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Comparing The Effectiveness of Mindfulness-Based Cognitive Therapy with Emotion-Focused Therapy on Emotion Regulation in Patients with Peptic Ulcer

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Abstract

Objective: Patients suffering from psychosomatic disorders such as peptic ulcers struggle with many psychological and physical problems. This study aimed to compare the effectiveness of group mindfulness-based cognitive therapy (MBCT) with emotion-focused therapy (EFT) on cognitive emotional regulation of patients with peptic ulcer.

Method: This semi-experimental study was conducted with a pre-test-post-test-3-month follow-up design and a control group. For this purpose, 45 patients were selected through convenience sampling method among patients referred to specialized internal medicine clinics during Jan-March 2023. The participants were randomly assigned to three groups i.e. control (15 people), EFT (15 people), and mindfulness-based cognitive therapy (15 people). The intervention groups received eight sessions of mindfulness-based cognitive therapy/ emotion-focused therapy. The control group did not receive any treatment during the study. The participants completed the standard cognitive emotion regulation questionnaire of Garnefski and Kraaij before, after and three months after the interventions. The obtained data were analyzed by repeated measurement analysis of variance and Bonferroni test.

Results: Overall, the obtained results showed that EFT and mindfulness-based cognitive therapy are effective in the emotional regulation of patients with peptic ulcers (P=0.001). Comparing the effectiveness of mindfulness-based cognitive therapy with emotion therapy on adaptive (P=0.56) and maladaptive (P=0.22) emotional regulation showed no significant difference in patients with peptic ulcer.

Conclusion: Therefore, it can be said that both emotional therapy methods and mindfulness-based cognitive therapy have a positive effect on the emotional regulation of patients with peptic ulcers, and these two methods can be used for the improvement of emotional improvement in patients.

Keywords: Emotional regulation, Health, Mindfulness-based Cognitive Therapy, Emotion-focused Therapy, Peptic ulcer.

Introduction

Peptic ulcer disease has a prevalence of 80-150 per 100,000 in the general population (Azhari et al., 2018).This disease results in significant personal and social consequences i.e. individual dysfunction, cancer (Byakodi et al., 2018), chronic pain (Kim, Kim, Yun, & Lee, 2019), long-term date-related problems (Lin, Wang, Shih, Kuo, & Liang, 2019). Because of lower mental capacity and intolerance to distress, these patients experience more communication conflicts in workplace problems (Choi et al., 2020). Meanwhile people with peptic ulcers due to food sensitivities, nervous excitability, and pressures caused by stress, often have problems in family relationships (Shanshal et al., 2022). Evidence showed vulnerability to persistence or

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recurrence of peptic ulcers is related to stress (Yim, Kim, & Lee, 2021). Stress increases acid secretion which is effective in the occurrence of peptic ulcers (Yegen, 2018). Meanwhile, it affects the function of digestion by activating the hypothalamus axis in the brain (Gwak & Chang, 2021). Based on coping theory there is a difference between the stressful event and the stress perceived by a person, on the other word the amount of perceived stress harms the person, not the stress itself (Cloitre et al., 2019). Coping strategies and how to regulate emotions play an important role in the level of perceived stress (Tamir, Vishkin, & Gutentag, 2020). In the last version of DSM-5 [1], mental health is the result of the management of a range of positive and negative emotions. This variable is the basis for the growing researchers' understanding of disorders caused by mental and emotional systems (Cloitre et al., 2019). Weakness in emotional regulation of patients with psychosomatic disorders provides the basis for stress escalation which leads to the occurrence of physical symptoms of the disease(Byakodi et al., 2018). For this reason, anti-anxiety medications have shown positive effectiveness in the treatment of psychosomatic diseases (Balon, Sonino, & Rafanelli, 2021). However, pharmacological therapy in these patients has been associated with many challenges, especially due to the sensitivity of their digestive system (Maschi, Sodagar, Jomehri, Hosseinzadeh Taghvai, & Forootan, 2020). Therefore it is recommended to use complementary and non-pharmacological approaches that can create mechanisms similar to anti stress medications(Luo et al., 2023).

