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Research Paper: Developing the Schema Therapy Based on Obsessive-compulsive Disorder and Comparing With Cognitive-behavioral Therapy

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Running Title Schema Therapy Cognitive-behavioral Therapy in OCD

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ABSTRACT

Background: Obsessive-Compulsive Disorder (OCD) is a type of anxiety disorder different treatment, but its treatment is very difficult.

Objectives: This study aimed to develop schema therapy based on psychosocial issues of patients and compare this therapy with cognitive-behavioral therapy on rumination.

Materials and Methods: In this analytical cross-sectional study, the study population included all referred to specialized psychotherapy centers in the field of Obsessive-Compulsive Disorder (OCD) in Isfahan City, Iran, during spring and summer of 2019. This research consists of four stages. The first stage was a qualitative research using a directional content analysis method through a semi-structured interview. The second stage was quantitatively done with a quantitative content analysis method. The third stage was of validation type with Lawshe's method, and the last stage used a quasi-experimental method, pret-est/post-test type with a control group, and a follow-up period of 45 days. The subjects responded to the questionnaire based on the rumination response scale before and after the intervention.

Results: The results of the first stage suggested 7 main themes. The second stage led us to the development of a treatment package for schema therapy. The findings of the third study indicated the validity of the package developed by the evaluators. The results of the fourth study showed that the mean scores of rumination in the two experimental groups (schema therapy and cognitive-behavioral therapy) significantly differed from the control group scores ($P<0.01$). Besides, based on the results, schema therapy was more effective in reducing the rumination of patients compared with cognitive-behavioral therapy ($P<0.001$).

Conclusion: Compared with cognitive-behavioral therapy, psychosocial-based schema therapy is more effective in reducing the rumination of the patients.

Keywords: Obsessive-compulsive Disorder (OCD); Psychotherapy; Rumination; Cognitive

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Highlights

- Research shows that schemas play an important role in the process of OCD.
- Schema therapy relies on the evolutionary roots of psychological problems in childhood and adolescence.
- The use of stimulant techniques and the concept of maladaptive coping styles can help patients with OCD.

Introduction

Obsessive-compulsive Disorder (OCD) is a type of anxiety disorder with a major impact on the patients' mental health due to the flood of obsessive-compulsive thoughts [1]. The main feature of this disorder is the frequent occurrence of obsessive thoughts or forced actions with a considerable intensity that impairs a person's performance [2]. Obsessions include thoughts; mental images; and unwanted, disturbing, and persistent impulses, while compulsion is the act of doing physical or mental actions to reduce the anxiety caused by obsessive thoughts. A patient with obsessive-compulsive disorder may have obsessive-compulsive action, obsessive-compulsive thoughts, or both. The prevalence of the lifelong obsessive-compulsive disorder in the general population is about 2% to 3%. Among adults, the probability of affliction in men and women are equal. The onset age of this disorder is about 20 years, slightly earlier in men (about 19 years) and later in women (about 22 years) [3].

According to Salkovskis' cognitive view, the way a person evaluates unwanted and disturbing thoughts confuses obsessive behaviors. Many patients with intellectual-practical OCD are unable to properly assess the probability of risk. Thus, they become suspicious of everything and engaged in rumination and wasteful behaviors to reduce their worries. Patients with OCD also suffer from morbid mental distress and think about the potential negative consequences that may occur [4].

Rumination is a person's mood in response to the distress, and it includes a frequent and passive focus on distressing symptoms, causes, and consequences [5]. In other words, rumination is recognized as repetitive thoughts about failure and depressed mood and temperament, and an important component in OCD [6]. Numerous experimental and cross-sectional studies results suggest that rumination is a strong predictor of depressive symptoms and OCD [7].

To explain and treat OCD, researchers proposed various models and theories, from psychoanalysis to new postmodern models and each emphasizes a specific factor. Some of the models and treatment models proposed in the treatment of OCD are behavioral theories model of conceptualization by O'Connor et al. [8], Salkovskis cognitive model [9], Rachman cognitive-behavioral therapy model [10], and the Wells metacognitive model [4].

Research by Alavi Paydar, Khodabakhsh, and Mehdinejad [11], Hassanzadeh and Sarabandi [12], and Kuelz et al. [13] showed that cognitive-behavioral therapy reduces rumination in people with OCD. Moreover, Stortch et al. [14] suggested that cognitive-behavioral therapy would be more effective when combined with other therapies. According to studies, although cognitive-behavioral therapy interventions have good experimental potential, the results of the meta-analysis showed that in follow-up studies, only 50% of patients have achieved significant improvement [15]. In cognitive-behavioral therapy, behavioral phenomena are given too much importance to interpersonal phenomena, and interpersonal processes are not considered as much as they should be [16]. Furthermore, the mood is ignored in these treatments, while many pathologists believe that the mood plays an undeniable role in the formation and persistence of psychological and mental problems [17].

Research has shown that factors such as insecure attachment style, interpersonal problems, maladaptive mood, interpersonal schemas, and cognitive problems reduce cognitive-behavioral therapeutic effects [15]. Additionally, results indicate the effective impact of schema therapy to improve anxiety and depression [18]. Furthermore, research shows that schema therapy training increases people's mental health [19]. Schema therapy emphasizes the transformational roots of psychological problems in childhood and adolescence, using motivating techniques, and proposing the concept of inconsistent coping styles [20]. This therapy combines the principles and foundations of cognitive-be-

havioral schools, attachment, gestalt, object relationships, constructivism, and psychoanalysis in the form of a valuable therapeutic and conceptual model [21]. Schema therapists believe that they have designed and developed a suitable solution for the treatment of cognitive inability. Sookman [22] believed that the presence and activation of vulnerable schemas was one of the characteristics of people who were afraid to take the perceived risk of encountering and preventing response. Yang et al. [23] hypothesized that some schemas, especially those formed during the early stages of life due to unpleasant and unfavorable childhood experiences, might be at the heart of personality disorders, milder personality traits, and many chronic Axis I disorders.

Research shows that schemas play an important role in the formation of OCD. In cognitive theories, schemas are considered to be the deepest psychological level, which at different levels leads to obsessive beliefs, inefficient attitudes, and negative thoughts (maladaptive cognition). That is, the schema causes people to make mistakes when concluding their experiences, to make arbitrary and immediate conclusions, to address issues, and to find obsessive beliefs [24]. In a study conducted by Sangnani and Dasht-e Bozorgi [25], the results showed that schema therapy is useful to deduce rumination.

Despite these issues and the review of therapeutic research on OCD, each of these concepts plays a role to justify a part of the formation and persistence of obsessive-compulsive symptoms. It seems essential to differentiate between schools and techniques effective in treating various psychological disorders. Given the limited financial resources and the importance of time in today's life, choosing the most efficient and the least expensive treatment is a very important step for the clients of psychological services and researchers in the field of treatment. Based on the presented materials, few studies have been carried out on schema therapy based on psychosocial problems. Moreover, no attention has been paid to the psychosocial issues of obsessive-compulsive patients, including interpersonal relationships, interpersonal schemas, and characteristic problems and recognizing anxiety, depression, fear, stress. Accordingly, the present paper aimed to develop a treatment package that is comprehensively based on the psychosocial issues of obsessive-compulsive patients and can affect the rumination of people with OCD, while comparing the effectiveness of the package with that of cognitive-behavioral therapy on rumination in people with OCD. To this end, a study with four stages are considered in this paper: the first three are devoted to the development of a psychosocial-based treatment package for obsessive-compulsive patients. The last stage compared the treatment package developed with cognitive-behavioral therapy with OCD regarding the rumination of people.

