



# Comparison of Mindfulness Based Therapy and Pharmacotherapy on Trauma Related Symptoms

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## Abstract

**Background:** Trauma related disorder is a common disorder in warfare victims. The present study investigated the effectiveness of mindfulness-based therapy and pharmacotherapy improving the clinical symptoms of warfare victims suffering from the disorder.

**Methods:** This experimental study was carried out in 2016 on 28 warfare victims with a trauma related disorder. They were randomly assigned into two groups (mindfulness therapy and pharmacotherapy). The study gathered combat-related trauma related disorder data and analyzed it via repeated measures ANOVA.

**Results:** The results showed that a significant ( $P < 0.001$ ) decrease in the psychological symptoms of mindfulness therapy group was noted in the post-test and follow-up test.

**Conclusions:** The results showed the effectiveness of mindfulness-based therapy improved the psychological symptoms of warfare victims with trauma related disorders. Mindfulness-based therapy can reduce the psychological symptoms of individuals with trauma related disorders.

**Keywords:** Mindfulness, Psychological Symptoms, Trauma Related Disorder

## 1. Background

Trauma related disorder includes disorders in which exposure to a traumatic or stressful event is listed explicitly as a diagnostic criterion. These include reactive attachment disorder, disinhibited social engagement disorder, posttraumatic stress disorder (PTSD), acute stress disorder, and adjustment disorders (1). Trauma related disorder sufferers would go through fear and helplessness, re-present and review the experience repeatedly in their minds, and yet, they wish to avoid this continuous remembrance. The most important index of trauma related disorder is the avoidance of symptoms realizing themselves in the form of a decreasing tendency towards activity participation, social isolation, the fear of a future repetition of the experience, difficulty in remembering the experience, and its episodic censorship (2).

Nevertheless, after two decades of war against Iraq, many Iranian warfare victims seek rehabilitation in their numerous visits to clinical centers. Time passage, aging, and the lack of a comprehensive treatment for the patients with Trauma related disorder have deteriorated the problems and symptoms. The research body regarding the ef-

fects of war on warfare victims suggests that pang time detrimentally influences them and there is the danger of parallel severity of symptoms and subsequent disorders. One of the most widespread disorders among warfare victims and veterans is trauma related disorder. Thus, proposing a treatment for it is of paramount importance (3). Drug therapy (4) cognitive-behavioral therapy (5, 6), life skills (7), and stress control (8, 9) are among various treatments applied so far to address PTSD. Also, mindfulness-based therapy (MT) (9, 10) has been one of the therapeutic methods that can improve the clinical signs of warfare victims with trauma related disorders. However, the method has enjoyed the attention of researchers less. MT has been defined as a judgeless and balanced feeling of awareness contributing the clear understanding and acceptance of exciting and physical phenomena as they occur (11). MT, which is based on psychiatry and stress reduction, is a combination of re-present real world objects out of control along with training of breathing, thinking, body relaxing, and mindfulness (12).

It has been shown that on one hand, mindfulness helped individuals balance their negative behaviors and thoughts and on the other, adjusts their health-related pos-

itive behaviors (13). Mindfulness-based therapy aims at decreasing avoidance experiences and the tendency in experiencing undesirable physical feelings, excitations, and thoughts (14). Clinically, research indicates that mindfulness practices can be employed as an intervention strategy to enhance consciousness of the present time to cope with trauma related disorder. This causes individuals to accept their past lives without any judgment and also their present affective and cognitive experiences (15-17). Some early related works have shown correlation between higher levels of mindfulness with low levels of anxiety (18) and depression symptoms (18, 19). Moreover, the effectiveness of mindfulness in preventing basic depression disorder from recurring (20), reducing the recurrence of drug abuse (21), improving chronic pain (22, 23), personality disorder (24), bettering temperament, affection, and health of chemical weapon warfare victims (25, 26) has been proved during the last decade, employing the mindfulness method to treat trauma related disorders has gained currency increasingly.

