



The Effectiveness of Group Logotherapy on Life Expectancy and Death Anxiety of Patients with Breast Cancer

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Quantitative Study

Abstract

Background: Because of the occurrence of depression, anxiety, and hopelessness in patients with breast cancer (BC), the present study investigated the effectiveness of group logotherapy (LT) on life expectancy and death anxiety in women with BC.

Methods: The method of this research was quasi-experimental study with a pre-test, post-test, and control group design. The statistical population of the current research consisted of all women with BC who were referred to Baghdad Teaching Hospital, Baghdad, Iraq, in 2020 for treatment after mastectomy. Out of 157 patients with BC, 40 were selected using the purposive sampling method. Two groups of LT and control were formed with 20 participants. The participants answered the Templer Death Anxiety Scale (DAS) and the Miller Life Expectancy Questionnaire employed via Miller Hope Scale in two pre-test and post-test stages. Data were analyzed using SPSS software. For data analysis, one-way analysis of variance (ANOVA) was used.

Results: The results of the analysis of covariance (ANCOVA) showed that there was a significant difference between post-test of groups in life expectancy ($F = 11.24, P \leq 0.001$) and death anxiety ($F = 30.78, P \leq 0.001$).

Conclusion: LT effectively decreased death anxiety and raised life expectancy in women with BC. Therefore, LT as a psychological intervention can improve the quality of life of people with chronic diseases such as BC.

Keywords: Breast neoplasms; Logotherapy; Anxiety; Life expectancy

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Introduction

Cancer is the second leading cause of death in developed countries and is responsible for one-fifth of all deaths. Cancer is a disease in which the body cells in a malignant tumor divide, multiply abnormally, and destroy healthy tissue. Cancer cells break away from the normal mechanisms of cell division and growth. The exact cause of this phenomenon is unknown, but genetic or external factors such as viruses and carcinogens may be involved. Cancer includes all types of malignant tumors, commonly known in medicine as neoplasms. Cancer is possible at different ages, but the probability increases with age (Powell et al., 2020; Toumazis, Bastani, Han, & Plevritis, 2020). Among cancers, breast cancer (BC) is the third most common cancer in women around the world. It is the second leading cause of death in women aged 35-55. BC accounts for about 23% of all female cancers, and the rate of BC worldwide has increased by about 0.5% annually since 1990 (Cottu, Ramsey, Sola-Morales, Spears, & Taylor, 2022; Sasada et al., 2021).

There is a close relationship between psychological states and cancer. Given that any change in human life is associated with stress, cancer diagnosis also has its unique stresses. Consequences of diagnosing this disease can include anger, rage, depression, loneliness, meaninglessness, jealousy, resentment, and so on (Lobefaro et al., 2022). There is some evidence that stress plays a role in the onset and progression of cancer. Some studies show that the incidence of some types of cancer in children and adults is related to the amount of stress they are exposed to. The risk of mental disorders in patients with cancer is estimated at 30% to 40%. According to research, 80% of patients with cancer suffer from extreme anxiety in the early stages of their treatment. Cancer generally causes profound emotional problems in patients and their families, and the stress of being diagnosed with cancer can lead to many mental disorders (Spiegel, 1996; Vartolomei, Vartolomei, & Shariat, 2020).

The prevalence of psychological disorders in patients with BC is high, and these patients have a high risk of depression and anxiety (Yu et al., 2022). Over the past decade, numerous psychological methods have been developed to improve the psychological status of women with BC. Through psychotherapy, the effects of death anxiety and feelings of hopelessness can be reduced, and the patient's immune system can be strengthened by helping the patient (Okuyama, Akechi, Mackenzie, & Furukawa, 2017). In the direction of psychological interventions, logotherapy (LT) is a type of psychotherapy that sees the basis of psychosis as a spiritual struggle. In practice, members participate to discover themselves as having common existential interests. This method is a self-discovery to gain the ability to be with the real self, expand the view of oneself and the world around one, and clarify what one means in the future and present life. In this group, people feel they can be deeply involved in meaningful ways of living together (Langle & Klaassen, 2019).

