Original Article

Effectiveness of Group Emotional Schema Therapy on Psychological Distress, Severity and Frequency of Symptoms in Women with Irritable Bowel Syndrome

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Abstract

Background: This study aimed to evaluate the effectiveness of emotional schema therapy on psychological distress, severity and frequency of symptoms in women with irritable bowel syndrome (IBS).

Materials and Methods: This semi-experimental two-group three-stage (pre and post-test and two-month follow-up) study was done on 30 women of 18-50 years old with IBS. They were randomly assigned to two groups (experimental and control). Psychological distress and Bowel symptoms severity and frequency in the three stages were measured. The emotional schema therapy group was treated for 8 sessions and the control group remained on the waiting list.

Results: The mean score of pre-test, post-test and follow-up of emotional therapy schema group in psychological distress were 21.23 ± 8.18, 16.08 ± 6.05 and 14.69 ± 4.05; in symptom intensity 7.46 ± 1.98, 5.23 ± 1.30 and 6.46 ± 1.33 and in symptom frequency 7.46 ± 1.98, 6.08 ± 1.66 and 7.54 ± 2.18 respectively. In the control group, there was no difference between the scores of different tests; in the pre-test, post-test and follow-up, the scores of psychological distress were 20.23 ± 5.39, 20.08 ± 5.59, and 20.38 ± 4.75, in the symptoms severity 7.69 ± 1.49, 7.62 ± 1.33, and 7.69 ± 1.80, and in the symptoms frequency 6.92 ± 2.75, 6.54 ± 2.40 and 6.62 ± 2.63 respectively. In the control group, there was no difference between the scores in different tests. In the pre-test, post-test and follow-up, in psychological distress, the scores were 20.23 ± 5.39, 20.08 ± 5.59, and 20.38 ± 4.75 in the symptom severity 7.69 ± 1.49, 7.62 ± 1.33, and 7.69. ±1.80 and in the symptoms frequency 6.92 ± 2.75, 6.54 ± 2.40 and 6.92 ± 2.75 respectively ($P < 0.05$).

Conclusion: Emotional schema therapy can be used as a complementary psychological treatment to reduce psychological distress and severity and frequency of symptoms in women with IBS.

Keywords: Emotions, irritable bowel syndrome, psychological distress, schema therapy, symptom assessment

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Introduction

Irritable bowel syndrome (IBS) is a common painful and disabling functional gastrointestinal disorder (FGID) that is accompanied by symptoms such as defecation deformity and abdominal pain.[1-3] The mean global prevalence of IBS is about 11%, with the highest prevalence estimate in the South American population (21%) and the lowest estimate in Southeast Asian studies (7%).[4] In studies on the Iranian population, its prevalence has been reported between 3.5 and

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5.8%.[5] According to studies, IBS is associated with other functional gastrointestinal disorders, emotional disorders, and psychological problems, and these factors considerably affect the onset, duration, and overall severity of the disease.[6-10] Factors such as psychological distress seem to be high in these patients. Psychological distress is an unpleasant mental state of depression, anxiety, and stress that all have emotional and physiological symptoms. Recent studies have indicated that people with high psychological distress complain more about symptoms of physical illness, and the frequency of physical illness is a strong predictor of the occurrence of impairment in physical, psychological, and social functioning.[11]

Findings of research on 240 patients with gastrointestinal disorders indicated that problems in emotion regulation indirectly affect the severity of gastrointestinal symptoms.[12] Negative emotional schemas increase one's vulnerability to physical and mental illnesses, such as chronic fatigue syndrome, IBS, somatization disorder, eating disorders, social phobia, depression, post-traumatic stress disorder (PTSD), and borderline personality disorder.[13] These schemas therapies are effective on the pain intensity of people with IBS.[14]

Patients with IBS have negative schemas of themselves and others.[7,15] These schemas and catastrophizing about abdominal pain are the mediators in the relationship between the severity of abdominal pain in IBS patients and depression.[10] The most important predictors of IBS and symptom severity are female gender, psychosocial distress, deficit/shame schema, and entitlement schema.[16]

Single-factor therapy rarely relieves distressing symptoms in all patients.[17] Reassurance, education, lifestyle changes, and diet are sufficient for patients with mild symptoms, whereas patients with moderate to severe symptoms, need medication and psychological therapies to change their symptoms.[18] Due to the role of psychological factors in the development of IBS symptoms, psychological interventions can be used as independent therapies to reduce physical symptoms and improve the performance of patients with IBS.[19] Emotional schema therapy (EST) is one of these interventions.[15]