Materials and Methods

The first stage: interview with the patients

The research method presented in the first stage of the research is directed content analysis [26], which tries to complete the theories or eliminate the shortcomings by using previous research or theories. The main purpose of the stage is to identify and categorize the issues related to the treatment of psychosocial problems in obsessive-compulsive patients. Therefore, they were read in full, and the parts of the text that were the primary research findings were marked. Then, based on the pre-determined codes on the 18 Yang schemas, the marked part was coded. Three coding methods were used to analyze the data: first open coding, then axial coding, and finally selective coding [27]. In the open coding stage, the basic concepts and in the axial coding phase, the major categories were extracted along with the main category [28].

The study population included all people with OCD in the age range of 15-25 years who referred to specialized psychotherapy centers in the field of OCD located in Isfahan City, Iran in the spring and summer of 2019. Among the individuals, 12 samples were selected as the study samples. The inclusion criteria included having OCD, being 15-25 years old, studying at least up to elementary school level, receiving medication interventions, and not receiving simultaneous medical interventions. The exclusion criteria included at least two sessions of medical absence, addiction, and another psychiatric disorder diagnosed by a psychiatrist.

Semi-structured interview tools with OCD were used to collect data. The interview was open-ended and semi-structured, and the interviewee was free to answer the questions as they wish and explain the topics. The duration of each interview lasted 45-60 minutes, depending on the level of willingness of the participants to respond. People were also asked to describe their lifestyle and psychological and social problems, along with a review and description of their medical history. Examples of questions were "Please explain what you are experiencing about your situation and circumstances?" "What is this situation related to in life

now?" and "Please explain about the thoughts you are experiencing?" Then, based on the answers, the next questions were asked with more focus, for a more accurate understanding. To better communicate with the interviewees, the participant was allowed to record the interview, and the purpose of the investigation was fully explained, and the respondents were assured of the confidentiality of the information and the voice of the respondents. Next, the questions related to demographic questions (such as age, marital status, education, etc.) and then the main questions of the interview were asked.

The second stage: Compiling a treatment package

After collecting the main categories (first stage), the quantitative content analysis method [29, 30] was used in 4 stages to compile the training package. First, two specific criteria were used to determine the degree and extent of therapeutic focus for each of the basic categories based on psychosocial problems in patients with OCD: 1) frequency of semantic units, open codes, sub-categories, and the main categories and 2) the extent of micro to macro components of each of the three domains of schema therapy (cognitive, emotional, behavioral). At this stage, the frequency of semantic units has been considered and used as the most common and widely used criterion when examining signs and symptoms.

Then, for a definitive conclusion on the priority of each of the three domains in schema therapy based on psychosocial issues in patients with OCD, the mean rank for each of the three domains of schema therapy was determined. Then, after determining the priority and extent of psychosocial issues, a theme network was developed for each domain. At this stage, the conceptual holistic model was developed about psychosocial schema therapy. Finally, for each domain of schema therapy and the theoretical and executive link between the themes, time determination, and treatment sessions were allocated as a percentage, and the treatment package was developed in full detail.

The third stage: Validation of Schema Therapy

In the third stage, the Lawshe method was used to validate the treatment package of schema therapy based on psychosocial problems [31]. Therefore, in this method, two coefficients of agreement of the evaluators were used: the Content Validity Ratio (CVR) and the Content Validity Index (CVI). The study population of this included specialists and psychologists in the field of schema therapy in 2019. Among them, 12 psychologists in the field of schema therapy were purposefully selected. To determine the content validity ratio, all sessions were given to experts and psychologists in the field of schema therapy according to Table 6, and they were asked to respond to the question of how essential these sessions are in the three-part spectrum of "not essential", "useful but not essential", and "essential". After collecting the opinions of experts, the content validity ratio for each phrase was determined.

According to Lawshe method, the coefficient of content validity ratio depends on the minimum number of evaluators, that is, the increase in the number of evaluator members would result in the decrease in content validity ratio required for the sessions. According to the Lawshe model, the minimum ratio required for 12 evaluators is 0.49.

However, to calculate the content validity index (CVI), experts were asked to express their opinion based on a 4-point Likert-type scale regarding simplicity and fluency, clarity or transparency, and relevance to the topic. The validity index was calculated for each session and their means were also calculated. The score of the content validity index of each phrase was calculated.

The fourth stage: Comparing the treatment of rumination by Schema Therapy

Is based on a psychosocial problem with cognitive-behavioral therapy.

This part used a quasi-experimental method of pretest, post-test, and follow-up phase with the control group. The statistical population of this study included all people with obsessive-compulsive disorder in the age range of 15-25 years who referred to psychotherapy centers in the field of OCD located in Isfahan in the spring and summer of 2019. According to previous studies, a sample size of 15 people was selected for each experimental group [32]. In total, 45 samples were selected through available and random sampling method for two experimental groups (schema therapy and cognitive-behavioral therapy) and one control group. The inclusion and exclusion criteria study were the same as the criteria for the first stage.

In the first experimental group, the developed treatment package received schema therapy based on the psychosocial problem in patients with OCD for ten 2-h sessions. In each session, the techniques and exercises

Table 1. Description of cognitive-behavioral therapy

Sessions	Descriptions
1	The first session is an overview of the symptoms of obsessive-compulsive disorder. Giving a list of disturbing images and thoughts of ordinary people, practicing relaxation.
2	The second session is drawing an obsessive cognitive model, normalizing obsessive thoughts and drawing a cognitive triangle, giving a list of all kinds of cognitive errors, filling out a form for recording thoughts and performing behavioral experiments.
3	Using cognitive techniques, Socratic questioning, and reviewing the 5-column paper of thoughts, completing the 7-column paper of thoughts, writing a list of advantages and disadvantages of disturbing thoughts, performing a behavioral experiment for the importance of thoughts.
4	Reviewing form of daily thoughts, behavioral test for thought neutralization, use of probability calculation techniques and Socratic questionnaire for belief, high-risk assessment, and behavioral experiment model for confidence seeking.
5	The Socratic questionnaire, pie chart technique, standard circular technique, and double-standard technique to believe in extreme responsibility.
6-9	Training and implementation of coping techniques and prevention of response, and practicing in the presence of the therapist, planning behavioral experiments for the importance of thoughts.
10	Reviewing and summarizing cognitive and behavioral techniques, explaining one's symptoms and training problem-solving steps.

of that session were used. At the end of each session, assignments were given. In the last session, the post-test was administered. The second experimental group of patients received cognitive-behavioral therapy of Wilhelm and Steketee's behavioral therapy for ten 2-h sessions. In each session, the techniques and exercises of that session were used. At the end of each session, assignments were given. In the last session, the post-test was performed. Tables 6 and 7 summarize the sessions in the experimental groups. Moreover, no intervention was administered to the control group during this period. All three groups answered the study questionnaire before and after the treatment sessions, as well as after 45 days in the follow-up phase. Additionally, the ethical principles of the research were observed.

