

Original Article



Effectiveness of integrative therapy on distress and psychosomatic symptoms in female patients with gastrointestinal dysfunction with type D personality

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Abstract

Background and aims: Anxiety disorders and psychological manifestations play significant roles in the incidence of psychosomatic disorders. Moreover, personality traits are one of the psychological constructs associated with psychosomatic symptoms. The purpose of this study was to determine the effectiveness of integrative therapy on distress and psychosomatic symptoms in female patients with gastrointestinal dysfunction with type D personality.

Methods: The present study was semi-experimental with a pre-test, post-test, and follow-up design with a control group. The statistical population in this study included all the patients with functional gastrointestinal disorders who referred to the Institute of Psychology Hamdam Hamrah in 2020, 24 patients were selected by targeted sampling method (patients with gastrointestinal dysfunction, apart from the gastrointestinal cancer patients, who had a high de-personality score) and were randomly divided into two groups of experimental and control with 12 patients in each group. Data were obtained using the type D personality scale (DS-14), ROME III questionnaire, psychological distress scale, and depression anxiety stress scale-21 (DASS-21). Data analysis was performed using repeated measure analysis of variance by SPSS version 22.

Results: Descriptive findings of psychological distress variables were obtained in the experimental group in the pre-test (40.08 ± 7.75), post-test (25 ± 7.59), and follow-up (28.33 ± 6.45). Furthermore, descriptive findings psychosomatic symptoms were obtained in the pre-test (49.17 ± 15.65), post-test (42.25 ± 10.36), and follow-up sessions (40.33 ± 9.28), showing a decrease in the values of these variables in post-test and follow-up sessions. The results indicated that integrative therapy was effective in decreasing distress ($P < 0.001$) and psychosomatic symptoms ($P < 0.001$) in female patients with gastrointestinal dysfunction with type D personality.

Conclusion: It can be concluded that integrative therapy effectively reduces distress and psychosomatic symptoms of female patients with gastrointestinal dysfunction with type D personality and improves psychological problems in female patients with gastrointestinal dysfunction.

Keywords: Integrative therapy, Type D personality, Psychosomatic disorders, Gastrointestinal diseases

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Introduction

Human health is affected by physical and psychological factors (1). According to the definition provided in the text of "Diagnostic and Statistical Manual of Mental Disorder", physical signs and symptoms are also the components main components (2), and the higher the severity of physical symptoms, the higher the prevalence of psychological problems (3). As a result, disorders in psychological factors can lead to certain diseases and intensify certain medical conditions (4). Psychosomatic disorder, which represents meaningful psychological events, is closely related to its physical symptoms. These disorders are described as chronic, pervasive, and uncontrollable and contribute to significant impairment in psychosocial function (5).

According to a study by the World Health Organization (WHO) which surveyed more than 330 patients from 196

member countries, the prevalence of psychiatric disorders was increasing worldwide, and mental disorders were recognized as eight out of twenty major causes of disability from 1990 to 2016 (6). In addition, the average prevalence of mental and physical disorders in the clinical population referred to medical centers ranged from 6% to 15% and about 20% in some studies (7). Further, according to the WHO and the statistics provided in Iran, 18% have been reported to have psychosomatic disorders (4).

Personality traits are one of the psychological concepts related to psychosomatic signs and symptoms (8,9). The patients with type D personality often suffer from chronic pain, asthma, muscle tremors, heart disease, skin disorders, heart attacks, hypertension, and cerebral hemorrhage (10). In addition, anger, depression, poor general health, chronic stress, and mental distress are more common in these individuals, indicating the

interaction of type D personality with psychosomatic disorders and psychological and emotional dysregulation problems (11,12). Therefore, personality type D seems to be an important factor in explaining individual differences in response to stress, comorbidities, psychological consequences, and risk of death following physical illness because reducing interpersonal relationships in personal and professional life is associated with the lack of peace in the presence of others, irritability, and feelings of burnout (13). Therefore, in general, it seems that the pathogenic role of type D personality is based on two important characteristics of negative emotions and social inhibition, which are associated with high levels of chronic tension and stress and can play a role in gastrointestinal dysfunction (14). The onset or exacerbation of gastrointestinal dysfunction can be related to psychological distress (15). Psychological distress is a general term used to describe unpleasant feelings or emotions that negatively affect a person's level of performance in life, create a negative attitude toward the environment, others, and even him/herself, and are defined in the form of a set of psychological, physiological, and behavioral traits such as anxiety, depression, restlessness, and the like (16).

