Health, Spirituality and Medical Ethics Journal
Qom University of Medical Sciences
June 2022. Volume 9. Number 2

Research Paper

Comparing the Effects of Transdiagnostic Intervention and Mindfulness-based Schema Therapy on Spiritual Distress in Women With Breast Cancer: A Clinical Trial

Fatemeh Ghayour Kazemi[1], Fatemeh Shahhabizadeh[2*], Maryam Safara[3], Soudabeh Shahidsales[4]

1. Department of Medicine and Psychology, School of Psychology, Islamic Azad University, Birjand Branch, Birjand, Iran.
2. Department of Psychology, School of Psychology, Birjand Branch, Islamic Azad University, Birjand, Iran.
3. Department of Psychology, Women Research Center, Alzahra University, Tehran, Iran.
4. Cancer Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.

Use your device to scan and read the article online

Please cite this article as Ghayor Kazemi F, Shahhabizadeh F, Safara F, Shahidsales M.Comparing the Effects of Transdiagnostic Intervention and Mindfulness-based Schema Therapy on Spiritual Distress in Women With Breast Cancer: A Clinical Trial.Health, Spirituality and Medical Ethics Journal. 2022; 9(2):63-74. http://dx.doi.org/10.32598/hsmej.9.2.418.1

doi: http://dx.doi.org/10.32598/hsmej.9.2.418.1

Article info:
Received: 20 Feb 2022
Accepted: 14 Sep 2022
Publish: 01 Jun 2022

Keywords:
Breast cancer, Schema, Mindfulness, Distress

ABSTRACT

Background and Objectives: Breast cancer is the most commonly diagnosed cancer in women which can cause spiritual distress in them. This study aims to assess the effects of mindfulness-based schema therapy (MBST) and transdiagnostic intervention on spiritual distress of women with breast cancer.

Methods: This is a quasi-experimental study (Clinical trial) with a pre-test/post-test/ follow-up design using a control group. Participants were 41 women with breast cancer referred to Omid and Imam Reza hospitals in Mashhad, Iran during 2017-2020, who were selected using a convenience sampling method and randomly assigned into two experimental groups and one control group. For both experimental groups, the intervention was performed at ten weekly sessions. The used instrument was the Spiritual Distress Scale of Ku et al. Data were analyzed using repeated measures analysis of variance and Bonferroni post hoc test in SPSS software, version 25 software.

Results: There was a significant difference in the mean scores of spiritual distress in the experimental groups compared to the control group in the post-test and follow-up phases ($P<0.001$). There was no significant difference between the effectiveness of transdiagnostic intervention and MBST in the post-test and follow-up phases ($P>0.05$).

Conclusion: Both transdiagnostic intervention and MBST can reduce the spiritual distress of women with breast cancer.

*** Corresponding Author:**
Fatemeh Shahhabizadeh, Associate Professor.
Address: *Department of Psychology, School of Psychology, Birjand Branch, Islamic Azad University, Birjand, Iran.*
Phone: *+98 (915) 3319855*
E-mail: *f_shahabizadeh@yahoo.com*

Introduction

Breast cancer accounts for 26% of newly diagnosed cancers and is responsible for 15% of cancer-related deaths in women. According to the report of the World Health Organization, more than 1.2 million patients are diagnosed with breast cancer annually [1], and the number of patients will reach 27 million by 2030 [2]. Distress is an unpleasant experience with a psychological and spiritual nature that interferes with the ability to effectively deal with cancer. The American National Comprehensive Cancer Network defines spiritual distress as common and natural feelings of vulnerability, sadness, and fear of facing problems that lead to anxiety, depression, hopelessness, and existential and spiritual crisis [3-5]. Spiritual distress generally refers to a state of suffering from an impaired ability to experience meaning in life through connection with self, others, the world, or a supreme being. Other characteristics of spiritual distress include the feelings of alienation, anger, being guilty, abandonment, and inhibition of interaction with significant others [6]. For these reasons, spiritual distress models have different domains, including interaction with oneself or personal domains (emotions, thoughts, meaning, purpose, and values in life), with others or social domains (interpersonal relationships related to ethics, culture, and religion), with God or transcendental domains, with nature (biological and physical relationships) and exposure to death (being unable to talk about death or having fear of dying). These domains are usually examined in spiritual distress scales for patients with cancer [4-7].

In a study, 78% of patients with cancer reported spirituality and religion as important factors in their cancer experience, and 86% of patients with advanced cancer reported at least one spiritual concern. Since almost one-third of patients with cancer have a comorbid psychiatric disorder, the importance of spirituality and religion in their mental and physical health is increasing [8]. Therefore, spiritual distress is very common in patients with cancer and many studies have shown a correlation between spiritual distress with worsened emotional, social, and physical distress [4]. Considering that many qualitative studies have investigated various areas of spiritual distress and spiritual needs in these patients, it is possible to use psychological treatments to improve these areas.

