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The Effectiveness of Acceptance and Commitment Therapy on Distress and Psychosomatic Symptoms in Patients with type D personality and Gastrointestinal Dysfunction

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Abstract

Background: Anxiety disorders and psychological manifestations play a significant role in developing psychosomatic disorders. Moreover, Personality traits are one of the psychological structures associated with psychosomatic symptoms.

Objectives: This study aimed at determining the effectiveness of acceptance and commitment therapy on distress and psychosomatic symptoms in patients with type D personality and gastrointestinal dysfunction.

Methods: The present study was semi-experimental with pre-test, post-test, and follow-up with a control group. The statistical population in this study was all patients with functional gastrointestinal disorders (FGID) who were referred to Institute of Psychology and Counseling Hamdam Hmrah in 2020 and 2021, 24 patients were selected by targeted sampling method (patients with gastrointestinal dysfunction, except gastrointestinal cancer patients, who had a high de-personality score)**.**Data were obtained using the type-D scale, ROME III questionnaire, psychological distress scale, and depression, anxiety, and stress scale (DASS-21). Data analysis was per- formed using repeated measure analysis of variance by SPSS 22.

Results: The results showed that acceptance and commitment therapy was effective in reducing distress (P<0.001) and psychosomatic symptoms (P<0.001) in patients with type D personality and gastrointestinal dysfunction.

Conclusion: It can be concluded that acceptance and commitment therapy effectively improve distress and psychosomatic symptoms of patients with type D personality and gastrointestinal dysfunction as well as psychological problems in patients with gastrointestinal dysfunction.

Keywords: Acceptance and commitment therapy, Gastrointestinal Diseases, Psychophysiologic Disorders, Type D Personality

1. Background

Anxiety disorders and psychological manifestations play a significant role in the incidence of psychosomatic disorders (1). According to the definition presented in the text of " Diagnostic and Statistical Manual of Mental Disorders," physical symptoms are also the main components (2) that the higher the severity of physical symptoms, the greater the prevalence of psychological problems (3). World Health Organization examined more than 330 diseases from 196 member countries, reported mental disorders as eight of the 20 most common cause of disabilities during 1990-2016 (4) and the rate of years lost due to premature death from mental disorders was 12.5% (5). Also, the average prevalence of psychosomatic disorders ranged from 6% to 15% (6), and in some studies, about 20% for the clinical population referred to medical centers (7). The prevalence of psychosomatic disorders is 18% in Iran according to WHO statistics (8), so it is increasing worldwide. These disorders are the risk factors for certain diseases that exacerbate other medical conditions (9). Psychosomatic disorder is chronic, pervasive, and uncontrollable and is associated with functional impairment(11) in cases where meaningful psychological events are closely associated with its physical symptoms (10).

Personality traits are one of the psychological structures associated with psychosomatic symptoms (12-13). The group with type D personality often suffer from chronic pain, asthma, muscle tremors, heart disease, skin disorders, heart attacks, hypertension, and brain hemorrhages (14), in addition to anger (15), depression (15), depression (14), chronic stress and psychological distress (16) which indicates the relationship between type D personality and psychosomatic disorders (17) as well as severe mental disorders. Emotion Regulation (18). Therefore, type D personality seems to be an essential factor in explaining individual differences in response to stresses, comorbidities, psychological consequences,

and mortality risk following physical illness because it is associated with decreased interpersonal relationships in personal and professional life, lack of relaxation in the presence of others, irritability and feeling of exhaustion (19). Therefore, the role of type D personality is based on two critical characteristics: negative emotions and social control. However, type D personality is associated with high levels of chronic stress which can play a role in digestive dysfunction. Some researchers believe that depression and anxiety are part of the overall construct of psychological distress which considers as a significant factor in the onset or exacerbation of digestive disorders (20). Psychological agitation is an umbrella term for describing unpleasant emotions that negatively affect performance in life and negative attitudes towards the environment, others, and even oneself (21) and is defined in a set of psychological, physiological, and behavioral symptoms such as anxiety, depression, restlessness (21).

Although scientific research has focused on medical interventions for psychosomatic treatment, therapists' clinical experiences and experimental results have led to barriers in this method, including the non-acceptance of drugs (22). These patients often describe their inner experiences (thoughts, emotions, physical emotions, and heartbeat) as unbearable and try to prevent or reduce the severity of these experiences, so acceptance and commitment therapy (ACT) is one of the appropriate treatment options to improve distress (23). The ACT emphasizes acceptance rather than avoidance, inhibition, and behavior change in situations that are important to the individual. It acknowledges that constant effort to eliminate symptoms can cause clinical disorder itself, but the main advantage of this method is to consider motivational aspects along with those of cognitive and not just reduce the avoidance of thoughts, feelings, and internal experiences. In other words, body awareness and acceptance are of great importance and can affect mental health in this treatment (24).

