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Comparison of the effectiveness of acceptance and commitment therapy (ACT) with metacognitive therapy (MCT) in objective cognitive information processing style of obsessive–compulsive patients (OCD)

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Abstract:

BACKGROUND: In recent studies, the deficit in the cognitive process has been investigated as one of the etiological hypotheses in a wide range of obsessive–compulsive disorders (OCD). This study aimed to compare the effectiveness of acceptance and commitment therapy (ACT) and metacognitive therapy (MCT) on objective cognitive information processing style in obsessive–compulsive patients.

MATERIALS AND METHODS: This quasi-experimental study with a pre-test and post-test plan and a control group was conducted on 45 patients with OCD, matched with gender, age, and educational and marital status. The samples in three groups were selected using the convenience sampling method. Finally, the study participants were randomly divided into two experimental groups and one control group and assessed using Pacini and Epstein's rational experimental Inventory (REI) in two stages, pre-test, and post-test. The experimental groups received ACT and MCT weekly during eight and seven sessions and in a group.

RESULTS: The results showed that ACT and MCT are effective at a significant level in the objective cognitive information processing style of obsessive–compulsive patients ($P < 0.05$). The post-test results showed that the effect of ACT in changing rational processing style is more effective than MCT treatment. Also, the effect of ACT on intuitive processing style changes was greater than on MCT treatment.

CONCLUSION: The findings of this study indicate that ACT and MCT cause a significant change in intuitive style to rationalism in the thematic processing of cognitive information of obsessive–compulsive patients. According to the results, both methods of treatment improve the research variables in these patients.

Keywords:

Acceptance and commitment therapy, metacognitive therapy, objective cognitive information processing style, obsessive–compulsive disorder

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Introduction

Obsessive–compulsive disorder (OCD) is currently recognized as one of the disabling mental illnesses characterized by obsessions and compulsions. Compulsions are repeated actions or routines that occur in response to obsessions. OCD is diagnosed if obsessions or compulsions significantly cause anxiety in a person or take time.[1] Today, there is no doubt that OCD is one

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of the most debilitating mental disorders that severely reduces the quality of life of patients.[2]

Studies have shown that people with OCD have many deficiencies in various aspects of cognitive processes such as cognitive flexibility,[3] which reduces emotional distress by creating the ability to use cognitive restructuring,[4] organizing changes, attention, memory,[5,6] and information processing speed.[7,8]

Among all cognitive impairments, it is noteworthy that the deficits in cognitive information processing and executive functioning greatly limit the patient's abilities to maintain, acquire, and relearn the skills required for proper functioning.[9] Therefore, addressing these deficiencies can make a significant contribution to the treatment of these patients.[10]

However, in the past few decades, many studies have been conducted to identify the psychological factors involved in the onset and continuation of OCD. One of these components is cognitive errors. All cognitive theories have pointed out the important role of cognitive errors in creating and maintaining this disorder. Cognitive errors interfere with the information processing method and prevent a person from obtaining pure information.[11] Salek *et al*.[12] showed that obsessive–compulsive patients have a higher average in neurological deficits and cognitive factors and insight level, compared to normal people, who have major problems such as inefficiency in internal and external information processing.[13]

In information processing, the conceptualization of the world is performed through two systems (styles): rationalism and intuitionism.[14] The rationalist style is more verbal, analytical, conscious, and relatively slow, which deals with the conscious evaluation of events and requires high levels of cognitive resources. In contrast, the empiricist style is unconscious, automatic, effortless, intuitive, relatively quick, and related to interpersonal and emotional relationships. Rational information processing develops through an active search for knowledge, especially through formal education, whereas empiricism or intuition processing develops through life experiences.[15] Studies have shown a significant relationship between information processing styles and psychological constructs, including life satisfaction and depression symptoms,[16] also, the rationalism style predicts psychological compatibility[17] and has a significant relationship with adaptive perceptions.[18] However, due to the direct effect of OCD on cognitive functions such as information processing and causing malfunction in them.[10] In this study, it was tried to investigate cognitive information processing styles and their changes in OCD patients with suitable therapeutic interventions.