EST provides an integrated and comprehensive model of emotion regulation with a combination of different skills. These skills include emotional validation, identifying and correcting misconceptions about emotions (correcting emotional schemas), mindfulness, acceptance and desire, kindness, empathy, self-correction, emotional processing, cognitive reconstruction, and stress reduction. This treatment is helpful in expressing and processing emotions and reducing the difficulty in regulating emotions.[20] Leahy developed the EST by adapting some aspects of traditional cognitive therapy and metacognitive, acceptance-based models. This treatment focuses less on how emotions are generated from thoughts and more on the content of thoughts about emotions and the resulting ineffective coping strategies. Findings of several studies support the effectiveness of EST in reducing negative emotional schemas in people with depression,[21] difficulty in regulating emotion,[15,22] improving emotional regulation,[23] depression, stress, anxiety,[24] severity and frequency of symptoms and quality of life in patients with IBS,[25] and the treatment of patients with personality disorders.[26]

Mohammadi *et al.* in their research indicated that emotional schema therapy causes a significant reduction in psychological distress and difficulty in regulating emotions compared to the control group.[27] The results of another study on 180 patients with IBS showed that early maladaptive schemas had a positive and significant relationship with the severity of IBS symptoms.[28] Also, a study indicates the effectiveness of schema therapy on the experience of physical symptoms, medication compliance, and perceived stress in patients with IBS.[29]

Overall, evidence from previous studies suggests that emotional schema therapy has the potential to help patients with IBS. However, so far, the effect of this treatment on psychological distress, severity, and frequency of IBS symptoms has been less used in studies. This treatment is one of the new waves of cognitive–behavioral therapies that is now used in many fields to help different patients. However, the capacity of this treatment to help reducing psychological distress and the severity and frequency of symptoms of IBS, which can cause serious disturbances in the lives of these patients, has not been well documented. Therefore, this study was conducted with the aim to investigate the effectiveness of emotional schema therapy on psychological distress, severity, and frequency of symptoms in women with IBS.

Materials and Methods

The method of the current research was clinical trial, and the two-group research design consisted of an emotional schema therapy group and a control group with three phases. The population included all women with IBS who were referred to a gastroenterologist and then were advised to refer to the psychology clinic in the fall of 2021, of whom 30 were selected using the purposeful sampling method based on inclusion and exclusion criteria and 15 individuals were assigned to each group by random allocation software.

Inclusion criteria were a ROME III diagnostic criteria used by a gastroenterologist for differentiating IBS from other gastrointestinal disorders (predominantly diarrhea), no severe psychiatric illness (based on SCID interview), age between 18 and 50 years, not attending psychological intervention sessions during the last 6 months, having at least high school education, fluency in Persian, consenting to participate in the research plan. Exclusion criteria included avoiding continuing treatment, not participating in two psychotherapy sessions, and not doing the exercises accurately during two consecutive or non-consecutive sessions. This study has been approved by ethics committee of the Islamic Azad University-Isfahan branch (Khorasgan) with the code of IR.IAU.KHUISF.REC.1398.253.

The research tools included ROME III diagnostic criteria, Structured Clinical Interview for DSM Disorders (SCID-I), Kessler Psychological Distress Scale, and Bowel Symptom Severity and Frequency Scale (BSS-FS), which are introduced in the following.

ROME III diagnostic criteria

This scale is a short form of the physical symptoms of IBS. Participants should retrospectively report the following cases: discomfort or abdominal pain for at least 3 days per month during the last 3 months with at least two of the following cases: 1-pain relief with defecation, 2-onset of pain with change in frequency of defecation, and 3-the onset of pain with changes in the appearance of the stool. This diagnostic criterion was introduced to the scientific community in 2006 under the name of ROME III after various modifications that were made with the cooperation of many gastroenterologists worldwide and has a high standard. In Iran, it has been standardized by Khoshkrood-Mansoori *et al*. The reliability of the criteria was calculated above 0.7 using Cronbach's alpha for all main symptoms.[30] In the present study, this tool was used by a gastroenterologist to differentiate IBS with other gastrointestinal disorders.

Structured clinical interview for DSM disorders (SCID-I)

SCID is a semi-structured interview that provides diagnostics based on the DSM-V-RV. This tool was developed by First *et al*.[31] In the present study, it was used to study the absence of severe psychiatric diseases (inclusion criteria) such as acute psychosis and bipolar, etc. in the research sample.

