

Effectiveness of Meaning-Centered Psychotherapy on Existential Anxiety and Fear of Cancer Recurrence in Breast Cancer Survivors: A Randomized Clinical Trial

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Abstract

Background: Breast cancer as a chronic disease is associated with many physical and psychological problems that necessitate the use of psychological treatments.

Objectives: This study was aimed to investigate the efficacy of meaning-centered psychotherapy on existential anxiety and fear of cancer recurrence in breast cancer survivors.

Methods: In a randomized controlled clinical trial with pre-test, post-test, and follow-up along with a control group, 28 breast cancer survivors were selected by random sampling among patients that attended the Cancer and Hematology specialized clinic of Semnan University of Medical Sciences. The participants were randomly assigned to two intervention (group treatment, n = 7; individual treatment, n = 7) and one control group (n = 14). Data were collected by existential anxiety scale (EAS) and fear of cancer recurrence inventory (FCRI) and analyzed with the repeated multiple analysis of variance (MANOVA) using the SPSS-23 software.

Results: There were significant differences between the experimental groups and the control group on existential anxiety and fear of cancer recurrence ($P < 0.001$) in breast cancer survivors. Group and individual interventions reduced existential anxiety and fear of cancer recurrence in post-test and follow up in experimental groups compared to the control group ($P < 0.001$). The interaction of the groups and time assessment was statistically significant ($P < 0.001$).

Conclusions: Meaning-centered psychotherapy reduces existential anxiety and fear of cancer recurrence in breast cancer survivors. This intervention is useful to recover psychological problems in breast cancer survivors.

Keywords: Psychotherapy, Anxiety, Recurrence, Breast Cancer

1. Background

Cancer is a major health issue and the second leading cause of death around the world (1). Every year, over thousands of patients die due to cancer as a leading factor for mortality (2). Breast cancer, as the most common cancer among women, is one of the most treatable cancers (3). Large numbers of cancer patients with psychological symptoms and overwhelming outcomes of treatments have a long life after their successful treatment, who require appropriate interventions (4). In patients' viewpoint, cancer is a fatal, painful, and frightening disease, which is a reminder of death and accompanied by existential dilemma (5). Existential anxiety is commonly experienced by breast cancer patients that is related to the meaning of life and at higher severity causes deterioration and disease progression (6).

In breast cancer survivors, fear of cancer recurrence is

a common phenomenon that is associated with psychological distress (7). Fear of cancer recurrence indicates the worry that cancer will recur or will progress in the same organ or in another part of the body (8). The recurrence of breast cancer leads to adverse psychosocial outcomes, fatigue, and diminished quality of life (9, 10). Therefore, appropriate psychological interventions could contribute to the improvement of psychological aspects of breast cancer.

Meaning-centered psychotherapy focuses on existential and personal meaning as the main organizing structures in order to gain therapeutic objectives (11). Meaning-centered psychotherapy focuses on making life valuable despite pains and limitations (11, 12). This intervention reduces frustration, demoralization, disappointment, and reactivity to death by maintaining and enhancing the meaning of death conditions, which is related to searching, connecting, and making sense (12). Meaning-centered

psychotherapy is trying to find meaning and resources, experience inner peace by accepting the problem, and changing attitude during pain and suffering (11).

Due to the anxiety associated with the questions about the meaning of existence in patients with cancer (13,14), no research was found in Iran focusing on existential anxiety and fear of recurrence. Given the fact that cancer is a reminder of death, meaning-centered psychotherapy could be effective on reducing existential anxiety and fear of cancer recurrence in these patients. In addition, most psychotherapies are not tailored treatments and they are long-term. Therefore, applying meaning-centered psychotherapy as a tailored and short-term treatment is necessary for cancer survivors.

2. Objectives

Due to the cost-benefit and the appropriateness of meaning-centered psychotherapy on psychosocial aspects and existential dilemmas of cancer in previous studies, this study aimed at considering the efficacy of meaning-centered psychotherapy on existential anxiety and fear of cancer recurrence in survivors of cancer.