The participants gave written consent and were informed about the ethical principles of confidentiality, using data only for the objectives of the study, the participants' full freedom to refrain from participation and accurate notification of participants of the results, and training control group after training the experimental group. The present research used demographic information such as age, gender, marital status, level of education, and duration of the disease, as well as rumination response style questionnaire. It is a subscale of the Nolen-Hoeksema and Moro response questionnaire. Nolen-Hoeksema and Moro [33] have designed a report on this scale to obtain rumination. The questionnaire is a 22-item scale rated on a 4-point score from 1 (almost never) to 4 (almost always. The total score in this test ranged 22-88. The total score of rumination is calculated by adding all the items. Besides, this scale consists of three subscales of distraction, meditation, and contemplation. The alpha coefficient and validity of this scale were reported to be 0.90 and 0.67, respectively [28]. Bagheri Nejad, Salehi Fard, and Tabatabai [34] translated this questionnaire into Persian. The validity in the Iranian sample was reported to be 0.88 due to the Cronbach alpha coefficient and as an indicator of internal consistency. The Cronbach alpha in the present study was 0.99. Table 1 presents the content of cognitive-behavioral therapy sessions.

Results

The results of descriptive analysis showed that 12 participating patients (6 males and 6 females) were in the age range of 15-25 years with an average of 0.66 (SD=3.21). These patients had OCD for 2-8 months (Mean±SD=4.93±1.62 mo). Eight patients were single and the rest were married. In total, 5 were students, 4 unemployed, and the rest self-employed.

In the first stage, 65 concepts were extracted from the interviews with the patients with OCD. Then, in the first stage of open coding, these concepts were coded for coherence in the form of 22 categories, identified based on 18 Young's schemas. In other words, the schemas that led to these concepts include 7 schemas:

Table 2. The frequency and percentage of semantic units, subcategories and main categories in three main domains of schema therapy

Categories	Row	Semantic Categories	No. (%)	First Rank
Subs	1	Cognitive domain	27 (41.5)	1
	2	Emotional domain	24 (36.9)	2
	3	Behavioral domain	14 (21.5)	3
	4	Sum of semantic categories	65 (100)	-
	1	Cognitive domain	10 (45.4)	1
	2	Emotional domain	8 (36.3)	2
	3	Behavioral domain	4 (18.18)	3
	4	Sum of semantic categories	22 (100)	-
Mains	1	Cognitive domain	6 (60)	1
	2	Emotional domain	2 (20)	2.5
	3	Behavioral domain	2 (20)	2.5
	4	Sum of semantic categories	10 (100)	-

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rejection schemas, emotional deprivation schemas, relenting standards schemas, distrust schemas, defectiveness schemas, punitiveness schemas, and overvigilance schemas.

In the second stage, called axial coding, the basic concepts extracted in the previous stage (open coding) were classified in the form of 10 major categories. They are at a higher level of abstraction than the concepts of the previous phase and included economic, family, parental behavioral problems, individual problems, maladaptive schemas, inappropriate perceptions, maladaptive beliefs, fears, poor self-esteem, and behavioral and emotional problems, which are placed at the first domain of rejection schema and the fifth domain of overvigilance and inhibition. Obsessive thoughts and recurring mental images were extracted as the main category at this stage. In the other words, the extracted concepts and pivotal categories from raw materials include: open coding concepts and pivotal coding. The first level of Open coding concepts include semantic pieces, derived from interview; and the second level includes open coding. Additionally, pivotal coding consists of three sections, which are: peripheral categories, main categories and core categories. The following diagram illustrates these sections.

Open coding categories in the first level include: we were always in financial plight (6-7-8-9-11-12); my father had no permanent job (5-6-7-8-11); (deficiency schemata); and open coding categories of the second level include: financial changes (deficiency schemata) and (cognitive domain).

The peripheral concepts of Pivotal coding concepts include: financial pressures (deficiency schemata)(cognitive domain); main concepts include: Financial difficulties (separation and abandonment schema) (cognitive domain); and core concepts include: obsessive thoughts, recursive mental images and obsessive-compulsive disorder.

Table 2 presents the frequency and scope of subcategories and main categories extracted from interviews

Table 3. The mean rank of the three main domains in terms of semantic units, subcategories, and main categories

Row	Three Main Domains	Rank In Semantic Units	Rank In Units of Subcategories	Rank in Units of Main Categories	Sum of Ranks	Means of Ranks
1	Cognitive domain	1	1	1	1	(1)1
2	Emotional domain	2	2	2.5	6.5	(2)2.1
3	Behavioral domain	3	3	2.5	8.5	(3)2.8

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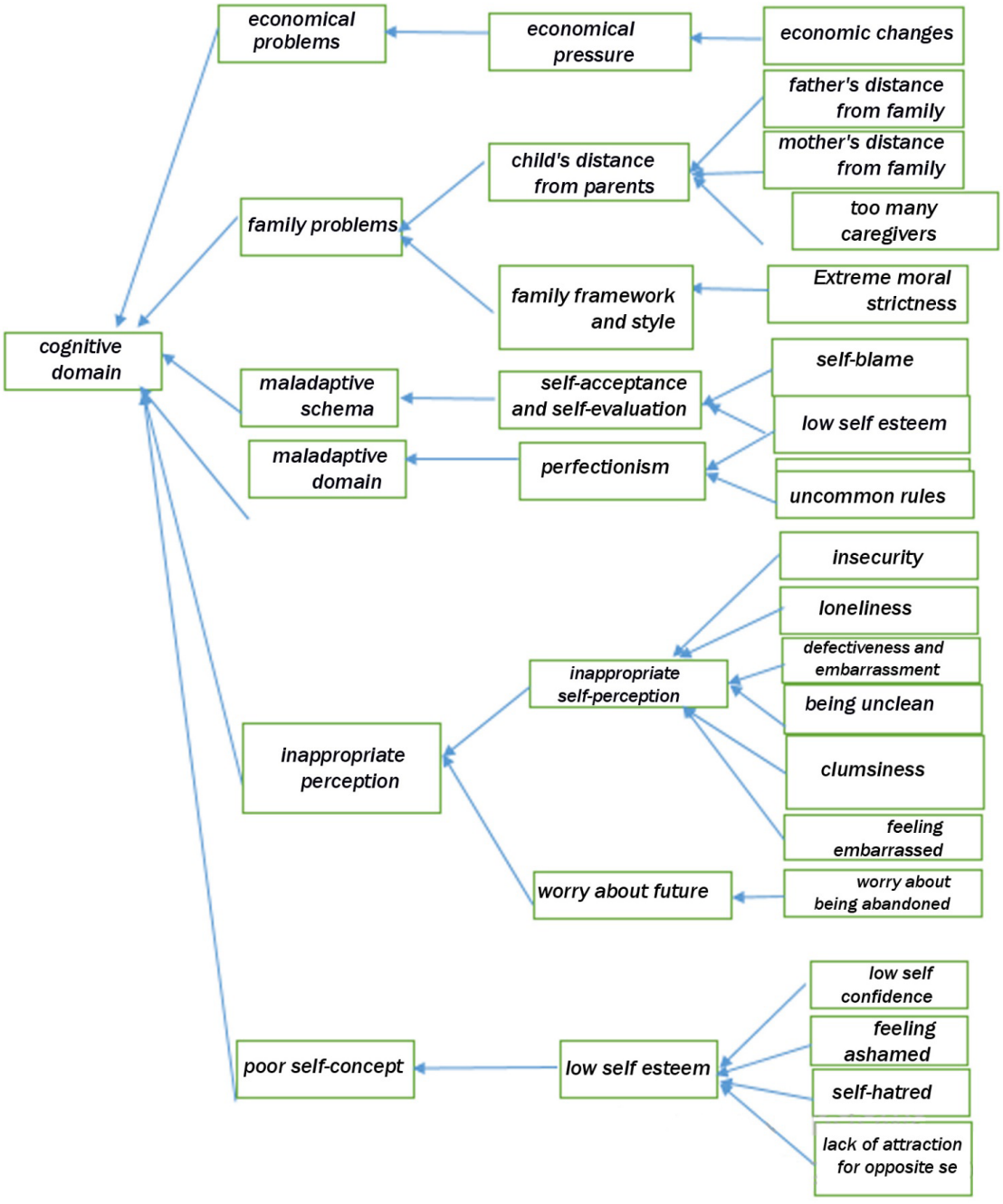

Figure 1. The thematic network of the first theme in the cognitive domain

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in the first stage. The cognitive domain with the highest frequency (41.5%) was in the first place, while the emotional domain with 36.9% and the behavioral domain with 21.5% was in the last place in the semantic categories.