The essential factor in implementing this study was the lack of research resources on the effectiveness of acceptance and commitment therapy on psychological disorders and distress in patients with type D personality and gastrointestinal disorders. A few experimental and controlled studies in the country, to the best of our knowledge, have used traditional treatments to eliminate and improve symptoms in patients with gastrointestinal disorders. Acceptance and commitment therapy was used instead of other psychotherapy approaches as it greatly affects psychological problems related to psychosomatic symptoms as well as gastrointestinal dysfunction.

2. Objectives

This study aimed to compare the effect of acceptance and commitment therapy on distress and psychosomatic symptoms in patients with type D personality and gastrointestinal dysfunction.

3. Methods

The present study was semi-experimental with pre-test, post-test, and follow-up with a control group. The statistical population of this study was all patients with functional gastrointestinal disorders (FGID) referred to the behavioral sciences research center in Isfahan in 2019. A total of 30 patients were selected by the purposeful sampling (patients with gastrointestinal dysfunction, except those with high scores in type D personality). The sample size was calculated by G*Power software version 1.3.9.2 (no need for formula and by specifying the type of statistical tests, the test power was 0.80, the effect size was 0.40, the error level was 0.05=α), 30 people (15 people in each group).

The patients with psychosomatic problems who had a file in psychosomatic disorders clinics in Tehran were selected after approval by a specialist. Then, a diagnostic interview was performed by a clinical psychologist for the initial diagnosis of psychosomatic disorder after evaluating the clients of three psychiatric clinics. A total of 93 eligible samples were selected by considering the inclusion and exclusion criteria after the initial diagnosis and coordination with patients. Then, a questionnaire for type D personality was completed for them. According to the cut-off point, those with scores above 28 were randomly assigned to two groups of acceptance and commitment therapy and the control group. At first, the psychological distress scale (psychotic distress) was completed, and then the mentioned therapeutic intervention was implemented. The research questionnaires were completed again after the treatment period and two months later and compared with the results before the intervention.

Although no intervention was performed for the control group, two educational intervention sessions were performed after the follow-up period to observe the ethical principles. The subjects were assured that all information was confidential and they could leave the study at any time. The targeted sampling method was that a clinical psychologist conducted a diagnostic interview for diagnosing psychosomatic disorder after the initial evaluation of the clients. Eligible samples were selected after initial diagnosis and consideration of inclusion and exclusion criteria. Then, a type D personality scale was completed for them. According to the cut-off point for the questionnaire, 30 patients with a score above 28 were randomly assigned to two groups of acceptance and commitment therapy and control group. Inclusion criteria were completing the consent form, not receiving psychological treatments in the past four months, and not having a significant psychological disorder (based on the file). Additionally, first referral, minimum training course, the age range of 18-60 years (This range was selected because most subjects referred to the behavioral research sciences center were in this age range), patients referred to psychotherapy clinic with gastrointestinal disorders according to ROME III criteria with the diagnosis of a gastroenterologist, diagnosis of gastrointestinal dysfunction irritable bowel syndrome (IBS) and functional dyspepsia (FD) or both. Exclusion criteria were a history of substance abuse or dependence and any psychiatric medication during the past four months, as well as absence of more than two sessions or withdrawal.

The ethical considerations of the present study were as follows: 1- All participants received oral information about the research and participated in the research if they

wished. 2- The subjects were assured that all information is confidential and will be only used for the research. 3- The names and surnames of the participants were not registered to respect privacy. 4- All questionnaires were conducted by the researcher himself to ensure the process. This article has been approved by the Ethics Committee of Birjand University of Medical Sciences with ethical code IR.BUMS.REC.1399.163.

Acceptance and Commitment Therapy (ACT):

The randomized clinical trial of Hayes-Skelton SA, Roemer L, Orsillo (25) was used in process of acceptance and commitment therapy which consisted of 8 sessions. The first four sessions lasted 90 minutes to guide and place the participants in the path of the treatment model. The remaining four sessions were one hour.

