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Effectiveness of Mindfulness-Based Cognitive Therapy on Hopelessness among Women with Breast Cancer and Gynecological Cancer

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Quantitative Study

Abstract

Background: This study investigated the effect of mindfulness-based cognitive therapy (MBCT) on alleviation of hopelessness symptoms among women with breast and gynecological cancer. The diagnosis of gynecologic cancer not only has evident physical ramifications for the patient, but also produces secondary psychological stressors that negatively impact the patient's quality of life (QOL). A research study investigating the effects of MBCT interventions may provide a new approach to coping with these problems.

Methods: This study employed a pretest-posttest and intervention group-control group design to evaluate the outcome of the intervention among individuals receiving MBCT in the Cancer Research Center of Shohadaye Tajrish Hospital, Iran. A total of 82 patients participated in the study (intervention group = 41 individuals, control group = 41 individuals) and 61 participants completed the study (intervention group = 29 individuals, control group = 32 individuals). In the intervention group, 29 of the 41 enrolled participants completed the MBCT intervention.

Results: After adjusting for pretest, MBCT had a significant effect on the dependent variables of hopelessness [F (2,52) = 59.270, P < 0.001; Wilk's lambda = 0.305; partial eta squared = 0.695)]. There was a significant difference between the groups in terms of hopelessness due to loss of motivation (F = 21.711, df1 = 54, P < 0.001; eta = 0.291). The effect size is 0.291 and it is slightly high. Moreover, there was a significant difference between the groups in terms of hopelessness due to future expectation (F = 87.030, df1 = 54, P < 0.001; eta = 0.622). The effect size is 0.622 and it is higher than the average. The findings indicated that MBCT significantly improved measures of hopelessness.

Conclusion: Analysis of covariance showed that MBCT was effective on reduction of hopelessness among patients suffering from breast and gynecological cancers.

Keywords: Mindfulness-based cognitive therapy, Hopelessness, Breast cancer, Gynecological cancer

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Introduction

On a psychological level, at any point cancer patients must face the challenge of an uncertain and possibly foreshortened future, and many aspects of the disease and its treatment may be perceived as both unpredictable and uncontrollable. Brennan (2004) argues that it is the need to simultaneously attend to so many challenges in different realms (physical, psychological, and social) that can be overwhelming for cancer patients and create distress. Learning to be more 'tuned in' to changes in emotions can create the opportunity to respond earlier and more appropriately to emotional distress, rather than allowing the distress to escalate to a level where it becomes not only impossible to ignore, but also more difficult to remedy.

When someone is diagnosed with cancer, its impact extends beyond the physical symptoms of the disease. Cancer can cause considerable distress, significantly impacting a person's quality of life (QOL), psychologically, emotionally, socially, spiritually, and functionally. Distress has been defined by the National Comprehensive Cancer Network (NCCN) as "a multi-factorial unpleasant emotional experience that may interfere with a person's ability to cope effectively with cancer, its physical symptoms and treatment." The NCCN has stated: "Distress extends along a continuum, ranging from common normal feelings of vulnerability, sadness and fears, to problems that can become disabling, such as depression, anxiety, panic, social isolation, and spiritual crisis" (Holland et al., 2010). Distress can be related to many different issues, such as physical problems related to an illness or disability, psychological problems, and/or family and social concerns.

The diagnosis of gynecologic cancer not only has clear physical ramifications for the patient, but also produces secondary psychological stressors that negatively impact the patient's QOL. These secondary stressors may include altered self-image, sense of isolation or of betrayal by one's body, anxiety, depression, and complications related to sexuality. Additionally, these stressors may persist even 10 years post diagnosis.

Corney, Everett, Howells, and Crowther (1992) have shown that women with gynecological cancer worry more about their condition than patients with other types of cancer. Moreover, their sense of psychological well-being is poorer than that of patients with chronic illnesses and healthy individuals (Greimel & Freidl, 2000). Depression and anxiety are the most frequent types of affective disturbance in patients with gynecological cancer, although anger, confusion, and guilt are also common (Andersen & Turnquist, 1989). A high prevalence (23-30%) of major depression has been reported among patients with gynecological cancer (Evans, Lyons, & Killien, 1986; Zabora, BrintzenhofeSzoc, Curbow, Hooker, & Piantadosi, 2001). For most women, severe initial distress returns to normal levels 6 to 12 months after treatment (Coyne, Benazon, Gaba, Calzone, & Weber, 2000; Greimel & Freidl, 2000). Depression, anxiety, and adjustment disorders are often the result of loss of fertility, sexual difficulties, family issues, or the onset of lymphedema symptoms. People with cancer experience many different psychosocial difficulties related to their diagnosis, treatment, and survival. Some of the most frequently cited problems among these patients are discussed below.

