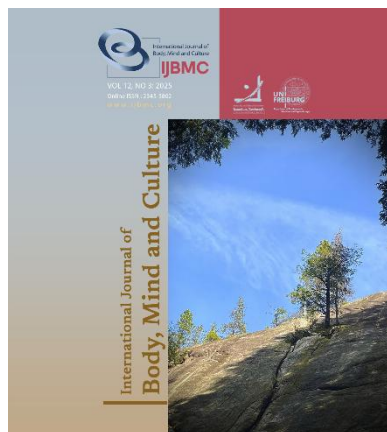


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Introduction

The incidence of cancer is alarmingly increasing. By 2030, the number of new cancer cases worldwide is predicted to rise by 50%, reaching 28 million annually. Cancer refers to a group of diseases characterized by uncontrolled growth and abnormal proliferation of cells (McKinney et al., 2020). Today, chronic and severe

The Effectiveness of Logotherapy (LT) on Quality of Life and Hopefulness in Women with Breast Cancer

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ABSTRACT

Objective: This study examines the effectiveness of logotherapy on the quality of life and hopefulness in women with breast cancer.

Methods and Materials: The present study utilized a quasi-experimental design with a pretest-posttest control group. The statistical population included all women diagnosed with breast cancer who visited Imam Hospital in Sari in 2023. Using convenience sampling, 30 individuals were selected and randomly assigned into two groups of 15 each: one experimental group and one control group. Data collection tools included the Quality of Life (QOL) Questionnaire (1989) and Snyder's Hope Scale (1991). The intervention employed a logotherapy protocol. Data were analyzed using SPSS25 software.

Findings: The study's findings showed that logotherapy significantly improved the quality of life and hopefulness in women with breast cancer ($P < 0.01$).

Conclusion: Given the benefits of logotherapy, this method can be considered an effective intervention for enhancing psychological well-being and improving the quality of life in breast cancer patients. Overall, it seems that logotherapy facilitates the understanding of meaning and purpose in life, improving satisfaction and quality of life in breast cancer patients. Moreover, by emphasizing the positive aspects of life, logotherapy strengthens hope and optimism, which play a significant role in enhancing the quality of life for these patients.

Keywords: Logotherapy, Quality of Life, Hopefulness, Breast Cancer.

illnesses, including cancer, are among the leading causes of mortality and disability in both developed and developing countries, including Iran. While the incidence of cancer has declined in developed countries in recent years, developing countries such as Iran have witnessed the highest growth rates of cancer globally (Ahmadi Hedayat & Khani, 2020). Cancer is regarded as one of the most significant diseases of this century and ranks as the

third leading cause of death after cardiovascular diseases and accidents (Davoudi-Monfared et al., 2023; Mahmoodi et al., 2017).

Among women, breast cancer is the most prevalent and psychologically impactful cancer, with its incidence steadily rising globally, particularly in developing countries (Arefian et al., 2024; Ghodrati et al., 2024). One factor influencing breast cancer and drawing considerable attention over the past decade is hopefulness. Hope is considered a critical psychological trait with substantial importance in health. Advanced cancer patients often lose hope, even though it is a key factor in improving their condition (Ahmadi Hedayat & Khani, 2020).

Hope is a process that enables individuals to design and pursue goals (Feldman & Kubota, 2015). It involves the ability to identify optimal pathways to achieve objectives and the motivation to use those pathways effectively (Du et al., 2015). Some definitions describe hope as a mental framework based on mutual will and planning for goal attainment. Hope predicts physical and psychological health through self-reported health, positive responses to medical interventions, mental well-being, positive emotions, life satisfaction, effective coping, and health-promoting behaviors. The World Health Organization (WHO) emphasizes the prevention of cancer and improving the quality of life in cancer patients, noting that one-third of the burden of cancer can be reduced with timely diagnosis and treatment. Maintaining a patient's energy for living with a chronic disease is crucial, necessitating non-pharmacological therapeutic approaches to alleviate physical and psychological symptoms (Zarurati et al., 2017).

According to the WHO, quality of life is determined by individuals' perceptions of their situation within their cultural context and their relation to goals, expectations, and needs (Vykoukalová et al., 2016). It is a measure of satisfaction and dissatisfaction in various aspects of life, including nutrition, education, health, security, and leisure. Eastern perspectives often consider quality of life as a balance between good and bad aspects within a person's life (Winkler et al., 2014). Low quality of life has been reported as a negative prognostic factor for health. Higher quality of life can foster hope among cancer patients, especially young women with breast cancer, who may experience greater anxiety and despair due to concerns about their body image. Psychological

interventions can help these women develop hope for the future and enthusiasm for life.