Several treatments can work to improve OCD. However, to improve cognitive functions such as cognitive information processing, acceptance, and commitment therapy is one of the most effective treatments of the third wave of behavioral therapy. This treatment can be defined as follows: It is a therapeutic intervention that considers human suffering as a result of psychological inflexibility, which is strengthened by cognitive fusion and experiential avoidance, and its goal is to create psychological flexibility. In general, the main advantage of acceptance and commitment therapy compared to other treatments is to consider cognitive aspects, in line with the effect and continuity of the treatment's effectiveness.[19] Treatment based on acceptance in reducing many symptoms and morbid symptoms such as repetitive thoughts, dysfunctional beliefs, and conflicting unpleasant memories are effective.[20]

Another treatment used in this research is metacognitive therapy. The metacognitive therapy model established by Adrian Wells is based on the model of executive self-regulation, regulation, and control of thinking. Metacognitive therapy, which emphasizes the way a person responds to his or her thoughts and the form of communication with them can cause significant changes in the symptoms of the disease, and its therapeutic benefits continue until the follow-up stage.[21] A large number of studies have confirmed the effectiveness of metacognitive therapy in reducing the suffering of mental disorders in various populations. The results of the research of Corcoran and Segal (2008),[22] van der Heiden *et al*. (2012),[23] Morriso and Wells (2003),[24] and Fisher and Wells (2008)[25] have indicated this claim.

By reviewing the research literature, it was found that this variable has not been investigated in OCD in this way and with the intervention of these two types of treatment. Therefore, this study was conducted with the aim of comparing the effectiveness of these treatments on the cognitive information processing style in OCD patients and investigating the changes in the cognitive information processing style of these patients.

Materials and Methods

Study design and setting

This experimental study with a pre-test-post-test design was conducted on OCD patients. The study's settings were the psychological clinics in Kermanshah City.

Study participants and sampling

In the current research plan, 45 patients who met the DSM-IV-TR criteria for OCD were selected in two groups (n = 30) (50 patients were selected, 5 of whom did not meet the study inclusion criteria) and a control group (n = 15), where patients matched in terms of gender,

age, and education. The participants of the two groups were selected using the convenience sampling method.

Data collection tools and technique

In this study, data gathering lasted from May to August 2022. Patients in the current study were included as per the following criteria: 1. having been diagnosed with OCD by a psychiatrist according to the Structured Clinical Interview for DSM-IV Clinical Version (Persian edition), 2. being 18 to 65 years old, 3. having at least a high school level of education, and 4. lacking any current psychiatric disorder except diagnosis of OCD. Patients were not included in the study if they had 1. a history of or current drug and/or alcohol abuse or dependency (self-report), 2. any neurologic disease or concomitant general medical condition, 3. serious head injury history, 4. intellectual disability or any clinical condition that could affect cognitive performance, 5. significant medical illness, 6. electroconvulsive therapy in the last year, 7. physical disability (e.g., blindness, deafness, speech problems, paralysis, amputation), and 8. chosen to withdraw from the study.

Data collection tool and cognitive process evaluation

Therational-experiential inventory (REI)

Epstein *et al*. (1994)[15] and Pacini and Epstein (1999)[14] developed the Rational-Experiential Inventory (REI) that measures individual differences in rational and experiential thinking. The REI is composed of two subscales: rationality and experientiality, each with 22 items. The rationality scale reflected cognitive processes that are slow, rational, and analytical. Examples of the items on this scale included "I prefer complex problems to simple problems" and "I usually have clear, explainable reasons for my decisions." In contrast, the experiential scale represented cognitive processes that are fast, emotional, and intuitive. Examples of items on this scale included "I trust my initial feelings about people" and "I tend to use my heart as a guide for my actions." Respondents rated all items on a 5-point Likert scale that ranged from 1 (definitely not true of myself) to 5 (definitely true of myself).