Then, the mean rank was determined for a definitive conclusion on the priority of each of the three domains in the psychosocial schema therapy in patients with obsessive-compulsive disorder. As observed in Table 3, the order of the treatment needed in the package of psychosocial therapy for patients with OCD was determined in the order of priority as cognitive domain, emotional domain, and behavioral domain.

In the third stage, the theme network for each domain was formed based on priority. The first theme in the cognitive domain with the first rank (Figure 1) included economic pressures (economic changes), parental distance in childhood (father's distance from family,

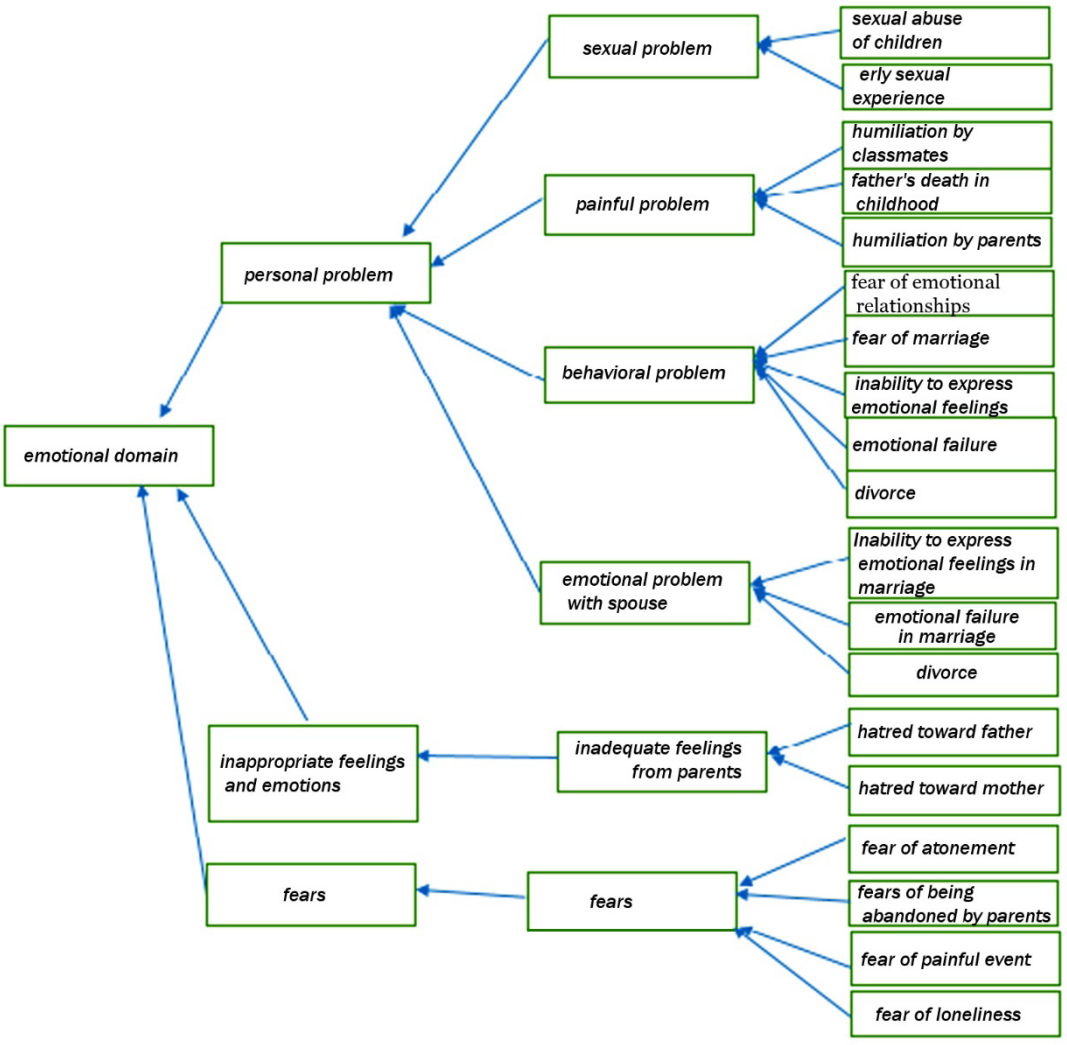

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Figure 2. The thematic network of the first theme in the emotional domain

mother's distance from family, multiple caregivers), family-style frameworks (extreme family moral strictness), self-evaluation and self-acceptance (self-blame, low self-esteem), perfectionism (perfectionism, unconventional rules), inappropriate perceptions (insecurity, loneliness, defectiveness, impurity, clumsiness, embarrassment), and worry about the future (worried about abandonment, and low self-esteem (low self-confidence, feeling ashamed and, self-loathing, no attraction to the opposite sex).

The second basic theme in the emotional domain with the second rank (Figure 2) included sexual problems (sexual abuse in childhood, early sexual experience), painful problems (humiliation by classmates, father's death in childhood, humiliation by parents), behavioral problems (fear of emotional relationships, fear of marriage, inability to express emotion, emotional failure, divorce), emotional problems with spouse (inability to express emotion in a marriage, emotional failure, divorce) inappropriate feelings toward parents (anger and hatred toward father, feeling of hatred toward mother), fears (fear of atonement, fear of being abandoned by the spouse, fear of an unfortunate event, fear of loneliness) and emotional problems (inability to express emotional feelings).