Although scientific research has focused on medical interventions for psychosomatic treatment, the therapists' clinical experience and experimental results indicate barriers to this approach, including non-acceptance of medication (17). Patients with type D personality often describe their inner experiences (thoughts, feelings, body sensations, and body beats) as unbearable and attempt to avoid or reduce the intensity of these experiences, thus one of the appropriate treatment options is an integrative therapy that can also improve psychological distress. This therapeutic approach is a combination of three approaches: acceptance and commitment therapy, cognitive-behavioral therapy, and spiritual therapy. This treatment emphasizes acceptance rather than avoidance and behavioral change in areas that are important for the individual and believes that the constant effort to get rid of the symptoms can itself cause a clinical disorder. Of course, acceptance and commitment therapy is not just concerned with reducing the avoidance of inner thoughts, feelings, and experiences, rather, the main advantage of this method is that it considers the motivational aspects along with the cognitive aspects (18). In other words, it is a treatment in which the body's awareness and acceptance gain a great importance and can affect mental health (19). This treatment has four stages: it corrects clients' responses (20), establishes therapy relationship (21), creates hope and expectation of treatment (22), and helps to create knowledge about the current situation (23). Integrative intervention based on these factors and stages can improve psychosomatic disorders, regulate patients' behavior, and create a sense of empowerment to deal with controllable items such as thoughts, feelings, and behaviors (20).

Regarding the effect of the integrative therapy method on psychosomatic disorders and psychological distress,

we can refer to the study conducted by *Molajafar et al* who reported the effectiveness of an integration-based protocol on reducing psychological distress in the elderly (24). Considering the role of psychological factors and their major role in the occurrence of psychosomatic disorders (25) as well as the lack of research resources on the effectiveness of integrative therapy on psychological symptoms and anxiety in female patients with gastrointestinal disorders with personality type D, the current study is essential. This study aims to answer the question whether integrative therapy can influence reduction of psychological distress and psychosomatic disorder in patients with gastrointestinal dysfunction with type D personality.

Materials and Methods

The present study was quasi-experimental with pretest-posttest and a control group with a two-month follow-up design. The statistical population of the study encompassed all female patients with gastrointestinal dysfunction with type D personality who referred to the Hamdam Hamrah of Companion Psychology in Tehran in 2020. To select a statistical sample, after evaluating the clients, first, a diagnostic interview was conducted by a clinical psychologist for the initial diagnosis of psychosomatic disorder. Then, female patients with gastrointestinal dysfunction (except patients with gastrointestinal cancer) were asked to complete type D personality assessment questionnaire. Based on the questionnaire cut-line, 24 patients who scored higher than 28 were selected as the available statistical sample and were randomly assigned to two groups with 12 people in each group: the integrative therapy group and the control group. The block randomization method was used to generate equal sample sizes by randomly placing subjects into equal groups. In this way, the sample size was balanced across groups over three times. The number of subjects in each group was kept similar at all times because blocks were small and balanced with predetermined group assignments. The block size was determined by the researcher and was a multiple of the number of groups. After determining the block size, all possible assignments within the block were calculated. The patients were then assigned to groups by random selection of blocks. Randomization eliminates the possibility of researcher error in assigning control and experimental groups and ensures that statistical analyses are as accurate as an acceptable error. The sample size was calculated by the repeated-measure method in a design with 3-time points using SPSS software version 22 as follows (26):

$$\text{var}(\bar{y}_i) = \sigma^2[1 + (m - 1)\rho] / m \quad (1)$$

$$n = 2(z_{1-\alpha/2} + z_\beta)^2 \sigma^2[1 + (m - 1)\rho] / m\Delta^2$$

where m indicates the number of repeated measures, σ^2 is between-patient variation, ρ represents the correlation

between observations on the same patient (compound symmetry variance parameter divided by the sum of variance parameters), and α indicates significance level. Further, β , Δ , t_1 represent -power, difference to be detected, and i th treatment effect, respectively.

An initial fifth sample was collected as a pilot study, and standard deviation (SD) and correlation coefficient between variables were determined. The highest correlation was between 0.25 and 0.30, and the highest SD was 1. Thus, we calculated the sample size based on the maximum SD values and the correlation coefficient. Accordingly, the compound symmetry covariance structure was used with a standard deviation of 1 and a correlation coefficient of 0.3 when observing the same subject for research variables (27). Power and alpha were set at 0.9 and 0.05, respectively, and the sample size was 24 with 92% power to detect differences (27-29).