In 2013, using factor analysis, Rezaei identified two factors in this questionnaire. Both scales of this questionnaire have good internal consistency ($\alpha < 0.85$) and retest ($\alpha < 0.76$) (Rezaei, 2013). In 2010, Slack, Bund, and Phillips also reported internal reliability, that is, Cronbach's alpha of 0.90 for the rationalism scale and 0.84 for the empiricism scale. The validity of the questionnaire has been reported as 0.66 for the rationalism scale and 0.64 for the empiricism scale (Rezaei, 2013).[26]

Ethical consideration

This study was approved by the Research Ethics Committee of Kermanshah University of Medical Sciences (ethical code number: IR.KUMS.REC.1400.828). First, the study aim was explained to the participants, and then informed written consent was obtained from eligible individuals. All participants were assured that their information would remain confidential, their participation in the study was voluntary, and that they could withdraw from the study at any time. Participants could contact the researcher if they had any suggestions, criticisms, or information about any problems.

Results

In this study, the average age of 45 participants was about 34 years, and there was no significant difference in terms of age between the three groups (15 people) ($P > 0.05$). The results of the test also showed no significant difference in terms of the variables of education level and marital status between the three groups ($P > 0.05$).

The average scores of the variable of intuitive processing style for two experimental groups, ACT and MCT, were significantly different in the post-test stage compared to the pre-test; however, in the control group, this difference was not significant. Also, the average scores of the rational processing style variable for the two experimental groups, ACT and MCT, in the post-test stage compared to the pre-test, had a significant difference; however. in the control group, this difference is not significant [Table 1].

There is a significant difference between the mean scores of the intuitive processing style variable in the three groups of ACT, MCT, and control in the post-test phase. Also, there is a significant difference between the average scores of the rational processing style variable in the three groups of ACT, MCT, and control in the post-test stage [Table 2].

The results of Tukey's *post hoc* test showed that the mean scores of the intuitive variable of the MCT group differed significantly from the control group in the post-test phase. Also, there was a significant difference in the mean scores of the intuitive variable between the ACT and MCT groups. However, there was no significant

Table 1: Performance in the processing test by separating intuitive and rational styles

*P**	Post-test		Pretest		Number		Measured variable
	Standard deviation	Mean	Standard deviation	Mean			
0/651	4/59	41/13	3/87	40/80	15	Control	Intuitive style
0/000	4/22	41/53	3/56	44/33	15	ACT	
0/000	3/22	37/73	3/55	44/93	15	MCT	
0/610	7/85	33/93	7/75	34/07	15	Control	Rational style
0/008	7/46	41/53	6/36	37/87	15	ACT	
0/008	3/65	39/93	2/66	37/60	15	MCT	

*Paired *t*-test results

Table 2: Comparison of the effect of ACT and MCT methods and control on performance in the processing test by separating intuitive and rational

P	Test statistics *F*	Average of squares	Degree of freedom	Sum of squares	Measured variable	
0/009	5/340	71/356	2	142/711	Between groups	Intuitive style
		13/362	42	561/200	Within groups	
			44	703/911	Total	
0/047	3/290	102/022	2	204/044	Between groups	Rational style
		31/013	42	1302/533	Within groups	
			44	1506/578	Total	

difference between the ACT group and the control group in the post-test phase. There was a significant difference between the ACT group and the control group and the MCT group and the control group in the post-test phase of the rational variable scores; however, there is no significant difference in the rational variable scores between the ACT and MCT groups.

Discussion

In this research, the role of ACT and MCT on the cognitive information processing style of people with OCD and its effect on changes related to cognitive information processing style (rational and intuitive) were investigated. After reviewing the findings, the effectiveness of both treatments in changing the cognitive information processing style was realized. Also, an increase in the use of the rational style and a decrease in the tendency to use the intuitive style was observed after therapeutic interventions in the subject groups. This study is in line with the research of Armstrong *et al*.[27] regarding the effectiveness of ACT treatment in OCD patients and the study of Twohig *et al*.[28] in increasing cognitive flexibility with ACT treatment. Also, the study of Solem *et al*.[29] reduced the cognitive deficits of obsessive–compulsive symptoms using metacognitive therapy, and the findings tentatively imply that MCT-OCD is a promising treatment for OCD patients.[30]

The results of the simultaneous comparison of the ACT, MCT, and control groups showed that the average changes between the three groups, after the intervention, were significant. In terms of the subscale of intuitive processing style, the effect of ACT was more effective than MCT; however, in the case of the subscale of rationalism, no significant difference was seen in the superiority of any of the treatments. In the following, the obtained results are compared with the research that was carried out before.