A study on the spiritual experiences of long-term practitioners of meditation with breast cancer showed that yoga (a practice focused on spirituality) is effective in improving spiritual, emotional, and physical health and, causing better results of physiological treatments [9]. Based on this study, the main themes of spiritual experiences included positive states of mind, self-awareness, God's healing power, spiritual support, and spiritual growth. The sub-themes were awareness of eternity, soul consciousness, lack of fear, being happy no matter what, and being an inspirational model [9]. This suggests the use of treatments such as mindfulness for patients with cancer in the field of spiritual distress. In a study on the effectiveness of cognitive therapy based on mindfulness in patients with non-metastatic breast cancer, psychological distress (anxiety and depression) and the fear of cancer recurrence and fatigue decreased while spiritual health and quality of life increased [10]. A review study showed that mindfulness-based treatments had a positive effect on reducing anxiety, depression, and fear of breast cancer recurrence and improved emotional and physical health in these patients, but the effects on stress and spirituality were not statistically significant. The researchers concluded that mindfulness-based therapy is a significant adjunctive therapy for patients with breast cancer, although has some methodological flaws [11].

The schemas are people's deep and strong beliefs about themselves and the world which are the results of development process during childhood. The communication pattern in the first years of childhood caused by interaction with primary caregivers, affects the later emotional and psychological functions. On the other hand, the effective functioning of attachment styles in providing support can reduce anxiety; any disruption in such effect may lead to increased death anxiety and death awareness (as two dimensions of spiritual distress). People with a secure attachment style seek social support when faced with emotional stress, while people with an insecure attachment style use other methods for emotional self-regulation, such as isolation. Therefore, the relationship of schemas with attachment styles and coping strategies for emotional stress is expected. A significant relationship between attachment styles and death anxiety through mediation by early maladaptive schemas has been shown in people with cancer [12].

In mindfulness-based schema therapy (MBST), it is suggested that maladaptive schemas can lead to self-destructive behaviors that can be triggered during relationships in adulthood or during stressful situations (such as cancer). As soon as the schemas are activated, they cause full-scale experience of thoughts, feelings, perceptions, memories and powerful schema-driven compulsions. People who are involved in incompatible mindsets also suffer from interpersonal and intrapersonal problems (dimensions of spiritual distress). Therefore, mindfulness techniques can be used in schema therapy to change schemas or incompatible mindsets [13] so that a person can look at emotional habits with awareness and be able to challenge them [14].

The role of an insecure attachment to God in patients with breast cancer is important in creating negative patterns of adaptation to cancer [15]. The level of belief in the active presence of God in life and in processing of experiences and effective survival behaviors is different in women with breast cancer compared to women who do not have this belief and need to focus on self-improvement, a sense of self-centeredness, and using what they have learned in their cancer experience. Spiritual support is also a resource for coping with breast cancer; although it can function separately (in parallel with a person's relationship with God), it is often intertwined with the concept of God [15, 16].

Cognitive schemas along with life-threatening events such as cancer can lead to the creation of feelings such as fear, sadness, or shame. Spiritual distress under the influence of certain cognitive schemas, is effective in the decision-making of patients during the treatment process. Therefore, patients with breast cancer must undergo evaluation and identification of their early maladaptive schemas to treat their spiritual distress that can negatively affect their selection of treatment options and quality of life [14]. The goal of MBST is to deactivate incompatible mindsets and maximize the governance of a healthy adult mindset, by which the mind becomes a place of memories and thoughts and the body becomes a place of emotions and physical feelings. When patients achieve this goal, they no longer give in to unpleasant internal experiences and start reacting more healthily and efficiently, instead of running away or avoiding them [17]. Few studies have paid attention to the process of finding spiritual and non-spiritual meaning in the experience of cancer over time, to the stages of survival, and to the factors of change in the meaning. In some contexts, spirituality is especially related to mindfulness, which has mostly been reported in interventional studies [18].