Table 1. Implementation protocol of acceptance and commitment therapy sessions

Session	Content
First	Familiarizing and introducing the group members: expressing expectations of the treatment session, the principle of confidentiality, and implementing pre-test
Second	Creating hope and waiting for treatment, expressing the principle of acceptance and understanding of feelings and thoughts, presenting obligations in the field of self-acceptance and feelings caused by illness
Third	Studying assignments, training the recognition of emotions and their differences with non-judgmental thoughts, feelings, and presenting tasks
Fourth	Studying assignments, practicing mindfulness and concentration techniques, techniques of being in the present moment and stop thinking, presenting the task
Fifth	Studying assignments, training and understanding the difference between acceptance, submission, and awareness, presenting mind-awareness technique, presenting task
Sixth	Committing to action training, presenting selective attention skills for negative automatic thoughts, task presentation
Seventh	Searching for unresolved problems, identifying behavioral plans, committing to action, and creating the ability to act among options
Eighth	Reviewing the task, summarizing the contents, providing feedback to the group members, appreciating, and implementing post-test

The type-D scale (DS14):

The type-D scale is a 14-question questionnaire that was introduced by Denolette in 2005. Its scoring method is 0= incorrectly, 1= somewhat incorrectly, 2= inaccurately, 3= partly correct, and 4= correctly. The highest score that a person can get in this questionnaire is 56, and the lowest is zero. The closer the score is to 56, the person is placed in type D personality. The reliability of the scale was 0.86 based on Cronbach's alpha (26). The validity of this scale is also at a desirable level. The negative emotion subscale with a neurotic subscale of the scale has five significant correlation factors of 0.74 which was at the level of 0.01. The results show that the simultaneous and differential validity of this scale within the allowable range. Also, the social exclusion subscale has a negative relationship with extraversion -0.61 and a level of consciousness of -0.4 and positively with neuroticism which is 0.5 (26).

Rome III Questionnaire:

A modified Persian version of the ROME III questionnaire was used to evaluate functional gastrointestinal disorders. This questionnaire contains 38 questions concerning symptoms as well as their frequency and severity. The symptoms are presented per member in supposed functional diagnostic groups. Symptoms are described in sentences that begin with "In the last 3 months, did you often have. " and the choice is "no or rarely" or "yes". "Often" is defined as the presence of symptoms for at least one day per week for three weeks during the past three months. Some questions have more detailed information about stools, pain, discomfort, and also the possible connection between the timing of symptoms and functional bowel disorders. Cronbach's alpha was used to test the internal consistency of the relevant questions from the three predefined key domains (FH, FD, and IBS). All questions were dichotomized into nominal yes/no except no 34, which was used as ordinal data (0 = small amount, 1 = large amount). A high alpha coefficient suggests that the items within a domain measure the same construct, which supports the hypothesis of internal consistency [18]. A minimum correlation of 0.70 is usually considered necessary, and alpha coefficient values above 0.90 are optimal for achieving individual comparisons (27).

The Depression, Anxiety and Stress Scale (DASS-21):

Lovibond and Lovibond developed the depression, anxiety and stress 21-item scale in 1995 to measure depression, anxiety, and stress. The DASS-21 consists of 3

components of 7 questions which are obtained through the sum scores of the related questions under the title of distress. Its scoring method is from 0 (do not apply to me) to 3 (quite the case with me). The validity and reliability of the DASS-21 have been confirmed for the Iranian population. For instance, Sahebi conducted a study on 970 students and armies which stated that the translated version of the scale is comparable to the original version, with the internal consistency estimated at 0.77, 0.79, and 0.78 for depression, anxiety, and stress, respectively (28).

The Kolmogorov-Smirnov test was performed to evaluate the normality of the data and compare the data in four groups before, after, and two months after the intervention. Data analysis was performed using repeated measure analysis of variance by SPSS 22.

4. Results

The mean±SD of age was 39.86±7.80 and 41.03±9.51 in the experimental and control groups, respectively. There was no difference between the two groups in terms of age. The descriptive findings of this study include statistical indicators such as mean, standard deviation, and the number of samples, as well as frequency table and percentage, which are presented in the following tables for all variables in this study.

Table 2. The mean (SD) scores of research variables in experimental and control groups

Variable	Group	Pre-test		Post-test		Follow-up	
		M	SD	M	SD	M	SD
Psychological distress	ACT	36.92	4.10	29.17	6.53	28.77	6.14
	Control	35.78	4.63	34.80	4.57	34.10	4.41
Psychosomatic symptoms	ACT	49.34	9.52	39.24	7.14	38.21	7.52
	Control	48.03	8.68	47.51	7.90	47.36	7.75

Repeated measures ANOVA was used to investigate the significant difference between distress scores of one-way treatments, acceptance and commitment therapy, short-term psychoanalytic psychotherapy, and control group. The results of Box's M, Mauchly's sphericity, and Levene's tests were evaluated before implementing repeated measure ANOVA. The homogeneity of variance-covariance matrices was properly observed since Box's M test was not significant for any of the research variables. Also, the insignificance of each variable in Levene's test indicated that the condition for equality of intergroup variances was observed and the variance of dependent variable error was equal in all groups. Finally, the results of Mauchly's sphericity test showed the same for the distress variable. Therefore, the assumption of the equality of variances was not observed within the subjects (sphericity assumption) (Mauchly's W=0.39, p> 0.001). Therefore, the Greenhouse-Geisser correction was used to evaluate the results of the univariate test for intra-group effects and interactions. The significance level of all tests was 0.0001 which indicates that the mean of the tests was significant in terms of the effectiveness of therapeutic interventions in improving distress. It should be noted that the Wilks' lambda test with a value of 0.14 and F=97.46 showed a significant difference between the effectiveness scores of therapeutic interventions in improving distress in the experimental and control groups at a significant level of 0.0001.

