

# The Effectiveness of Mindfulness Based Cognitive Therapy Training on Anxiety of Death and Thoughts of Suicide of Patients With Cancer

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## Abstract

**Background:** This study aimed to evaluate the effectiveness of mindfulness-based cognitive group therapy (MBCT) on reducing suicidal thoughts and death anxiety of patients with cancer.

**Materials and Methods:** This study was applied and semi-experimental conducted by using pre-test and post-test with a control group. The research community included all patients with cancer who referred to Shahid Mohammadi hospital in Bandar Abbas. It contained 30 cancer patients who were selected through purposive sampling method and randomly placed in two experimental and control groups (15 individuals per group). The members of both groups completed Templer's death anxiety questionnaire and Beck's suicidal thoughts before and after the sessions of group therapy (within three months). Findings were analyzed by SPSS software and univariate covariance analysis (ANCOVA) test.

**Results:** The results showed that mindfulness-based cognitive therapy (MBCT) training significantly reduced the suicidal thoughts and death anxiety in the experimental group ( $P < 0.01$ ).

**Conclusion:** Based on the results of this study, it is essential that medical care and support forums related to refractory patients to reduce psychological symptoms in patients use mindfulness-based cognitive therapy in their treatment programs.

**Keywords:** Cognitive Therapy, Mindfulness, Death, Anxiety, Suicidal Ideation

## 1. Background

Cancer is one of the most common chronic diseases and caregivers are faced with problems related to treatment and care [1]. Emotional responses to cancer including severe depression, sadness, lack of control, personality changes, anger and anxiety, which are seen in 20% of cancer patients [1, 2]. Cancer is an illness of cells characterized by indefinite reproduction of cells that make a malignant neoplasm. There are more than 200 genres of cancer [3]. Diagnosis of an incurable disease such as cancer can turn to a deep crisis in everyday life and threatens the future of the individual and his/her family. Research shows that even in those types of cancer that have a cure, a false diagnosis of cancer is equivalent to death [4]. Cancer is characterized by changing the shape of abnormal cells and the loss of cell differentiation. Anxiety, depression, and stress are the most common psychological reactions in cancer patients while dealing with the diagnosis, prognosis, and treatment phases [5]. In most cases the attention of treatment team is focused on treatment of the physical symptoms (pain relief, nausea and vomiting) of patients; while

the progression of the disease and its associated symptoms make patients suffer from anxiety, depression and even suicidal thoughts and death ideation. In cancer patients in addition to increasing psychological problems, death anxiety is extremely high [6]. Death anxiety is among the variables that affect health and happiness. Death anxiety is the constant, abnormal and morbid fear of death. This concept refers to death phobia (fear of death). Although fear of death can be a public issue, but the emotional reactions of these people toward death are different [7]. Despite the advanced technologies in medical treatment, death is a reality that has always existed.

Suicide is generally the product and result of psychological pain and its primary source is unfulfilled psychological needs. The human behavior is based on fundamental biological needs such as the need for oxygen, food, water and proper temperature. But after obviating of these needs, humans need to reduce their inner stress which is achieved through satisfaction of psychological needs, including the need for progress, creating ties, domination, self-determination and other needs. Generally, an in-

dividual devotes most of his/her needs to psychological ones. When someone commits suicide, in fact, wants to destroy his/her mental pain, the pain of unfulfilled vital needs. Evidence shows that suicide is one of the problems of mental health. Five factors are associated with suicidal thoughts and attempts, including: frustration, lack of self-confidence, the inability to cope with feelings, withdrawal and social isolation. In fact, the most difficult life stage of this illness is when a person is faced with the urgent need to struggle [8]. Therefore, psychological techniques can be effective on reducing the health issues and medical problems in cancer patients, and mitigate the adverse effects of cancer treatments, and also improve the coping skills with problems of disease. Mindfulness-based cognitive approach is one of the treatments that can be effective in this regard. In mindfulness-based cognitive therapy, patients learn how to communicate differently with their negative thoughts and feelings, and focus on the content of their beliefs and thoughts. They also learn to express their anxiety, depression, habits and how to reorient their negative thoughts and feelings, and in a broader perspective, to see their thoughts and feelings [9]. As scholars state, mindfulness or presence of mind refers to paying attention in a specific, goal-oriented way, at the present, and without judgment. In the presence of mind, the persons learn to be aware of every moment of their mental state and concentrate on different mental ways. Presence of mind is a way that originated from eastern meditation and has been described as the full attention to the experience of present moment [10]. MBCT program includes: Raising awareness through the practice of mindfulness, a particular perspective that is determined through little effort, acceptance and intrinsic interest to experiences, a process that communicates between understanding how to work with vulnerable factors and training them [11]. During MBCT sessions, therapy would be easier through dialogue, feedback, group exercises and training [12]. In the treatment of cancer, more attention is focused on physical therapy, while patients with cancer are faced with many psychological problems, fear, death anxiety, depression, reduced interest in marriage relationships and reduced confidence. [8]. Thus, interventions should focus on reducing stress, and give the patient an insight to accept symptoms of their illness. [13]. When a patient needs help to overcome the difficulties and stress associated with her/his disease, psychological interventions are essential for her/him. [14]. Mindfulness training reduces symptoms of anxiety and depression in patients [15], and prevents the relapse of depression and anxiety [16].