One innovative psychotherapy approach effective in alleviating pain and improving quality of life and hopefulness in women with breast cancer is logotherapy. This method focuses on enthusiasm, interest, creativity, a desire to live, and the importance of meaning (Hassanzadeh, 2018, 2022; Hassanzadeh & Talebi, 2023). Logotherapy, introduced by Viktor Frankl, emphasizes life's meaning and purpose. It combines insights from positive psychology and clinical work to help patients view every moment as an opportunity for flourishing. Therapists aim to assist individuals in identifying goals and designing various aspects of life with purpose and clarity.

Given the role of logotherapy in improving life's various dimensions, and the lack of research on its application for breast cancer patients, this study investigates the effectiveness of logotherapy on the quality of life and hopefulness in women with breast cancer.

Methods and Materials

Study Design and Participants

The present study employed a quasi-experimental design with a pretest-posttest structure and three groups: two experimental groups and one control group. The statistical population consisted of all women diagnosed with breast cancer who visited Imam Hospital in Sari. A total of 30 participants were selected using convenience sampling and were randomly assigned to two experimental groups and one control group, each comprising 15 participants. Inclusion Criteria were women diagnosed with breast cancer residing in Sari, informed consent and willingness to participate in the study by signing a written consent form, Low quality of life and hopefulness scores, no history of receiving psychological therapy in the past six months, ability to attend group therapy sessions, age of 35 years or older. Exclusion Criteria were withdrawal of consent to participate, diagnosis of psychological or physical disorders confirmed by a psychologist, unwillingness to continue the psychotherapy process and absence from more than two therapy sessions during the intervention period.

Instruments

Quality of Life Questionnaire (1998): Developed by the World Health Organization in collaboration with 15 international centers, this questionnaire measures an individual's quality of life over the past two weeks. It contains 26 questions, of which 24 assess four domains: physical health, psychological health, social relationships, and environmental conditions. Two initial questions provide a general evaluation of health and quality of life. Higher scores indicate better quality of life, with a total score above 40 signifying relatively satisfactory quality. The questionnaire's reliability and validity have been verified in multiple studies. Internal consistency (Cronbach's alpha) ranges from 0.61 to 0.96, and test-retest reliability ranges from 0.77 to 0.87 (Hassanzadeh & Talebi, 2023; Karimi et al., 2018).

Snyder's Hope Scale (1991): This 12-item self-report scale was developed by Snyder and colleagues to measure hopefulness. The scale includes two subscales: agency thinking and pathways thinking. Four items are distractors and are not scored. The score range is 8 to 32, with 25 as the suggested cutoff point. Reliability and validity have been supported in numerous studies. Internal consistency ranges from 0.74 to 0.84, while test-retest reliability is reported at 0.80 or higher for periods beyond 8–10 weeks. The scale shows positive correlations with optimism, goal-setting expectations, and self-esteem, and negative correlations with Beck's Hopelessness Scale (-0.51) and Beck's Depression Inventory (-0.42) (Behari Ardeshiri, 2023; Hassanzadeh & Talebi, 2023).

Intervention

The intervention consisted of eight 90-minute sessions of logotherapy (LT) conducted for the experimental groups.

Session 1: The first session focuses on establishing a trusting therapeutic environment while introducing participants to the goals of the logotherapy program. The session begins with the administration of a pretest to assess baseline psychological states. Participants are introduced to one another and to the therapist, followed by an explanation of the group rules to ensure mutual respect and confidentiality. The therapist provides an overview of logotherapy, emphasizing its core philosophy of finding meaning in life even amidst

suffering. The session concludes with a discussion on how life-focused therapy can enhance well-being and psychological resilience.

Session 2: In the second session, participants engage in an exploration of psychological and existential concepts, focusing on life psychology and individual perspectives on meaning. The therapist facilitates a dialogue about the significance of life's meaning, purpose, and goals, encouraging participants to reflect on personal experiences and current dilemmas. Problem-solving techniques related to life challenges are introduced, and participants are assigned the task of creating a "life compass" to help identify key areas of concern and meaningful pursuits in their lives.

Session 3: This session aims to help participants clarify and prioritize their life goals. The session begins with a review of the "life compass" assignment, allowing participants to express their reflections and emotions. The therapist introduces the distinction between behavioral goals, which are specific and actionable, and non-behavioral goals, which are broader and more abstract. Through guided exercises, participants learn how to align their goals with personal values, and they are assigned decision-making forms and life objective worksheets to complete for deeper introspection.