Since digestive disorders are closely related to emotional problems(Torres, 2018). One of these effective approaches in this field is the emotion-focused therapy (EFT). The EFT is a new humanistic approach designed to help clients become aware of their emotions and effectively use them. The goal of EFT is to help clients increase their literacy and emotional intelligence (Greenberg, 2016). This approach believes that emotional suffering is not simply defined by cognitive status or behavioral problems, but a patient's pain originates from their deep psychological layers. One of the most important goals of the EFT is to increase the mental capacity to regulate emotional experience and gain more trust and confidence toward perceptions (Salarrad, Leilabadi, Nafissi, & Kraskian Mujembari, 2022). Studies show that emotional based therapies was effective in the emotional regulation of obsessive-compulsive patients(Shameli, Mehrabizadeh Honarmand, Naa'mi, & Davodi, 2019).

Another approach in the field of psychosomatic disorders to reduce stress and anxiety and manage the disease has been frequently noticed in recent years is mindfulness-based cognitive therapy (MBCT). Mindfulness-based interventions emphasize the interaction between physical, cognitive and emotional processes(Oraki, Safarinia, & Bahrami, 2022). The cognitive functions of the brain that are disturbed in various disorders can be improved with mindfulness care methods(Brown et al., 2022). The harmony of body and mind is one of the indicators of people's health, and since mindfulness increases this harmony(Priya & Kalra, 2018), for this reason, recent researchers have sought to adjust the relationship between body and mind. MBCT is a combination of mindfulness techniques and cognitive techniques(Zahra & Ameneh, 2022) Difficulty in regulating emotions through the presence of long-term stress and disproportionate reactions to stress causes changes in the immune system (Torabi Zonouz, Mahmoud Alilou, & Pak, 2020). Emotional regulation and variables related to it can cause emotions to fluctuate and aggravate the disease condition(Teixeira, Brandão, & Dores,

1- The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition

2022). Brown and colleagues (2022) concluded that mindfulness-based cognitive therapy reduces emotional regulation difficulties in depressed patients. In other studies, EFT has been determined as an effective method to regulate emotions.

Both approaches are based on learning theory, but they have differences that distinguish them from each other. Mindfulness create optimal conditions for, but do not specify, experiential and emotional processing. In contrast, EFMT uses its emotion-focused perspective to integrate process-diagnostic, marker-oriented tasks such as focusing into meditation, journaling, and empathically exploring clients' experience in order to deepen experiencing, address unfinished business and inner conflicts, better navigate life, and cultivate growth and flourishing (Gayner, 2019). EFT is a retrospective therapy that emphasizes on engaging with interpersonal relationships and deep emotional layers (Geenberg, 2016). While the past is not important in MBCT, emphasis is on the present and nonjudgmental acceptance of physical and mental emotions without engagement (Browen et al.,2022). EFT and MBCT have showed effectiveness on emotion regulation. However, the question is whether the difference in the technique and mechanism of MBCT and EFT can play a role in their effectiveness on emotional regulation? Therefore, it is necessary to compare the effectiveness of these two approaches. The review of studies showed it is not clear whether the effectiveness of EFT and MBCT is different on emotion regulation. Therefore, this study will be conducted to answer the question of whether MBCT and EFT are effective in the cognitive and emotional regulation of patients with peptic ulcers. Is the effectiveness of mindfulness-based cognitive therapy different from group-based emotion-focused therapy on cognitive emotion regulation in patients with peptic ulcers?

Method

The present study method is semi-experimental with a pre-test-post-test design, follow-up and control group. The statistical population of the current study included all patients with peptic ulcers who were referred to specialized and sub-specialized internal medicine clinics of Mshahd City from Jan-March 2023. Sampling was done by convenience sampling methods. The sample size in this research was 45 patients; In the intervention and control groups, there were 15 people each, who were randomly replaced. The intervention groups participated in the MBCT/EFT sessions, and the control group did not receive any intervention during this time. The inclusion criteria include a minimum high school education; Age between 18 and 50 years; not suffering from chronic disease except peptic ulcer; Lack of history of diagnosis of psychotic disorders. Exclusion criteria were absence for more than 2 sessions, and alcohol/drug addiction.

The patients who were diagnosed with gastric ulcer were checked in terms of the criteria for entering the study and if they met the conditions for entering the study, they completed the emotional regulation questionnaire. All patients continued their routine medical and medical treatment during the study.

In the first step, the researcher, proceed for permission letter from the university Research and Technology department of Mashhad University of Medical Sciences to obtain a permit for the special internal Clinic of Seyedi located on Sabai Gharbi Street of Mashhad as a reference center for the statistical sample of the present study. The approval of the University sent an official letter to the mentioned clinic to coordination with center's experts.The patients diagnosed with gastric ulcer were referred to the special clinic of Seyedi who met the criteria to enter the research were referred to Sayad psychology office in Sayad shirazi st(private

clinic of researcher).