3. Methods

This study was a randomized controlled clinical trial along with a control group, and pretest, post-test and follow-up measurements. The statistical population included all females with breast cancer, who had referred to the cancer and hematology specialized clinic at the Semnan University of Medical Sciences from spring to summer 2016. With the effect size of 0.42, alpha 0.05, test power of 0.8, the sample size was calculated based on the GPower software, and the participants were assigned to 3 groups. The study sample consisted of 28 participants of breast cancer survivors, which were selected using the random sampling method and randomly allocated to two experimental (7 participants in the individual experimental group and 7 participants in the group experimental group) and one control group (14 participants). Participants were randomly assigned to independent variable groups based on the random number table.

Inclusion criteria were age of 20 to 45 years, diagnosis of cancer by a cancer specialist, and at least middle school educations. Exclusion criteria consisted of psychiatric and serious medical comorbidity. Inclusion and exclusion criteria were evaluated based on a clinical interview, self-report, and medical records of patients. The RCT flowchart of the study is demonstrated in Figure 1.

The study was double-blind and the intervener and the participants were unaware of the group assignments. In

addition, participants were not aware of the selection process and the groups did not interact during the intervention. The instruments used for data collection were as follows.

3.1. Existential Anxiety Scale (EAS)

The existential anxiety scale (EAS) was developed by Lawrence and Katrina Goode to measure existential anxiety (15). This scale has 32 items used to determine the symptoms severity of existential anxiety. Items are scored as right = 1 and wrong = 0 (scores ranging from 0 to 32) and higher scores indicating greater anxiety. The Cronbach's alpha as indicated by the study of Nooralizadeh and Janbozorgi is acceptable with $\alpha = 0.88$ (16). The validity of this scale was confirmed by five specialists in this study. Face validity and content validity of the scale items was confirmed by interviews with 5 health psychologists. The internal consistency of the scale was also obtained by the split-half approach, which is equal to 0.72 in the first part and 0.86 in the second part (17).

3.2. Fear of Cancer Recurrence Inventory (FCRI)

Fear of cancer recurrence inventory (FCRI) as a self-reported scale was developed by Simard and Savard (2009) to investigate fear of cancer recurrence during the last month (8). This inventory consists of 42 items that are scored on a 5-point Likert scale from 0 to 4. This inventory provides significant clinical information about the nature of cancer recurrence in 7 subscales (triggers, psychological distress, severity, coping strategies, insight, functioning impairments, and reassurance). Higher scores indicate greater fear of cancer recurrence (8). The validity of the questionnaire was confirmed by five experts in this research. Content validity and face validity of the items in this inventory was confirmed by 5 health psychologists. The inventory has appropriate internal consistency with $r = 0.75$ and good test-retest reliability with $r = 0.58$ (8).

3.3. Intervention Protocol and Procedure

Before the intervention, all 3 groups (group experimental, individual experiment, and the control) completed the study measures. The participants in the experimental groups were exposed to meaning-centered psychotherapy (this was not the case for the control group) during 8 sessions (90-minute sessions during 8 weeks). The treatment content was tailored and standardized in 8 sessions 1, concept and meaning resources; 2, meaning before and after cancer; 3, the patient's life story as a source of meaning and what they have achieved so far; 4, the patient's life story and what they had done and what they want to do in the future; 5, meaning resources and dealing with