Cancer recurrence may elicit hopelessness, as it is presently an incurable diagnosis. It results in more treatment (Aranda, Yates, Edwards, Nash, Skerman, & McCarthy, 2004), fatigue, declining health (Oh, Heflin, Meyerowitz, Desmond, Rowland, & Ganz, 2004; Andersen, Shapiro, Farrar, Crespin, & Wells-Digregorio, 2005), and the potential for lowered QOL (Helgeson & Tomich, 2005). Patients fear and worry about what will happen as the disease progresses. In correlational studies, feelings of hopelessness in patients with recurrence are associated

with psychiatric morbidity and other emotional difficulties (Akechi, Okuyama, Imoto, Yamawaki, & Uchitomi, 2001; Northouse, Templin, & Mood, 2001), poorer QOL (Northouse et al., 2002), and less social support (Akechi, Okamura, Yamawaki, & Uchitomi, 1998).

The Hopelessness Theory of Depression proposed by Abramson, Metalsky, and Alloy (1989) is an important theoretical contribution to the understanding of clinical depression. They proposed that some individuals have a 'depressogenic inferential style' that influences their attributions when faced with a negative life event. Rather than perceiving an event in isolation, individuals make specific negative attributions about the cause of the event, its consequences, or even themselves. According to the theory, only one attribution is needed to develop hopelessness, the belief that the outcome of an event will be negative and that nothing can be done to change it. In turn, feelings of hopelessness are thought to lead to symptoms of hopelessness depression. It has been suggested that other factors, along with hopelessness, may be influential in depression. These include developmental factors, genetic factors, and, most importantly, interpersonal factors, such as social support. Social support includes a number of supportive relationships. However, it is not known whether social support interacts with hopelessness to increase vulnerability to depression as suggested.

Previous studies have focused on hopelessness and problem-solving difficulties as markers of vulnerability. However, although people who have made previous suicide attempts are at high risk of repeated attempts, both hopelessness and problem-solving improve rapidly in the days after a suicidal crisis, even in the absence of treatment (Schotte, Cools, & Payvar, 1990).

According to a study performed by Lotfi Kashani (1998), factors affecting the psychotherapeutic approaches can be categorized into the four factors of therapeutic relationship, creating hope and expectancy, growing awareness, and behavior regulation.

Methods

Participants: The study participants consisted of women with breast and gynecologic cancer in the age range of 24-65 years who were referred by a hematologist, oncologist, gynecologist, surgeon, and primary care physicians who were affiliated with the Cancer Research Center (CRC) of Shohadaye Tajrish Hospital of Shahid Beheshti University of Medical Sciences located in Tehran, Iran, within 8 months following a diagnosis of cancer. The sample size was calculated using the power calculation software G Power (Erdfelder, Faul, & Buchner, 1996; Faul & Erdfelder, 2004). Assuming a power of 0.6 and an average effect size of 0.5, and given a of 0.05, the sample size required to detect this effect was calculated to be N1 = 41 and N2 = 41. Only participants who scored 8 or higher in the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) were invited to participate in this study. Patients who did not meet the study inclusion criteria were offered services with other therapists at the hospital. Out of the 82 patients who were approached, 11 declined to take part in the study. Thus, the response rate was 87% and the study sample was 86% of all patients who met the inclusion criteria (approximately 71 patients). The study population were assigned randomly to the intervention group (n = 36, G_1 = 12, G_2 = 12, G_3 = 12) and wait-list control group (n = 37). Of the patients who had the inclusion criteria, 10 were not approached. The reasons given by patients for declining to participate included feeling too tired or unwell, or disliking the questionnaires. The study population consisted of 61 women [intervention group (n = 29) and wait-list control group (n = 32)].

Research Design: This study attempted to show that the intervention group, who

received 8-sessions of mindfulness-based cognitive therapy (MBCT) interventions, would report a greater reduction in anxiety and depression symptoms than the wait-list control group, who received no intervention. Following the completion of 8 MBCT sessions, the participants assigned to the intervention group received 2 follow-up telephone calls to encourage them to use the MBCT methods to ascertain their present condition.

MBCT treatment for the present study comprised 8 weekly meetings lasting approximately 2 hours and 30 minutes each. The study protocol however lasted 10 weeks to allow for pre-treatment and post-treatment data collection in weeks 1 and 10. The 8 weekly MBCT group sessions were conducted during weeks 2 to 9 following the manualized MBCT program including guided relaxation and mindfulness meditations, group discussions, psychoeducation, and homework assignments (30-45 minutes of daily mindfulness practice using instructional CDs) (Carlson, Speca, & Segal, 2011).