Kessler psychological distress scale

Kessler Psychological Distress Scale, which assesses the patient's mental state over the past month, was developed by Kessler, Barker, Colpe, Epstein, and Gfroerer in 2003. The answers to the questions are in the form of five options: always = 4, most of the time = 3, sometimes = 2, rarely = 1, and never = 0, which is scored between 0 and 4 and the maximum score is 40. Research on the Kessler Psychological Distress Scale shows a strong correlation between high scores on this scale and the diagnosis of mood and anxiety disorders by the *Composite International Diagnostic Interview* (CIDI). Furthermore, the Kessler Psychological Distress Scale has a good sensitivity and specificity for screening individuals with anxiety and depression, and it is also a suitable tool for post-treatment control and monitoring.[32] Lotfi *et al*. in their study in Iran reported the reliability of the scale by Cronbach's alpha as 0.80.[33] Cronbach's alpha of this scale in the present study was obtained as 0.77.[33]

Bowel symptom severity and frequency scale (BSS-FS)

The scale was designed based on the GI Symptom Severity Scale developed by Boyce *et al*. (2000) in Australia.[34] The scale includes 10 items, 5 of which are related to the severity and 5 of which are related to the frequency of symptoms in these patients. The scoring method is based on a 5-point Likert scale for the frequency of symptoms from 0 (never), 1 (once or twice a week), 2 (every other day), 3 (every day), and 4 (many times a day). Regarding the severity of symptoms, it is scored as 0 (insignificant), 1 (tolerable), 2 (annoying), 3 (unbearable), and 4 (terrible). The correlation of the scores obtained for the frequency of symptoms was equal to r: 0.76 and for the severity of symptoms was equal to r: 0.73 and the internal reliability of the whole scale was obtained by Cronbach's alpha as r: 0.81.[35] Cronbach's alpha of this scale in the present study was calculated as 0.86.

Brief description of emotional schema therapy sessions

The process of conducting the research was such that after obtaining the necessary permits to be introduced to the gastroenterologist's office, 30 individuals eligible for the inclusion criteria from the research statistical population were selected in the Fall, 2019, and randomly divided into two case and control groups. Then, the pre-test was performed in both groups. The case group then received the intervention (once a week for 90 min) and the control group did not receive any intervention. Treatment was performed once a week by an experienced psychologist in both groups. Finally, post-test was performed for both groups and follow-up was performed 2 months later. It should be noted that the analysis was performed with 13 people in each group due to missing of two participants in the experimental group and one in the control group [Table 1]. Data analysis was performed using the SPSS23 software at both descriptive and inferential levels. At the descriptive level, indexes such as mean and standard deviation were used. At the inferential level, the necessary assumptions were examined for the analysis of variance (ANOVA) and repeated measures.

Results

The results of ANOVA and Chi-square tests showed that there was no statistically significant difference between the two groups in terms of the mentioned variables ($P > 0.05$). Table 2 presents descriptive statistics on psychological distress and the severity and frequency of symptoms for experimental and control groups in three phases of research.

The results in Table 3 show that the mean score of research variables for pre-test, post-test, and follow-up in the emotional therapy schema group in psychological distress were 21.23 ± 8.18, 16.08 ± 6.05, and 14.69 ± 4.05, respectively. These were 7.46 ± 1.98, 5.23 ± 1.30, and 6.46 ± 1.33, respectively, for symptom intensity and 7.46 ± 1.98, 6.08 ± 1.66, and 7.54 ± 2.18, respectively, for symptom frequency. In the control group, there was no difference between the scores of different tests; so, for the pre-test, post-test, and follow-up, the scores in the variable of psychological distress were 20.23 ± 5.39, 20.08 ± 5.59, and 20.38 ± 4.75, respectively, 7.69 ± 1.49, 7.62 ± 1.33, and 7.69 ± 1.80, respectively, in the variable of symptoms severity and 6.92 ± 2.75, 6.54 ± 2.40 and 6.62 ± 2.63, respectively, in the variable of symptoms frequency. In the control group, there was no difference between the scores in different tests; so, for the pre-test, post-test, and follow-up, the scores were