Transdiagnostic approach is one of the novel methods that examines the common factors of psychological problems and how they are formed and persisted [19]. The unified protocol for transdiagnostic treatment is based on cognitive-behavioral theories that have been created by combining the common principles of psychotherapies based on empirical data. This approach is influenced by emotional therapy which emphasizes the role of emotional dysregulation in disorders, and uses the exercises of conscious attention; i.e. change in inconsistent cognitive assessments, emotional awareness focused on the present moment, changing willingness to act related to different emotions, prevention of emotional avoidance, and the use of coping strategies for emotions. The protocol is used for all anxiety and unipolar mood disorders as well as disorders that have strong emotional components such as somatoform and dissociative disorders [20]. Studies have shown that patients with cancer have different generalized anxiety disorder, panic disorder, and transdiagnostic indicators such as experiential avoidance, metacognitive beliefs, cognitive emotion regulation, and intolerance of uncertainty compared to healthy people, which highlights the importance of using the third-wave methods therapies for this patients [21]. Studies have confirmed the correlation between mental distress and fear of cancer recurrence and health behavior changes in adult cancer survivors. The effectiveness of transdiagnostic methods in treatment of anxiety and depression has also been supported using a six-month follow-up [22, 23]. A study used an internet-based cognitive-behavioral therapy based on the unified protocol for transdiagnostic treatment of emotional disorders to improve emotional regulation and support mental health in cancer survivors. This intervention reduced symptoms of anxiety and depression by increasing emotional awareness and cognitive reappraisal [24]. Although spirituality and spiritual distress are important for better adaptation to cancer and therapeutic approaches have been designed for all types of cancer, they may not be responsive to all patients [25]. The present study is a novel study addressing the above-mentioned treatment options for breast cancer. It aims to compare the effectiveness of transdiagnostic intervention and MBST in reducing spiritual distress of women with breast cancer and clarify the challenges in novel approaches and improve the mental health of these patients.

Methods

Participants

This is a quasi-experimental study (clinical trial) with pre-test/post-test/follow-up design using a control group, having ethical approval (IR.MUMS.REC.1400.026) and registered clinical trial code (IRCT20210128050165N1). The study population consists of all women diagnosed with breast cancer referred to Omid and Imam Reza hospitals in Mashhad, Iran in 2021. A convenience sampling method was used to select 41 samples. They were randomly divided into three experimental and control groups. Transdiagnostic intervention and MBST were carried out separately in the form of group therapy at ten sessions on two experimental groups for about 2.5 months. For the women in the wait-list control group, after the end of 45-day follow-up period, two educational sessions (familiarity and experience of emotions related to the disease) were held. Phone calls were used for sampling and screening. Inclusion criteria were no use of psychiatric drugs, age 30-60 years, a

least a primary education, and receiving treatments other than chemotherapy. Since the number of population was low (n=70) and several patients refused to cooperate due to the spread of COVID-19 and consecutive closures, the questionnaires were completed over the phone or online, and group therapy sessions were held online. Some entry criteria such as being married, having a high school diploma, and no history of infection with COVID-19 in the last six months were not considered. Informed consent was obtained from all participants.

Transdiagnostic intervention

Ten 90-minute group therapy sessions based on the unified protocol for transdiagnostic treatment of emotional disorders developed by Barlow et al. [20] were used for transdiagnostic intervention for 2.5 months. The protocol is presented in Table 1.

Mindfulness-based schema therapy

Eight 90-minute group therapy sessions along with two follow-up sessions based on the schema therapy proposed by Van Vreeswijk et al. [14] were used for MBST for 2.5 months. Table 2 presents the protocol of this intervention.

Instruments

The used instrument was the Spiritual Distress Scale (SDS) designed by Ku et al. [26] containing 30 items and four domains: Relationship with self (items 1-14), relationship with others (items 15-19), relationship with God (items 20-26), and attitude towards death (items 27-30). The items are rated on a scale from 1 to 4 and the total score is between 30 and 120. The content validity of SDS ranged from 0.79 to 0.89 for the subscales and 0.83 for the overall. The Cronbach's alpha for the overall tool was 0.95 (7-26).

The questionnaire was completed before and after the interventions and in the 45-day follow-up period. The questionnaire was first translated into Persian by two experts fluent in English and expert in psychology; then, the Persian draft was translated back into English by two other experts in English and psychology. Finally, the Persian and English drafts were compared by the researchers, and the Persian version was approved. The validity of the Persian version was calculated quantitatively. To assess the test-retest reliability, the questionnaire was first completed by 20 patients with breast cancer in a two-week interval. Then, Pearson's correlation test was used to assess the correlation of scores

Table 1. Protocol of transdiagnostic intervention

Sessions	Content
1	Increasing motivation, an interview to motivate patients to involve in the treatment, and determining treatment goals
2	Psychoeducation, recognizing emotions and tracking emotional experiences, and teaching the three-component ARC model of emotional experiences (Antecedents, Responses, Consequences)
3-4	Teaching emotional awareness, learning to observe emotional experiences (emotions and reactions to emotions)
5	Cognitive reappraisal, awareness of a mutual relationship between thoughts and emotions, identifying automatic inconsistent evaluations and common thinking traps, and increasing flexibility in thinking
6	Identifying patterns and familiarity with different strategies of emotional avoidance and its impact on emotional experiences, and awareness of the contradictory effects of emotional avoidance
7	Considering emotion-driven behaviors, identifying behaviors caused by emotions and understanding their impact on emotional experiences, identifying inconsistent emotion-driven behaviors, and creating alternatives through facing situations
8	Awareness and tolerance of physical feelings, performing interoceptive emotion exposure exercises
9	Interoceptive and situational emotion exposure, awareness of the logic of emotion-focused exposure, teaching how to prepare a hierarchy of fear and avoidance, visual and objective emotion-focused exposure exercises, and prevention of avoidance
10	Review of treatment concepts and discussion about treatment progress, relapse prevention strategies