Inclusion criteria were completing the consent form, being female, not receiving psychological treatment in the last 6 months, not having a significant psychological disorder (according to the case), being 18-60 years old, female patients with gastrointestinal disorders based on ROME III criteria (identified by a gastroenterologist for referral to patients), and diagnosing irritable bowel syndrome, functional indigestion, or both. Exclusion criteria were absence from treatment sessions for more than three sessions, unwillingness to continue treatment, and the incidence of an influential family problem such as death or divorce.

The following tools were used to collect data:

Type D Personality Scale (DS-14)

The DS-14 was introduced by Denollet (30) which contains 14 questions with 2 subscales of negative emotion and social inhibition, and each subscale includes 7 questions. The questionnaire followed a 5-point Likert scale: 0 (incorrect), 1 (somewhat incorrect), 2 (inconspicuous), 3 (somewhat correct), and 4 (correct). The highest score and the lowest score that a person can get on this questionnaire are 56 and 0, respectively. The closer a person's score is to 56, the more it is likely that she/he has type D personality. The reliability of this tool in the Denollet study using Cronbach's alpha was 0.88 and 0.86 for the negative emotional subscale and the social inhibition subscale, respectively. Further, the correlation coefficient of this questionnaire for the negative emotion and social inhibition subscales was 0.88 and 0.65, respectively, using the psychiatry scale of NEO personality questionnaire. In the study conducted on the country, the reliability of this tool for the negative emotion and social inhibition dimensions was 0.79 and 0.77, respectively, indicating the desirability of this tool. To determine face validity, the questionnaires were evaluated by ten experts who analyzed the difficulty, inappropriateness, and ambiguity of the phrases. The content validity ratio (CVR) and the content validity index (CVI) were evaluated by a group of experts. The CVR and CVI of all questions were

higher than 0.79 and 0.81 for the negative emotion and social inhibition dimensions subscales, respectively (31).

ROME III Questionnaire

This questionnaire was developed by Drasman et al. It consists of 3 questions. For evaluation based on the modified version, people with one or more of the following characteristics (often or always during the last three months) were diagnosed with gastrointestinal disorders: feeling full after eating (unpleasant feeling of fullness often or always after a regular meal), premature satiety (inability to finish a regular meal often or always), and pain or burning in the epigastrium (feeling of pain or burning often or always in the middle of the abdomen). In the case of any of the above three symptoms, the person was considered to have a disorder if she/he occasionally, often, or always had these symptoms during the last three months, and those choosing the no-time option were considered not to have any of these disorders. Its reliability was obtained by Cronbach's alpha method yielding an index of 0.79 (32). In a study conducted in Iran, the validity and reliability of this questionnaire were examined on a sample of 400 people, and the results indicated high validity and reliability of this questionnaire. Similarly, face validity was confirmed by experts, and CVI and CVR were higher than 0.8 (33).

The Depression Anxiety Stress Symptoms-21 (DASS-21)

This questionnaire was developed by Lovibond and Lovibond (34). The primary function of DASS is to assess the severity of the underlying symptoms of depression, anxiety, and stress. This test is suitable for screening and differentiating adolescents and adults and can also distinguish between three states of depression, anxiety, and stress. DASS has three subscales of anxiety, depression, and stress, each of which contains 7 items. Answers are graded on a 4-point Likert scale, and scores range from 0 (absolutely) to 3 (very high). Further, the test does not have inverse scores. Depression, anxiety, and stress scores are obtained from the sum of the scores of the relevant items. Preliminary evidence suggested that DASS had sufficient convergent and differential validity (34). In one study, a large sample of students was presented with the Beck Depression Inventory and the Beck Anxiety Inventory. The correlation between Beck Anxiety Inventory and DASS anxiety subscale was high ($r=0.81$), and Beck Depression Inventory was highly correlated with the DASS depression subscale ($r=0.74$). Using another nonclinical sample, Lovibond and Lovibond (34) showed that the reliability of DASS, calculated using Cronbach's alpha, was acceptable for all three subscales of depression, anxiety, and stress (0.91, 0.84, and 0.90). In Iran, Sahebi et al (35) have prepared and validated the Persian version of DASS. The internal reliability of the DASS scales was calculated using Cronbach's alpha, and the reliability for the Depression, Anxiety, and Stress scales was 0.77, 0.79, 0.78, respectively. Further, both CVI and CVR were

evaluated and confirmed by the experts.