The participants were completed the consent form and emotional regulation questionnaire in the private clinic individually. Then randomly divided into three groups: MBCT(N=15), EFT(N=15) and control(N=15). Those in the intervention group received MBCT/EFT weekly eight sessions (90-minute each session), and the control group did not receive any intervention during this period. The interventions were implemented in a group manner (7-8 people) at private clinic by researcher. The emotional regulation questionnaire was completed by the participants immediately after the intervention and the participants were asked to regularly perform the exercises they had learned during this period and contact the therapist if they had any problems. The posttest and follow-up was administered in the same place after 3 months.

Ethical statement

In this study, we considered the ethical principles of the 1964 Helsinki Declaration. The study was approved by the Kashan University of Medical Science (KAUMS) Ethics Committee (Code: IR.MUMS.REC.1401.202). We explained the study objectives, the voluntary nature of participation, the confidentiality of their information, and the right to withdraw from the study for the participants. They provided verbal informed consent to participate in the study.

Measurement

All three groups were evaluated before, after and three months after the end of the intervention with the Cognitive Regulation of Emotion Questionnaire (CERQ) of Garnefski, N., & Kraaij, V. (2007) includes 18 questions and answered on a five-point scale from 1 (never) to 5 (always) in terms of two main subscales maladaptive (self-blame; other blame; rumination; catastrophizing)and adaptive strategies (lowered importance; positive refocusing; positive reappraisal; acceptance; refocusing on planning). The higher score indicates that the person uses that strategy more. In the pilot study, results showed that the CERQ had good factorial validity and high reliabilities, with Cronbach's αs ranging between 0.75 and 0.87 (Garnefski & Kraaij, 2007). The validity and reliability of the Persian version of the subscale of the cognitive regulation of emotion questionnaire had good internal consistency (Cronbach's alpha range was 0.76 to 0.92). The item scores and the total scores of the corresponding subscales were significantly correlated (r=0.46 to r=0.75). The value of the retest correlation coefficients (0.51 to 0.77) indicated the stability of the scale (Hasani, 2010).

Procedure

The intervention of cognitive therapy sessions based on mindfulness was designed based on the study of Teasdale and Segal (2002). The eight sessions (90-minute sessions) are held per week. The structure of EFT sessions was based on the study of Greenberg and Geller (2012). These sessions were held in 8 weekly sessions (90-minute sessions). The sessions held in private clinic of researcher (Seyedi Clinic) in Mashhad city.

Data are described through descriptive statistics (mean, standard deviation, percentage and frequency). First, the assumption of normality of data distribution was met using the Kolmogorov–Smirnov test. Repeated measurement analysis of variance was run in SPSS 20 software. A significant level of 0.05 was considered

Results

The mean and standard deviation of the age of participants in the MBCT, EFT, and control groups were 41.14±6.80, 39.42±7.29 and38.00±6.91 years old, respectively. The ANOVA test showed

that there was no significant difference between the three groups in terms of age (P=0.50). The use of Pearson's chi-square statistical method showed that there is no significant difference between the three groups in terms of education level (P=0.7), marital status(P=0.45), gender (P=0.27) and education (P=0.69). 13 people were single and the rest were married (P=0.5). The mean and standard deviation of the research variable are presented in following table.

Table 1. Content of MBCT

Session	Content
1	Explanation and description of the problem: Mindful exercise/ Body scan exercise/ Presentation of homework along with the homework registration form.
2	emphasis on exercise as the basis of work/exercise of thoughts and feelings/awareness of pleasant events/ exercise of sitting mindfully/presentation of homework
3	Seeing and hearing exercise / Conscious sitting exercise / 3-minute breathing exercise / Mindful walking exercise / Presentation of homework
4	Seeing and listening practice / Conscious sitting practice, 3-minute breathing period practice / Presentation of homework
5	Reviewing and evaluating last week's homework/sitting consciously, breathing exercises/presenting homework
6	Practicing conscious sitting. thoughts and different points of view/explaining about using breathing as the first step before passing thoughts
7	Creating a list of pleasant and skillful tasks / Practicing a 3-minute breathing period before choosing a conscious activity /Recognizing actions to deal with relapse symptoms / mindful walking
8	Body scan exercise/overview of the entire course of treatment/ending the session with a meditation exercise