LT aims to enable patients to discover their unique meanings. It tries to draw the limits of the patient's powers and freedoms and effectively breaks the vicious cycles of psychosis. The counselor and therapist who believes in meaningful therapy tries to help the client find a life purpose, a goal and purpose which is commensurate with their existence and has meaning for them (Mohammadi, Fard, & Heidari, 2014; Suyanti, Keliat, & Daulima, 2018). Psychotherapy is a philosophical approach that deals with man and his world. This approach is a kind of attitude towards many concepts such as life and death, hope and despair, relationship and isolation, awareness and responsibility towards oneself and others, self-exaltation, and search

for meaning in a period of life that death is imminent. Therefore, it can be used best to advance the intervention's goals (Mohabbat-Bahar, Moradi-Joo, & Akbari, 2015). From the LT's point of view, death does not make the face of life meaningless but makes the life meaningful and reminds him of his responsibility. Man is free to take a proper and glorious position in the face of the destiny and power of life, step beyond his biological, psychological, and social power, and walk in the infinite space after his birth (Reker, 1994).

A study found that LT training significantly reduced the depression scores of addicts (Khaledian, Yarahmadi, & Mahmoudfakhe, 2016). Bahar et al. (2021) indicated that LT effectively and efficiently reduced depression and anxiety and increased hope in women with cancer. James (2012) found that LT significantly reduced anxiety in the elderly. Other studies entitled the effectiveness of LT on increasing life expectancy and reducing depression in young people concluded that meaning therapy increased life expectancy and reduced depression in students (Suwanphahu et al., 2016; Heidari et al., 2020) and in another study evaluating the effectiveness of LT on the loneliness of retired men, the results showed that group LT reduced the feeling of loneliness in these people (Elshebiny and Al Maamari, 2018).

Due to the negative consequences of cancer on various aspects of life of the patients with cancer and the increasing trend of BC among women, one of the most common types of cancer, it is necessary to teach psychological interventions and effective counseling in this field. Various studies have reported the usefulness of psychological interventions in reducing the symptoms associated with cancer (such as depression and anxiety) and improving the quality of life of patients with cancer (Tauber et al., 2019). Therefore, due to the sensitivity of cancer and its consequences and physical and psychological impacts on the patients and their families, the need for intervention to improve quality of life and reduce stress, and the lack of coherent and practical research on the impact of LT on patients with BC, in this study, we are trying to determine whether group LT effectively affects death anxiety and the life expectancy of women with BC.

Methods

The current research was a quasi-experimental study with a pre-test, post-test design, and a control group. The statistical population of the current research consisted of all women with BC who were referred to Baghdad Teaching Hospital, Baghdad, Iraq, in 2020 for treatment after mastectomy. All patients underwent the mastectomy and were in the final stages of chemotherapy. By referring to each patient's file, patients who met the inclusion criteria were contacted, and those who wished to participate in the study were asked to attend the center to answer the Templer Death Anxiety Scale (DAS) and Miller Hope scale (MHS) questionnaires. A total of 157 patients agreed to participate in this study and came to the center to answer questions. After answering and according to the scores obtained by each patient, 40 patients were selected using simple random sampling, and finally, 20 people were placed in the LT group and 20 people in the control group. Individuals in both groups were banned from meeting during research and discussing the content of their treatment. Inclusion criteria were: 1- existence of BC record, 2- no heart, lung, kidney, and liver diseases, 3- willingness to participate in the research, and 4- age range of 35 to 65 years. Exclusion criteria were: 1- existence of severe psychological problems, 2- history of any treatment in a way that means LT, 3- heart, lung, kidney, and liver diseases, and 4- the subject's unwillingness to continue cooperation. Due to ethical respect prior to the plan's

implementation, participants were promised that the information obtained from each member would be kept strictly confidential.