Measures: The Beck Hopelessness Scale (BHS) (Beck & Steer, 1988) is a 20-item scale for measuring negative attitudes about the future. Beck originally developed this scale in order to predict who would die as a result of suicide and who would not. It is a self-report instrument that consists of 20 true-false statements designed to assess the extent of positive and negative beliefs about the future during the past week. The conceptual basis for the scale is derived from the writings of the social psychologist Ezra Stotland. This powerful predictor of eventual suicide is used to measure the 3 major aspects of hopelessness, feelings about the future, loss of motivation, and expectations. Previous normative data suggest a range of scores from 1.70 to 4.45, with a mean of 3.06 for non-illness populations (SD = 3.11). The internal consistency of the BHS was 0.89 (Dozois, Covin, & Brinker, 2003).

Cronbach's alpha coefficient of the scale in the general population ranged from 0.82 to 0.93 (Beck & Steer, 1988). In Iran, the Cronbach's alpha coefficient of the scale has been estimated at 0.79 and the five-factor structure has been described for it (Dejkam, 2004).

Results

A research study investigating the effects of MBCT interventions may provide a new approach to coping with the initial diagnosis of cancer and also may report a reduction in the hopelessness symptoms. This intervention includes emotional processing of initial reaction to diagnosis, psychoeducational information regarding cancer, mindfulness, relaxation techniques and exercises, and cognitive restructuring skill development. The research question and its constituent hypothesis for the study is the following:

1. Does MBCT intervention significantly alleviate hopelessness symptoms in women diagnosed with cancer compared to patients in a non-treatment wait-list control group?

$H_{1.c}$: The intervention group, which received MBCT, will describe and show a higher measurable alleviation in hopelessness symptoms compared to a non-treatment wait-list control group.

Table 1 shows that the mean and standard deviation of BHS scores in the intervention group was 2.35 and 0.398 in the pretest and 1.84 and 0.366 in the posttest.

Table 1. Descriptive statistics for groups in pretest (BHS 1) and posttest (BHS 2)

Group		N	Minimum	Maximum	Mean ± SD	Skewness		Kurtosis	
Intervention	HS1	29	0.73	3.00	2.35 ± 0.398	0.287	0.434	0.923	0.845
	HS2	29	0.33	2.75	1.84 ±0.366	0.911	0.434	0.481	0.845
Control	HS1	32	0.53	3.00	2.22 ± 0.420	0.170	0.414	1.135	0.809
	HS2	32	0.53	3.00	2.21 ± 0.433	0.191	0.414	1.284	0.809

BHS: Beck Hopelessness Scale; SD: Standard deviation

Distribution of scores in the intervention group has positive skewness in the pretest as well as in the posttest. Distribution of scores has skewness and kurtosis within a standard deviation of 2 and it is almost normal. The mean and standard deviation of BHS scores in the control group was 2.22 and 0.420 in the pretest and 2.21 and 0.443 in the posttest. Distribution of scores in the control group has positive skewness in the pretest as well as in the posttest. Distribution of scores has skewness and kurtosis within a standard deviation of 2 and it is almost normal.

Figure 1 shows the difference between the intervention group and control group in terms of the BHS score before the therapy, and figure 2 shows the difference between the intervention group and control group in terms of the BHS score after MBCT.