The third basic theme in the behavioral domain with the third rank (Figure 3) included the mother's behavioral psychological problems (punitive mother, psychopersonality and behavioral problems of the mother), the father's psycho-behavioral problems (punitive father, isolated father, controlling father, humiliating father), self-harm (suicide, self-punishment, and self-harm) and communication problems (inability to finish the tasks). Therefore, based on three thematic networks

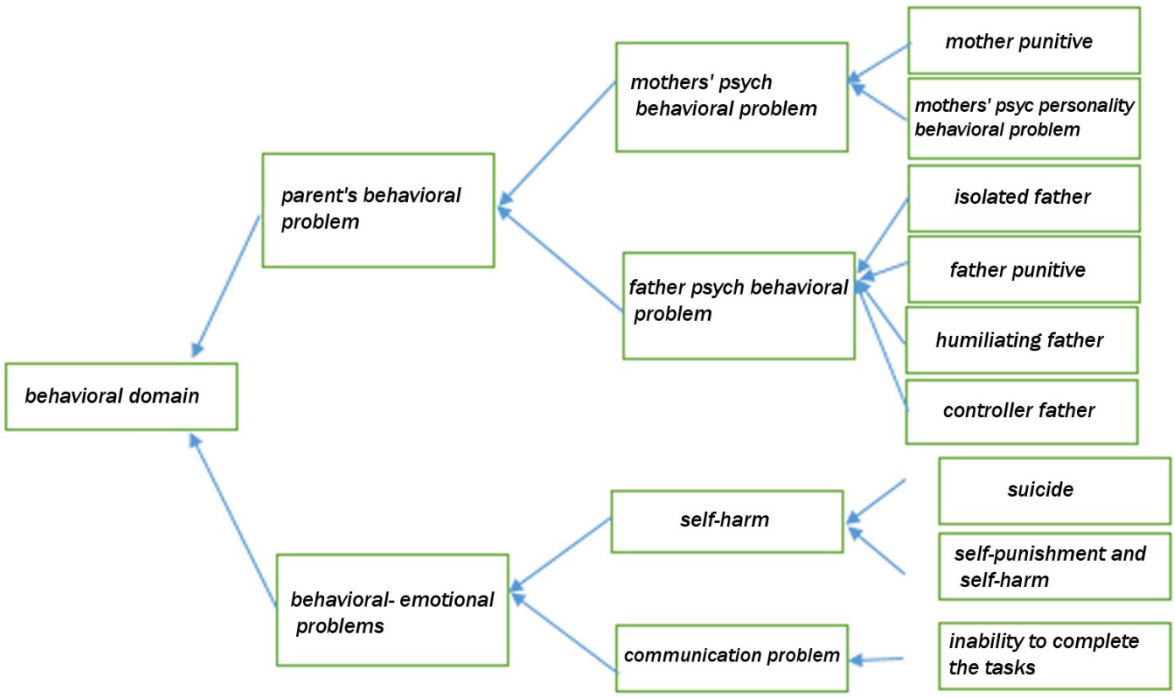

Figure 3. The thematic network of the first theme in the behavioral domain

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in cognitive, emotional, and behavioral domains, the holistic conceptual model was developed in relation to psychosocial therapy schema.

Finally, for each domain of schema therapy and for providing theoretical and executive links between the themes, the required time and treatment sessions were assigned in the form of a percentage allocated to the treatment (Figure 4 & Table 4). The treatment package is developed based on schema therapy and psychosocial issues and is presented in Table 5.

The results showed that the coefficient of Content Validity Ratio (CVR) was 0.69, which indicated the need and

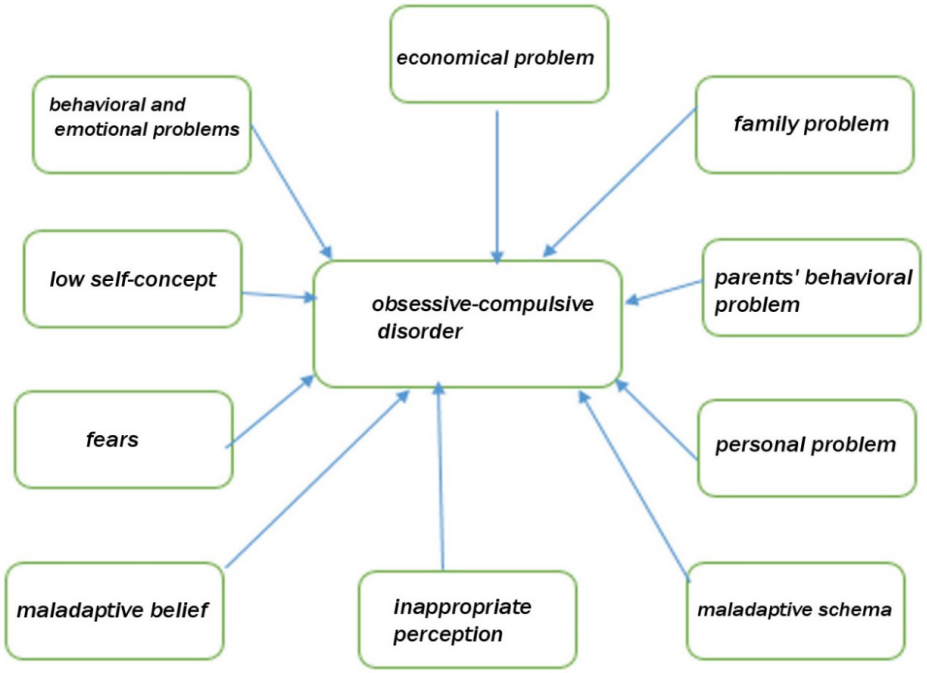

Figure 4. The main themes extracted from the three main domains of schema therapy

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Table 4. Number of treatment sessions assigned to each domain in the schema therapy

The Main Domain of Schema	The Percentage Allocated to the Treatment	Number of Sessions Allocated to Treatment	Time Allocated to the Treatment (h)
Introduction and preview	10	1	2
Cognitive domain	4	4	8
Emotional domain	30	3	6
Behavioral domain	20	2	4
total	100	10	20

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Table 5. Description of schema therapy sessions based on psychosocial issues

Sessions	Descriptions
1	Introducing obsessive-compulsive disorder and treatment sessions programs, listing problems, identifying compulsions, avoidances, and fundamental beliefs and distorted thoughts, and cognitive beliefs and expressing active schemas in obsessive-compulsive disorder based on the psychosocial model and active schemas in this field, including (rejection schema, emotional deprivation schema, unrelenting standards schema, distrust schema, defectiveness schemes, punitiveness schema, overvigilance schema).
2	Familiarity with schema therapy based on psychosocial issues and conceptualization of the patient's problem in form of active schema in the cognitive domain (the first domain of rejection and the fifth domain of overvigilance), modification of schema (relenting standards, rejection, and defectiveness), using cognitive techniques based on activating the schema and self-acceptance and accepting individual values.
3	Continuation of schema modification (unrelenting standards, rejection, and defectiveness), use of cognitive techniques based on schema activation and self-acceptance and accepting individual values.
4	Continuation of schema modification (unrelenting standards, rejection, and defectiveness), use of cognitive techniques based on schema activation and self-acceptance and accepting individual values.
5	Continuation of schema modification (unrelenting standards, rejection, and defectiveness), use of cognitive techniques based on schema activation and self-acceptance and accepting individual values.
6	Familiarity with schema therapy based on psychosocial issues and conceptualization of the patient's problem in the form of active schema in the emotional domain (the first domain of rejection and the fifth domain of overvigilance), modification of schema (overvigilance, distrust, emotional deprivation), using emotional techniques and emotional schema to eliminate maladaptive active schema.
7	Continuation of schema modification (overvigilance, distrust, emotional deprivation), using emotional techniques and emotional schema to eliminate maladaptive active schema.
8	Continuation of schema modification (overvigilance, distrust, emotional deprivation), using emotional techniques and emotional schema to eliminate maladaptive active schema.
9	Familiarity with schema therapy based on psychosocial issues and conceptualization of the patient's problem in form of active schema in the emotional domain (in the first domain of rejection and the fifth domain of overvigilance), modification of schema (punishment, unrelenting standards), using behavioral techniques and training interpersonal relationship skills, decision making, and empathy.
10	Modification of schema (punishment, unrelenting standards), using behavioral techniques and training interpersonal relationship skills, decision making, and empathy, identification and introduction of the problems with the relationship with parents, training coping skills and problems of relationship with parents, and using family therapy techniques based on schema therapy, encouraging clients to eliminate maladaptive coping styles, making clients to prepare a list of skills learned and treatment, helping the patient to generalize the achievements of treatment to the real living environment.

