

## The efficacy of cognitive-behavior group therapy on health-related quality of life, health anxiety and depression in patients with diarrhea-predominant irritable bowel syndrome

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### ABSTRACT

**Objectives:** The purpose of this study, was to determine the efficacy of cognitive-behavioral group therapy in health-related quality of life, in irritable bowel syndrome (IBS) patients.

**Methodology:** 32 IBS patients who received this diagnosis, according to the Rome II criteria, were selected and assigned randomly to either the experimental or the control group with 16 IBS patients in each group. The experimental group received 8 weekly CBGT sessions in the department of gastroenterology in a general Hospital in the central city. The Quality of Life Inventory (QOL) and Beck Depression Inventory (BDI) were used as the pretest, post-test and follow-up. The follow-up tests were conducted two months after the last intervention session.

**Results:** Results of Multivariate Analysis of Covariance(MANCOVA) showed that the mean scores of health-related quality of life and depression , in the experimental group, was significantly lower than the control group in post-test( $P=0.004$ ,  $P=0.023$ ),but there wasn't significant difference in follow-up. Results also showed that the scores of health anxiety in experimental group was significantly lower than the control group in post-test ( $P=0.007$ ) and follow-up ( $P=0.02$ ).

**Conclusion:** CBGT could be an effective and selective psychotherapy to improve HRQOL and degree depression and health anxiety of IBS patients, but in this therapy, in addition to automatic thoughts, we should also consider to core beliefs and underlying assumptions to enhancement the efficacy of intervention.

**KEYWORDS:** Irritable Bowel Syndrome, Cognitive-Behavior Group Therapy, Quality of life, Health anxiety, Depression.

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### INTRODUCTION

Irritable Bowel Syndrome (IBS) is the commonest and most disabling type of functional gastrointestinal disorders, characterized by abdominal pain and changes in bowel movements in the absence of identifiable structural abnormalities.<sup>1-3</sup>

The quality of life expression was primarily used in researches after World War II for patients with special diseases such as diabetes, AIDS and specific disabilities.<sup>4</sup> The branch of quality of life which is

called Health Related Quality of Life (HRQOL) has attracted researchers and therapists.<sup>5-8</sup> There is a general and increasing agreement that determining HRQOL should be one of the main components of therapy and research efforts. In IBS, as a chronic disease, the quality of life is low and various dimensions of life such as job activities, traveling, interpersonal relationships and enjoyment are disrupted.<sup>9-13</sup> Understanding and perception of pathology and treatment of irritable bowel syndrome have changed from a bio-medical reductive approach to a psychosocio-biological complex syndrome during three past decades.<sup>14</sup> IBS has significant psychological components<sup>15,16</sup> and its high association with mental disorders has been confirmed.<sup>17</sup> In this study, from among a wide spectrum of psychological disorders, depression (as the most common mental disorder) and health anxiety (as a prominent clinical sign in these patients) have been studied. Health anxiety is defined as beliefs, thoughts and fears that people have regarding their physical health.<sup>18,19</sup> Health anxiety has an important role in emotional and behavioral well-being. In severe cases of this type of anxiety, the patients check their body changes and symptoms regularly and have vigilance.<sup>20</sup>

Health anxiety is a prominent feature of IBS and an important predictor of continuation of physical complaints in these patients.<sup>21</sup> Depression is the most common psychiatric disorders in these patients' lifetime, before and after the disease. These patients showed higher score in depression scale of MMPI.<sup>22</sup> Considering the above points and the lack of experimental research on IBS patients in Iran, this study aimed to investigate the effect of cognitive - behavioral group therapy on quality of life related to health, depression and health anxiety in patients with irritable bowel. It was hypothesized that Cognitive-Behavior Group Therapy (CBGT) has a significant effect on the HRQOL, health anxiety and depression of IBS patients in the experimental group as compared to the control group.