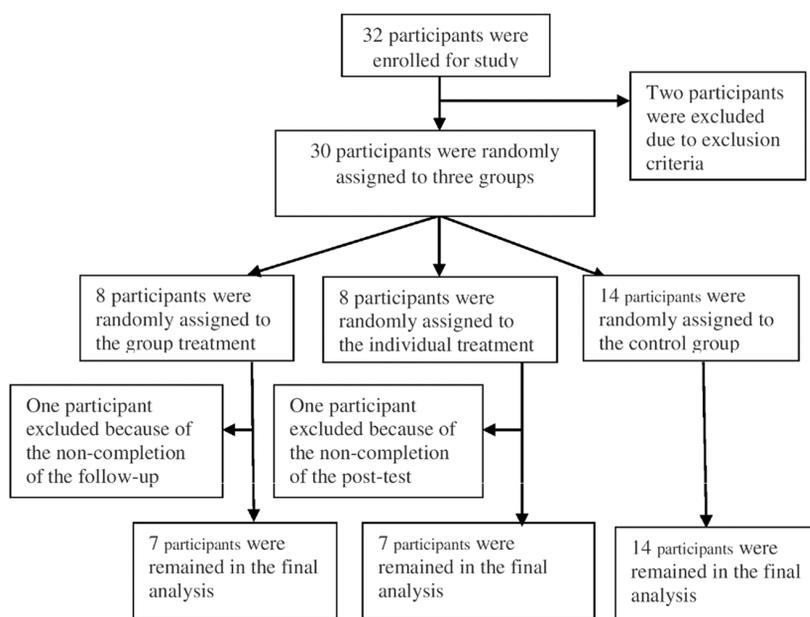


Figure 1. RCT Flowchart of the Study

the limitations of life; 6, making sense sources, including responsibility, courage, and acceptance; 7, experimental resources of the meaning, including dealing with the future; and 8, termination and providing life lessons and farewells). Meaning-centered psychotherapy was based on the framework of Frankel' logotherapy and manual of van der Spek et al. (2014), to help advanced cancer patients experience meaning in life and reduce frustration at the end of their life (18). After the intervention, post-test was taken from all 3 groups and after 2 months, the participants completed the questionnaires again as a form of follow-up. To comply with ethical principles, written informed consent was obtained from all cases before participation. In addition, ethical issues, including confidentiality, protection of participant's rights, and the freedom of study withdrawal were considered and obligated by researchers. The participants were also undergoing chemotherapy, radiation therapy, and pharmacotherapy, and these treatments were controlled in this study. The study was approved by the ethical committee of Semnan University of Medical Sciences (code: IR SEMUMS.REC.1395.50) and recorded at the Iranian registry of clinical trials (IRCT2016122225732N9).

Finally, obtained data was analyzed through multivariate repeated measures analysis of variance (repeated MANOVA) using the SPSS-23 software.

4. Results

Participants included 28 married females with an age range of 30 to 45 years old. The mean age was 39.1 (standard deviation of 4.5) years old. Among all participants, twenty-three participants (82.1%) were housewives and 5 (17.9%) were employed. Six participants (21.4%) had academic education, 17 participants had high school diploma (60.7%), and 5 participants had middle school degree (17.9%). Duration of the disease for 32.1% of the participants was over 5 years and for 67.9%, this was under 5 years. Table 1 provides the mean and standard deviation of dependent variables in the 3 groups.

Firstly, presumptions of the multivariate repeated measures analysis of variance including M-box test, Mauchly's Test of Sphericity, Bartlett's Test of Sphericity, and Levene test were examined. According to the M-box results ($P = 0.139$), it was shown that the observed matrix of the dependent variables was equal for all groups. In the next step, sphericity assumption with Mauchly test and Bartlett's Test were not significant for none of the existential anxiety items (Mauchly's $W = 0.954$, $P = 0.580$; Bartlett's likelihood ratio = 0.103, $P = 595$) and the fear of cancer recurrence (Mauchly's $W = 0.952$, $P = 0.503$; Bartlett's likelihood ratio = 0.096, $P = 482$) and thus, the assumption of sphericity was true for these variables. Also, Levene's test was used to examine equality of error variances of time variable at different stages of the test.