Table 2. Content of EFT

Session	Content
1	Pre-testing, getting to know and establishing a therapeutic relationship, getting to know the general rules of treatment, evaluating the nature of the problem and relationship, and evaluating the clients' goals and expectations from the treatment.
2	Recognizing the negative interactive cycle and creating conditions where clients reveal their negative interactive cycle.
3	Reshaping the problem in terms of underlying feelings and attachment needs, emphasizing the client's ability to express emotions and show attachment behaviors to clients
4	Encouragement to identify rejected needs and aspects of self that have been denied. Drawing the attention of clients to the way they interact with each other and reflecting their interaction patterns with respect and empathy
5	Informing people about the underlying emotions and revealing the position of each client in the relationship, emphasizing the acceptance of experiences and patience and new ways of interaction.
6	Facilitating the expression of needs and desires and creating emotional conflict, developing primary emotional experience in the field of attachment and recognizing inner needs and relationships.
7	Creating new interactive situations between patients and ending old interactive patterns, clarifying the interactive pattern, and reminding attachment needs.
8	Strengthening the changes made during the treatment. Highlighting differences between current interactions and old interactions

The scores (Table 1) in the group of MBCT and EFT show a decrease in maladaptive cognitive regulation from pre- to post and follow-up phases. The adaptive emotion regulation strategies scores increased in the post and follow-up time stages. However, in a control group, no noticeable changes in scores were observed.

The value of Kolmogorov–Smirnov (P>0.5) confirmed the normality of data distribution. The result of Leven's test established the assumption of homogeneity of error variances. The results of the Mauchly test regarding adaptive emotional regulation were not significant at the 0.05 level, and this indicates that the assumption of sphericity is established. However, in the case of maladaptive emotional regulation, this test was significant, and to correct this, the Greenhouse Geisser test was used (higher than 0.50), so this hypothesis was confirmed. Therefore, the analysis variance of repeated measurement was used.

Table 4 shows the interaction effect of group × time in the adaptive emotional regulation dimension (^{2} η=0.61, P=0.001, F=31.18) and in the maladaptive emotional regulation dimension (^{2} η=2.56, P=0.001) P = 0, F = 25.36) is significant at the 0.001 level. These findings indicate that the interventions have significantly affected cognitive emotion regulation. In the following, Table 6 shows the post-test results of the grades in three groups and three stages of implementation.

According to the results obtained in the post-test table 5 and graphs 1 and 2, the changes in scores from pre-test to post-test and pre-test to follow-up were significant at the 0.001 level. Regarding maladaptive and adaptive emotional regulation, a significant difference was observed between the intervention groups of EFT and MBCT and the control group. However, there was no significant difference between the two groups of EFT and MBCT in any of the components of emotion regulation.

Table3. The mean (standard deviation) of emotional regulation and its components in the three stages of pre-test, post-test and follow-up

Variable	Group	Pre	Post	follow
Adaptive emotion regulation	MBCT	17.92±3.42	22.50±4.41	26.57±5.28
	EFT	18.14±3.10	23.42±5.34	27.92±5.53
	control	19.35±2.67	18.57±2.97	18.00±3.39
maladaptive emotion regulation	MBCT	19.14±3.23	15.50±2.34	12.92±2.20
	EFT	20.57±3.77	16.78±3.16	14.71±3.09
	control	21.71±3.93	21.28±3.89	21.21±4.28

Table 4. Results of analysis of variance with repeated measurement in explaining the effect of independent variable on cognitive emotion regulation

	effect	SS	MS	F	P	$^{'}$ η
Adaptive emotion regulation	Group	486.90	243.52	5.56	0.007	0.22
	time	680.90	387.04	80.52	0.001	0.67
	Group*time	527.33	149.87	31.18	0.001	0.61
maladaptive emotion regulation	Group	691.73	345.86	10.92	0.001	0.35
	time	376.44	324.56	131.13	0.001	0.77
	Group*time	145.60	62.76	25.36	0.001	0.56