Takata and Sakata's Psychosomatic Complaints Scale

The Takata and Sakata Psychological Complaints Scale (36) was developed and validated in 2004 in Japan. This scale consists of 30 questions and has a one-factor structure. Scoring is based on a 4-point Likert-type scale with a degree of importance from 0 (never) to 3 (frequently). The minimum possible score is 0 and the maximum is 90. A score between 0 and 30 indicates a low rate of psychological complaints, a score between 30 and 45 indicates a moderate rate of psychological complaints, and a score above 45 represents a high rate of psychological complaints. The validity of this instrument was assessed through correlation with the Goldberg Mental Health Scale, and the validity was calculated to be 0.64 and 0.65 in two studies. The reliability of this scale was calculated to be 0.83 (32). In a study conducted in Iran, the validity of this tool using the concurrent validity of the Goldberg Mental Health Questionnaire was 0.68, and its reliability was 0.85. The face validity was confirmed, and both CVI and CVR were higher than 0.75 (37).

Methods

After obtaining written consent, while justifying the participants and stating the objectives of the research, they were asked to participate in the treatment course. Moreover, to observe the ethical points in this study, participants were reassured of the confidentiality of information and freedom of choice to participate in study. Before starting the training methods, both groups underwent a pre-test, then the test was performed on them, and they were asked to complete the questionnaires. The duration of the treatment sessions in the integrative therapy method was one hour and 30 minutes, which was performed in groups twice a week. In addition, the control group received public consultation activities according to ethical principles. At the end of the training period, a post-

test was performed on the two groups under treatment and control, and then the obtained data were analyzed using the SPSS software and repeated measure analysis of variance statistically. Further, tests were performed at a significance level of 0.05.

Table 1 presents the content of the sessions according to the integrative therapy protocol, which is performed by psychotherapy and adapted from the study by Molajafar et al (24). It is a combination of three therapies (e.g., cognitive-behavioral, spiritual therapy, and acceptance and commitment therapy).

Results

In total, 24 women with gastrointestinal dysfunction and type D personality were included in the study. Descriptive results of demographic variables were presented by group in Table 2. Accordingly, 12 cases were assigned to each experiment and control groups. The proportion of patients aged under 30, 30-45 years, and 46-60 years were 8.3%, 58.3%, and 33.3% in experiment group, respectively. However, these proportions were respectively 33.3%, 50%, and 16.7% in control group. No significant associations were observed between group (experiment and control) and variables including marital status ($P=0.590$), age ($P=0.318$), and level of education ($P=0.576$).

Figure 1 indicated no change in psychological distress or psychological symptoms in the control group. However, a downward trend was observed for these two variables in the intervention group. In addition, this figure showed that the interaction of time and group was probably significant; therefore, the effects should be considered separately for time and group.

In the next step, the repeated measure was used to evaluate the impact of time and group on the variables including psychological distress and psychosomatic symptoms as shown in Table 3 (See Table S1 in Supplementary file 1). Accordingly, the interaction between time and group was significant. In this case, the impact of time on the variables

Table 1. Content of integrated psychotherapy sessions (22)

Number of sessions	Topic of the meeting	Cognitive-behavioral therapy	Acceptance and commitment-based therapy	Spirituality therapy
First session	Introduction and framing of problems	Cognitive-behavioral model training	Teaching acceptance and commitment models	Teaching the model of spiritual therapy
Second session	Insomnia	Sleep hygiene training, stimulus control and sleep restriction	Take advantage of the reception	Benefit from intellectual rainfall with emphasis on prayer
Third session	Forgetting	Extract thoughts related to forgetfulness and challenge them	Acceptance of thoughts related to forgetfulness	Provide a list of spiritual coping strategies and group discussion
Fourth session	Depression	Behavioral activation and challenge with thoughts	Reevaluation	Benefit from spirituality with an emphasis on trust
Fifth session	Anxiety	Extracting related thoughts and benefiting from the two techniques of time machine and profit and loss	Mindfulness training	Brainstorming and emphasis on controllable-uncontrollable affairs
Sixth session	Social relations	Teaching different types of social support, evaluating social support	Emphasis on valuation in social relationships	Benefit from spirituality by emphasizing altruism and mercy
Seventh session	Physical problems	Utilizing problem-solving techniques and challenging thoughts	Constructive frustration	Brainstorming and emphasizing gratitude
Eighth session	Summarizing and reviewing the sessions			