20.23 ± 5.39, 20.08 ± 5.59, and 20.38 ± 4.75, respectively, in the variable of psychological distress, 7.69 ± 1.49, 7.62 ± 1.33, and 7.69. ±1.80, respectively, in the symptom severity variable, and 6.92 ± 2.75, 6.54 ± 2.40, and 6.92 ± 2.75, respectively, in the variable of symptoms frequency. Before performing the repeated-measures analysis of variance, to check the assumptions of this analysis, the Shapiro–Wilk test showed that the data distribution was normal ($P > 0.05$). Also, Levene's test for the equality of within-group variance and Box's M test for the equality of the variance-covariance matrix was not significant ($P > 0.05$). Finally, Makhli's sphericity test shows that the assumption of sphericity was met for both variables ($P > 0.05$). Table 4 presents the results of repeated measures ANOVA for psychological distress, severity, and frequency of symptoms.

Table 1: A summary of content of sessions of emotional schema therapy[28]

Sessions	Content of sessions
First session	Getting to know the group members with each other and with the therapist explaining the purpose of participating in the study, setting the group rules with the therapist, giving clients the opportunity to express their feelings about digestive problems and pre-test.
Second session	Providing education about emotions to increase members' understanding of emotions, general introduction to emotional schemas, articulation of logic, and stages of intervention.
Third session	Defining and explaining emotional schemas and their effect on our emotions and behaviors by giving examples.
Forth session	Explaining ineffective emotion regulation strategies and replacing adaptive emotion regulation strategies with previous strategies.
Fifth session	Validation and normalization of emotions to accept difficult emotions such as feelings of anxiety, using the allegory of welcoming guests to strengthen the belief in the transience of emotions.
Sixth session	Associating difficult emotions with transcendent values using examples, using the monsters on the bus metaphor to teach "Creating Space for All Emotions."
Seventh session	Mindfulness training and mindfulness-based exercises such as progressive muscle relaxation, positive mental imagery, and diaphragmatic breathing.
Eighth session	Assessing the achievement of members' goals, preparing members for the end of treatment, helping continue new learning by examining obstacles and possible problems in this direction and trying to eliminate or reduce them, receiving feedback from members about the quantity and quality of sessions and the effectiveness of treatment sessions, implementation of post-test)

As shown in Table 4, the intensity and frequency of the symptoms of the stages* group interaction was significant in the variable of psychological distress. This significance means that at least in one of the two post-test and follow-up stages, there was a significant difference between the emotional schema therapy group and the control group in the mentioned variables. This table shows the results of the follow-up test to compare the pre-test, post-test, and 2-month follow-up in pairs with each other. Least Significant Difference (LSD) post hoc test was used to evaluate the differences between the means of the studied scales among the three measures of pre-test, post-test, and follow-up. Table 5 reports the results of this test.

Considering the results of Table 5, pre-test scores were significantly different from post-test and follow-up scores for psychological distress and symptom severity, and post-test scores remained relatively constant with the follow-up phase and the effect of EST was still lasting. In the variable of symptom frequency, pre-test scores were significantly different from post-test, whereas pre-test scores were not significantly different from follow-up scores. Based on the results in Tables 4 and 5, the research hypothesis on the effectiveness of emotional schema therapy on psychological distress, severity, and frequency of symptoms in female patients with IBS has been supported.

Discussion

This research was conducted with the aim of evaluating the effect of group emotional schema therapy on psychological distress, severity, and frequency of disease symptoms in women with IBS. The results supported the post-test effectiveness of emotional schema therapy on psychological distress, severity, and frequency of symptoms in the patients with IBS, although the frequency of symptoms was not stable in the follow-up test. In accordance with the results of the present study with similar studies, although due to the novelty of the emotional therapy schema and its effectiveness on psychological distress, the severity and frequency of symptoms in patients with IBS, no research was found that is completely compatible with this research in terms of topic. However, it can be said that

Table 2: Mean and standard deviation of demographic variables by case and control group

Demographic factors	Group		Mean±SD		*F*	*P*
Age (Year)	Intervention		26.58±6.14		0.331	0.803
	Control		26.69±7.86			
Marital status	Group	Single	Married	divorced	2.47	0.872
	Intervention	5 (38.5)	8 (61.5)	-		
	Control	5 (38.5)	7 (53.8)	1 (7.7)		
Educational status	Group	Under diploma	Diploma	University	3.43	0.945
	Intervention	2 (15.4)	7 (53.8)	4 (30.8)		
	Control	3 (23.1)	3 (23.1)	7 (53.8)		

Table 3: Mean and standard deviation of psychological distress, intensity, and frequency of symptoms in two groups at three phases