The effects of mindfulness-based cognitive therapy on psychological problems of cancer patients in several studies had been approved [11, 17-21].

The cancer patients with many pains that they have, they are in chaos state. From one hand, for the sake of suffering, they consider suicidal ideation in their mind and from the other hand, they consider cancer as a death. And it causes that death anxiety to infiltrate in them, which causes a lot of psychological and even physical disturbance in them. Therefore, it is very important to find methods that can reduce suicidal ideation and death anxiety and generally reduce their mental disturbance. According to researches, cognitive therapy based on mindfulness can play an important role in reducing death anxiety and suicidal thoughts in cancer patients. Therefore, according to the items that stated, this study accomplished with the aim of investigating the effectiveness of cognitive therapy based on mindfulness on suicidal thoughts and death anxiety.

## 2. Methods

It was a semi-experimental research and has been conducted by using pre-test and post-test with a control group. The study was conducted within three months (January to March 2015). The study population consisted of all cancer patients who referred to Shahid Mohammadi Hospital in Bandar Abbas Province in Iran for treatment. The sample consisted of 30 patients selected by purposive sampling, who were then randomly and equally divided into the control group and the experimental group (15 individuals per group). The members of both groups completed Templer's death anxiety questionnaire and Beck's suicidal thoughts before and after the sessions of group therapy (within three months). The reason for using purposive sampling in this research was because the researcher can choose subjects who have the desired features from target population, and if this method doesn't exist sometimes research would be impossible in human sciences and psychology [22]. Regarding that in the experimental and semi-experimental studies on a group, the sample size is suggested 15 people for each group [23]. The same number of subjects was selected from among the study population according to the inclusion criteria. According to ethics, all the participants had nicknames. All subjects were asked to give their informed consent and in case of dissatisfaction do not enter the investigation. Also, they were assured that their answers will remain completely confidential. In order to preserve the ethical themes of the control group, after the research, mindfulness-based cognitive therapy (MBCT) training was taught to them. The inclusion criteria for the present study was being over 18 years and have at least high school diploma and full consent of patients; and exclusion criteria for this study was inappropriate physical condition. there were no drop outs from this study. The

collected data from the implementation of research questionnaires in pre-test and post-test were analyzed using descriptive statistics and to elicit data, the univariate analysis of covariance test (ANCOVA) was used in the inferential stage to analyze the research hypotheses and to control the pre-test effect using SPSS.

### 2.1. Data Collection Tools

**Templer's Death Anxiety:** This questionnaire was made by Templer and contains 15 questions and 5 dimensions (1-fear of death, 2-fear of pain and illness, 3-thoughts of death, 4-passage of time and short life, 5-fear of future), that measure attitudes toward death. In the method of scoring, 1 point was considered for every right answer and zero point for every false answer. Of course, this scoring in questions 10, 11, 12, 13, 14, and 15 was reversed. To obtain the score of each dimension, we added the scores of all items of that dimension together. In a study by Tavakoli et al (2011) the reliability and validity of Templar's death anxiety scale was examined. The validity of the questionnaire using test-retest method was 0.87.

**Beck's Suicidal Thoughts:** Beck's scale for suicidal ideation (BSSI) was a self-evaluation tool of 19 questions. The questionnaire has been prepared to detect and measure the intensity of attitudes and behaviors, and planned to commit suicide in the past week. Factor analysis of psychiatric patients revealed that Beck's scale for suicidal ideation is a combination of three factors: willingness to die (5 questions), preparation for suicide (7 questions) and actual suicidal tendencies (4 questions). Two questions were related to concealing or deterrents of suicide that were not in any of the above three factors. The scale is set based on a three degrees scale, ranging from 0 to 20. The total score of each person was calculated by adding all the scores, in BSSI there are 5 questions of screening. If the responses indicate that they are willing toward active or inactive suicide, then the subject must continue the next 14 questions. In Beck's Scale no specific form is prepared to identify the rate of suicidal thoughts but from the content of questions we can consider the risk of suicide, the scores indicate: 0 to 5 having thoughts of suicide, 6 to 19 prepared for suicide, 20 to 38 intended to suicide.