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essentiality for all sessions. Besides, the Content Validity Index (CVI) for the items of evaluation of the treatment package and based on the number of experts (or evaluators) was 0.85, which was acceptable. Thus, the treatment package was valid to the evaluators' views.

The results of the demographic analysis of 45 participating patients showed that they had the Mean±SD of age 19.95±3.05 years), including 23 females and 22 males. Most of them were single (64%) and the rest were married. The Mean±SD was reported 5.15±1.63

Table 6. Descriptive indices of scores of rumination in three separate groups

Variable	Groups	Mean±SD		
		Pre-test	Post-test	Control
Rumination	Schema therapy	54.13±11.92	11.33±2.79	2.53±2.51
	Cognitive-behavioral therapy	53.27±12.04	35.01±8.49	13.27±7.32
	Control	51±17.2	5.0.7±10.24	15.13±9.71

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Table 7. The results of the analysis of within-subject effects regarding the variable of rumination

Sources	Sum of Square	Degree of Freedom	Mean of Square	F	Sig.	Size	Statistical Power
Group	14935.126	2	7467.563	13.906	0.001	0.0398	0.998
Error	22554.533	42	537.013				

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mo). In total, 14 patients were university students and the rest were students (10 people), housewives (8 people), and freelancers (18 people).

The mean scores of rumination in the intervention groups (psychosocial schema therapy and cognitive-behavioral schema therapy) were lower than that in the control group in the post-test and follow up compared with the pret-est (Table 6). Descriptive findings of rumination were presented separately in the intervention and control groups in Table 7.

Before performing comparative analyzes between the two treatments, statistical pre-hypothesis was initially examined. The results of the implementation of the presumption of the normal distribution of scores using the Kolmogorov-Smirnov test showed that the null hypothesis of normality of distribution of scores in the variable of rumination in all three groups and all three stages of the study was confirmed (P<0.05). The results of Levene's test were shown to examine the assumption of the equality of variances. The Levene's presumption of equality of variances in groups regarding the variable of rumination was confirmed in all three stages of pretest, post-test, and follow-up (P<0.05). The results of the Mauchly test to check the presumption of uniformity of covariance or the equality of covariance showed that the presumption of uniformity of covariance was confirmed (P<0.05). The results of the comparison between the subjects, that is, the comparison in the rumination variable were presented in Table 7.

Based on the findings obtained in Table 8, the mean scores of rumination in the two experimental groups (schema therapy based on psychosocial issues and cognitive-behavioral therapy) and the control group were significantly different (P<0.001). The results showed that 39.8% of individual differences were related to differences between the three groups. Due to the significant interaction of time effect and group membership, the results of parameter estimation for comparing groups in the research were shown in Table 8, and the adjusted mean of rumination in pre-test, post-test, and follow-up in each group are presented in Table 9.

The results in Table 9 indicated that in the pre-test phase, the mean scores of rumination in all three groups were not significantly different. However, the results showed that in the mentioned variable, in both post-test and follow-up stages, there was a significant difference between the control group and the schema therapy group (P<0.001), and the cognitive-behavioral therapy group (P<0.001). Therefore, the results suggested that the effect of the schema therapy and the cognitive-behavioral therapy in the post-test phase was equal to 59.6% and 18.2%, respectively, and the effect of the therapies in the follow-up phase was 63% and 23.6%, respectively. There was a significant difference between the schema therapy and the cognitive-behavioral therapy groups in both post-test stages and follow-up (P<0.001).

According to Table 6, the mean scores of each experimental group (schema therapy and cognitive-behavioral therapy) and the control group in two phases of the

Table 8. Results of parameter estimation for dependent variables or mean score of rumination in research steps

Variables	Parameter	B	SD of Error	t	Sig.	Volume	Statistical Power
Pre-test	Comparison of schema therapy group with the control group	3.13	5.091	0.615	0.542	0.009	0.092
	Comparison of cognitive- behavioral group with the control group	2.27	5.091	0.445	0.658	0.005	0.072
	Comparison of schema therapy group with the cognitive- behavioral group	-0.867	4.82	-0.18	0.848	0.001	0.054
Post-test	Comparison of schema therapy group with the control group	-38.73	4.92	-7.87	0.001	0.596	1.000
	Comparison of the cognitive- behavioral group with the control group	-15.06	4.92	-3.06	0.004	0.182	0.849
	Comparison of schema therapy group with the cognitive- behavioral group	23.66	4.45	5.31	0.001	0.402	0.999
Follow-up	Comparison of schema therapy group with the control group	-41.13	4.86	-8.45	0.001	0.63	1.000
	Comparison of the cognitive- behavioral group with the control group	-17.53	4.86	-3.6	0.001	0.236	0.94
	Comparison of schema therapy group with the cognitive- behavioral group	23.6	4.95	4.76	0.001	0.351	0.996

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study were 95% reliable and there was not any 0 value in upper and lower bound.

Furthermore, the confidence intervals in the post-test and follow-up phases in all groups overlap, indicating no difference between the mean scores of post-test and follow-up in each group (Figure 5).

Table 9. The mean score of rumination in three groups in three stages of research

Group	Stage	Mean±SD of Error	Confidence Interval 95%	
			Lower Bound	Upper Bound
Schema therapy	Pre-test	54.13±3.41	74.24	61.02
	Post-test	11.27±3.15	4.97	17.69
	Follow-up	10.067±3.5	3.003	17.13
Cognitive-behavioral therapy	Pre-test	53.27±3.41	46.37	60.15
	Post-test	35±3.15	28.63	41.36
	Follow-up	33.66±3.5	26.6	40.73
Control	Pre-test	51±3.6	43.73	58.26
	Post-test	50.07±3.48	43.04	57.09
	Follow-up	51.2±3.44	44.25	58.14

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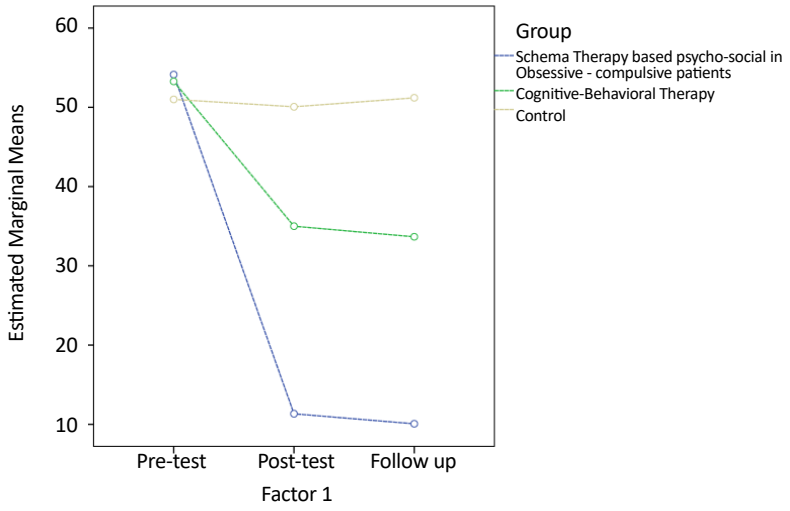

Figure 5. Comparison of the mean score of rumination between three groups in the pre-test, post-test, and follow-up phases

As seen in Figure 5, there is a difference between the mean scores of the intervention groups (schema therapy and cognitive-behavioral therapy) and the control group in the post-test and follow-up phases. There is also a difference between the two intervention groups in both phases. Although follow-up scores were different from those of the post-test in both groups of schema therapy and cognitive-behavioral therapy, the change was very slight and the line slope was smaller for each group. In general, it seems that schema therapy and cognitive-behavioral therapy are effective to reduce rumination in people with OCD, and the effects of the therapies remained in the follow-up phase. Moreover, schema therapy has also been more effective than cognitive-behavioral therapy in both post-test and follow-up phases.