Table 1. Mean and Standard Deviation of Existential Anxiety and Fear of Cancer Recurrence

Variable	Group	Stage of Assessment	Mean	Standard Deviation
Existential anxiety	Individual intervention	Pre-test	21.42	2.50
		Post-test	16.14	2.91
		Follow-up	16.57	1.71
	Group intervention	Pre-test	22.42	3.69
		Post-test	16.01	3.78
		Follow-up	16.85	1.67
	Control	Pre-test	20.57	1.89
		Post-test	21.42	1.60
		Follow-up	20.71	2.55
Fear of cancer recurrence	Individual intervention	Pre-test	101.14	11.43
		Post-test	75.01	5.94
		Follow-up	76.85	6.56
	Group intervention	Pre-test	96.28	18.33
		Post-test	77.14	18.40
		Follow-up	74.71	6.23
	Control	Pre-test	97.57	12.29
		Post-test	99.64	11.97
		Follow-up	96.50	6.06

According to existential anxiety pre-test ($P = 0.177$), existential anxiety post-test ($P = 0.091$), existential anxiety follow-up ($P = 0.326$), fear of cancer recurrence pre-test ($P = 0.153$), fear of cancer recurrence post-test ($P = 0.64$), and fear of cancer recurrence follow-up ($P = 0.993$), the error variance was equal at different stages of intervention and normality assumptions were established. The effect of the group on the assessed components as significant ($P < 0.001$). The effect of measurement time on the linear combination of assessed components was also significant ($P < 0.001$). Furthermore, the effect of group/time interaction on the linear combination of assessed components was significant $P < 0.001$.

The repeated measurement results for the effects of time indicates that the effect of time on existential anxiety ($P < 0.001$) and fear of cancer recurrence ($P < 0.001$) was significant (Table 2). The results of repeated measurement analysis on the effects of group indicated that there were significant differences in existential anxiety ($P < 0.001$) and fear of cancer recurrence ($P = 0.002$). Regarding the interaction of time and group, it was specified that the interaction of time and group in existential anxiety and fear of cancer recurrence was also significant ($P < 0.001$).

According Table 3, results of Tukey's post hoc test for pairwise comparisons about the effect of meaning-

centered psychotherapy on existential anxiety in the 3 groups showed that the difference between individual intervention and control ($P = 0.295$), group intervention and control ($P = 0.392$), and individual intervention and group intervention ($P = 0.295$) was not significant at the pre-test. For the post-test and 2-month follow-up, there was a significant difference between the individual intervention and control group ($P < 0.001$, $P < 0.001$), and the group intervention and control group ($P < 0.001$, $P = 0.002$). However, the difference between individual intervention and group intervention was not significant in post-test and follow-up, respectively ($P = 0.123$, $P = 0.429$).

Moreover, the results of Tukey's post hoc test for pairwise comparisons between the 3 groups indicated the difference between the individual intervention and control group ($P = 0.323$), the group intervention and control group ($P = 0.512$), and the individual intervention and group intervention group ($P = 0.512$) was not significant at pre-test for fear of cancer recurrence. However, in post-test and 2-month follow-up, there was a significant difference between the individual intervention and control group ($P < 0.001$, $P < 0.001$) and between the group intervention and control group ($P = 0.003$, $P = 0.003$). However, the difference between individual intervention and group intervention was not significant in post-test and follow-up, re-

Table 2. Repeated Measurement Results for the Effects of Time and Interaction Time and Group

Source	Variable	Sum of Squares	Df	Mean Square	F	Sig	Eta Squared
Time	Existential anxiety	209.06	2	104.53	21.58	0.001	0.46
	Fear of cancer recurrence	3811.32	2	1905.66	33.69	0.001	0.57
Group	Existential anxiety	150.85	2	75.42	8.87	0.001	0.41
	Fear of cancer recurrence	4370.57	2	2185.28	7.78	0.002	0.38
Time*group	Existential anxiety	178.78	4	44.69	9.28	0.001	0.42
	Fear of cancer recurrence	2646.14	4	661.53	11.69	0.001	0.48