Table 2. Protocol of MBST

Session	Content
1	Introduction, explanation of schemas and mindfulness, raisin exercise, schema and mindfulness notebook, body check exercise, homework
2	Schema and mindfulness notebook, short-term observation of body, discussion about mindfulness scores and assigning homework, practicing mindfulness in daily life, homework
3	Three-minute breathing space exercise, exchange of opinions about attention to the schemas and assigning homework, practicing mindfulness in painful memories, mindful walking
4	Schema and mindfulness notebook, three-minute breathing space exercise, exchange of opinions about attention to the schemas assigning homework, coping with schema, mindful tricks
5	Schema and mindfulness notebook, three-minute breathing space exercise, exchange of opinions about attention to the schemas and assigning homework, three-minute schema-focused mindfulness exercise, mindful acceptance of the self and others
6	Schema and mindfulness notebook, three-minute breathing space practice, discussing attention to the schemas and assigning homework, demonstrating intention, letting go of the schemas
7	Discussion about attention to the schema scores and assigning homework, self-care with the help of a healthy adult and a happy child, preparing for the future, knowledge of the needs of the healthy adult and happy child
8	Exchange of opinions about attention to the schema and assigning homework, practicing to pay attention to the self as a child and adult, tricks and schema-focused mindfulness in interpersonal interactions, evaluation
1st follow-up	Memorizing and recalling previous skills, maintenance, enhancement, and integration of mindfulness in daily life, schema and mindfulness notebook, practicing mindfulness
2nd follow-up	Schema and mindfulness notebook, group mindfulness exercise, evaluation

Health, Spirituality and Medical Ethics Journal
Qom University of Medical Sciences

between test and retest phases. In the present study, the content validity index and content validity ratio were obtained 0.95 and 0.97, respectively. The test-retest reliability was r=0.96 for the overall instrument and 0.98 for Relationship with self, 0.83 for relationship with others, 0.82 for relationship with God, and 0.84 for attitude towards death subscales.

Data analysis

To analyze the collected data, descriptive statistics : Means±SD and inferential statistics such as repeated measures analysis of variance (ANOVA), Bonferroni's post hoc test, Kolmogorov- Smirnov test, and sphericity test were used in SPSS version 25 software. The significance level of statistical tests was set at 0.05.

Results

In this study, 14 women were examined in the MBST group, 13 in the transdiagnostic group, and 14 in the control group. The results of one-way ANOVA showed no significant difference between the MBST (42.71±7.47 years), transdiagnostic (44.31±6.74 years), and control (43.07±5.53 years) groups in terms of age (P=0.81). Most of patients in the MBST group (57.1%, n=8) and transdiagnostic group (38.5%, n=5) had a bachelor's degree while in the control group most of them had a diploma (1.57%, n=8). The results of the chi-square test showed no significant difference between the groups in terms of educational level (P=0.66). Most of patients in the MBST group (78.6%, n=11), therapeutic group (76.9%, n=10), and control group (58.7%, n=12) were married. The results of the chi-square test showed no significant difference between the groups in terms of marital status (P=0.65), Table 3 and 4.

In examining the assumptions of repeated measures ANOVA, first, the normality of data distribution was confirmed by the Kolmogorov-Smirnov test results. Then, the assumption of sphericity was confirmed by Mauchly's sphericity test results (P>0.05) indicating the homogeneity of the covariance matrix. Therefore, the repeated measures ANOVA was used for the spiritual distress and its subscales.

The results of post hoc test in Table 5 showed that, in the MBST and transdiagnostic groups, there was a significant difference in total score of spiritual distress and its sub-scales between pre-test and post-test, be-

Table 3. Mean±SD of spiritual distress and its subscales in three study groups

Spiritual Distress		Mean±SD		
		Control (n=14)	Transdiagnostic (n=13)	MBST (n=14)
Relationship with self	Pre-test	32.93±8.33	29.92±12.92	30.07±9.85
	Post-test	33.21±8.87	27.69±12.72	26.78±9.71
	Follow up	33.93±8.50	26.46±12.09	25.43±8.85
Relationship with others	Pre-test	12.00±2.07	14.00±2.94	15.07±2.89
	Post-test	11.93±2.46	11.54±3.10	12.57±2.95
	Follow-up	12.57±2.21	10.92±2.33	11.36±2.20
Relationship with God	Pre-test	13.78±2.72	15.46±4.33	15.36±3.48
	Post-test	13.71±2.58	12.08±3.82	13.36±2.40
	Follow-up	14.43±2.76	11.00±3.58	13.21±1.89
Attitude towards death	Pre-test	14.43±2.44	16.00±2.08	14.43±1.60
	Post-test	14.57±2.05	13.85±2.79	12.57±1.65
	Follow-up	15.07±2.76	12.69±1.89	12.00±1.47
Total	Pre-test	73.14±10.72	75.38±14.01	74.93±11.05
	Post-test	73.43±11.19	65.15±14.33	65.28±10.71
	Follow-up	76.00±0.96	61.08±13.93	62.00±9.45