Variable	Group	Mean±SD		
		Pre-test	Post-test	Follow- up
Psychological distress	Emotional schema therapy	21.23±8.18	16.08±6.05	14.69±4.05
	Control	20.23±5.39	20.08±5.59	20.38±4.75
Severity of symptoms	Emotional schema therapy	7.46±1.98	5.23±1.30	6.46±1.33
	Control	7.69±1.49	7.62±1.33	7.69±1.80
Frequency of symptoms	Emotional schema therapy	8.77±2.49	6.08±1.66	7.54±2.18
	Control	6.92±2.75	6.54±2.40	6.62±2.63

Table 4: Results of repeated measures ANOVA for psychological distress, severity, and frequency of symptoms

Variable	Source of changes	Sum of squares	df	Mean square	*F*	*P*	Effect size	Statistical power
Psychological distress	Intervention steps	151.87	2	75.94	14.54	0.0005	0.377	0.998
	Stages* group	157.41	2	78.71	15.07	0.0005	0.386	0.999
	group	27515.71	1	27515.71	302.70	0.0005	0.0927	1
Severity of symptoms	Intervention steps	17.41	2	8.71	7.72	0.001	0.243	0.936
	Stages* group	15.10	2	7.55	6.69	0.003	0.218	0.898
	group	3850.05	1	3850.05	762.19	0.0005	0.969	1
Frequency of symptoms	Intervention steps	30.77	2	15.39	9.76	0.0005	0.289	0.976
	Stages* group	17.54	2	8.77	5.56	0.007	0.188	0.833
	group	3906.46	1	3906.46	282.39	0.0005	0.922	1

Table 5: LSD post hoc test for comparison of psychological distress, severity, and frequency of symptoms in time series

Scale	Stage A	Stage B	Mean difference (A-B)	Standard error	Significance level
Psychological distress	Pretest	Post-test	65/2	576/0	0005/0
		Follow-up	19/3	810/0	001/0
Severity of symptoms	Pretest	Post-test	54/1	438/0	002/0
		Follow-up	769/0	184/0	0005/0
Frequency of symptoms	Pretest	Post-test	15/1	333/0	002/0
		Follow-up	500/0	289/0	096/0

the results of this research are in line with the findings of Erfan *et al*., Mohammadi *et al*., Havaei *et al*., and Share *et al.* in Iran[25,27,36,37] Also, the results of the present study are consistent with the findings reported outside of Iran, such as those by Erfan *et al*.,Kolyaei *et al*., and Jahangirrad *et al*.[24,38,39]

In explaining the effectiveness of emotional schema therapy in reducing psychological distress, it can be said that psychological distress initially manifests with the characteristics of anxiety and depression, which is a part of the general structure of psychological distress, which is consistent with the findings of Erfan *et al*., Rezaei *et al*., Imam Zamani, and Marwaridi *et al*.[24,40-42]. Schema of the emotional therapy at first by identifying the positive and negative emotional schemas of these patients and then various ineffective strategies of emotion regulation and the reversibility of unpleasant emotions with a greater intensity than before and the confirmation of the schemas and their effects on other life situations helps the patients to accept negative emotions. It also explains the impact of these emotions on psychosomatic problems, including gastrointestinal disorders. They also learned to use adaptive strategies of emotional regulation and then cognitive reconstruction, so that when anxiety and depression occur, the problematic schema is identified and previous painful strategies are modified and adaptive strategies are replaced. Cognitive restructuring is another EST technique that targets the underlying mechanism of IBS, which is catastrophizing about abdominal pain. Cognitive restructuring is one of the essential components for mood change. Catastrophizing technique can be used to help the patient to rebuild dysfunctional thoughts. The reason for most of the strong emotional responses is that the events are considered terrible or catastrophic. While acknowledging that many events are objectively difficult or even life-threatening, the therapist tries to put the issues in the patient's perspective to prevent overreaction.[43]