Table 3. Tukey's Post Hoc Test Results for Pairwise Comparisons

Measure	Time	Group (I)	Group (J)	Mean Difference	Std. Error	Sig	
Existential anxiety	Pre-test	Individual	Group	-1.00	1.37	0.29	
			Control	0.85	1.18	0.29	
		Group	Control	1.85	1.18	0.39	
			Group	0.14	1.39	0.12	
		Post-test	Individual	Control	-5.28	1.20	0.001
				Group	-5.42	1.20	0.001
	Follow-up	Individual	Group	-0.28	1.16	0.42	
			Control	-4.14	1.01	0.001	
		Group	Control	-3.85	1.01	0.002	
			Group	4.85	7.38	0.51	
		Pre-test	Individual	Control	3.57	6.39	0.32
				Group	-1.28	6.39	0.51
Fear of cancer recurrence	Post-test	Individual	Group	-2.14	6.85	0.21	
			Control	-24.64	5.93	0.001	
		Group	-22.50	5.93	0.003		
	Follow-up	Individual	Group	2.14	3.32	0.56	
			Control	-19.64	2.88	0.001	
		Group	-21.78	2.88	0.001		

spectively (P = 0.215, P = 0.561).

The comparison of the mean of existential anxiety (A) and fear of cancer recurrence (B) is shown in [Figure 2](#) during three assessments in all groups.

5. Discussion

Results indicated that meaning-centered psychotherapy reduced existential anxiety and the effects remained stable during the two-month follow-up. These results have consistency with the findings of Breitbart and colleagues (19), Mohabat Bahar et al. (20), Delavari et al. (21), Breitbart and colleagues (22), Vachon (14), Kang et al. (23)

and Yanez et al. (24). In this regard, it could be argued that anxiety is an ontological characteristic of each person, who encounters the annihilation threat and the finiteness that inevitably leads to disease deterioration. Therefore, meaning-centered psychotherapy by creating awareness of accountability and promoting spiritual freedom in patients will reduce fear and anxiety regarding complications and prognosis of cancer. In fact, cancer patients could find the meaning of any adverse phenomenon and life meaningfulness by altering ideas and finding a meaning for what occurred for them as disaster. In this regard, Breitbart et al. (2015) argue that person-centered approaches are vital for care of cancer patients because of

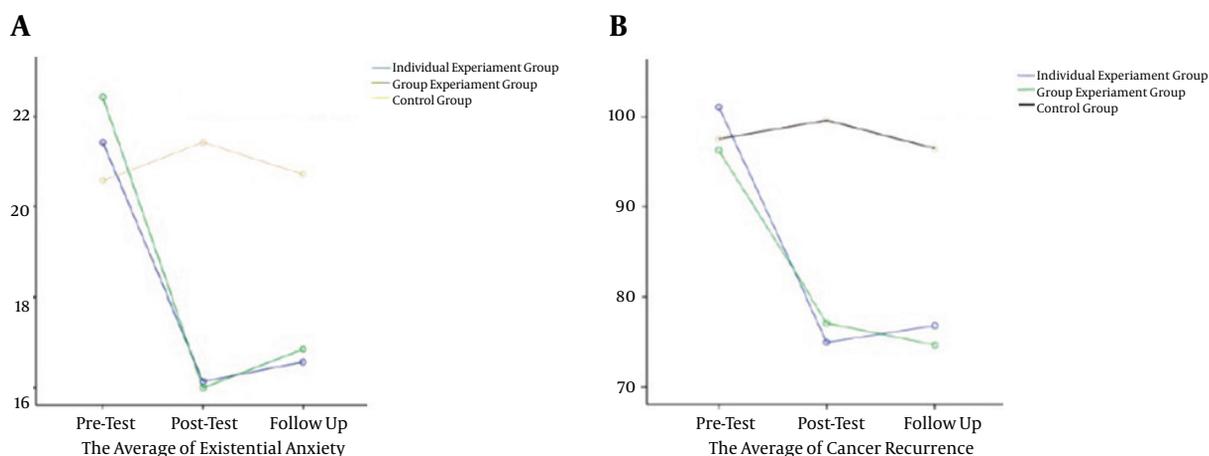


Figure 2. The Comparison of the Mean of Existential Anxiety (A) and Fear of Cancer Recurrence (B)

