

# The Role of Acceptance and Commitment-based Group Therapy on Pain Tolerance and State-trait Anxiety in Gastrointestinal Cancer Patients

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**Abstract:** The main purpose of this study was to investigate the impact of acceptance and commitment group therapy on pain tolerance and state-trait anxiety in patients with gastrointestinal cancer. This quasi-experimental study was performed with pretest, posttest and control group. There were 24 participants in the study, 12 of them in the control group and other 12 in the experimental group. The experimental group received eight sessions of acceptance and commitment based therapy and the control group received no psychotherapy. The instruments used in this study were short-form McGill Pain questionnaire-2 and state-trait anxiety questionnaire. Results showed an increase in pain tolerance and decrease in anxiety in patients in the experimental group.

**Keywords:** Group therapy, acceptance and commitment therapy, gastrointestinal cancer, pain tolerance, anxiety.

## INTRODUCTION

Despite remarkable advances in the medical disciplines, cancer still remains as one of the most significant diseases of present time and its mortality rate is high. There are also more than 200 types of identified cancers at the moment, with an increasing incidence, while it is estimated that more than 15 million people in the world will be infected by 2020 [1].

Cancer has many effects on the community [2] in a way that the infected people might suffer from anxiety, depression, cognitive impairment and other physical and psychological symptoms [3] all of which affect one's function in the society. Moreover, the psychological and physical symptoms of this disorder decrease one's independence and ability to balance and influence the family environment, leading to uncertainty and lack of self-esteem [4]. Besides, uncertainty anxiety and poor prognosis of cancer can cause a person, during their illness, to suffer from higher anxiety than ordinary people in the society,

whose high anxiety side effects have devastating impacts on psychological and physical symptoms, leading to negative effect of one's performance in society [5].

Cancer itself causes psychological problems for most patients, and these psychological symptoms will have a detrimental effect on their other functions. Removing these problems in cancer patients can make them more resistant to the unpleasant symptoms of cancer.

Due to problems with this type of cancer and current medical treatments, these patients suffer from high levels of pain and this level of pain also causes psychological problems such as high levels of dissatisfaction, anxiety, and depression.

Currently, gastrointestinal cancer is one of the most common causes of death among other cancers, and it creates wide-ranging psychological symptoms in the patient [6]. Numerous studies have also indicated high levels of anxiety in gastrointestinal cancer patients [7].

Acceptance and commitment approach therapies accentuate the issue of communication system in the

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psychological problems of human beings and are considered to be very effective in the issues that lead to resentment or irritation. This therapeutic approach also considers the avoidance of pain and stress as a major problem for humans, which can lead to disability and reduced life satisfaction. It is asserted by this approach that avoidance occurs when negative thoughts and emotions exert an excessive and inappropriate effect on behavior. Therefore, the therapeutic approach efforts purpose, based on acceptance and commitment, is to expose the patients to conditions and situations that they mostly avoid [8].

Acceptance and commitment-based treatment focuses more on the acceptance of negative symptoms from avoidant situations such as illnesses rather than controlling the symptoms [8, 9]. The goal of psychotherapy based on acceptance and commitment is to improve individuals' performance by increasing their psychological flexibility [10]. Studies by other researchers demonstrate the fact that this approach has a positive effect on enhancing physical and emotional performance [11].

## METHODOLOGY

In this quasi-experimental study, 24 men with gastro-intestinal cancer in Tehran were used. All samples were selected by convenience sampling. The inclusion criteria for the study subjects were ages between 20 to 65, minimum reading and writing age, and no separate psychotherapy involvement during the study. Exclusion criteria were also altering therapeutic medicine during group therapy and receiving separate psychotherapy.

Initially, all participants were randomly divided into two groups of experimental and control. And after the registration, the first session was held separately for each participant to acquaint with the study process. Pain and state-trait anxiety questionnaires were administered to all participants. The experimental group underwent acceptance and commitment based therapy weekly and the control group did not receive group psychotherapy intervention until the end of the study.

Acceptance and commitment therapy was implemented based on Hayes protocol [12]. This psychotherapy protocol relies on eight sessions that in each session, a specific content is provided. In the initial sessions, people in the group become more familiar with each other and the therapeutic relationship

between the group and the members is formed. It discusses issues such as confidentiality and therapeutic experiences during cancer. Feedback from other members is also an important point of the group. Concepts such as the dysfunctional system and "controlling the problem is not the solution" are discussed. The metaphors and fundamental concepts of the Acceptance and Commitment Approach are also discussed in the following sessions, some tasks are given to participants throughout the week as their homework, and they are taught skills such as mindfulness or meditation. The closing sessions also discuss the story of personal life by emphasizing the present time and commitment in conducting the activities and lessons which were taught. Each person narrates his own experiences and receives feedback from the members of the group.

At the end the questionnaires are collected from every participant.

### Short form McGill Pain Questionnaire-2 (SF-MPQ-2)

This questionnaire was designed to assess the quality of pain severity and it is capable of measuring the neuropathic pain and non-neuropathic pain [13]. The questionnaire consists of 22 questions ranging from 0 to 10. Zero means no pain and 10 means the worst possible pain in the week before. This questionnaire contains four subsets including Continuous pain, Intermittent pain, Neuropathic pain and Affective pain [14].