Both groups were pre-tested before starting the training method. The experimental group was then trained in group LT, and the control group did not receive any intervention. Group LT training was performed in 10 sessions of 2 hours and once a week based on the protocol of LT training. The meetings were held as follows:

Session 1: Familiarity and awareness of the group charter and laws, introduction and statement of general structure, the work process, and group charter and test

Session 2: Therapists' awareness of the basic concepts of LT, a concise statement of Frankel's biography, fundamental LT, beliefs, and a request for an assignment for the next session

Session 3: Awareness of ways of seeking meaning, understanding, and receiving the meaning of life, an overview of homework, expressing the three suggested ways of finding meaning

Session 4: Acceptance of individual freedom and responsibility, group discussion on freedom and responsibility

Session 5: Understanding and receiving the meaning of love and hardship in yourself, group conversation about love and its meaning, the healers' personal experiences, what is not self-compassion, and requesting homework for the next session

Session 6: Understanding the meaning of suffering and the definition of hope, homework review, group discussion on suffering and hope

Session 7: Understanding and receiving the meaning of death

Session 8: Understanding the presence of God in the human subconscious

Session 9: Getting a positive meaning from clients, group discussion on the sense that therapists have received from the difficulties of their illness and life

Session 10: Summarizing the patients' statements, readings, and perceptions, teaching maintenance and continuity skills, talking about group training and how to apply it in members' lives, summarizing sessions and closing, and finally conducting a post-test.

Data collection tools in this study were the Templer DAS and Miller MHS questionnaires. The Templer DAS was designed by Templer in 1970 to measure death-related anxiety and is the most widely used questionnaire. This questionnaire is a self-administered questionnaire consisting of fifteen Yes/No questions. The answer "Yes" is a sign of anxiety in the person. The scores on this scale range from 0 to 15, and a high score (≥ 18) indicates a high degree of death anxiety. The answer to each of the items is based on five options: strongly disagree (1) disagree (2), have no opinion (3), agree (4), and strongly agree (5). The reliability and validity of this scale have been reported to be 0.83 based on the internal consistency coefficient (Sharif, Ebadi, Lehto, Mousavi, Peyrovi, & Chan, 2014; Sterling and Van Horn, 1989).

The MHS questionnaire, developed in 1988, is also a diagnostic test. This questionnaire includes 48 aspects of hope and helplessness. The options are based on overt or covert behavioral manifestations in hopeful or frustrated individuals, strongly disagree (1), disagree (2), have no opinion (3), agree (4), and strongly agree (5). Each person earns points by choosing the sentence that applies to him. The core values of each aspect vary from 1 to 5. The sum of the points earned indicates hope or despair. In the Miller test, the range of scores varies from 48 to 240, and if a person scores 48, he is considered entirely hopeless, and a score of 240 shows the maximum hope. Twelve sentences on the Miller scale are made up of negative items, and after an evaluation and grading, these numbers are reversed. In the research, the scale's reliability using Cronbach's alpha and halving methods has been reported to be about

0.90 and 0.89, respectively (Miller and Powers, 1988; Thir and Batthyany, 2016).

After completing the group LT training, death anxiety and life expectancy questionnaires were completed again as a post-test on both groups, and the results were recorded. Then, the pre-test and post-test scores were analyzed using SPSS software (version 16, SPSS Inc., Chicago, IL, USA). It should be mentioned that to analyze the data, descriptive statistical tools such as frequency tables, mean, and standard deviation (SD) have been used to describe the data. For data analysis, one-way analysis of variance (ANOVA) was used.