Table 2. Mean±SD of research variables in experimental and control groups

Group Variable		Experiment	Control	P value
Gender	Female	12 (50%)	12 (50%)	
	Single	3 (25%)	1 (8.3%)	
Marital status	Married	9 (75%)	11 (91.7%)	0.590
	Under 30 years old	1 (8.3%)	4 (33.3%)	0.318
Age	30-45 years	7 (58.3%)	6 (50%)	
	46-60 years	4 (33.3%)	2 (16.7%)	
Level of education	Undergraduate	4 (33.3%)	6 (50%)	0.576
	Postgraduate	3 (25%)	4 (33.3%)	
	Bachelor's degree	3 (25%)	2 (16.7%)	
	Master's degree	2 (16.7%)	2 (16.7%)	

Note. SD: Standard deviation. The association between variables and groups (experiment and control) was evaluated using the exact Pearson Chi-square test.

should be evaluated for each group. In addition, the impact of group on the variables should be assessed by time. The results of Table 3 revealed that the difference in the mean of psychological distress was not significant between pre-test, post-test, and follow-up (41.92, 40.42, and 40.00, respectively, P value = 0.137). However, a significant decrease was observed in the mean of psychological distress in experiment group over time (40.08, 30.25, 28.33, respectively, P value < 0.001). Psychosomatic symptoms did not change significantly over time in the control group (51.58, 51.92, 51.00, P -value = 0.497); while this variable decreased significantly in the experiment group (49.17, 42.25, 40.33, P value = 0.004). According to Table 3, both psychological distress and psychosomatic symptoms were significantly lower in the experiment group than in the control group in post-test and follow-up.

According to Figure 2, psychological distress and psychosomatic symptoms significantly reduced in the post-test and in the follow-up compared to the pre-test for intervention. However, no significant differences were observed in variables between post-test and follow-up.

Discussion

This study aimed to evaluate the effectiveness of integrative therapy on the psychological distress and psychosomatic symptoms in female patients with gastrointestinal dysfunction with type D personality. Findings showed a significant effect of integrated treatment method on

reducing psychological distress and psychosomatic symptoms in female patients with gastrointestinal dysfunction with type D personality. The findings of the present study are consistent with findings of the studies by Casagrand et al (7), Marchi et al (38), Hemming et al (10), Brewer et al (39), and Molajafar et al (24) who reported a decrease in psychological distress and psychosomatic symptoms in different samples. Yeshua et al (40) studied the personality, perfectionism, and self-pity as a risk factor and protector in the psychological distress and psychosomatic symptoms and found that personality and self-compassion can enhance and reduce the symptoms of psychological distress and psychosomatic symptoms, which is in line with the findings of the present study. In explaining the effectiveness of integrative therapy, it can be said that this method of treatment tries to establish a proper therapeutic relationship and empathize with patients by raising awareness, informing the patients of their mental condition, and reducing the burden of investing in health values. It also provides an opportunity to focus on other values, therefore, individuals can identify other abilities, values, and competencies and turn them into specific behavioral goals (39). It is said that marital relationships are one of the most important and stable interpersonal relationships that can affect mental disorders; that is, marital disturbances can increase the risk of developing and causing mental disorders (41). Explaining the effectiveness of integrated treatment on reducing psychosomatic symptoms (psychosomatic complaints) of patients with high scores in type D personality, it can be said that integrated intervention is based on common factors due to raising awareness, hope, and expectation, and acceptance of treatment in the patient. Uncontrollable conditions (disease) and feelings more empowered to deal with controllable cases (thoughts, feelings, and behaviors) can improve psychosomatic disorders in the patient and regulate their behavior. Studies in the field of integrated therapy showed the success of this method in improving the psychological status of patients with psychosomatic disorders (42). Integrative group therapy with a focus on reducing psychosomatic symptoms (psychosomatic complaints) of patients with high scores on type D personality, its correction, and using spiritual concepts and topics lead patients to integration.