the importance of spirituality and finding meaning for coping with existential anxiety and emotional pain on the verge of death (12). On the other hand, this study indicated that meaning-based psychotherapy reduces the fear of recurrence and the effect remained stable during the two-month follow-up. These results are consistent with findings of Vachon (14), Tomas et al. (25), van der Spoke et al. (18), Yanez et al. (24), and Kang et al. (23) as fear of recurrence was related to lower health-related quality of life indicators, including fatigue and psychological distress in cancer survivors that were investigated in these studies.

In order to explain these findings, it could be concluded that meaning-based psychotherapy promotes patients to perform activities through taking into account the human existence transience instead of cynicism and isolation, and making sense of life. It helps patients to become relieved from despair and depression and perform their normal daily activities and develop a sense of being valuable. Vachon (2008) argues that in meaning-focused interventions, clients can become aware of the meaning of life by dealing with annihilation themes (14). In addition, it is argued that meaning-based psychotherapy could lead to a reduction in fear of cancer recurrence in survivors by attitudes shifting to spiritual resources, awareness of the future and the better ways of reacting to the disease. Eventually, given that cancer is life-threatening and places the patient's existential sense at risk, this intervention leads to inner peace and reduces negative emotions in these patients by focusing on existential dimensions and the meaning of life through changing attitude towards suffering and disease.

In conclusion, meaning-centered psychotherapy is effective on reducing existential anxiety and fear of cancer

recurrence in breast cancer survivors. Despite the strength features, this study had some limitations. The first limitation was that this study was performed only on married females that survived from breast cancer in Semnan and its generalization to other statistical populations should be done with caution. The other limitation was related to the issue that the investigation was only performed on breast cancer survivors. It is recommended for meaning-centered psychotherapy to be performed with other tailored psychotherapies on other psychosocial aspects of cancer patients, including marital dysfunctions and familial issues of breast cancer. In addition, it is suggested that meaning-centered psychotherapy should be applied as a complementary therapy alongside medications and medical treatment at oncology centers of hospitals.