Session 4: The fourth session centers on the theme of enthusiasm for life as a critical element of mental health and motivation. Participants share insights from previous assignments and discuss the emotional barriers that may diminish their excitement for life. The therapist introduces techniques for rediscovering and cultivating enthusiasm, such as identifying passions, engaging in pleasurable activities, and practicing gratitude. Participants are given tasks to explore ways to bring more vitality, energy, and purpose into their daily routines.

Session 5: In this session, the focus shifts to understanding and fostering hope as an essential element of a meaningful life. The therapist leads a discussion on the psychological and existential role of hope, particularly in times of adversity. Participants explore how hope influences decision-making, resilience, and personal growth. The session includes practical exercises aimed at building hopeful thinking patterns, and participants are provided with worksheets designed to enhance hopefulness through visualization, goal-setting, and reflection.

Session 6: The sixth session introduces the concept of life management through the metaphor of the “wheel of life,” which visually represents different domains of existence such as health, relationships, work, and spirituality. Participants reflect on the balance in their lives and assess which areas require more attention. The therapist guides them through an analysis of how these domains interact and impact their overall well-being. Tasks include drawing personalized life diagrams to identify strengths and imbalances, fostering a more holistic and proactive approach to life management.

Session 7: This session delves into life satisfaction, the power of positive thinking, and the creation of mental space for reflection and peace. Participants discuss the importance of nurturing a balanced and fulfilling life while recognizing the impact of cognitive patterns on emotional well-being. The therapist introduces the concept of the “circle of life” as a tool to visually map and enhance satisfaction in various life areas. Participants are tasked with designing their own circles to cultivate awareness, reinforce positive experiences, and promote harmony in everyday life.

Session 8: The final session serves as a space for reflection, integration, and closure. Participants revisit their previous assignments and share the personal growth and insights they have gained throughout the program. The therapist summarizes the key concepts and therapeutic processes covered in the sessions,

highlighting individual and group progress. Participants are encouraged to continue applying the strategies learned to maintain meaning-centered living. The session concludes with expressions of gratitude, open feedback, and the administration of the posttest to evaluate therapeutic outcomes.

Data Analysis

Descriptive statistics, including mean and standard deviation, were used alongside inferential statistics. Covariance analysis (ANCOVA) and multivariate covariance analysis (MANCOVA) were employed to examine the effects of the intervention. Data analysis was conducted using SPSS25 software.

Findings and Results

In the logotherapy group, most participants (46.67%) were over 55 years old, with the fewest (20%) aged between 35 and 45. In the control group, the majority (53.33%) were aged between 46 and 55, with the fewest (20%) over 55 years old. In the logotherapy group, most participants (40%) had a high school diploma or less, while only 6.67% held a master's degree or higher. Similarly, in the control group, 40% had a high school diploma or less, and 13.33% held a master's degree or higher. The results of descriptive analysis is shown in [Table 1](#).

Table 1

Mean and Standard Deviation of Variables

Variable	Group	Pre-test Mean (\pm SD)	Post-test Mean (\pm SD)	Follow-up Mean (\pm SD)
Physical Health	Logotherapy	15.73 (\pm 1.39)	20.47 (\pm 1.51)	20.53 (\pm 1.25)
	Control	15.13 (\pm 1.18)	14.80 (\pm 1.37)	15.20 (\pm 1.42)
Psychological Health	Logotherapy	13.40 (\pm 1.55)	18.20 (\pm 1.26)	18.40 (\pm 1.40)
	Control	12.73 (\pm 1.43)	13.07 (\pm 1.48)	13.20 (\pm 1.08)
Social Relationships	Logotherapy	6.40 (\pm 1.05)	9.27 (\pm 0.79)	9.47 (\pm 0.74)
	Control	7.00 (\pm 1.13)	6.53 (\pm 1.18)	6.13 (\pm 1.12)
Environmental Factors	Logotherapy	17.40 (\pm 1.59)	22.67 (\pm 1.76)	22.33 (\pm 1.19)
	Control	18.27 (\pm 1.58)	17.40 (\pm 1.76)	17.07 (\pm 1.75)
Hopefulness	Logotherapy	12.67 (\pm 1.75)	19.47 (\pm 1.60)	19.67 (\pm 2.09)
	Control	12.20 (\pm 2.00)	12.47 (\pm 1.72)	12.93 (\pm 1.75)

To investigate the significant difference between the scores of quality of life and hopefulness between the three groups of Logotherapy and control, repeated measure analysis of variance was used. Before repeated measures analysis of variance, the results of Mbox, Mauchly spherical, and Leven tests were evaluated to

meet the premises. Since the M-box test was insignificant for any variables, the homogeneity condition of variance-covariance matrices has been adequately observed. Also, the insignificance of none of the variables in the Leven test showed that the equality of the variances between groups was observed, and the variance of dependent

variable error was equal in all groups. Finally, Mauchly's sphericity test showed that this test was not significant for quality of life and hopefulness. Therefore, the

equality assumption of variances within subjects was observed (Mauchly's = 0.86).

