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Original Article

Comparing the effectiveness of online acceptance and commitment therapy and behavioral activation therapy on repetitive negative thinking in obsessive patients

Azade Mojaradi[1]; *Mohammad Yamini[2]; Abdollah Mafakheri[3]

[1]Ph.D. student, Department of General Psychology, Bojnourd Branch, Islamic Azad University, Bojnourd, Iran.
[2]Visiting assistant professor, Department of Psychology, Bojnourd Branch, Islamic Azad University, Bojnourd, Iran. Assistant professor of Kheradgarayan Motahar Institute of Higher Education, Iran.
[3]Assistant professor of psychology, Payame Noor University, Iran.

Abstract

Introduction: This study aimed to compare the effectiveness of online acceptance and commitment therapy and behavioral activation therapy on repetitive negative thinking in obsessive patients.

Materials and Methods: In this study, 45 obsessive-compulsive patients who were referred to psychotherapy clinics in Mashhad city, Iran in 2020 were selected and randomly divided into 3 equal groups (2 experimental groups and one control group). They responded to McEvoy et al. (2010) and the obsessive-compulsive disorder questionnaire of Maudsley (1997). The first experimental group underwent eight sessions of an online Acceptance and Commitment Therapy (ACT) and the second experimental group underwent eight sessions of ninety-minute group behavioral activation therapy. The control group did not receive any intervention. The data analyzed through descriptive statistics, ANOVA, Chi-square tests, Shapiro-Wilk test, repeated measures analysis of variance, and SPSS software version 22.

Results: The results showed that the mean of negative thinking in the ACT group and behavioral activation in the post-test was significantly decreased ($P< 0.05$). In the ACT group, the effect of intervention was persistent in the follow-up.

Conclusion: The results showed that both therapies were effective on repetitive negative thinking in obsessive-compulsive individuals, but online ACT intervention was significantly more effective than behavioral activation therapy.

Keywords: Acceptance and commitment therapy, Behavioral activation therapy, Obsession, Repetitive negative thinking

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Introduction

According to DSM 5, Obsessive-Compulsive Disorder (OCD) is considered a separate class (1). OCD is diagnosed by repetitive obsessive activities or thoughts that its main trait is repetitive obsessive actions or thoughts (2). Obsessive-compulsive patients are mindful that their obsessions are irrational. Research shows that this

***Corresponding Author:**
Department of Psychology, Bojnourd Branch, Islamic Azad University, Bojnourd, Iran.
yamini1342@gmail.com
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disorder affects 2 to 3% of the population (2,3). Negative thinking is a type of thinking about negative experiences with three features of repetition, spontaneous, and difficulty to stop (3). People with negative referential thinking are more disposed to repetitive negative thinking, anxiety, and depression, and appraise negative occasions more negatively than others (4). Studies have shown that negative thoughts lead to anxiety (5).

Researchers believe that integrated approaches are more effective to resolve the psychological problems of people in different situations. One of them is behavioral activation therapy (6). It has been developed for the treatment of depression but has also shown its therapeutic potential in the field of other disorders (7) also is a solution-oriented, flexible, practical, and contextual treatment (8). This method is one of the psychotherapy approaches, which is based on a tributary analysis of behavior (7). Behavioral activation therapy instructs individuals to identify their avoidance patterns to achieve positive reinforcement and use adaptive coping strategies (8). Behavioral activation, emphasis on the exchange between the person and the environment over time, identifying environmental stimulators and coping responses involved in the depressive mood etiology and continuation (9).

The behavioral activation method can be used to treat both depression and anxiety as well. Reports show that depression is often followed by obsession as a response to anxiety and practical disorders (10,11). Along with behavioral and cognitive therapy, the literature review introduced an approach called; Acceptance and Commitment-based Therapy (ACT) which applied to treat anxiety conditions, including obsessive-compulsive disorder (12). This technique is a kind of behavioral therapy that aims to make psychological flexibility using different methods and paying attention to concepts such as acceptance, living in the present, cognitive dissonance, and committed practice (13). This treatment enlarges the person's psychological relationship with his/her thoughts and feelings instead of changing cognitions (14,15). Studies have suggested ACT as an appropriate treatment for obsessive-compulsive disorder (16), mood disorders (17), post-traumatic stress disorder (18), panic disorder (19), and anxiety disorder (20). Due to the limited evidence about these treatments, the present research aimed to compare the effectiveness of online acceptance and commitment therapy and behavioral activation therapy on repetitive negative thinking in obsessive patients.