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Footnotes

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References

1. Siegel RL, Miller KD, Jemal A. Cancer statistics, 2016. *CA Cancer J Clin*. 2016;**66**(1):7-30. doi: [10.3322/caac.21332](https://doi.org/10.3322/caac.21332). [PubMed: [26742998](https://pubmed.ncbi.nlm.nih.gov/26742998/)].
2. Global Burden of Disease Study C. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2015;**386**(9995):743-800. doi: [10.1016/S0140-6736\(15\)60692-4](https://doi.org/10.1016/S0140-6736(15)60692-4). [PubMed: [26063472](https://pubmed.ncbi.nlm.nih.gov/26063472/)].
3. Akbari A, Razzaghi Z, Homaei F, Khayamzadeh M, Movahedi M, Akbari ME. Parity and breastfeeding are preventive measures against breast cancer in Iranian women. *Breast Cancer*. 2011;**18**(1):51-5. doi: [10.1007/s12282-010-0203-z](https://doi.org/10.1007/s12282-010-0203-z). [PubMed: [20217489](https://pubmed.ncbi.nlm.nih.gov/20217489/)].
4. Alavi N, Monaei M. Anxiety in patients with breast cancer and deal with it [In Persian]. *Iran J Breast Dis*. 2009;**2**(3):43-5.
5. Lichtenthal WG, Nilsson M, Zhang B, Trice ED, Kissane DW, Breitbart W, et al. Do rates of mental disorders and existential distress among advanced stage cancer patients increase as death approaches? *Psychooncology*. 2009;**18**(1):50-61. doi: [10.1002/pon.1371](https://doi.org/10.1002/pon.1371). [PubMed: [18523933](https://pubmed.ncbi.nlm.nih.gov/18523933/)].
6. Applebaum AJ, Kulikowski JR, Breitbart W. Meaning-Centered Psychotherapy for Cancer Caregivers (MCP-C): Rationale and Overview. *Palliat Support Care*. 2015;**13**(6):1631-41. doi: [10.1017/S1478951515000450](https://doi.org/10.1017/S1478951515000450). [PubMed: [26000705](https://pubmed.ncbi.nlm.nih.gov/26000705/)].
7. Thewes B, Lebel S, Seguin Leclair C, Butow P. A qualitative exploration of fear of cancer recurrence (FCR) amongst Australian and Canadian breast cancer survivors. *Support Care Cancer*. 2016;**24**(5):2269-76. doi: [10.1007/s00520-015-3025-x](https://doi.org/10.1007/s00520-015-3025-x). [PubMed: [26581900](https://pubmed.ncbi.nlm.nih.gov/26581900/)].
8. Simard S, Savard J. Fear of Cancer Recurrence Inventory: development and initial validation of a multidimensional measure of fear of cancer recurrence. *Support Care Cancer*. 2009;**17**(3):241-51. doi: [10.1007/s00520-008-0444-y](https://doi.org/10.1007/s00520-008-0444-y). [PubMed: [18414902](https://pubmed.ncbi.nlm.nih.gov/18414902/)].
9. Koch L, Jansen L, Brenner H, Arndt V. Fear of recurrence and disease progression in long-term (>= 5 years) cancer survivors—a systematic review of quantitative studies. *Psychooncology*. 2013;**22**(1):1-11. doi: [10.1002/pon.3022](https://doi.org/10.1002/pon.3022). [PubMed: [22232030](https://pubmed.ncbi.nlm.nih.gov/22232030/)].
10. Khalili N, Farajzadegan Z, Mokarian F, Bahrami F. Coping strategies, quality of life and pain in women with breast cancer. *Iran J Nurs Midwifery Res*. 2013;**18**(2):105-11. [PubMed: [23983738](https://pubmed.ncbi.nlm.nih.gov/23983738/)].
11. Wong PTP. Meaning therapy: An integrative and positive existential psychotherapy. *J Contemp Psychother*. 2009;**40**(2):85-93. doi: [10.1007/s10879-009-9132-6](https://doi.org/10.1007/s10879-009-9132-6).
12. Breitbart W, Rosenfeld B, Pessin H, Applebaum A, Kulikowski J, Lichtenthal WG. Meaning-centered group psychotherapy: an effective intervention for improving psychological well-being in patients with advanced cancer. *J Clin Oncol*. 2015;**33**(7):749-54. doi: [10.1200/JCO.2014.57.2198](https://doi.org/10.1200/JCO.2014.57.2198). [PubMed: [25646186](https://pubmed.ncbi.nlm.nih.gov/25646186/)].