Patients with trauma related disorder interpret their affective and physical excitations as a sign of serious damage to their health. This produces a state of fear, disastrous thinking, mental distress, and even a feeling of immediate dying, as well as makes them follow strategies like distraction to avoid the undesirable experience (1, 9, 16, 27, 28). The avoidance realizes itself in the form of lack of tendency to accept, confront, and experience routines, trauma-related memories, and unwanted desires (12). As a strategy for dealing with undesirable situations, it is likely that experience avoidance brings about a short-term improvement in the psychological state of the patients. However, since trauma related disorder usually develops chronically, there would be an increase in the psychological pain as the time passes by (2, 9, 18, 27). Accordingly, if avoidance and automatic behaviors happen to trigger the occurrence and continuation of trauma related disorder, then, it seems that accepting and encountering thoughts, feelings, and behaviors result in psychological balance and improvement as well as reduction of trauma related disorder signs (10). In fact, by proposing appropriate techniques, mindfulness causes individuals to consciously experience such psychological states including anxiety and fear and respond openly to new experiences, curiosity, and acceptance (10, 12). Some of the published works have reported the results of case studies. In the studies, mindfulness-based interventions have been used to address various traumatic experiences like sexual abuse, natural disasters, etc. In addition, the studies confirm the effectiveness of mindfulness-based interventions in reducing psychological disorders (2, 9, 10, 27). Therefore, considering the ample evidence supporting the effectiveness of mindfulness-

based therapy in dealing with psychological and medical conditions, the present study investigated the effectiveness of mindfulness-based therapy in comparison with pharmacotherapy in addressing the psychological signs of trauma related disorder in warfare victims.

## 2. Methods

This study was a clinical experiment, with pre-test, post-test, and follow-up. The mindfulness therapy group received mindfulness-based therapy (11). The pharmacotherapy group received medication. The independent variable was mindfulness-based therapy and the dependent variable was the clinical signs of trauma related disorder.

### 2.1. Participants

The participants were the warfare victims of Iran-Iraq war with a trauma related disorder, which were selected by using available sampling. The study participants were derived from among the hospitals affiliated to the Foundation of Martyrs and Veterans Affairs of Isfahan and Shahid Rajaee Hospital. For selecting study participants, a list of 53 (only men) people with trauma related disorder was provided, only 41 of them were available and 32 people accepted the invitation to the study.

Psychiatric interviews for diagnosing trauma related disorder was done according to DSM-5 criteria by the hospital's psychiatrist. Then, 32 individuals with a diagnosis of trauma related disorder were assigned in two groups. The effect of gender was controlled (only men participated in the study). The participants were checked for suffering from any disorder (psychotic, bipolar disorder, anti-social and borderline personality disorder, suicidal tendencies, and drug abuse) during the three months of the previous study (10, 28). There was a two-participant drop in the number of the participants for each group. The mindfulness therapy group received mindfulness-based stress reduction (MBSR; 11). The mindfulness-based therapy was designed with regard to psychological symptoms of warfare victims with trauma related disorder. In the aggregate, a total of eight one hour-and-half mindfulness-based sessions were held.

### 2.2. Mindfulness Intervention Sessions

The mindfulness therapy group received mindfulness-based stress reduction (MBSR) training (11). Mindfulness training was applied according to the features of trauma related disorder victims. The sessions were completed in eight 90 minute sessions. The sessions were held twice a week for one month. The eight session details are as follows:

### 2.2.1. First Session

A preliminary test was taken at this session. Good relations were established with the participants and the objectives of the sum of sessions of mindfulness were explained. In addition, the reasons for the importance of mindfulness and its effects on relaxation were introduced.

### 2.2.2. Second Session

This session focused on relaxation training on 14 muscles. These muscles included: forearm, calf, eyes, neck, shin, abdomen, shoulders, lips, jaws, thighs, temples, chest, and forehead.

### 2.2.3. Third Session

This session focused on relaxation training on 6 muscles: lips and eyes, feet and thighs, neck and shoulders, jaws and forehead, abdomen and chest, and hands and arms. The homework tasks were given to the participants.