Table 2

Repeated Measures ANOVA for Quality of Life and Hopefulness

Variable	Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F Value	p-value
Physical Health	Time	350.24	2	175.12	42.38	0.001
	Time × Group Interaction	120.75	2	60.37	14.62	0.001
	Error	248.56	56	4.44		
Psychological Health	Time	290.14	2	145.07	39.71	0.001
	Time × Group Interaction	105.43	2	52.71	14.43	0.001
	Error	203.82	56	3.64		
Social Relationships	Time	210.31	2	105.15	30.72	0.001
	Time × Group Interaction	85.47	2	42.73	12.49	0.001
	Error	192.14	56	3.43		
Environmental Factors	Time	410.57	2	205.28	56.89	0.001
	Time × Group Interaction	140.89	2	70.44	19.51	0.001
	Error	310.63	56	5.55		
Overall Hopefulness	Time	520.36	2	260.18	65.21	0.001
	Time × Group Interaction	160.42	2	80.21	20.11	0.001
	Error	420.32	56	7.51		

A significant main effect of time was observed for all variables, including physical health ($F = 42.38$, $p < 0.001$), psychological health ($F = 39.71$, $p < 0.001$), social relationships ($F = 30.72$, $p < 0.001$), environmental factors ($F = 56.89$, $p < 0.001$), and overall hopefulness ($F = 65.21$, $p < 0.001$). This indicates that participants' scores significantly changed over the three time points (pre-test, post-test, and follow-up). Significant

interaction effects were found between time and group (experimental vs. control) for all variables. For example, physical health ($F = 14.62$, $p < 0.001$) and overall hopefulness ($F = 20.11$, $p < 0.001$) showed significant interaction effects. This suggests that the changes over time differed significantly between the experimental (logotherapy) and control groups.

Table 3

Differences in two-by-two comparison of pre-test, post-test and follow-up stages

Variable	Time Comparisons	Mean Difference (MD)	Standard Error (SE)	p-value
Physical Health	Pre-test vs. Post-test	-4.74	0.32	0.001
	Pre-test vs. Follow-up	-4.80	0.31	0.001
	Post-test vs. Follow-up	-0.06	0.28	1.000
Psychological Health	Pre-test vs. Post-test	-4.80	0.29	0.001
	Pre-test vs. Follow-up	-5.00	0.28	0.001
	Post-test vs. Follow-up	-0.20	0.27	1.000
Social Relationships	Pre-test vs. Post-test	-2.87	0.21	0.001
	Pre-test vs. Follow-up	-3.07	0.22	0.001
	Post-test vs. Follow-up	-0.20	0.20	1.000
Environmental Factors	Pre-test vs. Post-test	-5.27	0.35	0.001
	Pre-test vs. Follow-up	-4.93	0.34	0.001
	Post-test vs. Follow-up	0.34	0.31	1.000
Overall Hopefulness	Pre-test vs. Post-test	-6.80	0.38	0.001
	Pre-test vs. Follow-up	-7.00	0.36	0.001
	Post-test vs. Follow-up	-0.20	0.34	1.000

The Bonferroni test results indicate that the intervention had a significant impact on all variables from pre-test to post-test and sustained these improvements through follow-up. The absence of

significant differences between post-test and follow-up scores suggests that the benefits of the intervention were stable over time. This demonstrates the efficacy of the logotherapy intervention in improving physical and

psychological health, social relationships, environmental factors, and overall hopefulness in women with breast cancer (Table 3).

Discussion and Conclusion

The aim of the present study was to evaluate the effectiveness of logotherapy on the quality of life and hopefulness in women diagnosed with breast cancer. The results indicated that there was a significant difference in the scores of all five components of quality of life between the logotherapy group and the control group. This suggests that logotherapy positively impacts the quality of life of patients with breast cancer. The findings of this study align with previous research (Ahmadi Khalili, 2023; Sadat Madani, 2023). Logotherapy can effectively improve the quality of life in patients with breast cancer.