This scale has high reliability. Cronbach's alpha coefficients have been obtained 0.87 to 0.97. Using 100 male subjects aged 19 to 28 years old, the reliability and validity of this scale were evaluated. The results showed that the Beck's scale was correlated with Goldberg depression test by 0.76. Also, the validity of the scale was obtained 0.95 using Cronbach's alpha and 0.75 using split-half method. Thus, internal validity, test-retest validity and concurrent validity are presented in [Table 1](#).

## 3. Results

In this section, first the demographic variables and the research variables will be described. A total number of 30 subjects constituted the sample, all of whom were cancer patients in Bandar Abbas Province. [Table 2](#) indicates the mean, standard deviation, minimum and maximum scores of psychological symptoms in the experimental and control groups, in pre-test and post-test stages.

As it can be seen in [Table 2](#), the mean score and standard deviation of pre-test and post-test scores of suicidal thoughts components in the experimental group were 32.20, 2.32 and 27.47, 2.11, respectively, and for control group they are 31.60, 2.28 and 30.40, 2.18, respectively. Also, the average and standard deviation of pre-test and post-test scores of death anxiety components in the experimental group are 12.13, 1.97 and 9.91, 1.43, respectively, and for control group these scores are 11.11, 1.78 and 11.86, 1.82, respectively.

In the present study, to test the hypothesis and determine the difference between the scores of suicidal thoughts and death anxiety the statistical method of analysis of covariance was used. In [table 3](#), the research hypotheses and their statistical analysis have been presented. In order to test the assumptions underlying the analysis of covariance, homogeneity assumption of variance (Levene's test) was examined which is presented in [Table 3](#).

As it can be seen in [Table 3](#), Levene's test in the variables of suicidal thoughts ( $F = 3.64$  and  $P = 0.06$ ) and death anxiety ( $F = 0.48$  and  $P = 0.35$ ) was not meaningful. Thus, the variance of the experimental group and the control group were not significantly different in terms of suicidal thoughts and death anxiety. And the assumption of homogeneity of variances was confirmed. To investigate the research hypothesis, univariate covariance analysis was used that its results are presented in [Tables 4](#) and [5](#).

According to the results, there are significant differences between the two groups (experimental and control) in terms of the dependent variables in significance level of ( $P < 0.001$ ). So the hypothesis of the present study was approved. Accordingly, we can say that there is a significant difference between the two groups at least in one of the dependent variables (suicidal thoughts and death anxiety). To investigate the differences, ANCOVA univariate analysis was conducted. that its results are presented in [table 5](#). The table below shows the results of ANCOVA univariate analysis.

According to the results in [table 5](#), there is a significant difference between experimental group and the control group in terms of suicidal thoughts ( $F = 98.321$  and  $P < 0.001$ ) and death anxiety ( $F = 84.447$  and  $P < 0.001$ ). Thus, the hypothesis on the effectiveness of mindfulness-based

**Table 1.** Mindfulness-Based Cognitive Group Therapy Course

No.	Session No.	Session Content
1	First	Set up group, set rules and boundaries of the group, participants introduced themselves to other members of the group (about what has inspired them to take part in the group and what the group wants to talk), homework
2	Second	Practice thoughts and feelings, homework
3	Third	Identification and registration of pleasant experiences or the unpleasant experiences that are explored in the fourth week in a calendar, homework.
4	Fourth	Identify what are the unpleasant experiences, define the scope of depression or another area that is difficult for group members like chronic fatigue, stress, etc, homework.
5	Fifth	Reading guesthouse poetry of Rumi and identify the content of that poem in the group, practice the exploration of habitual patterns of reaction and potential usage of mindfulness skills to facilitate responsiveness to experience the present moment, homework.
6	Sixth	Practice tempers, ideas and alternative views, specify the signs of recurrence that can be different in any person and an providing an applied plan for facing it, preparing participants for the end of the period, homework.
7	Seventh	Understand the relationship between activity and mood, preparing a list of daily activities and determining which one is dull and which one is motivating and which one creates a sense of mastery or enjoy in person, identify syndrome of recurrence and development strategies to deal with the threat of recurrence and relapse, homework.
8	Eighth	A review of early warning systems and action plans that have been developed for using during periods of high risk of relapse, an overview of the whole of the last period - what would have most value in their life that this training could help them to achieve them? Talk about how to maintain impetus that have been developed in formal and informal training, providing questionnaires to participants for reflecting their opinions about the course

Participants received a homework handout at the end of each session.