Because cognitive information processing style is an important component in improving mental health.[4,10]

In the present study, the changes in these styles were tried to be investigated by psychological intervention. Because so far no study has been found regarding the effectiveness of therapeutic interventions on cognitive information processing styles in obsessive–compulsive patients, it seems that according to the research related to mental health, it can be concluded that with psychological interventions, there is a suitable balance in the use of processing styles in obsessive–compulsive patients, which improves this disorder, especially in cognitive dimensions. Therefore, the intervention of ACT and MCT in line with previous research showed significant changes in more use of the rationalistic style.

By looking at these previous studies, it can be concluded that the type of cognitive information processing style plays an important role in people's adaptive behaviors, thoughts, and well-being. Where obsessive–compulsive people have less flexibility, especially in the area of obsessive thoughts, Basharpour and Ghazani,[31] Basharpour and Rahimzadegan,[31] Salek *et al*.,[12] as well as ritualistic, stereotyped, and repetitive obsessive actions, have; it seems that interventions help them to be able to use more rationalistic style[10] cause. Their recovery will be accelerated. Folk.[20]

Limitations and recommendations

One of the limitations of this research is the limited generalizability of its results. Because this research was conducted on obsessive–compulsive patients in Kermanshah, which limits the generalizability of the results in terms of socio-economic class and cultural context. Also, the use of a small sample size makes it difficult to generalize the data.

Conclusion

The study results evaluated the therapy based on acceptance and commitment, and metacognitive therapy causes a significant change of intuitive style to rationalism in the thematic processing of cognitive information of obsessive–compulsive patients. According to the results, no significant difference was observed between the treatment based on acceptance and commitment and metacognitive therapy, and both methods of treatment improved the research variables in patients with OCD. Therefore, effective steps can be taken to empower patients with OCD using planning and implementing psychological interventions.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflict of interest

There are no conflicts of interest.