Results

According to the demographic information obtained from the subjects of the present study, 42.5%, equivalent to 17 people, were in the age range of 35-50 years, and 57.5%, equal to 23 people, were in the age range of 50-65 years. In group LT, 45%, equivalent to 9 people, were in the age range of 35-50 years, and 55%, equal to 11 people, were in the age range of 50-65 years. In the control group, 40%, equal to 8 people, were in the age range of 35-50 years and 60%, equal to 12 people, were in the age range of 50-65 years. In the analysis of covariance (ANCOVA), normality of variances, linearity, multiple alignments, homogeneity of variance, and homogeneity of regression slopes were investigated. According to the correlation coefficients between pre-test and post-test variables of death anxiety and life expectancy, the assumption of linearity between the auxiliary variables (covariates) and dependent variables was realized. Moreover, auxiliary variables (covariates) did not correlate more than 90% with each other. Therefore, according to the obtained correlations, the assumption of multiple alignments between auxiliary variables (covariates) was avoided.

Levene's test was used to evaluate the homogeneity of variance of the variables. It should be mentioned that post-tests of death anxiety and life expectancy were considered dependent variables, and the pre-test results were considered auxiliary variables. Therefore, there was equality between auxiliary variables and dependent variables in both experimental and control groups, and a non-significant interaction was observed between the dependent and auxiliary variables. Therefore, the assumption of homogeneity of regression slopes was correct.

In examining the hypotheses of parametric tests, based on Levene's test, which was not significant for the life expectancy variable in the post-test stage with $P = 0.531$, $F = 0.764$, and degree of freedom (df) = 21 and the death anxiety variable in the post-test phase with $P = 0.204$, $F = 1.875$, and $df = 21$, the condition of homogeneity of variance-covariance matrices was properly observed.

In addition, based on the findings shown in table 1, comparing the mean and SD of pre-test and post-test life expectancy scores in the training group and the control group, the training group had higher life expectancy compared to the control group after receiving the intervention and in the post-test phase.

Table 1. Mean and standard deviation (SD) of life expectancy and death anxiety in pre-test and post-test of experimental and control groups

Variables	Source of changes	Pre-test	Post-test	Minimum	Maximum
Life expectancy	Group LT	121.00 ± 2.43	132.00 ± 1.72	108	125
	Control	116.00 ± 2.04	117.00 ± 2.25	106	123
Death anxiety	Group LT	8.75 ± 1.24	4.86 ± 0.93	6	20
	Control	9.45 ± 1.34	8.21 ± 1.68	6	20

LT: Logotherapy

Thus, the mean and SD of the life expectancy post-test score in the experimental group was 132.00 ± 1.72 , and in the control group, it was 117.00 ± 2.25 .

Based on the results of table 1 and the comparison of the mean and SD pre-test and post-test scores of death anxiety in the control and experimental groups, the training group had lower death anxiety than the control group after receiving the intervention and in the post-test stage. Thus, the mean and SD score of the death anxiety test in the group LT was 4.86 ± 0.93 and in the control group was 8.21 ± 1.68 .

According to the results of table 2, group LT had a significant effect on life expectancy in the post-test phase ($P < 0.001$). These findings indicated an increase in life expectancy in the experimental group compared to the control group, which was 86%, according to the η square.

Based on the results of table 3, the effect of group LT on death anxiety in the post-test stage was significant ($P < 0.001$). In other words, these findings indicated a decrease in death anxiety in the experimental group compared to the control group, which according to the η square, the effect was 61%.

Discussion

According to World Health Organization (WHO) statistics, after cardiovascular disease, cancer is the second leading cause of death and mortality worldwide, and every minute, a person dies from cancer. Contrary to Iraq, where the incidence rate is different and the largest female fatality rate occurs in people between the ages of 30 and 50, BC incidence rates rise with age in Western countries. The results obtained from the effect of the LT approach in this study showed that this method significantly increased life expectancy in women with BC in the experimental group compared to the control group. This result is in line with Mohabbat-Bahar et al. (2015) research which showed that teaching LT to people with BC significantly increased their life expectancy. Jaarsma et al. (2007) noticed that the experience of meaning in life was positively associated to feelings of psychological wellness and adversely to feelings of distress while discussing the role of meaning in life in LT. These results can be explained by the fact that LT helps patients with BC find compatibility, life satisfaction, and psychological well-being by giving purpose to their lives. In other words, women suffering from BC may benefit from participating in group LT, since it can assist them in discovering the meaning of their lives and enabling them to gain support from other members of the group as they adjust to their illness. Additionally, thinking about new values for themselves while paying less attention to the worrying aspects brought on by the knowledge of their impending death might alter their perspective, establish new goals, increase drive, and give them hope for achieving new goals.