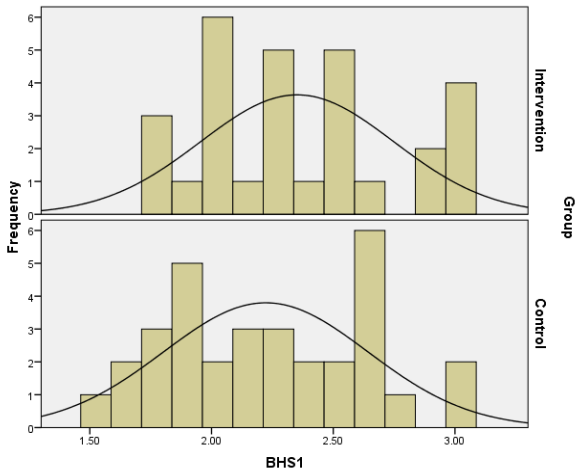

Figure 1. Beck Hopelessness Scale (pretest) by group

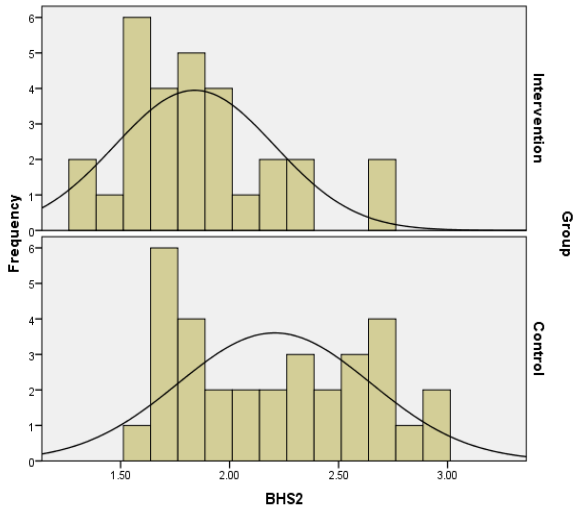

Figure 2. Beck Hopelessness Scale (posttest) by group

Table 2 shows the mean and standard deviation scores of BHS dimensions of groups. The highest mean BHS scores in the intervention group in the pretest was related to the subscale of feeling about future and the lowest mean was related to the loss of motivation. The highest mean PHS score in the control group in the posttest was related to the subscale of feeling about future and the lowest mean was related to the loss of motivation. It should be noted that the scores of both groups in the subscale of feeling about future did not change and would be eliminated in the analysis.

Table 3 shows that there was a significant difference between the two groups in term of hopelessness ($F = 118.078$, $df1 = 54$, $P < 0.001$; eta = 0.686).

Table 2. Descriptive statistics for the groups in the pretest (BHS1) and posttest (BHS2)

Group		N	Minimum	Maximum	Mean ± SD	Skewness		Kurtosis	
Intervention	Feeling about future1	29	1.00	1.00	1.00 ± 0.00	.	.	.	.
	Feeling about future2	29	1.00	1.00	1.00 ± 0.00	.	.	.	.
	Loss of motivation1	29	0.13	1.00	0.52 ± 0.277	0.660	0.434	0.847	0.845
	Loss of motivation2	29	0.13	0.88	0.34 ± 0.231	0.816	0.434	0.444	0.845
	Future expectation1	29	0.40	1.00	0.83±0.186	0.941	0.434	.116	0.845
	Future expectation2	29	0.20	1.00	0.50 ± 0.204	0.489	0.434	.111	0.845
Control	Feeling about future1	32	1.00	1.00	1.00 ± 0.000	.		.	.
	Feeling about future2	32	1.00	1.00	1.00 ± 0.000	.			.
	Loss of motivation1	32	0.13	1.00	0.50± 0.265	0.413	0.414	0.945	0.809
	Loss of motivation2	32	0.13	1.00	0.50 ± 0.286	0.311	0.414	1.017	0.809
	Future expectation1	32	0.40	1.00	0.72 ± 0.215	0.092	0.414	1.209	0.809
	Future expectation2	32	0.40	1.00	0.71 ± 0.215	0.086	0.414	1.215	0.809

BHS: Beck Hopelessness Scale; SD: Standard deviation

Table 3. Tests of between-subjects effects in the Beck Hopelessness Scale

Source	Type III Sum of Squares	df	Mean square	F	P-value	Partial eta squared
Corrected model	9.177[a]	2	4.589	147.919	< 0.001	0.846
BHS1	6.432	1	6.432	207.351	< 0.001	0.793
Group	3.663	1	3.663	118.078	< 0.001	0.686
Error	1.675	54	0.031			
Total	241.661	57				
Corrected total	10.853	56				

a. R Squared = 0.846 (Adjusted R Squared = 0.840)
BHS: Beck Hopelessness Scale; df = Degrees of freedom

The effect size is 0.686 and it is higher than the average. The mean hopelessness in the intervention group was lower than that of the control group. Table 4 shows that Wilk's lambda index is significant. In other words the general model is significant and has higher effect size than average.

Table 5 shows that there was a significant difference between the groups in terms of hopelessness due to loss of motivation (F = 21.711, df1 = 54, P < 0.001; eta = 0.291). The effect size is 0.291 and it is slightly high. The mean loss of motivation score in the intervention group was lower than the control group. There was a significant difference between the groups in terms of future expectation (F = 87.030, df1 = 54, P < 0.001; eta = 0.622). The effect size is 0.622 and it is higher than the average. The mean future expectation score in the intervention group was lower than the control group.