## METHODOLOGY

*Participants:* The design of this study was experimental trail, using two groups of experimental and control groups and included three measures: pretest, posttest and a two months follow-up. The study population included all patients (diagnosed by specialists and based on the criteria of Rome II), who referred to Alzahra Hospital. Initial sample was of 32 IBS patients who were randomly selected and assigned to experiment (16 cases) and control (16 cases) groups. There were two criteria for selecting

the patients(inclusion criteria): 1-suffering from diarrhea-predominant IBS as psychological factors are more involved in this sub-type in comparison to the constipation-predominant sub-type: 2-being in the age range of 20 and 50 years, as the prevalence of irritable bowel syndrome is higher in this age range. The experimental group received 8 weekly CBGT sessions in the department of gastroenterology in a general Hospital in the central city (by the clinical psychologist). Four participants in the experimental group were excluded from the study because they missed more than three sessions. In order to make the number of people in the two groups equal (to confirm statistical preassumption), 4 people were randomly deleted from the control group and the final sample size included 24 subjects.

*Treatment:* The CBGT was conducted according to Albany Cognitive-Behavioral Treatment Manual, that planned by Blanchard<sup>23</sup> in a general hospital in the city of Isfahan, Iran. This manual included: cognitive therapy (to identify automatic thoughts, understand connection between cognitive stress reactions with GI symptoms and modify them), education (booklet), Progressive Muscle Relaxation (PMR). Regarding to the point that biofeedback instrument and a person who can work it were not available, we substituted that with activity scheduling technique regarding irregularity in these patients daily activities.

*Ethical permission:* This study was approved by the ethical committee of the Alzahra General Hospital. The one educational book about IBS (that provided in Tehran medical university about etiology and management) was given to control group (as wait-list) to acknowledgement of participation in study.

### *Instruments:*

*The Irritable Bowel Syndrome Quality of Life Instrument (IBS-QOL):* This questionnaire was introduced by Patrick and Drossman<sup>24</sup> and has been translated into several languages and is validated cross-cultural.<sup>25</sup> Internal consistency coefficients of these sub-scales in the used version in this research were 0.76, 0.62, 0.71, 0.57, 0.52, 0.72, 0.67, and 0.88, respectively. Assessing its concurrent validity with IBS-QOL-36 showed that it has satisfactory psychometric properties<sup>10</sup>, ( $r=0.61$ ,  $p < 0.05$ ). In this study, the raw scores of health concern subscale (to measure health anxiety) and general questionnaire scores were used.

*Beck Depression Inventory:* This questionnaire is one of the most common scales for self-assessment of depression prepared by Beck et al in 1961 and was revised in 1996 to cover a larger range of symptoms.

The Total score is calculated by adding scores of all questions and is ranged between 0 and 63.

## RESULTS

Demographic characteristics of the sample are presented in Table-I. The mean and standard deviation of the pre-test, post-test and follow up test of participants in the two groups are presented in Table-II. In order to assess the significance of these differences, the Multivariate Analysis of Covariance (MANCOVA) was used (to control the pretest effect). The assumptions of normality of distribution of score in all measures (with Shapiro-Wilk test) and equality of variances (with Levene test) and covariances (with Box test) in the two groups were confirmed generally ( $p > 0.05$ ).

The MANCOVA results are presented in Table-III. As Table-III shows, there are significant differences in the post-test means of quality of life, health anxiety and depression in the two groups. But there is no significant difference between depression and QOL scores of the two groups in follow-up stage. The means of are presented in Fig-1, 2 and 3.

## DISCUSSION

The present study aimed to investigate the effectiveness of cognitive-behavioral group therapy on quality of life related to health, depression and health anxiety of IBS patients. The results showed significant difference between the mean score of quality of life and depression in the post-test. This result is congruent with those of Blanchard et al<sup>26</sup> and Drossman et al but this difference is not observed in follow-up test. Effectiveness of treatment interventions on improvement of quality of life and decrease of depression in patients can be determined by considering two major factors and their relations.