The present study's findings also confirmed the study's second hypothesis on the effectiveness of LT on death anxiety in women with BC.

Table 2. Results of one-way analysis of variance (ANOVA) for variable scores of life expectancy in the experimental group and the control group

Situation	SS	df			MS	F	P-value	η	Statistical power
		Group	Error	Total					
Model	375.24	2	21	40	182.47	54.35	≤ 0.001	0.882	0.999
Pre-test	0.82	1	21	40	0.82	0.20	0.542	0.018	0.287
Group	385.41	1	21	40	385.41	11.24	≤ 0.001	0.874	1
Error	79.53	1	21	40	4.01	-	-	-	-

Correlation = 0.867; Square of correlation = 0.86

SS: Sum of squares; MS: Mean squares; DF: Degree of freedom

Table 3. Results of one-way analysis of variance (ANOVA) for variable scores of death anxiety in the experimental and control groups

Situation	SS	df			MS	F	P-value	η	Statistical power
		Group	Error	Total					
Model	55.17	2	21	40	56.68	18.32	≤ 0.001	0.587	0.998
Pre-test	3.54	1	21	40	3.54	1.96	0.173	0.068	0.102
Group	46.27	1	21	40	46.27	30.78	≤ 0.001	0.597	0.997
Error	38.18	1	21	40	1.54	-	-	-	-

Correlation = 0.724; Square of correlation = 0.61

SS: Sum of squares; MS: Mean squares; df: Degree of freedom

These findings are consistent with Mohabbat-Bahar et al. (2014) research showing that LT training significantly reduces death anxiety in people with BC by considering the transience of human existence, instead of pessimism and isolation, and calls man to effort and activity and states that what exhausts human beings is pain and nature. It is not their unhappiness but the meaninglessness of life that is tragic.

Research has shown that various therapies such as LT, reality therapy, neurofeedback, and others are effective in helping patients with cancer and people with depression and anxiety in general. Ramiro et al. (2014) indicated the effectiveness of LT in a group method on increasing life expectancy and reducing depression. Kang et al. (2009) research, which was a study that investigated the effectiveness of group LT on increasing the life expectancy of patients with esophageal and gastric cancer, is consistent with the results of the present study. The present study's results agree with Sun et al. (2021) study that examined the effect of teaching LT (responsibility, freedom, values) on reducing frustration in women with cancer.

Cancer is one of the most perilous illnesses that can influence everyone's life and cause issues and feelings of hopelessness and depression. Thus, the methods that can help enhance the mental health of these patients had better be considered to find the best and most practical treatment methods. It is strongly suggested that other methods such as cognitive-behavioral therapy, reality therapy, and neurofeedback be considered in another research. Researchers could also consider treating depression and anxiety in children who deal with cancer or consider people living with other cancers in future research. In addition, considering the family's main role in supporting and helping patients with cancer, it is suggested that in future research in this field, effective methods to reduce the stress and care pressure of family members of these patients should be considered.

Conclusion

LT effectively reduced death anxiety and increased life expectancy in women with BC. Therefore, it can be concluded that LT as a psychological intervention has the ability to improve the quality of life of people with chronic diseases such as cancer. Thus, considering the effectiveness of LT on anxiety, death, and despair of patients with cancer, it is suggested that counselors, psychiatrists, and psychologists working in this field pay special attention to it. Relevant authorities and cancer associations should also pay more attention to psychological services and counseling to reduce psychological problems and concerns of patients with cancer.

Conflict of Interests

Authors have no conflict of interests.

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