Table 5: Post hoc test results for pairwise comparisons of the effect of groups and times for cognitive emotion regulation

variable	Tim		MD	Error	P
Adaptive emotion regulation	pre	post	-3.02	0.49	0.001
	pre	Follow up	-5.69	0.48	0.001
	Post	Follow up	-2.66	0.35	0.001
Maladaptive emotion regulation	pre	post	2.61	0.27	0.001
	pre	Follow up	4.19	0.34	0.001
	Post	Follow up	1.57	0.12	0.001
variable	groups		MD	Error	P
Adaptive emotion regulation	MBCT	control	3.69	1.44	0.01
	EFT	control	4.52	1.44	0.003
	MBCT	EFT	-0.83	1.44	0.56
Maladaptive emotion regulation	MBCT	control	-5.54	1.22	0.001
	EFT	control	-4.04	1.22	0.002
	MBCT	EFT	-1.50	1.22	0.22

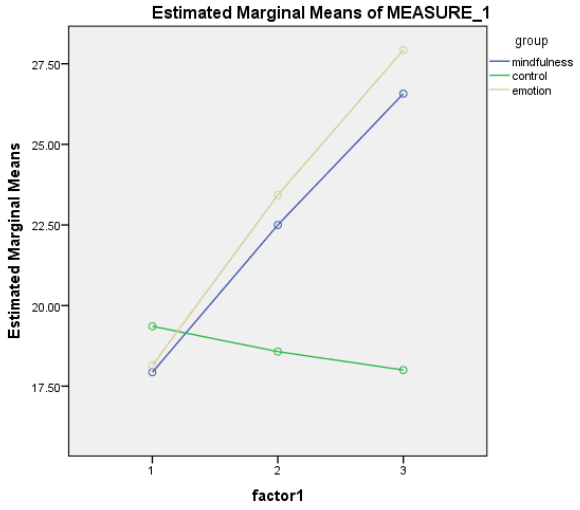

Figure 1. Changes in scores of groups in three time periods: pre-test-post-test and follow-up in adaptive emotional regulation strategies

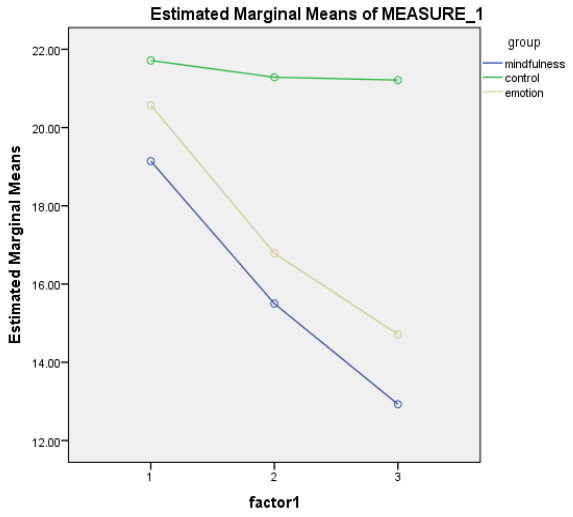

Figure 2. Changes in scores of groups in three time periods: pre-test-post-test and follow-up in maladaptive emotional regulation strategies

Discussion

Usually, a person suffering from a chronic disease faces many mood and emotional fluctuations. For this reason, these people need intervention in the field of emotional regulation more than others. In this study, the obtained results show that EFT was effective on the emotional regulation of the participants in the intervention group. These findings are in line with studies conducted by Afsar et al. (2022). Shoushtari et al. (2022): Teymouri et al. (2020).

In the intervention, it was tried to facilitate access to emotions by using techniques such as empathy and validation, and based on increasing the clarity of emotions, people can express their emotional responses that are related to their needs (Timulak & Keogh, 2020). In addition, it should be noted that in the intervention, the effort was to access emotions and provide emotional responses, ultimately leading to the experience of compassion, and forgiveness and enhancing the feeling of security (Muntigl, 2023); Therefore, there is a possibility that the experience of forgiveness, compassion and feeling of security has been effective on the individual's motivation to access and reveal emotions as well as providing emotional responses (Motakeffar, Bakhshi Pour, & Ghasemi Motlagh, 2022). In explaining this finding based on the theory of green, it can be said that negative self-organization is created as a result of painful and traumatic experiences, which are characterized by a perception of oneself as vulnerable, wounded, and defective. In this study, during sessions, techniques were implemented so that people could express their emotions and thoughts in a safe place. This emotional expression builds the potential of a new attitude towards emotional coping. The patients were asked to express their painful experiences or bad feelings in using the chair technique(Timulak & Keogh, 2020). Finally, through awareness of emotions, expression of new emotions, regulation of emotions and appropriate expression of emotions, by using techniques such as emotion induction, emotional labeling, and the participants gained a new perception of themselves and the ability to cope with emotions.