### 2.2.4. Fourth Session

Mindfulness-based breathing. Initially, previous sessions were reviewed. Then, mindfulness-based breathing including calmness, inhale and exhale techniques, and breathing observation technique was introduced. They were asked to practice mindfulness-based breathing for 20 minutes before going to bed.

### 2.2.5. Fifth Session

The body monitoring technique was introduced. The participants learned to focus their attention on body movements while breathing. Their homework was doing mindfulness-based eating.

### 2.2.6. Sixth Session

Mindfulness-based thinking was introduced. The participants learned to scan the mind and thoughts as well as to allow thoughts into and out their minds without any judgment. Their homework was writing all their experiences without judging.

### 2.2.7. Seventh Session

Full mindfulness. Four, five, and six sessions were repeated for 20 to 30 minutes.

### 2.2.8. Eighth Session

It was a round-up session. In this session a post-test was administered.

## 2.3. Measures

### 2.3.1. Demographic Information

The demographic information were collected through the demographic information sheet. The demographic information included were age, gender, occupation, schooling, marital status, paralysis percent, and disease history.

### 2.3.2. Clinical Interviews

The clinical interviews were administered by the hospital's psychiatrist, according to the DSM-5 (1, 29). In addition, other criteria for including the participants were derived from the literature (1, 9, 26, 27).

### 2.3.3. Mississippi Scale

The scale was designed for the first time by Keane and his colleagues (30) to assess and measure the severity of PTSD (1). Later, it was revised by the researchers of the National Center for PTSD (located in Boston, USA) and a 39-item scale was designed. The scale consists of the four subscales penetrating memories, affection control inability, depression, and interpersonal relationship problems and a total score. The items are scored based on Likert scale. Eleven items of the scale are scored reversely. These are items: 22, 24, 27, 30, 34, 1, 2, 6, 17, and 19. The minimum score of the scale is 39 and that of maximum is 195. The cut-off score for being diagnosed with PTSD is 107. Consistency coefficient has been reported by Keane and colleagues to be 97% (30). In a study in Iran, the scale was administered to 266 individuals. The Cronbach's alpha coefficient of the study was found to be 92% indicating the high consistency coefficient of the test. The Spearman-Brown correlation coefficient of the two halves of the test was 92%. The re-test coefficient of the scale with a one-week time lapse administered to 116 subjects was reported to be 91% (31).

## 2.4. Procedure

After explaining the purpose of research, participants agreed to participate in the research. In order to take research ethics into account, it was announced that they could stop participating in the study whenever they wished to. The mindfulness therapy and pharmacotherapy groups sat the pre-test and then, the mindfulness therapy group received eight one-and-a-half hour MT sessions. Mindfulness-based stress reduction (MBSR) training was administered by the hospital's clinical psychologist, according to the mindfulness-based therapy manual (11). Group under drug therapy received medication under the supervision of the hospital's psychiatrist. The groups had not been through treatment before. Since the start of the disorder to treat, 29 years had elapsed. The two

groups were selected using available sampling and randomly placed in groups. At the end of the treatment, both mindfulness therapy and pharmacotherapy groups took the post-test. Two months later, the groups attended the follow-up test. In addition, the pharmacotherapy group underwent drug therapy until the follow-up test was administered. During this time, they were not exposed to any therapeutic intervention. At the end of the study, each group received both treatments. Therefore, to watch the research ethics, eight mindfulness therapy sessions were held for them as well.

The whole study lasted three months. The data were analyzed using the repeated measure ANOVA via SPSS 22.

### 3. Results

The findings of the study are presented in [Table 1](#).

The mean score and standard deviation of the clinical sign scores of trauma related disorder sufferers have been tabulated in [Table 2](#) (for both the pharmacotherapy and mindfulness therapy groups).

The results of repeated measures ANOVA are in [Table 3](#) and variance equality assumption by using Box tests and Mauchly's and Levin test indicated a statistically significant difference between the pharmacotherapy and mindfulness therapy groups in terms of the mean scores of trauma related disorder clinical signs. In addition, the effect size (0.778) of mindfulness-based therapy on the clinical signs of trauma related disorders and the interactive effect of the period group on all the variables was found to be significant.

