 35-54. [DOI/10.1016/S0005-7894(04)80003-0]

Heninger, G. R., Charney, D. S. (1989). The Yale-Brown Obsessive-Compulsive Scale: Development, Use, and Reliability. *Archive of General Psychiatry*, 46(11):1006-1011. [DOI: 10.1001/archpsyc.1989.01810110048007]

Izadi, R., Abedi, M, (2013). Decrease of obsessive symptoms in obsessive-compulsive patients through acceptance and commitment therapy. *Feyz Journal of Kashan University of Medical Sciences*. 17 (3), 275-286. http://feyz.kaums.ac.ir/article-1-1963-fa.html

Mokhtari Davoudli, M., (2014). *Effectiveness of group therapy based on acceptance and commitment method on the decrease of obsessive-compulsive disorder, thought suppression and increase of women's quality of life with obsessive cleaning disorder*, M. Sc. Thesis, Ferdowsi University of Mashhad.

Mokmeli, Z., Moulavi, H., Abedi, M.R. (2006). The effect of group and individual exposure and response prevention treatment on reduction of obsessive – compulsive symptoms in out –patients, *Journal of psychology*, 2 (38), 169-180. https://www.sid.ir/en/journal/ViewPaper.aspx?id=58426

Narimani, M., Maleki-Pirbazari, M., Mikael, N., Abolghasemi, .A. (2016). Appraisal of Effectiveness and Comparison of Exposure and Response Prevention Therapy and Acceptance and Commitment Therapy (ACT)-Based Training on Improving Obsessive and Compulsive Disorder

Patients' Components of Life Quality. *Journal of Clinical Psychology*, 8(1), 25-36. [DOI: 10.22075/JCP.2017.2224]

Nejat, S, Montazeri, A., Holakouie Naieni, K., Mohammad, K., Majdzadeh, S. (2006). The World Health Organization quality of Life (WHOQOL-BREF) questionnaire: Translation and validation study of the Iranian version. *Journal of School .of Public Health and Institute of Public Health Research*, 4 (4), 1-12. http://sjsph.tums.ac.ir/article-1-187-en.html

Safari, S., Esfahani, M., Sepanta, M., Amiri, S. (2013). Effectiveness of acceptance and commitment therapy on obsessive-compulsive mothers and their children's behavioral problems, *6th International Congress of Child and Adolescent Psychiatry, Iran, Tabriz University of medical sciences and health services*.

Salkovskis, PM, Westbrook, D. (1989). Behavior therapy and obsessional ruminations: Can failure be turned into success? *Behavior Research and Therapy*, 27(2): 149-60. [DOI: 10.1016/0005-7967(89)90073-9]

Srivastava, S., Bhatia, M.S. (2008). Quality of Life in Obsessive-Compulsive Disorder- A Brief Review. *Delhi Psychiatry Journal*, 11(2): 197-202.

Steketee, G, Pigott, T. G., (2020). *Obsessive-compulsive disorder: the latest assessment and treatment strategies* (4rd ed). (Translated by Habibollah Ghassemzadeh). Tehran: Arjmand. (Original work published 2006)

Tolin, D. F., (2009). Alphabet Soup: ERP, CT, and ACT for OCD. *Cognitive and Behavioral Practice*, 16(1), 40–48. [DOI: 10.1016/j.cbpra.2008.07.001]

Twohig M P, Hayes S C, Plumb J C, Pruitt L D, Collins A B, Hazlett-Stevens H and Woidneck M R (2010). A randomized clinical trial of Acceptance and Commitment Therapy versus. Progressive

Relaxation Training for obsessive-compulsive disorder. *Journal of Consulting and Clinical Psychology*, 78(5): 705–716. [DOI: 10.1037/a0020508]

Twohig, M. P. (2009). The application of acceptance and commitment therapy to obsessive-compulsive disorder. *Cognitive and Behavioral Practice*, 16, 18–28. [DOI: 10.1016/j.cbpra.2008.02.008]

Twohig, M. P. (2007). *A randomized clinical trial of acceptance and commitment therapy versus progressive muscle relaxation in the treatment of obsessive-compulsive disorder*. Dissertation Abstracts International: Section B: The Sciences and Engineering, 68(7), 48-50.

Twohig, M. P., Hayes, S. C., & Masuda, A. (2006). Increasing willingness to experience obsessions: Acceptance and Commitment Therapy as a treatment for Obsessive-Compulsive Disorder. *Behavior Therapy*, 37(1), 3–13. [DOI: 10.1016/j.beth.2005.02.001]

Twohig MP (2004). *Acceptance and Commitment Therapy for Obsessive and Compulsive Disorder: Treatment Manual*. Reno, NV.

World Health Organization. Division of Mental Health. (1996). *WHOQOL-BREF: introduction, administration, scoring and generic version of the assessment: field trial version*, December 1996. World Health Organization. http://apps.who.int/iris/bitstream/handle/10665/63529/WHOQOL-BREF.pdf?sequence=1