Discussion

In this study, the effects of mindfulness-based interventions on hopelessness were examined in patients with cancer. Out of 82 patients, 71 patients met the inclusion criteria, and the study population consisted of 61 women [intervention group (n = 29) and wait-list control group (n = 32)]. The participants in this study had breast and gynecological cancer.

After adjusting for the pretest, MBCT had a significant effect on the dependent variables of hopelessness [F (2,52) = 59.270, P < 0.001; Wilks's lambda = 0.305; partial eta squared = 0.695] (Table 4). There was a significant difference between the groups in terms of hopelessness due to loss of motivation (F = 21.711, df1 = 54, P < 0.001; eta = 0.291). The effect size is 0.291 and it is slightly high. Moreover, there was a significant difference between the groups in terms of hopelessness due to future expectation (F = 87.030, df1 = 54, P < 0.001; eta = 0.622). The effect size is 0.622 and it is higher than the average.

Table 4. Multivariate tests in the Beck Hopelessness Scale subscales

Effect		Value	F	Hypothesis df	Error df	P-value.	Partial eta squared
LOM1	Pillai's trace	0.651	48.569	2.000	52.000	< 0.001	0.651
	Wilks's lambda	0.349	48.569	2.000	52.000	< 0.001	0.651
	Hotelling's trace	1.868	48.569	2.000	52.000	< 0.001	0.651
	Roy's largest root	1.868	48.569	2.000	52.000	< 0.001	0.651
FE1	Pillai's trace	0.527	28.982	2.000	52.000	< 0.001	0.527
	Wilks's lambda	0.473	28.982	2.000	52.000	< 0.001	0.527
	Hotelling's trace	1.115	28.982	2.000	52.000	< 0.001	0.527
	Roy's largest root	1.115	28.982	2.000	52.000	< 0.001	0.527
Group	Pillai's trace	0.695	59.270	2.000	52.000	< 0.001	0.695
	Wilks's lambda	0.305	59.270	2.000	52.000	< 0.001	0.695
	Hotelling's trace	2.280	59.270	2.000	52.000	< 0.001	0.695
	Roy's largest root	2.280	59.270	2.000	52.000	< 0.001	0.695

LOM: Loss of motivation; FE: Future expectation; df = Degrees of freedom

Table 5. Tests of between-subjects effects

Source	Dependent variable	Type III sum of squares	df	Mean square	F	P-value	Partial eta squared
Corrected model	Feeling about future2	0.000[a]	3	0.000	.	.	.
	Loss of motivation2	2.977[b]	3	0.992	47.149	< 0.001	0.727
	Future expectation2	2.230[c]	3	0.743	53.989	< 0.001	0.753
LOM1	Feeling about future2	0.000	1	0.000	.	.	.
	Loss of motivation2	1.782	1	1.782	84.677	< 0.001	0.615
	Future expectation2	0.098	1	0.098	7.084	0.010	0.118
FE1	Feeling about future2	0.000	1	0.000	.	.	.
	Loss of motivation2	0.012	1	0.012	0.565	0.456	0.011
	Future expectation2	0.776	1	0.776	56.330	< 0.001	0.515
Group	Feeling about future2	0.000	1	0.000	.	.	.
	Loss of motivation2	0.457	1	0.457	21.711	< 0.001	0.291
	Future expectation2	1.198	1	1.198	87.030	< 0.001	0.622
Error	Feeling about future2	0.000	53	0.000			
	Loss of motivation2	1.116	53	0.021			
	Future expectation2	0.730	53	0.014			
Corrected total	Feeling about future2	0.000	56				
	Loss of motivation2	4.093	56				
	Future expectation2	2.960	56				

a. R Squared = (Adjusted R Squared); b. R Squared = 0.727 (Adjusted R Squared = 0.712); c. R Squared = 0.753 (Adjusted R Squared = 0.739)
LOM: Loss of motivation; FE: Future expectation; df = Degrees of freedom

The findings indicated that MBCT significantly improved measures of hopelessness. According to Lotfi Kashani, Vaziri, Esmaeil Akbari, Zeinolabedini, Sanaei, and Jamshidifar (2014), creating hope and expectation of treatment was effective on reducing the distress of patients suffering from breast cancer.

In conclusion, the results of this study suggest that MBCT can relieve hopelessness among patients with breast and gynecological cancers. However, the present study analyses were clearly limited by the small number of eligible participants. Thus, it is suggested that the effect of MBCT be examined among a large number of cancer patients. Evidently, further research is warranted in order to more definitively determine the effectiveness of MBCT in this context and how best to optimize the persistence of benefits obtained.

Conflict of Interests

Authors have no conflict of interests.

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