Breast cancer is one of the most common types of cancer among women, and its diagnosis can significantly reduce their quality of life. Logotherapy, a psychotherapeutic approach developed by Viktor Frankl, focuses on helping individuals understand their personal values and find meaning and purpose in life (Maher et al., 2017). This therapeutic approach emphasizes enhancing the meaning and purpose in the lives of patients. The primary goal of logotherapy is to help patients better understand themselves, improve relationships with others, set meaningful goals, and derive joy from life. Studies have shown that logotherapy enhances psychological adaptability and improves the quality of life in cancer patients. By helping patients shift their perspective on life and discover new opportunities, this method enables them to experience greater enjoyment in life (Karimi et al., 2018).

During logotherapy sessions, psychologists use techniques such as redesigning life and experiential exercises to assist patients in finding meaning and purpose in their lives. Patients are also encouraged to resume enjoyable activities they may have abandoned (Safarinia et al., 2021). Research has demonstrated that logotherapy significantly increases patients' sense of purpose, self-efficacy, hope, and happiness, resulting in notable improvements in the quality of life of breast cancer patients. Moreover, this approach helps patients better manage the psychological consequences of cancer and its treatments (Royin Tan et al., 2018).

Studies indicate that logotherapy can enhance the quality of life and life satisfaction in cancer patients (Sarabadani et al., 2022). The mechanism of logotherapy's effectiveness lies in its ability to help patients identify the true values of life, enabling them to live meaningful lives aligned with their values, despite the limitations imposed by their illness. By focusing on the present and the future, logotherapy fosters a more positive outlook in patients (Shafaq et al., 2023). Furthermore, logotherapy significantly impacts hopefulness in women with breast cancer. The study results showed significant differences in the scores of the two components of hopefulness between the logotherapy and control groups, indicating that logotherapy positively affects hopefulness in breast cancer patients. This finding aligns with previous research (Behari Ardeshiri, 2023; Hassanzadeh & Talebi, 2023; Salahi Abdi et al., 2022; Shahidi et al., 2022).

Hopefulness is a positive motivational state that plays a crucial role in the psychological adjustment of cancer patients. While the diagnosis of breast cancer can be accompanied by feelings of despair and pessimism, logotherapy, by emphasizing meaning and purpose in life, can enhance hope and optimism in these patients (Safarinia et al., 2021). Logotherapy is an effective method for increasing hope and optimism in breast cancer patients. By helping individuals find meaning and purpose in life, logotherapy enables them to remain hopeful about the future despite chronic conditions and challenges. Through challenging negative beliefs and fostering a more positive perspective, this approach significantly boosts hope and optimism.

Logotherapy encourages patients to identify positive values and goals in life, focusing on the present and the future to foster greater hopefulness and optimism. By emphasizing patients' strengths and capabilities, logotherapy empowers them to feel more in control of their lives despite the challenges of their illness, which in turn enhances hopefulness. Studies confirm that logotherapy can significantly increase hope and optimism in breast cancer patients (Mohammadi & Sufi, 2018). During therapy sessions, therapists establish empathetic and supportive relationships by actively listening to patients' concerns and worries. Techniques such as life redesign and journaling are employed to help patients find meaning and set new positive goals in life. Research shows that by enhancing a sense of purpose and self-efficacy, logotherapy leads to a remarkable

increase in hopefulness and optimism for the future in cancer patients (Nefrieh Talekhonche et al., 2023). By changing patients' perspectives on life challenges, this approach fosters a more positive outlook. Based on the existing evidence, logotherapy is a psychological intervention that effectively increases hope and optimism in breast cancer patients and is recommended as part of their treatment program (Ameri et al., 2021).

Based on the findings of this study, it is recommended that logotherapy, with its numerous benefits, be used as an effective intervention to improve the psychological well-being and quality of life in breast cancer patients. In summary, logotherapy appears to enhance satisfaction and quality of life in breast cancer patients by facilitating the understanding of meaning and purpose in life. Additionally, logotherapy strengthens hope and optimism by emphasizing the positive aspects of life, playing a critical role in improving the quality of life in breast cancer patients.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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All costs of the study were covered by the second author.

Authors' Contributions

Zeinab Rezaei: This article is based on the second author's master's thesis, and she was responsible for project execution, sample collection, conducting sessions, and analyzing results. Ramezan Hasanzadeh: The corresponding author, responsible for guiding the research process and revising the article. Asghar Norouzi: Provided guidance on methodology and article writing. All authors reviewed and approved the final version of the manuscript.

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