Materials and Methods

The research population consists of all persons with obsessive disorder who were referred to Mashhad psychotherapy clinics in 2020. The sample was 45 obsessive patients who were selected with the convenience sampling method. The sample size was determined based on the Cohen formula and statistical experts' views approximately 15 persons for each group (21). The participants were divided into three equal groups randomly.The inclusion criteria included obsessive patients diagnosed by psychiatrist and clinical psychologist interview and according to the DSM5, patients who obtained at least the 15 score in the Maudsley Questionnaire, having no other psychological disorders, not receiving psychotherapy in the last 6 months, aged 20- 50 years old, having at least primary education, willingness to participate in the study, and informed consent.

Exclusion criteria included absence more than two sessions, having addiction, taking psychiatric medications, taking psychological interventions in the past year, and serious suicidal thoughts.

Firstly pre-test was performed for each group and then interventions were provided according to the protocols. Acceptance and Commitment Therapy was performed online and web-based for 90 minutes per week according to the Hiss protocol (22). In the web-based approach, behavioral activation therapy was conducted in eight online sessions according to Gortner's (1998) group practice guide (23). The control group did not receive any treatment. The intervention was conducted by a Ph.D. candidate in psychology who has taken the necessary training in the field of acceptance and commitment therapy and behavioral activation therapy. In the first session, baseline measurements were determined. For the ethical issues; the researchers explained the goals and the participants were assured that all information obtained during the study would be completely

confidential and would not be used for other purposes. Persons who gave verbal consent were provided with written information about the study, a consent form send to sign and return and they feel free to leave the intervention whenever they want. Also, in order to equilibrium between the experimental and control groups, the control group was assured that after the study, they will also be offered treatment sessions.

Research instruments

A) Repetitive Negative Thoughts Questionnaire (McEvoy et al. 2010): This tool was designed and developed by McEvoy et al. (24) to measure repetitive negative thoughts and contained 10 items that have been chosen from the main version of 27 items questionnaire, with a 5-point Likert scoring scale and consists of two factors: 1) negative repetitive thoughts, and 2) lack of negative repetitive thoughts (24).

The Cronbach's alpha coefficient was reported as 0.72 to 0.93. The predictive validity was evaluated, by correlation coefficients with Beck Depression Inventory and Beck Anxiety Inventory which were 0.42 and 0.38, respectively. Also, validity and reliability were evaluated in Iran, by Cronbach's alpha coefficient for this questionnaire which was reported as 0.89 (25).

B) Maudsley Obsessive Questionnaire (1997): This tool has been developed to assess the type and scope of obsessive-compulsive disorder (26). This questionnaire consists of 30 items and 4 scores for obsessive behaviors. The total score is between zero and 30. This questionnaire is a useful and simple tool that can be used combined with other tools (26). The reliability of this tool was reported to be 0.84 by test-retest and its convergent validity with the Yale-Brown Scale was reported to be 0.87 (27).

Table 1. Summary of acceptance and commitment therapy sessions and behavioral activation therapy

Sessions	Behavioral Activation Therapy	Acceptance and Commitment Therapy
First	Get familiar with group members, expression of group rules, greeting, get familiar therapist and each other, explain about obsessive behavior pattern and the effect of obsession on life, an introduction to treatment, to daily observation, structural important points of this treatment, and pre-test	Get familiar with group members, expression of group rules, greeting, get familiar therapist and each other, express the subject of research, and an introduction to obsession, and pre-test
Second	Review the previous session task, presenting a model of behavioral activation treatment, beginning to record daily activities, completing life event, values and activities forms	Explanation of the obsessive signs and symptoms, examining the patient's obsessive thoughts, actions, anxiety and concern, assessment of obsessive disorder interferes with daily function
Third	Review the previous session task, training, choosing an activity and ranking it, the skill of outside to inside practice, and homework	Review of tasks, discussion about adaptive and impaired anxiety responses, negotiate about the problematic origin of obsessive disorder; discussion about controlling and avoiding strategies for obsessions, using metaphors
Fourth	Review the skill of outside to inside practice, teaching rapid style skills, daily observation with activity planning	Review of tasks, willingness/acceptance to behavioral control and commitment, discussion about control strategies, introduce control strategies, and assign tasks
Fifth	Review of the previous session task, daily observation with activity planning, contracts, daily observation of planning for the next weeks, and homework	Review of tasks, introducing oneself, using mindfulness tasks, accepting and living according to values, manage obsessive, giving homework about personal values
Sixth	Review the previous session task, stress sheet, the role of personal stressors in obsession, daily observation with active planning for the next week, and homework	Review of tasks, behavioral commitment practicing, examining personal values, objects contrasted with values, giving homework about personal values and moving toward a worthwhile life
Seventh	Review the task, environmental assessment, values and life activities, self-care skills training, and task assignment	Review of tasks, creating flexible patterns of behavior through value-oriented exposure, expressing, willingness rather than avoidance, explaining the context and purpose of exposure in ACT, and preparing for the end
Eighth	Interpersonal skills training, recurrent prevention, activity selection and ranking, preparation for completion of treatment, and post-test	Performance assessment, review of reactions to the previous session, Review of tasks, help to patient how response to obsessive and anxiety thoughts, developed behavioral storage, and to create flexible patterns of obsessive response in the last session, patient practiced ACT techniques and learned how to deal with obstacles in life, and post-test