Health, Spirituality and Medical Ethics Journal
Qom University of Medical Sciences

tween pre-test and follow-up, and between post-test and follow-up phases (P<0.05). However, in the control group, there was no significant difference between evaluation phases (P>0.05).

Discussion

The purpose of this study was to compare the effects of transdiagnostic intervention and MBST on the spiritual distress of women with breast cancer and healthy women. The findings showed that both methods had a significant effect on spiritual distress. These findings are in line with the findings of a study that addressed the importance of spiritual health in patients with cancer [27], and the results of studies that examined the effectiveness of spiritual therapy and spiritual experiences such as yoga [9, 28, 29], mindfulness-based therapy, and spiritual coping on spiritual distress and spiritual health [11, 30, 31]. Bredicean et al. [32] also showed the relationship of common cognitive schemas (e.g. punitiveness, abandonment, sacrifice, emotional deprivation, undeveloped self/ enmeshment, etc.) with finding meaning for the disease and its treatment, relationship with others, suppressing emotions, emotional conflict, strong attachment to significant others, sense of emptiness, lack of direction and existential meaninglessness, difficulty in forgiving the mistakes of self or others , lack of existential purpose, and a tendency to care for a person in a harsh and punitive manner in patients with breast cancer. Our finding is also consistent with the results of studies that examined the mediating role of early maladaptive schemas in the relationship between attachment styles and death anxiety among patients with cancer, as well as those indicated the positive relationship between insecure attachment style and death anxiety, insecure relationships with God and others, and negative patterns of adaptation to cancer [12, 15, 33]. Consistent with the results of Agarwal et al. [9] in examining the spiritual experiences of long-term meditation practitioners of patients with breast cancer, the themes related to spiritual experiences including positive states of mind and self-awareness were also improved by MBST and transdiagnostic intervention in our study.

Table 4. Results of repeated measures Anova for within-subject and between-subject effects of spiritual distress

Spiritual Distress		Source	Sum of Squares	df	Mean Square	F	P	Eta Squared
Relationship with self	Within-subject	Time	123.37	2	61.69	41.75	<0.001	0.52
		Time × group	126.06	4	31.51	21.33	<0.001	0.53
		Error	112.28	76	1.48			
	Between-subject	Intercept	9766.79	1	9766.79	142.14	<0.001	0.70
		Group	887.36	2	443.68	4.41	0.02	0.49
		Error	119.57	38	314.67			
Relationship with others	Within-subject	Time	99.23	2	49.61	32.55	<0.001	0.46
		Time × group	75.78	4	18.95	12.43	<0.001	0.39
		Error	115.84	76	1.52			
	Between-subject	Intercept	1901.00	1	1901.00	1107.65	<0.001	0.66
		Group	39.50	2	19.75	9.56	0.04	0.29
		Error	652.24	38	17.16			
Relationship with God	Within-subject	Time	99.44	2	49.72	28.94	<0.001	0.43
		Time · group	91.09	4	22.77	13.26	<0.001	0.41
		Error	130.55	76	1.72			
	Between-subject	Intercept	2272.70	1	2272.70	876.51	<0.001	0.78
		Group	134.01	2	117.00	17.65	0.03	0.52
		Error	98.03	38	21.92			
Attitude towards death	Within-subject	Time	64.32	2	32.16	27.44	<0.001	0.42
		Time group	59.96	4	14.99	12.79	<0.001	0.40
		Error	89.05	76	1.17			
	Between-subject	Intercept	2392.73	1	2392.73	187.84	<0.001	0.68
		Group	82.99	2	51.49	5.46	0.04	0.31
		Error	286.05	38	9.79			
Total	Within-subject	Time	1518.16	2	759.08	103.95	<0.001	0.73
		Time × group	1278.09	4	319.52	43.75	<0.001	0.70
		Error	555.00	76	7.30			
	Between-subject	Intercept	59510.14	1	59510.14	145.32	<0.001	0.67
		Group	131.70	2	65.35	8.60	0.04	0.35
		Error	155.62	38	40.36			