The first factor is that in health-related quality of life in IBS, indicators of quality of life in these patients- such as social relationships, job or educational satisfaction, sexual activity and mental status- have been significantly dropped due to the problems and limitations related to the disease symptoms such as abdominal pain, feeling lack of control in bowel movements, and diarrhea. In fact, the disease symptoms are the main cause of low quality of life in these patients.

Table-I: Demographic characteristics of the sample.

Index	Variable	Experiment		Control	
		Frequency	Percent	Frequency	Percent
Gender	Male	6	50	7	58
	Female	6	50	5	42
Educational level	High School Diploma and lower	7	58	8	66
	Bachelor and higher	5	42	4	34
Age	20-30	6	50	4	33.33
	30-40	3	25	4	33.33
	40-50	3	25	4	33.33
Marital status	Single	9	75	7	58
	Married	3	25	5	42

Table-II: The mean and standard deviation of participants' scores on HRQOL, health anxiety and depression.

Stage	Pre-experiment		Post-experiment		Follow up	
	Experiment	Control	Experiment	Control	Experiment	Control
Quality of life	102.91(14.39)	105.41(18.57)	90.58(14.8)	103.33(16.89)	94.75(11.97)	101.16(12.3)
Health anxiety	9.66(1.87)	10.08(2.60)	7.58(1.37)	9.58(2.15)	7.75(1.05)	9.41(1.97)
Depression	31.58(8.07)	32.08(8.92)	26.32(7.66)	30.83(8.58)	27.75(8.52)	32.11(8.16)

Table-III: Analysis of Covariance of participants' scores.

Index		Total square	Degrees of freedom	Mean square	F	Significance level
Quality of life	Post-experiment	678.877	1	678.877	10.696	0.004
	Follow up	139.150	1	139.150	3.565	0.073
Health anxiety	Post-experiment	19.167	1	19.167	9.051	0.007
	Follow up	14.434	1	14.434	6.378	0.02
Depression	Post-experiment	100.245	1	100.245	6.023	0.023
	Follow up	88.509	1	88.509	3.905	0.061

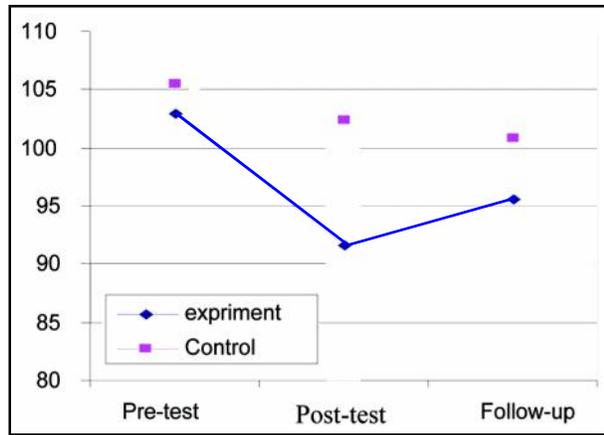


Fig-1: Mean scores of quality of life in the two groups.

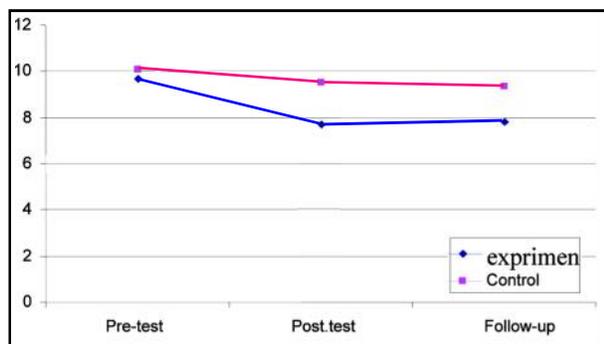


Fig-2: Mean scores of health anxiety in the two groups.