Also, the findings showed that MBCT is effective in adaptive and maladaptive emotional regulation. In line with this finding, Brown and colleagues (2022) concluded that MBCT reduces emotional regulation difficulties in depressed patients. Kaunhoven & Dorje (2021) have reported the efficacy of mindfulness-based interventions on emotion regulation.

In explanation of these findings, we can say the fundamental and theoretical principles of mindfulness are based on emotional regulation. According to various definitions of mindfulness, mindfulness includes observing and describing thoughts and feelings (Brown et al., 2022). Observing and describing one's thoughts and feelings without judgment confronts him with thoughts that he always avoided. This exposure, when done without judgment, leads to emotional regulation (Priya & Kalra, 2018).

During the implementation of MBCT, mood states were explained and the participant's knowledge about their internal states increased. This enabled them to reduce habitual and spontaneous responses to stressful experiences. Increasing the positive attitude and insight of the participants leads to acceptance of emotions. A person who is aware of his emotions accepts uncontrollable events and thereby reduces negative emotions (Kaunhoven & Dorjee, 2021). Mindfulness exercises are designed to increase physical and psychological awareness. This self-awareness increases meta-cognition. The meta-cognitive abilities obtained

during the educational and therapeutic sessions of mindfulness-based cognitive therapy increase correct self-evaluation and break the faulty patterns of thoughts, self-blame, and other blame (Solgi & Khamakhani, 2022). Living in the present moment reduces the behaviors and feelings caused by catastrophizing. Increasing metacognitive abilities facilitates decision-making and planning and creates positive emotions. This reduces physical and mental tensions and reduces impulsive behaviors, which in practice leads to greater acceptance and positive re-planning. Participants practiced not judging their thoughts and emotions. Practicing non-judgment reduces rumination and helps the person to view the event as a third person, which leads to the ability to re-evaluate positively. People who practice mindfulness learn to recognize their reactions and this ability prevents them from being impulsive and reactive.

A comparison of the effectiveness of two treatment methods, EFT and MBCT, showed that these two treatment methods do not have a significant difference in terms of their effectiveness. The results of studies conducted by, Motakeffar, Bakhshi Pour, & Ghasemi Motlagh (2022) is in line with present study.

In explaining of insignificant difference between MBCT and EFT, we point to common elements in the effectiveness of the two treatments. One of the common elements in both treatments is homework. In both treatments, doing homework and presenting its results in the next session are the main elements of the treatment. Both methods are based on a learning approach. Another factor in the effectiveness of both treatments is the emphasis on how to make a relationship between thoughts and emotions. In MBCT/EFT treatments, the person's relationship with his thoughts and emotions is removed from the abnormal state and approaches the normal state, and this causes improvement, although in two different ways.

Conclusion

In general, the obtained results showed that EFT in a group way is effective in the emotional regulation of patients with peptic ulcers. Also, the analysis of the results showed that MBCT has also had a significant effect on the emotional regulation of patients with peptic ulcers. A comparative study of the effectiveness of MBCT with EFT in a group method on the emotional regulation of patients with peptic ulcers. One of the limitations of the current research is that it was not possible to classify patients according to demographic characteristics i.e. economical, age, gender. Also, due to lack of knowledge and ability, the researcher could not check the effectiveness of interventions on physical variables such as disease severity or other physical indicators. Therefore, it is suggested to seek help from expert doctors in this field in future studies. Affected individuals often report higher mental health problems than other population groups. One of the limitations of the current research was that clinical interviews were not possible to assess the mental health status of patients before they entered the study. According to the findings of the study, it is recommended to provide the necessary social support to support psychosomatic patients. Regarding the importance of the mental health problems of these patients and those around them, the necessary information should be provided by doctors, psychologists and nurses to the patient's companions.

Compliance with ethical guidelines

In this study, we considered the ethical principles of the 1964 Helsinki Declaration. The study was approved by the Kashan University of Medical Science (KAUMS) Ethics Committee (Code: IR.MUMS.REC.1401.202). We explained the study

objectives, the voluntary nature of participation, the confidentiality of their information, and the right to withdraw from the study for the participants. They provided verbal informed consent to participate in the study.

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Authors' contributions

Conception and design: M R, and FA Data collection: FA; Data analysis and interpretation: FA, MR & MN; Final approval: FA, MR & MN.

Conflict of interest

The authors declared no conflict of interest.

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