### Spielberger State-Trait Anxiety Inventory (STAI-Y)

The Spielberg Anxiety Inventory consists of 40 questions that the first 20 items measure the state of anxiety and the second 20 items measure the trait of anxiety. The State of Anxiety Scale (explicit anxiety) is consisted of 20 sentences that examine one's emotions at the moment and the time of response. Anxiety trait scale (hidden anxiety) also includes 20 sentences that measure one's general and typical emotions. The response scale is also ranged from 1 very low to 4 very high [15].

## RESULT

The purpose of this study was to evaluate the effectiveness of group psychotherapy based on acceptance and commitment on pain and anxiety tolerance in patients with gastrointestinal cancer. Participants were 12 men with gastrointestinal cancer with a mean of 51 years (SD: 5.69). Table 1 also shows

**Table 1: Frequency of Participants Qualifications**

	Frequency	Percent	Valid Percent	Cumulative Percent
Below Diploma	2	8.3	8.3	8.3
Diploma	10	41.7	41.7	50.0
Bachelor Degree	9	37.5	37.5	87.5
Above Bachelor	3	12.5	12.5	100.0
Total	24	100.0	100.0	

**Table 2: Mean and Standard Deviation scores of pain tolerance and anxiety in Experiment and Control Groups**

Variable	Experimental group		Control group	
	Pre-test	Post-test	Pre-test	Post-test
Pain	162.5 ± 8.9	134.0 ± 6.68	175.25 ± 1209	166.0 ± 8.65
Anxiety	106.08 ± 6.35	82.58 ± 5.96	99.08 ± 7.02	97.58 ± 6.35

the frequency of their education. Among all the participants, the frequency of diploma with 41 % was the highest.

Covariance analysis was used to analyze the data. But first, Kolmogorov-Smirnov test was used to check the normality of the factors. The result of Kolmogorov-Smirnov test was not significant, indicating that the distribution of test variables was normal. Therefore, the assumptions of normality of the factors were accepted. Levene test was also used to confirm the homogeneity of variances hypothesis. The obtained results showed that the variances were equal.

Table 4 shows that anxiety and pain intensity were significantly decreased in the experimental group after the intervention compared to the control group. The findings of this study showed that gastrointestinal cancer patients demonstrated lower levels of anxiety and pain intensity after being admitted to the treatment group based on acceptance and commitment.

## DISCUSSION

Cancer disease is one of the critical issues of all societies that besides the physical problems it causes many psychological injuries such as tension and

**Table 3: Levene Test for Homogeneity of Variances**

variables	Degree of freedom1	Degree of freedom2	Significant
Pre-anxiety	1	22	0.93
Post-anxiety	1	22	0.63
Pre-pain	1	22	0.48
Post-pain	1	22	0.54

**Table 4: Analysis of Covariance to Compare Two Groups Pre-Test and Post-Test**

Indicators	Source	Degree of freedom	Mean Square	F	P Value	Partial Eta Square
Anxiety	Pre-test	1	294.00	6.548	0.018	0.229
	Post-test	1	1350.00	35.53	0.000	0.618
	error	22	37.992			
pain	Pre-test	1	975.375	8.620	0.008	0.282
	Post-test	1	6144.00	102.711	0.000	0.824
	error	22	59.818			

anxiety for the patient [16]. These patients, in addition to having physical symptoms, face anxiety that may often be plagued with recurrent unpleasant thoughts, such as fear of pain, death, and dependence on others. The type of an anxious patient thinking is characterized by extroversion and catastrophizing. Negative results seem to be inevitable, and patients find themselves in a hopeless condition [17].

Therefore, the psychological support of these patients is of great importance. Psychological support generally has two aspects of behavioral therapy and drug therapy. In drug therapy with sedation such as benzodiazepines, the patient faces with many side effects, including dry mouth, dizziness, constipation, and the risk of overdose and dependence. Even lower-risk drugs, such as buspirone, have side effects such as dizziness, drowsiness, and nausea while no adverse effects have been reported in behavioral treatment [18].

In the present study, the effects of acceptance and commitment based group therapy on pain tolerance and state-trait anxiety in gastrointestinal patients were investigated. The results indicated that the mentioned method had positive effects on increasing tolerance and reducing pain and anxiety in the experimental group after the intervention compared to the control group. The results of this study are in line with studies by Staci Martin *et al.* [19]. on neurofibromatosis type 1 patients, mohabbat-bahar in improving anxiety symptoms in patients with breast cancer [20] and with Arch *et al.* It has been shown to reduce anxiety and depression and improve the pain component in cancer survivors, which have been identified as the most effective strategies for controlling anxiety in people with cancer, psychotherapy, drug therapy and behavioral therapy [20].

Roth and Massie [21] and Hulbert [22] in their paper, similar results were reported and they acknowledged that patients who received pain tolerance treatment and were aware of the nature of their pain experienced less anxiety and stress. In this study, acceptance and commitment-based group therapy methods were used that gives patients the ability to relate to their experience here and now [23].

The reason could be due to the fact that this therapeutic approach strengthens the commitment and acceptance of cognitive processes and helps the patient to accept and deal with their moment-to-moment problems and emotions and to be more hopeful about the future [24].

## CONCLUSION

Based on the results of the present study and the previous studies, effects of group therapy on pain and positive anxiety have been reported. Therefore, acceptance-based therapy and commitment can be considered as one of the best ways to control the anxiety and pain caused by gastrointestinal cancer.

Acceptance and commitment-based therapeutic approach stemming from its treatment philosophy, puts more emphasis on the components of here and now and acceptance of the present conditions. Given the annoying symptoms of gastrointestinal cancer, this approach can be considered as one of the best therapeutic approaches compared to drug therapy and other psychotherapeutic approaches.

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