**Table 2.** Mean, Standard Deviation, of Suicidal Thoughts and Death Anxiety of Experimental and Control Groups

Variables	Index	Control Group	Experimental Group
Suicidal thoughts	Pre-test	32.20 ± 2.32	31.60 ± 2.28
	Post-test	27.47 ± 2/11	30.40 ± 2.18
Death anxiety	Pre-test	12.13 ± 1.97	11.11 ± 1.78
	Post-test	9.91 ± 1.43	11.86 ± 1.82

Vales are expressed as mean ± standard deviation.

cognitive therapy on suicidal thoughts and death anxiety in women with cancer patients was confirmed.

#### 4. Discussion

As the results showed that mindfulness-based cognitive therapy was effective in female patients with cancer. The findings related to this hypothesis were consistent with the results of Mousavi [24], Kaviani et al. [16], Walker et al. [6], Forkman et al. [25], Green and Walker [26], Kim [27], Carlson [28], Kabat Zinn [29], Carlson and Garland [30], and Martin [31]. In order to explain these findings, we can say that cancer is associated with negative thoughts, especially thoughts of suicide. Disturbances including suicidal thoughts are seen in most cancer patients, which harden the treatment of disease. High-pressure situations create different emotional reactions [32]. Severe and prolonged

negative thoughts had a mutual effect on various aspects such as mental, physical, and social backgrounds in cancer patients. Thus, cancer also causes tensions. Other reasons that can explain the effectiveness of this treatment on reducing suicidal thoughts in patients with cancer is the patients' awareness of the effects of negative emotions, especially suicidal thoughts, on mental health and the benefits of having a happy life. This is a reason for reducing negative emotions and also increasing the hope of patients. Cognitive intervention used in this study had a special focus on problem-solving skills, which can be effective on reducing hostility, irritability, anger and feeling of guilt caused by aggressive behavior. Thereby, reducing the negative thoughts caused due to cancer increased the hope of patients. In relation to the effect of group psychotherapy in cancer patients, Yalum [23] states these patients suppress their feelings about the disease, and day by day they become more a stranger to their existence and less allow the new experiences to imbue in their minds. As a result, they create pessimistic thoughts, the dismal state of being tired of life, despair, loneliness and fear of death for themselves. By participation in group psychotherapy sessions, they embody their death and pay attention to their emotions toward death in the group that makes them to look at life with new ideas and different perspectives. Therefore, considering the given explanations, implementation of mindfulness and cognitive therapy programs involves attention to control learning, auto-focus and lack of guidance, time management, doing different exercises (such as

**Table 3.** The Result of Levene's Homogeneity Variance Test Between Death Anxiety and Suicidal Thoughts in Experimental and Control Groups

Dependent Variable	First Degrees of Freedom	Second Degrees of Freedom	F	Significance Level (P)
Suicidal thoughts	1	28	3.64	0.06
Death anxiety	1	28	0.48	0.35

**Table 4.** The Results of Analysis of Covariance on The Average Test Scores of Experimental and Control Groups in Suicidal Thoughts and Anxiety of Death

Exam Name	Significance Level	DF of Error	DF of Hypothesis	F	Value
Pillai's Trace	P < 0.001	25	3	50.12	0.095
Wilks Lambda	P < 0.001	25	3	50.12	0.095
Hotelling's Trace	P < 0.001	25	3	50.12	9.548
Roy's Largest Root	P < 0.001	25	3	50.12	9.548

**Table 5.** The Results of ANCOVA Univariate Analysis on Test Mean Scores of Psychological Symptoms, Suicidal Thoughts and Death Anxiety in Experimental and Control Groups

Exam Name	Significance Level	Statistical Power	F	Mean Square	Degree of Freedom	Sum of Squares
Psychological symptoms	P < 0.001	1	79.84	1406.928	1	1406.928
Suicidal thoughts	P < 0.001	1	7.36	98.321	1	98.321
Death anxiety	P < 0.001	1	6.67	84.447	1	84.447

meditation, yoga, breathing mindfulness) and creating a happy and joyful mood, changes in vision and perception, skills training for muscle relaxation and effective coping skills for stressful events in this stressful patients, which can be a main element for the control and reduction of the symptoms. The finding of present research indicated that mindfulness-based cognition therapy was effective on suicidal thoughts and death anxiety in patients with cancer. The findings of this research were consistent with the results of Walker et al [6], Green and Walker [26], Carlson [28], Kabat Zinn [29], Carlson and Garland [30], Martin [31], Salajegheh and Raghibi [32], Sullivan et al. [33], Nyklicek and Karlijn [34].