Table 5. Bonferroni post hoc test results

Variable	(I) time	(J) time	MBST (I-J)		Transdiagnostic		Control		
			Mean±SD	P	Mean±SD	P	Mean±SD		P
Relationship with self	Pre-test	Post-test	3.29±0.40	<0.001	2.23±0.56	0.005	0.29±0.34		0.001
		Follow-up	4.64±0.50	<0.001	3.46±0.66	0.001	1.00±0.39		0.07
	Post-test	Follow-up	1.36±0.48	0.04	1.23±0.44	0.04	0.71±0.38		0.26
Relationship with others	Pre-test	Post-test	2.50±0.39	<0.001	2.46±0.51	0.0001	0.07±0.49		0.001
		Follow-up	3.71±0.54	<0.001	3.08±0.64	0.001	0.57±0.47		0.75
	Post-test	Follow-up	1.21±0.47	0.04	0.61±0.42	0.06	0.64±0.19		2.00
Relationship with God	Pre-test	Post-test	2.00±0.42	0.001	3.38±0.51	<0.001	0.07±0.32		0.99
		Follow-up	2. 14±0.64	0.01	4.46±0.76	<0.001	0.64±0.40		0.39
	Post-test	Follow-up	1.40±0.39	0.04	1.07±0.49	0.04	0.71±0.47		0.47
Attitude towards death	Pre-test	Post-test	1.86±0.25	<0.001	2.15±0.46	0.002	0.014	0.31	0.001
		Follow-up	2.43±0.43	0.001	3.31±0.62	0.001	0.64	0.43	0.47
	Post-test	Follow-up	1.57±0.29	0.02	1.15±0.54	0.04	0.50	0.29	0.33
Spiritual distress total score	Pre-test	Post-test	9.64±0.80	<0.001	10.23±1.06	<0.001	0.29	0.84	0.96
		Follow-up	12.93±1.30	<0.001	14.31±1.39	<0.001	2.86	1.09	0.06
	Post-test	Follow-up	3.29±0.99	0.01	4.08±1.00	0.005	2.57	0.70	0.09

SD= Standard deviation

In the current study, spiritual distress (i. e. relationship with God and others and attitudes towards death) can be reduced by transdiagnostic intervention techniques through increasing psychological flexibility in facing unpleasant events, emotional regulation by accepting more unpleasant feelings and replacing inefficient and avoidant behaviors with more adaptive behaviors [20]. This, in turn, can improve the relationship with self, God, and others and increase the ability of a person to control the living conditions and change them. The MBS, by improving common schemas of patients, increasing psychological flexibility in experiencing and accepting emotions, improving the healthy adult-child relationships and acceptance of self and others could reduce patients' spiritual distress (relationship with self, God, and others, and attitudes towards death) [14]. The methods could help women with breast cancer cope with the experienced pain by accepting the disease, increasing self-compassion, and cognitive reappraisal., leading to their improved relationships with themselves and others. Although most of the patients reported a spiritual relationship with God before and after the interventions, some expressed anger, feeling of being punished and abandoned by God, inadequate reasons hidden due to the cultural issues and the pressure of guilt caused by religious beliefs and teachings [34].

No difference was observed between MBST and transdiagnostic intervention, maybe because the treatment duration and follow-up period were short. For deeper understanding of schemas and schematic mindsets and observing a meaningful difference between the two treatments, more treatment sessions are needed so that the women can identify schema-driven situations and manage them using mindfulness techniques, and believe the changes following visual and objective exposure to unpleasant emotions. The difficulty in recruiting patients, the small sample size, the complications of the disease, and problems related to the COVID-19 outbreak, and women's unwillingness to review memories related to the period of illness were among the limitations of the present study. The interventions can be used for women with breast cancer before diagnosis, during treatment, and after treatment to experience emotions, not to avoid disease-related situations, and improve their attention to self, others, and God (spiritual resources).

Conclusion

Both transdiagnostic approach and MBST can reduce the spiritual distress of women with breast cancer with persistent effects up to 45 days, and there is no difference between them. This methods along with pharmaceutical and medical treatments can be used to improve the spiritual life of women with breast cancer.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by the Research Ethics Committee of Mashhad University of Medical Sciences (Code: IR.MUMS.REC.1400.026) and was registered by Iranian Registry of clinical trials (ID: IRCT20211012128050165N1). The patients' information were kept confidential, and a written informed consent was obtained from them.

Funding

This study was extracted from PhD thesis of the first author.

Authors' contributions

The first author analyzed and interpreted the obtained data; the first and second authors contributed in writing the manuscript; All authors read and approved the final version of the manuscript.

Conflict of interest

All authors declare no conflict of interest.

Acknowledgments

The authors would like to thank all women participated in this research.