Awareness-raising makes individuals be aware of their

Table 3. The comparison of psychological distress and psychosomatic symptoms over time and between group

Variables	Group	Pre-test	Post-test	Follow-up	P value
Psychological distress	Experiment	40.08 ± 7.75 ^{a*}	30.25 ± 7.59 ^a	28.33 ± 6.46 ^a	<0.001
	Control	41.92 ± 5.95 ^a	40.42 ± 4.81 ^b	40.00 ± 4.88 ^b	0.137
	P-values	0.522	<0.001	<0.001	
Psychosomatic symptoms	Experiment	49.17 ± 15.65 ^a	42.25 ± 10.36 ^a	40.33 ± 9.28 ^a	0.004
	Control	51.58 ± 13.79 ^a	51.92 ± 12.21 ^b	51.00 ± 11.80 ^b	0.497
	P-values	0.692	0.048	0.022	

Note. The Greenhouse-Geisser was used for experiment due to rejection of Mauchly's test of sphericity. The sphericity was held for control groups. The independent t-test was used to compare the mean of variables between experiment and control by time. Different alphabets revealed different means between groups.

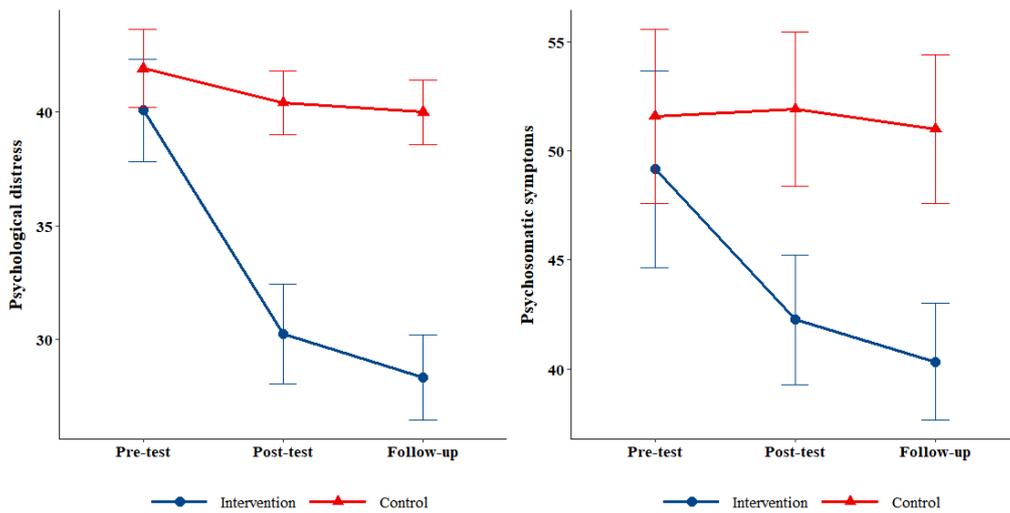


Figure 1. The line plot of psychological distress and psychological symptoms based on time and group.