In order to explain the findings, it can be said that mindfulness with techniques such as relaxation training, imagery and mindfulness can be the causes of new cognitive changes in the lives of people with cancer, which reduce anxiety in them [35]. So if cancer patients are equipped with mindfulness techniques, such as body scanning techniques, mindfulness of breathing and mindfulness of thoughts, they can accept the thoughts, feelings and events in their life without judgment; and create positive changes in their life style that creates positive attitudes towards themselves and their life [36]. Cognitive therapy and mindfulness familiarizes the patients with how to express emotions in different situations, by accepting their emotions, expressing on time and controlling

the negative emotions that contributes to negative self-perceptions, and participate in social situations and consider themselves as a useful and effective person. According to the World Health Organization, all patients with cancer need to an appropriate palliative and psychosocial care in accordance with their culture. Cognitive therapy not only has improved many chronic diseases but also helps patients to reduce the negative psychological effect of the disease. According to these results, we see that stressful life events and disease are overlapping and reinforce each other. Mindfulness-based Cognitive Therapy with extensive content in all areas of life, such as exercises (yoga, meditation, mindfulness, breathing), focus control, correct and effective coping skills in dealing with stressful life events, familiarity with the disease and changing patient's attitudes towards it, changing thought patterns and attitudes, progressive relaxation techniques training, time management and stress management training and make a joyful spirit, reduces psychological symptoms, suicidal thoughts and death anxiety, and possibly the adverse consequences of the disease.

The strengths of the present study was raising participant's awareness of the effects of negative emotions, especially suicidal thoughts on mental health and the benefits of happy life, increasing hope in the individuals and decreasing anxiety.

Like other studies, this study has many limitations and

problems. Since this study was conducted on a small number of people and also there were biases in responses to the questionnaire and lack of control on the variables that can distort the results, so one should take the required caution in generalizing the results. Due to the spread of cancer and its problems, it is recommended that the study is done on a wider sample and with controlling the confounding elements. Also, the cause and factors that can improve variables of present study in female patients with cancer can be investigated in further studies.

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## Footnotes

**Authors' Contributions:** All authors have contributed equally in this article.

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Mindfulness-based cognitive therapy (MBCT) is a depressive relapse prevention program that combines aspects of cognitive therapy and training in mindfulness (meditation). Specifically developed to prevent unipolar depressive relapse [9] MBCT enables people to become more aware of their thoughts without judgment and to viewing them as passing mental events [10]. When focused on between-episode anxiety and depressive symptoms in unipolar and bipolar patients with suicidal ideation or behavior [10,19]. Psycho educational programs and cognitive-behavioral techniques (CBT) are, to date, the patient-focused approaches that have shown clear evidence of efficacy in randomized studies. Group therapies and internet-based therapies, which are cost-effective methods, are promising treatments and would need further study.

Introduction. A reduction in suicidality (including any suicidal behavior or suicidal thought) was found in both groups at the end of treatment but CAMS achieved similar results in a significantly lower number of sessions. Interestingly, CAMS was also associated with decreased medical health care utilization 6 months after the treatment. The results seem to confirm the effectiveness of psychotherapeutic interventions for the management and reduction of suicidal risk. However, there is a lack of methodological consensus on how to apply these interventions, which limits the generalizability of the findings.

Mindfulness-based cognitive therapy (MBCT) combines cognitive behavioral techniques with mindfulness strategies in order to help individuals better understand and manage their thoughts and emotions in order to achieve relief from feelings of distress. Though originally developed to address recurrent depression, MBCT may be beneficial to people seeking treatment for a wide range of mental health concerns. Low mood, negative thoughts, and certain body sensations such as weariness and sluggishness often occur together during an episode of depression. The effectiveness of mindfulness based cognitive therapy is supported by considerable empirical evidence and has, according to research, generally produced positive results for people in treatment.

Mindfulness-based cognitive therapy (MBCT) was developed by Segal et al. in 2002. The aim of MBCT is for an individual to gain freedom from automatic reactions to thoughts, feelings, and events [25]. It emphasizes accepting thoughts and feelings without judgment. MBCT includes cognitive therapy and mindfulness skills. It consists of teaching participants various stress management techniques, including relaxation, yoga, and self-care techniques, in a systematic way. MBCT also uses meditation practice to increase attention and awareness. Previous researches have mentioned the effectiveness of MBCT in pain condition [34, 35]. In this study, we examined the effects of MBCT in patients with PMS who had depressive symptoms.