References

[1] Refaee Saeedi N, Aghamohammadian sharbaf H, Asghari Ebrahim Abad MJ, Kareshki H. [Psychological consequences of breast cancer in Iran: A systematic review of research literature. J Fasa Univ Med Scis (Persian)]. 2022; 8(4):986-99. [Link]

[2] Endang NH, Nursalam N, Chong MC, Taat PS, Hidayat A. Change of stress and cortisol levels in patients with breast cancer given psychospiritual care. Int J Caring Sci. 2019; 12(3):1796-805. [Link]

[3] National Cancer Institute. SEER cancer statistics review 1975-2016. Bethesda: National Cancer Institute; 2016. [Link]

[4] Puchalski CM, Sbrana A, Ferrell B, Jafari N, King s, Balboni T, et al. Interprofessional spiritual care in oncology: A literature review. ESMO Open. 2019; 4(1):e000465. [DOI:10.1136/esmoopen-2018-000465] [PMID] [PMCID]

[5] Silva GCN, Reis DCD, Miranda TPS, Melo RNR, Coutinho MAP, Paschoal GDS, et al. Religious/spiritual coping and spiritual distress in people with cancer. Rev Bras Enferm. 2019; 72(6):1534-40. [DOI:10.1590/0034-7167-2018-0585] [PMID] [PMID]

[6] Martins H, Caldeira S. Spiritual distress in cancer patients: a synthesis of qualitative studies. Religions. 2018; 9(10):285. [DOI:10.3390/rel9100285]

[7] Martins H, Caldeira S, Domingues TD, Vieira M, Ku Y-L. Validation of the spiritual sidtress scale in portiguese cancer patients undergoing chemotherapy: A methodological study. Religions. 2019; 10(11):599. [DOI:https://doi.org/10.3390/rel10110599]

[8] Kao LE, Lokko HN, Gallivan K, O'Brien V, Peteet JR. A model of collaborative spiritual and psychiatric care of oncology patients. Psychosomatics. 2017; 58(6):614-23. [DOI:10.1016/j.psym.2017.06.004] [PMID]

[9] Agarwal K, Fortune L, Heintzman JC, Kelly LL. Spiritual experiences of long-term meditation practitioners diagnosed with breast cancer: An interpretative phenomenological analysis pilot study. J Relig Health. 2020; 59(5):2364-80. [DOI:10.1007/s10943-020-00995-9] [PMID]

[10] Park S, Sato Y, Takita Y, Tamura N, Ninomiya A, Kosugi T, et al. Mindfulness-based cognitive therapy for psychological distress, fear of cancer recurrence, fatigue, spiritual well-being, and quality of life in patients with breast cancer-a randomized controlled trial. J Pain Symptom Manage. 2020; 60(2):381-9. [DOI:10.1016/j.jpainsymman.2020.02.017] [PMID]

[11] Zhang J, Xu R, Wang B, Wang J. Effects of mindfulness-based therapy for patients with breast cancer: A systematic review and meta-analysis. Complement Ther Med. 2016; 26:1-10. [DOI:10.1016/j.ctim.2016.02.012] [PMID]

[12] Masoodi S, Hatami H, Modaress M, Banijamali S. [The mediating role of early maladaptive schemas in relationship between attachment styles and anxiety of death among cancer patients (Persian)]. Thought Behav Clin Psychol. 2016; 11(39): 37-46. [Link]

[13] Raftar Aliabadi MR, Shareh R, Toozandehjani H. [Comparison of the effectiveness of schema therapy withmindfulness and forgiveness therapy on clinical symptoms, emotional responses in women affected by wifebetrayal (Persian)]. J North Khorasan Univ Med Sci. 2020; 11(4):49-60. [DOI: 10.29252/nkjms-11041]

[14] Fan Veriswick M, Bruersen J, Scheuring G. Attention awareness and schema therapy [H. Zirak, H. Hamidpour, Persian trans]. Tehran: Ibn Sina; 2016. [Link]

[15] Gall TL, Bilodeau C. Attachment to god and coping with the diagnosis and treatment of breast cancer: A longitudinal study. Support Care Cancer. 2020; 28(2):2779-88. [DOI:10.1007/s00520-019-05149-6] [PMID]

[16] Arambasic J, Sherman KA, Elder E; Breast cancer network Australia. attachment styles, self-compassion, and psychological adjustment in long-term breast cancer survivors. Psychooncology. 2019; 28(5):1134-41. [DOI:10.1002/pon.5068] [PMID]

[17] Coelho BA, Paiva SPC, da Silva Filho AL. Extremely brief mindfulness interventions for women undergoing breast biopsies: A randomized controlled trial. Breast Cancer Res Treat. 2018; 171(3):685-92. [DOI:10.1007/s10549-018-4869-9] [PMID]

[18] Park CL, Carney LM. The supportive roles of spirituality and mindfulness in patients' cancer journeys. Expert Rev Qual Life Cancer Care. 2018; 36(9). [DOI:10.1080/23809000.2018.1519371]