The results of the Bonferoni test, in [Table 4](#), showed a decrease in the clinical sign of trauma related disorder for the mindfulness therapy group in the post-test and follow-up test in comparison with the pre-test. In addition, there was a significant difference in the score of the post-test in comparison with the pre-test for the pharmacotherapy group. The difference was much less than that of the mindfulness therapy group.

### 4. Discussion

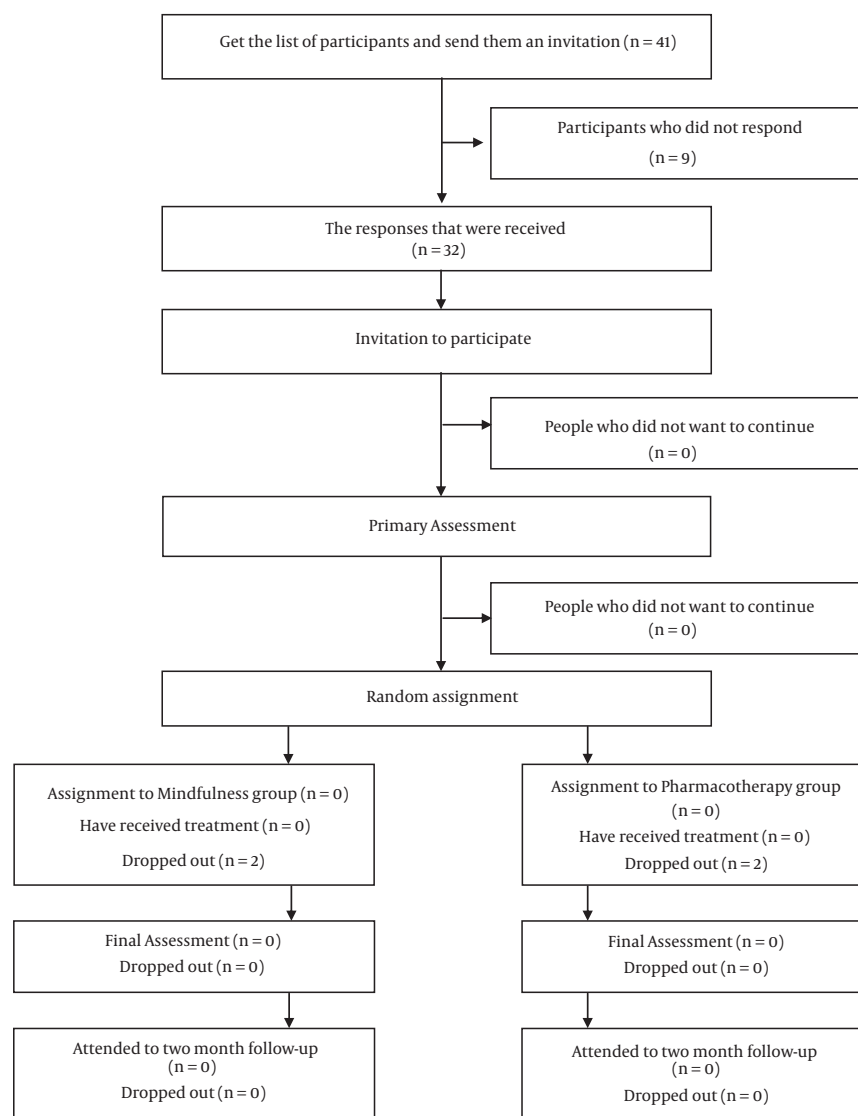
The aim of the present study was to investigate the effectiveness of mindfulness-based therapy in improving trauma related disorder clinical signs. The results indicated a decrease in the clinical sign of the mindfulness therapy group in post-test and follow-up. In addition, the clinical signs decreased for the mindfulness therapy group in post-test and follow-up in comparison with the pre-test. These results confirm those of earlier studies ([22](#), [24-26](#)). Moreover, it can be claimed that the results are

in line with the literature, which reported the usefulness of mindfulness-based therapy in reducing depression, distress, anxiety, and the quality of life ([2](#), [9](#), [10](#), [27](#)). The rationale behind applying mindfulness as a treatment to trauma related disorder is based on the assumption that accidents or traumas cause individuals to undergo avoiding the experiences ([14](#)).