Using mindfulness strategies is another technique used in EST. Mindfulness is defined as "relating to events without judgment, here and now."[44] Research results indicated the effectiveness of mindfulness in reducing the psychological symptoms of depression,[45,46] anxiety,[45-48] and stress[49] in patients with IBS. The results of the present study were consistent with

these findings. Mindfulness training, raising the individual's intentional awareness of emotional and feeling experiences, targets the underlying mechanisms of IBS, that is, catastrophic evaluation of feeling and emotional processing of pain.[50] Patients with limited awareness of subtle differences between their emotions report increased awareness of their general discomfort. Depression is the result of increasing awareness of negative mood, and anxiety is the result of painful awareness of worries.[51] In anxious states, people frequently overestimate the danger associated with a particular situation than actually exists, which automatically and involuntarily activate the "anxiety program." When fear arises from a misperception, the anxiety program activated responses are out of proportion to the situation. Instead of taking a useful role, these responses are often interpreted as other origins of fear, and this leads to a vicious circle that tends to perpetuate and intensify the anxiety response.[52] Mindfulness training can improve the performance of emotional processing by empowering the direct translation of bodily sensations into different emotions without over-associating these emotions with narrative memories.[43] In addition to evaluating the main characteristic of mindfulness, which is emotional awareness, its other characteristics, including observation and internal attention, expressing and labeling experience, the ability to perform activities with full awareness and without distraction, judgment and reaction to internal experiences are also important.[51]The second finding of this research also showed that group emotional schema therapy reduced the severity of symptoms in the post-test and follow-up stages. In explaining the effectiveness of EST on the severity of physical symptoms in patients with IBS, it can be mentioned to the negative experience writing techniques, mindfulness, and acceptance in the EST treatment protocol.

The technique of writing the negative experiences helps the patient to express or disclose the emotions that were previously held back. Emotional inhibition is associated with IBS.[53] In a study conducted on 103 patients with IBS, the subjects were asked to write for 30 min for 4 consecutive days about their deepest thoughts, emotions, and beliefs about this disease and their understanding of its effects. The results showed that the severity of IBS was significantly improved by writing experiences.[54] The results of the present study were consistent with this finding. In classical psychosomatic theories, there is a belief that health problems arise from the inhibition of important psychological thoughts and feelings. Psychological inhibition is the inability to express thoughts, feelings, and behaviors related to an experience. Inhibition occurs when people feel that they cannot easily talk about their experience with others. It is thought that the process of writing reduces the threat of evaluation and creates a greater sense of personal control and provide the feeling of successfully dealing with the social or personal consequences of the experience.[55] Another EST technique is mindfulness that includes the monitoring of cognition, emotions, perceptions, and feelings.[56] The results of a study on 75 women with IBS showed that mindfulness decreases the reactivity to thoughts, emotions, and physical sensations, and thus visceral sensitivity. Reduced visceral sensitivity is associated with reduced severity of IBS symptoms. Also, the results of Nouri *et al*.'s study indicates the effectiveness of mindfulness therapy on improving the severity of symptoms in patients with IBS.[57]

In addition, non-reactivity is associated with lower psychological distress, which predicts a decrease in the severity of symptoms and improvement in the quality of life and increased reinterpretation of pain sensation predicts decreased IBS severity.[50] The study of Erfan, Aghaei, and Gol Parvar also supports the effectiveness of mindfulness techniques in reducing the severity of symptoms in women with IBS.[58] The results of the present study showed that EST was effective on the frequency of symptoms in the post-test; however, it had no effect in the 2-month follow-up, which was consistent with the findings of Erfan *et al*[24,25]. The two points can be noted regarding the non-sustainability of EST intervention on the frequency of physical symptoms in patients with IBS during the 2-month follow-up phase; one is that EST has conceptual orientations and goals in common with several third-generation cognitive–behavioral theories[43] and instead of focusing on reducing symptoms, third-generation treatments work on improving the patient's quality of life.[44] Second, the pathophysiology aspects of this disease cannot be easily overlooked, and the results of the present study confirm this issue.

Finally, these findings are not without limitations that should be considered while interpreting the results. Considering that the samples were of Iranian women, it is desirable for future studies to evaluate the male samples as well as in other societies. Also, due to the cross-sectional nature of the research, despite effective results, it is necessary to collect longitudinal data for more certainty in generalization. In contrast, other relative personal variables, such as socio-economic status and history of gastrointestinal problems or psychological problems were not controlled, which could affect the results. Despite the mentioned limitations, this work hopes to be the beginning of future studies that will lead to a better understanding of the effectiveness of emotional schema therapy on the psychological factors of people with IBS.

Conclusion

Emotional schema therapy is effective in psychological distress and the severity and frequency of symptoms in women with IBS. This treatment may be able to help improve the psychological distress, severity, and frequency of symptoms in sufferers, and it is a valuable approach for psychologists and physicians who deal with IBS patients.

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Conflicts of interest

There are no conflicts of interest.

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