

## Effectiveness of Mindfulness-based Cognitive Therapy on the Perceived Stress of Patients with Ulcerative Colitis

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### Abstract

**Introduction:** Various studies have shown that stress is one of the environmental factors affecting the symptoms of patients with inflammatory bowel disease.

**Objective:** The purpose of this study was to determine the effectiveness of mindfulness-based cognitive therapy on perceived stress in patients with ulcerative colitis.

**Materials and Methods:** This study was a quasi-experimental study with pretest and posttest design and control group. 32 patients with ulcerative colitis were selected by voluntary sampling and randomly divided into two groups. Data from 17 patients (9 experimental and 8 controls) were analyzed finally. Data were collected using the perceived stress scale 10-item (Cohen, 1983) in two stages of pretest and posttest. The experimental group underwent a mindfulness-based cognitive therapy program in 10 sessions of 2-hours per week. For data analysis, Mann-Whitney U analysis was used.

**Results:** The findings showed that the effect of mindfulness-based cognitive therapy on positive dimension of stress was significant ( $P < 0.05$ ,  $Z = -1.976$ ), but not significant on the negative dimension ( $P > 0.05$ ,  $Z = -1.976$ ).

**Conclusion:** Mindfulness based therapy can help UC patients reduce cognitive distortions involved in the perception of stress by changing their assessment of events, so that they can manage stressful events better by increasing their effective coping abilities with disease.

**Conflict of interest:** non declared

**Key words:** Mindfulness, Perceived Stress, Ulcerative Colitis

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## Extended Abstract

**Introduction:** Ulcerative colitis is one of inflammatory bowel diseases (IBD). It is a long term disease that emanates from interaction between genetical and environmental factors (1). Although the role of stress as an environmental factor in the onset of inflammatory bowel diseases has not been corroborated, results of research indicate that stress is a trigger and exacerbating factor of disease course and symptoms (2,3). Nowadays, mindfulness based therapies are from the well-known and discussed therapeutic approaches developed to improve the physical symptoms and psychological problems of people with physical diseases. In this regard, there is evidence that indicates the effectiveness of mindfulness interventions to improve the psychological problems of IBD patients (4,5,6,7).

**Objective:** Since the efficacy of mindfulness based therapy in Iranian patients with ulcerative colitis (UC) has not been examined so far and to help such patients, the purpose of this study was to evaluate the effectiveness of mindfulness based cognitive therapy on perceived stress in patients with ulcerative colitis.

**Materials and Methods:** The research was a semi experimental study with pretest and posttest design and control group, with randomized assignment on 32 UC patients in Isfahan. Inclusion criteria included stricken with UC, informed consent, at least of middle school education, age range of 18-60 years, having a contact number to invite to intervention, residing in city (Isfahan), and exclusion criteria were being in the acute phase of psychiatric disorders, and unwillingness to continue participating in intervention.

The sampling method was voluntary. The procedure was in such a way that with agreement of chief of the database of IBD patients, from the list of UC patients (265 patients according to the research criteria) who were contacted by

SMS or telephone, 32 volunteers were selected and randomly assigned to experimental and control groups. Finally, in the post test phase, 9 patients in the experimental group and 8 patients in the control group remained and completed the questionnaire. Due to non cooperation of most of the control group members in the follow up phase, this phase failed.

To measure the studied variables, Perceived Stress Scale (PSS-10) was used, developed in 1983 by Cohen et al. Rating of the questionnaire was based on a 5-point Likert scale (never=0, almost never=1, sometimes=2, fairly often=3, very often=4) (8). Cronbach's alpha coefficient of 10-item version has been obtained in two Iranian studies: 0.72 (9) and 0.90 (10).

Mindfulness based cognitive therapy program used in this study was based on the Jalali and Aghaei's Mindfulness Based Cognitive Behavioral Stress Management Book (2014) (11). It was performed in 10 weekly 120-minute sessions. The content of the sessions was adjusted, according to the provided instructions. The Mann-Whitney U test was used to compare groups and the results are presented in respective table.

**Results:** The mean age was 32.22±8.36 years in the mindfulness group and 42±12.78 years in the control group. The two groups were compared in terms of demographic variables. To examine the significance of differences between the two groups, Chi-square test was used for gender and marital status and Manova variance analysis was used for age mean, educational level and disease duration. The results of the both tests showed no significant difference between the two groups in terms of the demographic variables. The mean and standard deviation of the scores of perceived stress and the dimensions in the two experimental and control groups, in the pretest and posttest stages are presented in Table (1).

Table 1. Mean &amp; SD of variables and the results of Mann-Whitney U test analysis

	Mean & SD					
	T PSS		Positive F		Negative F	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Experimental group	21.44±5.02	16.66±3.70	13.88±3.51	11.88±2.14	7.55±2.12	4.77±2.33
Control group	19.37±4.92	18.50±6.65	12.25±3.49	12.50±4.27	7.12±2.58	6±3.07
The results of Mann Whitney U test analysis						
	T PSS	Positive F	Negative F			
Mann-Whitney U	16.5	16	23.5			
Wilcoxon W	61.5	68.5	61			
Z	-1.889	-1.976	-1.209			
Sig	0.059	0.048	0.227			

Before analyzing the results, the necessary assumptions for using covariance test were examined. Shapiro-Wilk test confirmed the normality of the distribution of

scores in both groups. In fact, it confirmed the possibility of using parametric statistics. Also, the results of Levine test showed that the assumption of

consistency of variances of the posttest scores exists for parametric analysis. However, the non-parametric test of Mann-Whitney U was used due to the low sample size and subsequently statistical power. To do the test, difference of posttest scores from pretest scores was used. The results of this analysis in Table (1) show that the difference between the two groups of mindfulness training and control in the posttest phase is near to significant in terms of the mean total scores of perceived stress and is significant in terms of the positive factor (coping with stress) ( $P < 0.05$ ). In other words, coping with stress was significantly improved in the mindfulness group, compared to the control group. Regarding the mean score of negative factor or distress dimension, although it was decreased in the posttest phase in the mindfulness group, this decrease was not significant compared to the control group ( $P > 0.05$ ). In fact, the results show that mindfulness based therapy was not able to significantly reduce stress, especially its emotional aspect, but was able to increase coping with stress in the patients.

**Conclusion:** The findings of the present study indicate that the total score of perceived stress is very close to significant and the score of the dimension of coping with stress was more significantly reduced in the mindfulness intervention group than the control group. So, it confirms the effectiveness of mindfulness based cognitive therapy on the reduction of perceived stress, especially increasing the ability to cope with it in UC patients. Mindfulness helped the patients to reduce their cognitive errors involved in stress perception by facilitating the assessment and change in interpretation and meaningfulness of the events as well as better management of stressful events by enhancing ability for adaptive and effective coping with disease. Thus, as for the role of stress in UC disease activity and course, providing such interventions to be utilized for people with ulcerative colitis, they may help the patients in management and improvement of their disease symptoms with changing in the perception of stress, improvement of effective coping with it, and relative decrease in its negative emotions.

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