As was mentioned in the earlier section, there was a significant decrease in the trauma related disorder scale scores for the mindfulness therapy group. From this, the conclusion can be drawn that mindfulness-based therapy can inform clinical sign scores of warfare victims with trauma related disorder, since it balances judgeless feelings, increases psychological and physical awareness, and helps the victims clearly see and accept excitations and physical phenomena as they occur without judging them ([32](#)). The justification for the conclusion comes from the earlier works carried out on mindfulness indicating that it helps individuals balance their negative thoughts and behaviors ([32](#)). Furthermore, attending mindfulness-based therapy gives the attendees the opportunity to modify the nexus between themselves and their thoughts in a way that they learn to consider thoughts merely as temporary mental events not unchangeable realities ([30](#)).

Mindfulness can improve one's health directly and indirectly within a biological-psychological-social framework ([30](#)). Directly, it is likely that attending mindfulness-based therapy reduces the clinical signs of trauma related disorder sufferers by establishing links with feelings, controlling and directing attention, not judging thoughts and feelings, and accepting experiences. In addition, mindfulness techniques can indirectly lead to a decrease in the number of unrealistic judgments regarding the disorder on the part of the patients through improving their ability to identify feelings. Consequently, the rehabilitation process is accelerated ([27](#)). Although individuals have their own specific conditions, mindfulness-based therapy teams provide special conditions for understanding and learning about their own feelings, thoughts, and excitations, as well as others without judging and confronting them. The approach helped warfare veterans reduce their incompatible cognitive styles ([30](#), [32](#)).

The emphasis in mindfulness-based therapy for warfare victims with trauma related disorder is on signs and interpretations about feelings, thoughts, and excitations. For example, paying attention to every feeling they have and noticing the distinction between the feelings and thinking about the feelings are recommended. To do that, they are taught to pay attention to the present time consciously through deliberate breathing. Trauma related disorder sufferers selectively misinterpret their feelings and psychological and physical experiences with their sensitiv-



**Figure 1.** Flowchart for participants

ity, mistrust, and alertness enhanced as the consequence. This, in turn, causes the patients to review their past and future events (2, 10, 18). Deliberate breathing practice is used as the locus of attention and the reference point. Patients resort to them in cases when the mind is distressed by negative thoughts and excitations. Returning-to-onself technique is used when patients are attracted to their normal thought and emotion patterns due to their thinking in regards to their past and future experiences (32). Mindfulness boosts the mental ability in order to return to the immediate moment in challenging situations like getting involved in inefficient thoughts and excitations such as

anger (24). In fact, conscious attention to the present time teaches patients new ways of understanding and reacting to all intrinsic feelings; in addition, individuals find their abilities to identify feelings, thoughts, and experiences (11). Conscious attention to the present time is composed of the two following components: Attention self-management and the acceptance accompanied by a tendency towards experiencing (33).

One of the goals of the present study was to investigate trauma related disorder signs in tow groups in pre-test, post-test, and follow-up period. Results showed that pharmacotherapy leads to a decrease in trauma related dis-

**Table 1.** The Demographic Information of the Participants

Variables, Groups	Mindfulness-Based Therapy		Control	
	Frequency	Percentage	Frequency	Percentage
<b>Marital status</b>				
Married	13	92.9	10	71.4
Single	-	-	1	7.1
Divorced	1	7.1	-	-
Re-married	-	-	3	21.4
<b>Age</b>				
35 to 45	8	57.1	5	35.7
46 to 55	5	35.8	9	64.3
56 to 65	1	7.1	0	0
<b>Education</b>				
Secondary school	6	42.9	8	57.1
Diploma	6	42.9	5	35.7
Bachelor	2	14.2	1	7.1
<b>Profession</b>				
Employed	8	57.1	9	64.3
Unemployed	5	35.7	4	28.6
Retired	1	7.1	1	7.1
<b>Type of injury</b>				
Psychiatric injury	13	92.9	9	64.3
multiple injury	1	57.1	5	35.7