Discussion

Obsessive-Compulsive Disorder (OCD) is a disease causing many disabilities. It requires one of the most difficult psychological treatments. Therefore, physicians and psychologists must be familiar with the various manifestations of OCD and can identify the presence of obsession and compulsion. The multidimensional and complex nature of OCD requires extensive research into the etiological causes and treatment of the disorder. The present study developed a scheme a therapy based on psychosocial issues of obsessive-compulsive patients and compared it with cognitive-behavioral therapy in reducing rumination in patients with OCD. The findings indicated that both schema therapy and cognitive-behavioral therapy have been effective in reducing rumination in both post-test and follow-up phases, with the more effect of psychosocial-based schema therapy in both variables.

The findings are consistent with Kuelz et al. [13], Alavi Paydar, Khodabakhsh, and Mehri Nejad [11], Hassanzadeh, and Sarabandi [12] in terms of the effect of cognitive-behavioral therapy on reducing rumination in patients with OCD. Additionally, the research findings are in line with the findings of Sangnani and Dasht Bozorgi [25] to confirm the effectiveness of schema therapy to reduce rumination. The schema therapy is an approach consisting of cognitive, behavioral, interpersonal, attachment, and empirical approaches in the form of an integrated treatment model that uses four main cognitive, behavioral, relational, and experimental techniques in individuals that calls inconsistent schemas into question that is the main cause of the formation of dysfunctional and irrational thoughts, and also drains negative emotions and feelings [24, 35]. This model emphasizes how people conceptualize their emotional experience, what they expect, and how they judge their emotions, and what behavioral and interpersonal strategies they use in response to their emotional experience [36]. In explaining this finding, it can be said that schema therapy considers psychological themes that are characteristic of patients with cognitive problems.

Schema therapy allows the chronic and deep problems of patients to be accurately defined and organized in a comprehensible way. In this model, the patients can see their problems as incompatible in their way, and as a result, be more motivated to solve the problems. Moreover, schema therapy based on psychosocial issues provides an opportunity for thought improvement

by changing maladaptive coping styles and maladaptive schemas of childhood, providing cognitive and behavioral techniques, as well as emphasizing the replacement of adaptive and effective behavioral and cognitive patterns.

It also helps people to use healthier coping styles instead of behavioral patterns arising from schemas, and not to see schemas (such as the rumination schema) as an indisputable fact that must be followed, but also a disturbing truth that must be corrected through moderating coping styles arising from social and mental problems of patients with obsessive-compulsive disorder in childhood, cognitive and behavioral techniques and efficient behavioral patterns, to reduce rumination. Also, based on the findings, one of the reasons for the priority of schema therapy over cognitive therapy on psychosocial problems of obsessive-compulsive patients in reducing the mental rumination is that cognitive-behavioral therapy only emphasizes cognitive and behavioral techniques, while schema therapy, in addition to cognitive and behavioral techniques, includes emotional and experimental techniques. This method of treatment is based on the psychosocial problems of obsessive-compulsive patients, which leads to the formation of schemas of the second and fifth domains and identifies effective schemas in obsessive-compulsive disorder and help the patients by changing the schemas. In other words, this model identifies the schemas leading to rumination and then modifies the schema to reduce the rumination.

It is recommended that schema therapy based on psychosocial issues in patients with OCD to reduce rumination be used in counseling and psychotherapy centers (clinical settings) and sessions and workshops be held for counselors and therapists with this approach. It is also recommended that these approaches be tested on other groups to ensure more reliability. Moreover, any research has special limitations and the interpretation of the results should be considered in light of these limitations. Since the population of this study was limited to patients with OCD, general care should be taken in generalizing these results to other groups.

Conclusion

The results showed that both interventions, including schema therapy based on psychosocial issues and cognitive-behavioral therapy, had a significant effect in reducing rumination in patients with OCD in the post-test and follow-up phases. In other words, schema therapy based on psychosocial issues can more efficiently reduce the rumination in patients with OCD in both post-test and follow-phases.

Ethical Considerations

Compliance with ethical guidelines

All study procedures were in compliance with the ethical guidelines of the Declaration of Helsinki 2013. The objectives of the research and the whole process were explained to the participants. The participant's consent was received in writing. The participants were informed that they are allowed to leave the process and stop their participation whenever they wished.

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Authors' contributions

Conceptualization, writing, review, and editing: All authors; Methodology: Mehdi Aflakian, Felor Khayatan; Investigation and writing the original draft: Mehdi Aflakian; Supervision: Hamid Atashpour, Felor Khayatan.

Conflict of interest

The authors declared no conflict of interest.

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References

[1] Torres AR, Fontenelle LF, Ferrão YA, do Rosário MC, Torresan RC, Miguel EC, et al. Clinical features of obsessive-compulsive disorder with hoarding symptoms: A multicenter study. J Psychiatr Res. 2012; 46(6):724-32. [DOI:10.1016/j.jpsychires.2012.03.005] [PMID]

[2] Vahia VN. Diagnostic and statistical manual of mental disorders 5: A quick glance. Indian J Psychiatry. 2013; 55(3):220-3. [DOI:10.4103/0019-5545.117131] [PMID] [PMCID]

[3] Rosenberg RN, Pascual JM, editors. Rosenberg's molecular and genetic basis of neurological and psychiatric disease. 5th edition. Cambridge, MA: Academic Press; 2014. https://www.elsevier.com/books/rosenbergs-molecular-and-ge-

netic-basis-of-neurological-and-psychiatric-disease/rosenberg/978-0-12-410529-4

[4] Wells A, Matthews G. Modelling cognition in emotional disorder: The S-REF model. Behav Res Ther. 1996; 34(11-12):881-8. [DOI:10.1016/S0005-7967(96)00050-2]

[5] Nolen-Hoeksema S, Wisco BE, Lyubomirsky S. Rethinking rumination. Perspect Psychol Sci. 2008; 3(5):400-24. [DOI:10.1111/j.1745-6924.2008.00088.x] [PMID]

[6] Brosschot JF, Gerin W, Thayer JF. The perseverative cognition hypothesis: A review of worry, prolonged stress-related physiological activation, and health. J Psychosom Res. 2006; 60(2):113-24. [DOI:10.1016/j.jpsychores.2005.06.074] [PMID]

[7] Treynor W, Gonzalez R, Nolen-Hoeksema S. Rumination reconsidered: A psychometric analysis. Cognit Ther Res. 2003; 27(3):247-59. [Doi:10.1023/A:1023910315561]