13. Dinkel A, Herschbach P, Berg P, Waadt S, Duran G, Engst-Hastreiter U, et al. Determinants of long-term response to group therapy for dysfunctional fear of progression in chronic diseases. *Behav Med*. 2012;**38**(1):1-5. doi: [10.1080/08964289.2011.640364](https://doi.org/10.1080/08964289.2011.640364). [PubMed: [22356596](https://pubmed.ncbi.nlm.nih.gov/22356596/)].
14. Vachon ML. Meaning, spirituality, and wellness in cancer survivors. *Semin Oncol Nurs*. 2008;**24**(3):218-25. doi: [10.1016/j.soncn.2008.05.010](https://doi.org/10.1016/j.soncn.2008.05.010). [PubMed: [18687268](https://pubmed.ncbi.nlm.nih.gov/18687268/)].
15. Good LR, Good KC. A preliminary measure of existential anxiety. *Psychol Rep*. 1974;**34**(1):72-4. doi: [10.2466/pr0.1974.34.1.72](https://doi.org/10.2466/pr0.1974.34.1.72). [PubMed: [4813985](https://pubmed.ncbi.nlm.nih.gov/4813985/)].
16. Nooralizadeh MM, Janbozorgi M. Existential anxiety and health anxiety and the extent to which the criminals, ordinary and religious people may be affected [In Persian]. *Psychol Relig*. 2010;**2**(3):29-44.
17. Deljoo Z, Janbozorgi M, Bzazban S, Mousavi E. The relationship of psycho-spiritual development level and loneliness with existential anxiety among the students [In Persian]. *J Stud Islam Psychol*. 2013;**13**(7):5-24.
18. van der Spek N, Vos J, van Uden-Kraan CF, Breitbart W, Cuijpers P, Knipscheer-Kuipers K, et al. Effectiveness and cost-effectiveness of meaning-centered group psychotherapy in cancer survivors: protocol of a randomized controlled trial. *BMC Psychiatry*. 2014;**14**:22. doi: [10.1186/1471-244X-14-22](https://doi.org/10.1186/1471-244X-14-22). [PubMed: [24467861](https://pubmed.ncbi.nlm.nih.gov/24467861/)].
19. Breitbart W, Poppito S, Rosenfeld B, Vickers AJ, Li Y, Abbey J, et al. Pilot randomized controlled trial of individual meaning-centered psychotherapy for patients with advanced cancer. *J Clin Oncol*. 2012;**30**(12):1304-9. doi: [10.1200/JCO.2011.36.2517](https://doi.org/10.1200/JCO.2011.36.2517). [PubMed: [22370330](https://pubmed.ncbi.nlm.nih.gov/22370330/)].
20. Mohabbat Bahar S, Golzari M, Akbari M.E., Moradijoo M. Effectiveness of group logo therapy on decreasing hopelessness in women with breast cancer [In Persian]. *J Breast Dis*. 2015;**8**(1):49-58.
21. Delavari H, Nasirian M, Baezegar Bafrooei K. Logo therapy effect on anxiety and depression in mothers of children with cancer. *Iran J Ped Hematol Oncol*. 2014;**4**(2):42-8. [PubMed: [25002923](https://pubmed.ncbi.nlm.nih.gov/25002923/)].
22. Breitbart W, Rosenfeld B, Gibson C, Pessin H, Poppito S, Nelson C, et al. Meaning-centered group psychotherapy for patients with advanced cancer: a pilot randomized controlled trial. *Psychooncology*. 2010;**19**(1):21-8. doi: [10.1002/pon.1556](https://doi.org/10.1002/pon.1556). [PubMed: [19274623](https://pubmed.ncbi.nlm.nih.gov/19274623/)].
23. Kang KA, Im JI, Kim HS, Kim SJ, Song MK, Sim S. The effect of logotherapy on the suffering, finding meaning, and spiritual well-being of adolescents with terminal cancer. *J Korean Acad Child Health Nurs*. 2009;**15**(2):136-44. doi: [10.4094/jkachn.2009.15.2.136](https://doi.org/10.4094/jkachn.2009.15.2.136).
24. Yanez B, Edmondson D, Stanton AL, Park CL, Kwan L, Ganz PA, et al. Facets of spirituality as predictors of adjustment to cancer: relative contributions of having faith and finding meaning. *J Consult Clin Psychol*. 2009;**77**(4):730-41. doi: [10.1037/a0015820](https://doi.org/10.1037/a0015820). [PubMed: [19634965](https://pubmed.ncbi.nlm.nih.gov/19634965/)].
25. Thomas LP, Meier EA, Irwin SA. Meaning-centered psychotherapy: a form of psychotherapy for patients with cancer. *Curr Psychiatry Rep*. 2014;**16**(10):488. doi: [10.1007/s11920-014-0488-2](https://doi.org/10.1007/s11920-014-0488-2). [PubMed: [25182513](https://pubmed.ncbi.nlm.nih.gov/25182513/)].