References

1. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2005;62:593-602.
2. Abramowitz JS. The psychological treatment of obsessive—compulsive disorder. Can J Psychiatry 2006;51:407-16.
3. Francazio SK, Flessner CA. Cognitive flexibility differentiates young adults exhibiting obsessive-compulsive behaviors from controls. Psychiatry Res 2015;228:185-90.
4. Johnco C, Wuthrich V, Rapee R. The influence of cognitive flexibility on treatment outcome and cognitive restructuring skill acquisition during cognitive behavioural treatment for anxiety and depression in older adults: Results of a pilot study. Behav Res Ther 2014;57:55-64.
5. Tükel R, Gürvit H, Ertekin BA, Oflaz S, Ertekin E, Baran B, *et al*. Neuropsychological function in obsessive-compulsive disorder. Compr Psychiatry 2012;53:167-75.
6. Aydın PC, Koybasi GP, Sert E, Mete L, Oyekcin DG. Executive functions and memory in autogenous and reactive subtype of obsessive-compulsive disorder patients. Compr Psychiatry 2014;55:904-11.
7. Busatto GF, Buchpiguel CA, Zamignani DR, Garrido GE, Glabus MF, Rosario-Campos MC, *et al*. Regional cerebral blood flow abnormalities in early-onset obsessive-compulsive disorder: An exploratory SPECT study. J Am Acad Child Adolesc Psychiatry 2001;40:347-54.
8. Maia TV, Cooney RE, Peterson BS. The neural bases of obsessive–compulsive disorder in children and adults. Dev Psychopathol 2008;20:1251-83.
9. Keefe RS. The contribution of neuropsychology to psychiatry. Am J Psychiatry 1995;152:6-15.
10. Yazdi-Ravandi S, Shamsaei F, Matinnia N, Moghimbeigi A, Shams J, Ahmadpanah M, *et al*. Executive functions, selective attention and information processing in patients with obsessive compulsive disorder: A study from west of Iran. Asian J Psychiatr 2018;37:140-5.
11. Rapee RM, Spence SH. The etiology of social phobia: Empirical evidence and an initial model. Clin Psychol Rev 2004;24:737-67.
12. Salek Ebrahimi L, Mousavi SE, Gharraee B, Mohammadi Bytamar J, Saberi Isfeedvajani M. Cognitive errors and psychological resilience in patients with social anxiety and obsessive-compulsive disorder: A cross-sectional study. Hosp Pract Res 2019;4:25-30.
13. McCann JT, Holt R. An exploration of burnout among online university professors. International Journal of E-Learning and Distance Education/Revue internationale du e-learning et la formation à distance. 2009;23(3):97-110.
14. Epstein S, Pacini R. Some basic issues regarding dual-process theories from the perspective of cognitive–experiential self-theory. In: Chaiken S, Trope Y, editors. Dual-Process Theories in Social Psychology. The Guilford Press; 1999.p. 462-82.
15. Epstein S. Integration of the cognitive and the psychodynamic unconscious. Am Psychol 1994;49:709-24.
16. Burns LR, D'Zurilla TJ. Individual differences in perceived information processing styles in stress and coping situations: Development and validation of the perceived modes of processing inventory. Cognit Ther Res 1999;23:345-71.
17. Bayrami M, Hashemi T, Daneshfar S, Bahadori J. The role of positive and negative emotions, optimism, pessimism, and information processing styles in the students' psychological adjustment. Cognitive Psychology Quarterly. 2013;1(1):1-8.
18. Epstein S. Intuition from the perspective of cognitive-experiential self-theory. Intuition in judgment and decision making. 2008;23:37.
19. Juarascio AS, Forman EM, Herbert JD. Acceptance and commitment therapy versus cognitive therapy for the treatment of comorbid eating pathology. Behav Modif 2010;34:175-90.
20. Folke F, Parling T, Melin L. Acceptance and commitment therapy for depression: A preliminary randomized clinical trial for unemployed on long-term sick leave. Cognitive and Behavioral Practice. 2012;19(4):583-94.
21. Esfahani R, Fati, Abadi H, Yaqoubi, Zahiruddin, Sadr, *et al*. The application of metacognitive therapy in reducing symptoms and increasing the level of functioning in drug-resistant obsessive-compulsive disorder: a case study. Bimonthly scientific-research journal of rehabilitation medicine. 2016;5(2):40-51.
22. Corcoran KM, Segal ZV. Metacognition in depressive and anxiety disorders: Current directions. Int J Cognit Ther 2008;1:33-44.
23. van der Heiden C, Muris P, van der Molen HT. Randomized controlled trial on the effectiveness of metacognitive therapy and intolerance-of-uncertainty therapy for generalized anxiety disorder. Behav Res Ther 2012;50:100-9.
24. Morrison AP, Wells A. A comparison of metacognitions in patients with hallucinations, delusions, panic disorder, and non-patient controls. Behav Res Ther 2003;41:251-6.
25. Fisher PL, Wells A. Metacognitive therapy for obsessive–compulsive disorder: A case series. J Behav Ther Exp Psychiatry 2008;39:117-32.
26. Rezaei A. Investigating the factor structure and reliability of the questionnaire of intuitive-rationalistic information processing styles in the student community. Research Journal of Behavioral Sciences 2013;41-1,43-11(11).
27. Armstrong AB, Morrison KL, Twohig MP. A preliminary investigation of acceptance and commitment therapy for adolescent obsessive-compulsive disorder. Journal of Cognitive Psychotherapy. 2013;27(2):175-90.
28. Twohig MP, Vilardaga JCP, Levin ME, Hayes SC. Changes in psychological flexibility during acceptance and

commitment therapy for obsessive compulsive disorder. J Contextual Behav Sci 2015;4:196-202.
29. Solem S, Myers SG, Fisher PL, Vogel PA, Wells A. An empirical test of the metacognitive model of obsessive-compulsive symptoms: Replication and extension. J Anxiety Disord 2010;24:79-86.
30. Miegel F, Demiralay C, Sure A, Moritz S, Hottenrott B, Cludius B, *et al*. The metacognitive training for obsessive-compulsive disorder: A pilot study. Curr Psychol 2020;41:7114-24.
31. Bashrpour, Ghazani R. The relationship between sensory processing sensitivity and information processing styles with clinical symptoms in substance dependent individuals. Scientific Quarterly Journal of Addiction Research. 2020;14(57):293-309.