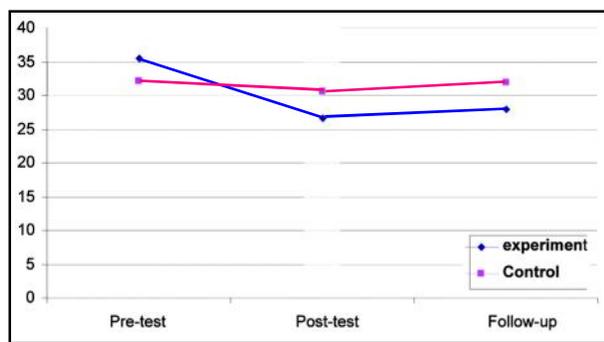


Fig-3: Mean scores of depression in the two groups.

The second major factor is that these patients have cognitive distortions and numerous dysfunctional thoughts. When these thoughts are active, create and start biochemical automatic reactions in the central nervous system and these reactions increase irritability and motion in gut which results in disease symptoms such as abdominal pain and bowel habits (brain-gut axis). According to these hypotheses, it can be concluded that by revising and reducing automatic thoughts, the severity and frequency of symptoms can be decreased and quality of life gradually improves in these patients.

Two techniques of relaxation training and activity scheduling were used in group therapy sessions. The effect of relaxation training is understandable considering the vicious circle between dysfunctional thoughts and attitudes and their related negative emotions. As it is accepted in classic cognitive therapy as a principle, dysfunctional thoughts are activated in some situations and create unpleasant emotional feelings. However, as emotion has been paid more attention in next cognitive therapy models, and especially in metacognition approach, anxiety and distress can also activate automatic thoughts relevant to them and thus create a vicious circle. Relaxation training, especially progressive muscle type reduces the stress and relaxes the body and eliminates the second round of this vicious circle.

The role and effect of activity scheduling technique in improving quality of life and reducing depression is explainable with the concept of "positive and negative reinforcements". Most of these patients reported that when they wake up in the morning, they lay down in bed without sleeping again and ruminate lots of negative thoughts that increase their anxiety and reduce their mood. By planning to reduce such hours of the day and better use of it, patients spent less time on their negative thought and mental rumination. Therefore, they had less negative feelings and symptoms (negative reinforcement).

The result showed that the treatment outcomes did not continue in follow-up test. In general, in an advanced cognitive therapy, in addition to identifying and modifying dysfunctional thoughts, underlying assumptions and core beliefs should also be targeted. The continuity of treatment outcomes and reducing relapse symptoms require targeting deeper layers of cognition. In fact, the underlying assumptions are the one that stimulate and activate dysfunctional thoughts in particular situations and come into the conscious area of patients' mind. Lackner<sup>27</sup> has mentioned that most cognitive interventions carried out on patients with irritable bowel syndrome have been concentrated on inefficient thoughts and attitudes and have neglected the lower and more important cognitive layers such as core beliefs. Unfortunately, due to the time limitation, duration of the training therapy sessions and teaching the cognitive model to the patients, there was not enough opportunity to identify and modify patients' maladaptive beliefs and assumptions. This factor might be one of the reasons that the hypothesis was not confirmed in follow-up test.

In reviewing and determining the effectiveness of CBT in reducing health anxiety, the question is that

why in spite of no deference on quality of life and depression, these results have continued until the follow-up test. A possible answer is that cognitive formulation about irrational thoughts of health anxiety as compared to depression and quality of life thoughts were progressing much easier and faster and it looked easier for patients to identify and verify them. Also, patients were asked to prepare a list of safe-seeking behaviors (these behaviors temporarily eliminate concerns but in long term increase the concerns about health, such as an extremely limiting diet and frequent referral to several gastroenterologists. They were asked not to follow these behaviors. In the next test, this insight was created in patients that they have catastrophic and irrational thoughts about their health and treatment process that cause them have negative and selective bias in their concerns about their health and their recovery process.

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#### List of abbreviations:

IBS-Irritable Bowel Syndrome, HRQOL- Health Related Quality of Life, CBGT- Cognitive-Behavior Group Therapy, PMR- Progressive Muscle Relaxation, MANCOVA- Multivariate Analysis of Covariance.

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