Table 3. Repeated measure ANOVA for comparison of pre-test, post-test, and follow-up distress in experimental and control groups

Variables	Source	SS	Df	MS	F	P	Eta
Psychological distress	Time	170.60	2	117.57	175.61	0.001	0.86
	Time*Group	116.86	6	80.54	120.30	0.001	0.81
	Group	211.60	3	211.60	7.53	0.001	0.22
Psychosomatic symptoms	Time	87.62	2	43.81	164.78	0.001	0.85
	Time*Group	37.48	6	18.74	70.50	0.001	0.71
	Group	345.61	3	115.20	19.25	0.001	0.33

The results of Table 3 indicate that analysis of variance is significant for the within-subject (time) and between-subject factors. These results mean that considering the effect of the group, the effect of time alone is also significant. Also, the interaction between group and time was significant (P<0.001).

5. Discussion

This study aimed at comparing the effectiveness of acceptance and commitment therapy on distress and psychosomatic symptoms in patients with type D personality and gastrointestinal dysfunction. The results of this research were consistent with those in Tilaki et. al (21), Trompetter et. al (22), and Twohig & Levin (24).

In explaining this finding, it can be said that people with type D personality tend to experience negative emotions such as depressed mood, anxiety, hostile feelings, along with inhibition of these emotions when avoiding social contact. It can be acknowledged that emotions have practical functions for adaptation in daily life in the current range of psychological texts contrary to old beliefs. According to various researches, emotions can lead to positive outcomes if expressed at the right time, place, and situation (11). However, the inability to manage and control emotional processes is one of the channels of psychiatric and psychosomatic disorders. Paying attention to thoughts, emotions, and practical tendencies in positive aspects of acceptance and commitment as well as coordinating adaptive behaviors and positive mental states, even improving the individual ability for being interest in social activities is essential (12). Therefore, acceptance and commitment therapy in patients with high scores in type D personality can reduce distress. The result is in line with the previous results, considering that patients with high scores in type D personality participated in the training group showed less distress than those of the control group in the post-test (21). Therefore, paying attention to emotions plays an essential role in life. The approach based on commitment and acceptance of psychological inflexibility and prevention of the acceptance of disturbing feelings and thoughts leads to strengthening these feelings and thoughts and causes further disturbance. In this approach, patients with high scores in type D personality focus on the present rather than living in the past and future through identifying and following their values and goals despite disturbing thoughts and feelings. The person learns to improve the overall performance of the individual and family by accepting and controlling internal events and taking steps towards achieving their goals and values (8). Patients with high scores in type D personality have trained this approach to better identify and achieve goals consistent with their values and even with the thoughts and feelings of erosion instead of drowning in their past lives and difficulties they may face in the future. Additionally, they more efficiently manage their lives and conditions and enjoy healthier and happier lives along with the peace of mind and social relationships (11). It seems that acceptance and commitment therapy encourages patients with high scores in type D personality to practice repeated focused attention on neutral stimuli and targeted awareness on releasing body and mind of anxious people from threatened thoughts and concerns about performance and freeing their mind from automatic gear. This means that by increasing one's awareness of the present moment's experiences and restoring attention to the cognitive system and more efficient information processing, these techniques improve the distress of patients with high scores in type D personality (29).

The main limitation of this study is external statistics as the statistical population in this study was female patients with functional gastrointestinal disorders (FGID) of the behavioral sciences research center of Isfahan. Hence, the possibility of generalizing the results to the whole community is limited. In future studies, other therapeutic methods should be used in comparison with this method to compare the effectiveness of acceptance and commitment therapy with other approaches. It is suggested that the researchers use a therapist and treatment training to reduce the probability of bias in the research in future researches. It is recommended that this study be followed up as individual counseling after the group training. According to the findings of this study, mental health professionals and people active in the health field can be advised to design and apply appropriate methods inspired by acceptance and commitment therapy to the mental health of patients with high scores in personality type D.

6. Conclusion

It can be concluded that acceptance and commitment therapy effectively influence distress and psychosomatic symptoms of patients with type D personality and gastrointestinal dysfunction and improve psychological problems in patients with gastrointestinal dysfunction.

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