To analyze the data, descriptive statistics (frequencies, means, standard deviations), ANOVA, Chi-square test, Shapiro-Wilks tests, repeated measures analysis of variance, and SPSS software version 22 were used.

Results

The demographic data showed that the mean participant's age was 32.53 years. The mean age in the ACT group was 33.53 ± 7.69 years, in the behavioral activation group was 30.47 ± 6.13 and in the control group was 33.60 ± 6.02 respectively. Among participants, 23 cases had a diploma, 16 cases had a bachelor's degree and 6 cases had a master's degree or higher. ANOVA test showed that there was no statistically different between groups in the levels of education and ages. In terms of profession, 19 participants were self-employed, 11 were employees, 8 were housewives, and 7 cases were students. Among the participants, 26 cases were married and 19 cases were single. There were no differences between the experimental and control groups. Tables 2 and 3, indicate the descriptive data and normality of the variables. In general, the results of the skewness and stretching tests show that the variables have a normal (or near-normal) distribution. Tables 4 and 5 indicate the results of ANOVA test and the comparison of negative thoughts in different stages.

Table 2. Mean and standard deviation of negative thoughts in pre-test, post-test, and follow-up

Variable	Group	Pre-test		Post-test		Follow-up	
		M	SD	M	SD	M	SD
Negative thoughts	ACT	35.60	4.05	29.13	3.16	29.87	3.18
	Behavioral activation	33.33	4.53	28.93	4.86	29.73	4.59
	Control	31.87	4.91	31.20	4.65	31.13	4.88

Table 3. The results of Shapiro-Wilks test to assess normality of variables

Variable	Shapiro-Wilks test		Skewness	Stretching
	Statistics	P		
Negative thoughts	0.949	0.048	-0.178	0.958

Table 4. ANOVA with repeated measurement to compare the effects of time and interventions on negative thoughts

Type of treatment	Absolute squares	Degree of freedom	Mean squares	F-statistic	P	Effect size
Act	42.284	1	42.284	62.74	0.001	0.699
Time	82.156	1	82.156	93.79	0.001	0.742
Time and Act	75.93	1	75.93	47.78	0.001	0.631
Behavioral activation	54.155	1	54.155	26.71	0.001	0.725
Time	42.70	1	42.70	74.84	0.001	0.752
Time and activation	75.93	1	75.93	37.09	0.001	0.570

Table 5. Comparing the negative thoughts in different stages

Group	Comparison	Mean difference	Standard error	P
ACT	Pre-test with post-test	6.47	0.55	< 0.001
	Pre-test with follow-up	5.73	0.66	< 0.001
	Post-test with follow-up	-0.73	0.44	0.119
Control	Pre-test with post-test	0.67	0.23	0.012
	Pre-test with follow-up	0.73	0.28	0.022
	Post-test with follow-up	0.07	0.25	0.792
Behavioral activation	Pre-test with post-test	4.40	0.31	< 0.001
	Pre-test with follow-up	3.60	0.38	< 0.001
	Post-test with follow-up	-0.80	0.33	0.028
Control	Pre-test with post-test	0.67	0.23	0.012
	Pre-test with follow-up	0.73	0.28	0.022
	Post-test with follow-up	0.07	0.25	0.792

The results showed that the effect of an intervention was significant ($P< 0.05$) and it means that the negative thoughts in the post-test stage were significantly reduced in both groups.

The results showed that in the post-test stage, negative thoughts of ACT group and behavioral activation group was significantly lower than the pre-test and in the follow-up stage was significantly lower than the pre-test, which indicates the effect of ACT intervention and behavioral activation ($P< 0.05$). In the ACT group, no difference was seen between the negative thoughts mean in the post-test and follow-up, which shows the long-lasting effect of the ACT intervention on negative thoughts ($P< 0.05$). In the behavioral activation, the negative thoughts in the follow-up stage compared to the post-test has increased significantly. Table 6 shows the results of covariance analysis.