[19] Fernández-Rodríguez C, Paz-Caballero D, González-Fernández S, Pérez-Álvarez M. Activation vs. experiential avoidance as a transdiagnostic condition of emotional distress: an empirical study. Front Psychol. 2018; 9:1618. [DOI:10.3389/fpsyg.2018.01618] [PMID] [PMCID]

[20] Barlow d, Farchion T, Firholm K, Allard K, Boiso K, Allen L, et al. Integrated protocol for meta-diagnostic treatment of emotional disorders [S. Ghasem Zadeh, L. Salek Ebrahimi, E. Mousavi, Persian trans]. Tehran: Ibn Sina. 2016. [Link]

[21] Mansouri A, Zardoshtian Moghadam V. Comparing symptoms of anxiety disorders and related transdiagnostic factors in cancer patients and healthy individuals. J Patient Saf Qual Improv. 2021; 9(3):133-40. [DOI:https://doi.org/10.22038/psj.2021.57539.1324]

[22] Hall DL, Jimenez RB, Perez GK, Rabin J, Quain K, Yeh GY, et a Peppercorn JM. Fear of cancer recurrence: a model examination of physical symptoms, emotional distress, and health behavior change. J Oncol Pract. 2019; 15(9):787-e797. [DOI:10.1200/JOP.18.00787] [PMID] [PMCID]

[23] Cherry MG, Salmon P, Byrne A, Ullmer H, Abbey G, Fisher PL. Qualitative evaluation of cancer survivors' experiences of metacognitive therapy: a new perspective on psychotherapy in cancer care. Front Psychol. 2019; 10:949. [DOI:10.3389/fpsyg.2019.00949] [PMID] [PMCID]

[24] Smith IS, Wellecke C, Weihs KL, Bei B, Wiley JF. Piloting cancope: An internet-delivered transdiagnostic intervention to improve mental health in cancer survivors. Psychooncology. 2022; 31(1):107-15. [DOI: 10.1002/pon.5787] [PMID]

[25] Schreiber JA, Edward J. Image of God, religion, spirituality, and life changes in breast cancer survivors:A qualitative approach. J Relig Health. 2015; 54(2):612-22. [DOI:10.1007/s10943-014-9862-y] [PMID]

[26] Ku YL, Kuo SM, Yao CY. Establishing the validity of a spiritual distress scale for cancer patients hospitalized in southern Taiwan. Int J Palliat Nurs. 2010; 16(3):134-8. [DOI:10.12968/ijpn.2010.16.3.47325] [PMID]

[27] Marzband R, Jafari H. [Spiritual challenges in cancer patients: A review study (Persian)]. Paper presented at: 8th National Conference on Health Promotion Strategies and Challenges with a focus on cancer. 21 November 2019; Sari, Iran. [Link]

[28] Ghasemi Cherati F, Heidari Gorji M, Jafari H. [The effectiveness of mindfulness - based cognitive therapy on the quality of life in women with breast cancer (Persian)]. Q Mag Nurs Dr War. 2018; 6(20):51-9. [Link]

[29] Mohamad Karimi M, Shariatnia K. [The effectiveness of spiritual therapy on the quality of life of women with breast cancer in Tehran. Nurs Midwifery J. (Persian)]. 2017; 15(2):107-18. [Link]

[30] Muqtada'i S, Azimi Lolti H, Heydari I. [The effect of spirituality-based mindfulness on the hope of women with breast cancer (Persian)]. Paper presented at: 8th National Conference on Health Promotion Strategies and Challenges with a focus on cancer. 21 November 2019; Sari, Iran.[Link]

[31] Miranda TPS, Caldeira S, de Oliveira HF, Iunes DH, Nogueira DA, Chaves ECL, et al. Intercessory prayer on spiritual distress, spiritual coping, anxiety, depression and salivary amylase in breast cancer patients during radiotherapy: Randomized clinical trial. J Relig Health. 2020; 59(1):365-80. [DOI:10.1007/s10943-019-00827-5] [PMID]

[32] Bredicean AC, Crăiniceanu Z, Oprean C, Riviș IA, Papavă I, Secoșan I, et al. The influence of cognitive schemas on the mixed anxiety-depressive symptoms of breast cancer patients. BMC Women's Health. 2020; 20(1):32. [DOI:10.1186/s12905-020-00898-7] [PMID] [PMCID]

[33] Valikhani A, Firouzabadi A. [Examining death anxiety within the framework of attachment styles in cancer patients: a comparative study (Persian)]. Q J Health Psychol, 2016; 5(18):119-40. [Link]

[34] Mehdipour P. Cancer genetics and psychotherapy.Department of Medical Genetics, School of Medicine. New York: Springer Inrtenational Publishing; 2017. [Link]

This Page Intentionally Left Blank