**Table 2.** The Mean Score and Standard Deviation of the Clinical Signs of PTSD for the Pharmacotherapy and Mindfulness Therapy Groups

Variable	Group	Pre-Test	Post-Test	Delayed Post-Test
Clinical signs of PTSD	Mindfulness-based therapy	163.86 ± 11.52	111.14 ± 14.62	113.57 ± 13.39
	Control	156.29 ± 12.48	132.43 ± 16.30	148.36 ± 14.60

**Table 3.** The Repeated Measures ANOVA<sup>a</sup>

Variable	Source of Variability	SS	MS	F	The Effect of Mindfulness
Clinical signs of PTSD	Group * Time	11861.161	11861.161	91.351 <sup>b</sup>	0.778
		3375.893	129.842		
	Error	5488.583	5488.583	16.864 <sup>b</sup>	0.393
		8462.119	325.466		
		11861.161	11861.161		

<sup>a</sup>The pre-test, post-test, and follow-up test for the clinical signs of trauma related disorder have been compared.

<sup>b</sup>P < 0.01.

**Table 4.** The Results of the Post Hoc Test Conducted to Compare the Pharmacotherapy and Mindfulness Therapy Groups in Terms of Their Clinical Sign Scores for Trauma Related Disorder

Variable	Group	Period	Post-Test	Follow-Up
Clinical signs of PTSD	Mindfulness training group	Pretest	52.714 <sup>a</sup>	50.286 <sup>a</sup>
		Post test	-	2.429
	Control	Pretest	23.857 <sup>a</sup>	7.929
		Post test	-	-15.929 <sup>a</sup>

<sup>a</sup>P < 0.05.

order signs on post-test in comparison with the pre-test. These findings are in line with a wide range of studies that have shown the effectiveness of pharmacotherapy on trauma related disorder (5, 34-36); as in the present study SSRIs (37-40) and the serotonin-norepinephrine reuptake

inhibitors (SNRI) venlafaxine (41, 42) as first-line agents treatment of post-traumatic stress disorder medications was used (43), however, non-significant differences were found in follow-up period in comparison with pre-test and post-test. Therefore, in the mindfulness therapy group, de-

crease in trauma related disorder signs from post-test to follow-up period continued. In addition, effectiveness of mindfulness therapy in comparison with pharmacotherapy was much higher. Therefore, the two results are clear: Mindfulness therapy is more effective than medication or pharmacotherapy, and secondly the effects of mindfulness therapy continues, however, the effects of pharmacotherapy do not. It can also be said that mindfulness therapy can reduce the recurrence and relapse of signs. This finding is in line with many studies that have studied the effects of psychotherapy on psychological signs (44-48). Regarding the fact that re-experience trauma signs are the characteristics of trauma related disorder, therefore, according to the results of the present study and studies that have shown the effectiveness of mindfulness therapy in the treatment of treatment-resistant disorders (49, 50), it seems that the use of mindfulness therapy can also be more effective in reducing the symptoms of trauma related disorders and in the long term to maintain the effectiveness and reduce the recurrence rate and the problems associated with this disorder.

According to the results of the present study, mindfulness-based therapy results in a decrease in the clinical signs of trauma related disorder and consequently, mental health is improved. Thus, recommending warfare victims suffering from the disorder to participate in mindfulness-based training workshops is robustly supported. Since, the recurrence of the disorder is likely to happen as a result of abandoning the training, all volunteers are suggested to go through the treatment for longer terms. The study faced some limitations among which reference can be made to the low number of participants, the short time lapse between the post-test and the follow-up test, and female exclusion. Therefore, future studies should address the issues in order to make the findings more generalizable.

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