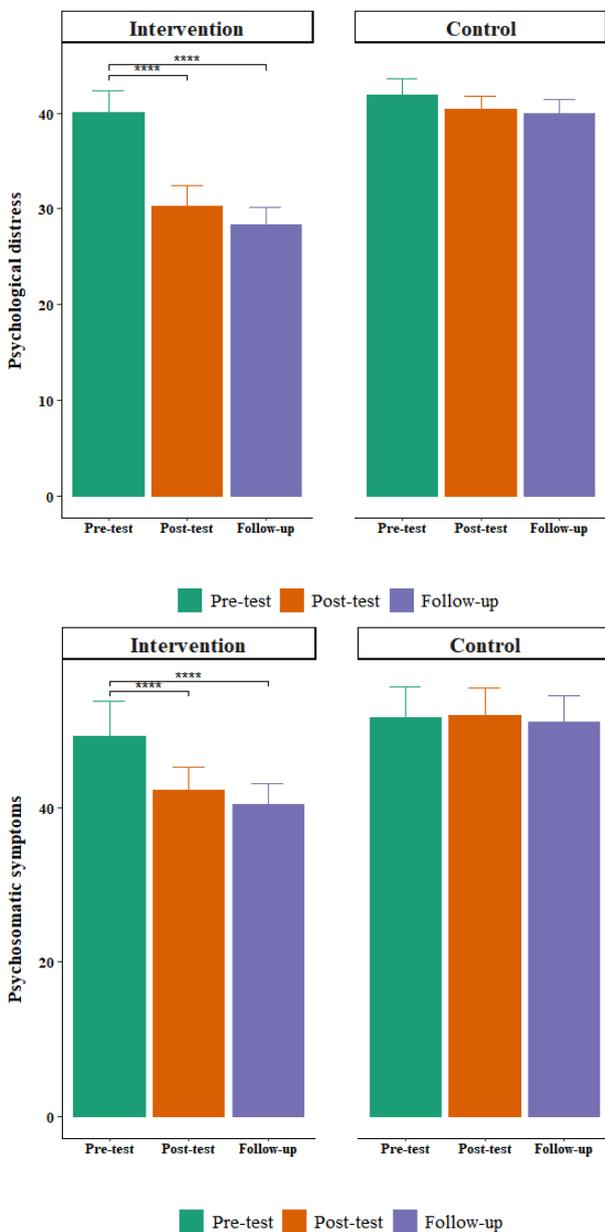


Figure 2. The multiple comparison of psychological distress and psychosomatic symptoms between time points (pre-test, post-test, and follow-up) using Bonferroni adjustment.

experience with interest and acceptance, changes their view of the usefulness of the ways of coping with their thoughts and emotions, and leads them to the experience of correcting unpleasant emotions and accepting them. When confronting their emotions, individuals will feel more self-control, dominance, and eventually more emotional self-regulation, and in the same way, they will reduce the psychosomatic symptoms of patients with high scores in personality type D.

Awareness-raising based on the acceptance of unpleasant thoughts and different emotional states dramatically increases the patient's ability to control the impact of his/her thoughts and emotions and allows the patient to have a wide range of thoughts and emotions to experience in the mind without experiencing emotional turmoil (39). When patients view their inner experiences with acceptance, even painful and unpleasant memories, feelings, thoughts, and body sensations do not seem threatening or unbearable. Awareness in this way helps patients with high type D personality scores to change their relationship with painful thoughts and feelings in some way and reduce their impact on their lives. This means psychological flexibility which allows patients to respond to new experiences with openness and to accept events the way they are (43).

Awareness-raising helps the patient deal with negatively charged spontaneous thoughts, disrupt emotional regulation, and maintain emotional stability. Emotional stability helps the person not to pay attention to disturbing thoughts but to watch the passage of these thoughts through his mind, and this ability of spontaneous thoughts reduces negative emotions. Further, increasing the attention and awareness of emotions and thoughts causes the patient to engage in a committed and effective behavioral practice. On the other hand, being in a group and listening to the inner experiences of other patients determine the patient's position to deal with the catastrophe because he/she will notice that h/she is not the only sufferer in this group (4).

This interventional process leads to hope, increases hope and survival, and ultimately gives the patient the ability

to repair the damaged psychological components caused by the disease (e.g., perceptual, mental, and behavioral components) by regulating behavior (e.g., thought, feeling, and action). For example, instead of avoiding yourself and others, engage in bold behavior, and instead of focusing on eliminating harmful factors (disease and its consequences), accept your emotions and thoughts and stop arguing. Therefore, each component of integrative therapy with the orientation of four common factors can play a significant role in reducing and improving psychological distress and psychosomatic disorders in patients with high scores in type D personality.

Conclusion

The results of the present study indicated that integrative therapy is effective in reducing the psychological distress and psychosomatic symptoms of female patients with gastrointestinal dysfunction with type D personality. Further, integrative therapy can be used to improve the psychological problems of female patients with gastrointestinal dysfunction.

The study also had some limitations such as the unisexuality of the samples and their residence in Tehran, which makes the possibility of generalizing the findings to the whole society with caution. Other limitations of the study included a two-month follow-up period. Therefore, according to the results of the present study and the expression of limitations, it is suggested that other treatment methods be used in future research to reduce psychological distress and psychosomatic symptoms in female patients with gastrointestinal disorders and also to compare the effectiveness of the studied methods. It is also suggested that this treatment method be used to reduce psychiatric disorders and psychological distress in men.

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Authors' Contributions

The present article was designed by SV, performed by AB, and supervised by FS as the responsible author. Further, FLK was responsible for reviewing and analyzing the data.

Conflict of Interests

No conflict of interests has been expressed by the authors.

Ethical Approval

This article is an excerpt from the first author's dissertation with the code of ethics approved by Birjand University of Medical Sciences, Birjand, Iran (Ethic number IR.BUMS.REC.1399.163).

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Supplementary file

Supplementary file contains Table S1.

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