[8] O'Connor K, Aardema F, Pélissier MC. Beyond reasonable doubt: Reasoning processes in obsessive-compulsive disorder and related disorders. 1st edition. Hoboken, NJ: John Wiley & Sons, Ltd; 2004. [DOI:10.1002/0470030275]

[9] Salkovskis PM. Cognitive-behavioural factors and the persistence of intrusive thoughts in obsessional problems. Behav Res Ther. 1989; 27(6):677-82. [DOI:10.1016/0005-7967(89)90152-6]

[10] Rachman S. A cognitive theory of obsessions: Elaborations. Behav Res Ther. 1998; 36(4):385-401. [DOI:10.1016/S0005-7967(97)10041-9]

[11] Asl Alavi Paidar SS, Khodabakhsh R, Mehrinejad SA. [Comparison of the effectiveness of behavioral-cognitive & metacognitive approaches on thought fusion in patient with obsessive compulsive disorder with one month follow up (Persian)]. Clin Psychol Pers. 2019; 16(2):41-51. http://cpap.shahed.ac.ir/article-1-1179-en.html

[12] Hassanzadeh E, Sarabandi M. [The effectiveness of cognitive-behavioral therapy on the level of anxiety and rumination in people with obsessive-compulsive disorder (Persian)]. Paper presented at: 2nd International Conference on Modern Research in Management, Economics and Humanities. 27 February 2016; Dubai, United Arab Emirates. https://www.civilica.com/Paper-ICMEH02-ICMEH02_401.html

[13] Külz AK, Rose N. [Mindfulness based cognitive therapy (MBCT) in patients with obsessive-compulsive disorder--an adaptation of the original program (German)]. Psychother Psychosom Med Psychol. 2014; 64(1):35-40. [DOI:10.1055/s-0033-1349474] [PMID]

[14] Storch EA, Geffken GR, Merlo LJ, Mann G, Duke D, Munson M, et al. Family-based cognitive-behavioral therapy for pediatric obsessive-compulsive disorder: Comparison of intensive and weekly approaches. J Am Acad Child Adolesc Psychiatry. 2007; 46(4):469-78. [DOI:10.1097/chi.0b013e31803062e7] [PMID]

[15] Fisher PL, Wells A. Metacognitive therapy for obsessive-compulsive disorder: A case series. J Behav Ther Exp Psychiatry. 2008; 39(2):117-32. [DOI:10.1016/j.jbtep.2006.12.001] [PMID]

[16] Borkovec TD, Newman MG, Castonguay LG. Cognitive-behavioral therapy for generalized anxiety disorder with integrations from interpersonal and experiential therapies. CNS Spectr. 2003; 8(5):382-9. [DOI:10.1017/S1092852900018642] [PMID]

[17] Lachenal-Chevallet K, Mauchand P, Cottraux J, Bouvard M, Martin R. Factor analysis of the schema questionnaire-short form in a nonclinical sample. J Cogn Psychother. 2006; 20(3):311-8. [DOI:10.1891/jcop.20.3.311]

[18] Renner F, Lobbestael J, Peeters F, Arntz A, Huibers M. Early maladaptive schemas in depressed patients: Stability and relation with depressive symptoms over the course of treatment. J Affect Disord. 2012; 136(3):581-90. [DOI:10.1016/j.jad.2011.10.027] [PMID]

[19] Zerehpoush A, Neshatdoust HT, Asgari K, Abedi MR, Sadeghi Hosnije AH. [The effect of schema therapy on chronic depression in students (Persian)]. J Res Behav Sci. 2012; 10(4):285-91. https://www.sid.ir/fa/journal/ViewPaper.aspx?ID=204201

[20] Pinto-Gouveia J, Castilho P, Galhardo A, Cunha M. Early maladaptive schemas and social phobia. Cognit Ther Res. 2006; 30(5):571-84. [DOI:10.1007/s10608-006-9027-8]

[21] Sohrabi F. [The third wave of psychotherapy: Origins, present status and Perspectives, with special emphasis on schema therapy (Persian)]. Clin Psychol Stud. 2015; 5(18):1-14. http://jcps.atu.ac.ir/article_1044_en.html

[22] Sookman D, Steketee G. Directions in specialized cognitive behavior therapy for resistant obsessive-compulsive disorder: Theory and practice of two approaches. Cogn Behav Pract. 2007; 14(1):1-17. [DOI:10.1016/j.cbpra.2006.09.002]

[23] Young JE, Klosko JS, Weishaar ME. Schema therapy: A practitioner's guide. New York: Guilford Press; 2003. https://books.google.com/books?id=vScjGGgJEZgC&dq

[24] Goudarzi N, Khosravi Z, Dehshiri GR. [Early maladaptive schemas and metacognitive beliefs in people with obsessive-compulsive disorder, obsessive-compulsive personality disorder and normal people (Persian)]. J Clini Psychol. 2016; 8(3):25-36. [DOI:10.22075/JCP.2017.2242]

[25] Sangani AR, Dasht Bozorgi Z. [The effectiveness of schema therapy on general health, ruminating and social loneliness of divorce women (Persian)]. J Psychol Achiev. 2018; 25(2):201-16. [DOI:10.22055/PSY.2019.24944.2008]

[26] Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res. 2005; 15(9):1277-88. [DOI:10.1177/1049732305276687] [PMID]

[27] Cohen L, Manion L, Morrison K. Research methods in education. 6th ed. New York: Taylor & Francis e-Library; 2002.

[28] Given LM. The SAGE encyclopedia of qualitative research methods. Thousand Oaks: SAGE Publications Inc.; 2008.

[29] Neuendorf KA. The content analysis guidebook. Thousand Oaks: SAGE Publications Inc.; 2017. [DOI:10.4135/9781071802878]

[30] Ghaedi MR, Golshani AR. [Content analysis method: From quantity-orientation to quality-orientation (Persian)]. J Psychol Model Methods. 2016; 7(23):57-82. http://jpmm.miau.ac.ir/article_1905.html

[31] Lawshe CH. A quantitative approach to content validity. Pers Psychol. 1975; 28(4):563-75. [DOI:10.1111/j.1744-6570.1975.tb01393.x]

[32] Shadish WR, Cook TD, Campbell DT. Experimental and quasi-experimental designs for generalized causal inference. Boston: Houghton Mifflin; 2002. https://books.google.com/books?id=bhLLmgEACAAJ&dq

[33] Nolen-Hoeksema S, Davis CG. "Thanks for sharing that": Ruminators and their social support networks. J Pers Soc Psychol. 1999; 77(4):801-14. [DOI:10.1037/0022-3514.77.4.801] [PMID]

[34] Bagheri Nezhad M, Salehi Fadardi J, Tabatabaee SM. [Relationship between rumination and depression in a sample of Iranian students (Persian)]. Stud Educ Psychol. 2010; 11(1):21-38. https://www.sid.ir/fa/journal/ViewPaper.aspx?ID=114192

[35] Panahifar S, Yousefi N, Amani A. The effectiveness of schema-based couple therapy on early maladaptive schemata adjustment and the increase of divorce applicants adaptability. Kuwait Chap Arabian J Bus Manage Rev. 2014; 3(9):339-46. [DOI:10.12816/0018357]

[36] Leahy RL, Tirch D, Napolitano LA. Emotion regulation in psychotherapy: A practitioner's guide. New York: Guilford Press; 2011. https://books.google.com/books?id=CrNfHw7XV-EC&dq