Table 6. Covariance analysis results with comparing the effect of act therapy and behavioral activation on repetitive negative thoughts

Sources of change	Absolute squares	Degree of freedom	Mean squares	F-statistic	P	Effect size
Group (intervention)	22.18	1	22.18	7.96	0.009	0.228

The results of covariance analysis showed that ACT intervention was significantly more effective than behavioral activation treatment and its effect on improving negative thoughts was significantly more than behavioral activation ($P< 0.05$).

Discussion

This study aimed to compare the effectiveness of online acceptance and commitment therapy and behavioral activation therapy on repetitive negative thoughts in obsessive patients. In this regard, the results showed that online ACT is effective on repetitive negative thoughts in obsessive patients. These findings are in line with the studies by Aboutorabian et al. (28), Namani (29), Amiri et al. (30), and Derakhtkar et al. (3), and Hezel et al. (18).

Rajabi et al. studied 30 patients with obsessive-compulsive disorder referred to Sina Psychiatric Services Clinic in Dezful city, Iran. The participants were selected by purposive sampling and they were divided randomly into two equal groups. The research tools were Padua obsessive-compulsive disorder questionnaire and guilt questionnaire. The patients with obsessive-compulsive disorder cannot tolerate anxiety and responding dilation, but treatment based on acceptance and commitment using acceptance techniques, reduces the annoyance of these situations. As a result, it reduces obsessive thoughts and actions (16). In another word, this treatment focuses on sensitivity to suffering, being kind and having attention to oneself, and in general, accepting the suffering, and communicating without feeling ashamed and weak, which can lead to kind behavior and reduces negative thoughts in the person (31).

Acceptance and commitment therapy also targets changes in avoidance patterns, and during the interventions, experimental avoidances reduction, and changes in obsessive symptoms mediators. Avoidance is defined as an attempt to get away from depressing thoughts and memories. In this treatment, acceptance exercises and discussions about the values and individual purposes reduced the negative thoughts in the subjects. This treatment taught individuals how to release their avoidance beliefs and accept them instead of trying to control them (32).

Furthermore, the results showed that behavioral activation therapy is effective on repetitive negative thoughts in obsessive patients. These results are in line with the studies conducted by Ebrahimi and Sajjadian (33), Rahbaran, Karami, and Shahmohammadi (34), Khosravi, Shahi Sadrabadi, and Rahmatinejad (17). Ebrahimi and Sajjadian assessed 24 breast cancer patients referred to medical centers in Isfahan city, Iran. The patients answered the Nolen et al. questionnaire and anxiety questionnaire related to McCracken et al.'s pain. They concluded that behavioral activation therapy can use to improve psychological variables (33). Also, in a study conducted by Zemestani et al. on 27 students with depression and anxiety, the findings revealed that behavioral activation therapy has a significant effect on reducing depression, anxiety, and

rumination. These results indicated the effect of this treatment on anxiety-based psychiatric disorders (35). In this regard, it can be said that behavioral theory suggests that behavioral activation therapy is effective because it leads to increased positive reinforcement (32). The purpose of behavioral activation is to increase behaviors that are likely to lead to a bonus for the patient. Bonuses may be internal (pleasure or sense of accomplishment) or external (such as social attention) (36).

Behavioral activation helps clients to struggle with avoidance through structured activation and effective problem-solving. In this treatment, users learned to identify their avoidance patterns and apply alternative coping strategies for encountering problems (35). So, it can be concluded that behavioral activation therapy by involving individuals in rewarding activities and reducing ineffective behaviors can decrease the rumination cycle and consequently enlarge cognitive flexibility (32,36).

It can be said that ACT intervention was significantly more effective than behavioral activation therapy and its effect on improving negative thoughts was significantly more than behavioral activation. In this regard, Amiri et al. assessed depressed patients in Ahvaz city, Iran in 2020. Forty-five patients were selected by purposive sampling method and randomly assigned into two experimental groups and one control group.

To collect the data, the Tower test and word texture test from Delis-Kaplan executive function tests were used. Behavioral activation method is more effective than ACT, which is inconsistent with the results of our study (30).

Behavioral activation training is a structured educational process that enlarges a person's contact with environmental enhancements by increasing some behaviors (36). While in acceptance and commitment education, values and commitment are emphasized (14). In acceptance and commitment education, the therapist challenges clients to pay attention to different important areas of life (14). The processes of failure, acceptance, values, and commitments help clients to take responsibility for behavioral changes and to adjust when needed (30). The present study has some limitations such as non-randomized sampling, session interruption due to COVID-19 pandemic, personality differences, and individual's previous experiences. Therefore, it is suggested that the research be tested with a larger sample to generalize the findings with more confidence.

Conclusion

Overall, online acceptance and commitment therapy and behavioral activation therapy can reduce repetitive negative thoughts in obsessive patients. So, psychological interventions can be used along with medication.

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