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Impact of palliative care on the quality of life and patient satisfaction in cancer patients: A before-and-after quasi-experimental study

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Abstract

Background: Palliative care is a holistic approach aimed at enhancing the quality of life for patients with cancer. Given the rising number of cancer patients in Iran, its significance has become increasingly apparent. This study investigates the effect of palliative care on the quality of life and satisfaction of patients with cancer.

Methods: This before-and-after quasi-experimental study was conducted in 2024 on 320 patients with breast, tongue, stomach, thyroid, osteosarcoma, and colon cancer at a teaching hospital in Tehran, Iran. Participants were selected through convenience sampling based on eligibility criteria, including being over 18 years of age, having literacy, being able to speak Persian, and being psychologically stable. The quality of life and life satisfaction of patients were assessed before and after participation in a structured palliative care program. The intervention consisted of six two-hour palliative care sessions, delivered over two months. Data were collected using the Satisfaction with Life Scale (SWLS) and the EORTC QLQ-C30 Quality of Life Questionnaire. Data analysis was conducted using SPSS software, version 26, and a paired t-test was employed for statistical evaluation.

Results: The results indicated that the participants had a mean age of 50.67 years, with a standard deviation of 13.23 years. After receiving palliative care, the overall quality of life score, along with its dimensions (except for emotional functioning, sore throat, and diarrhea), showed a significant improvement ($P < 0.001$, Cohen’s $d = 2.36$). Moreover, the intervention led to a significant improvement in patients' life satisfaction, with a p-value of less than 0.001 and a Cohen’s d of 1.01.

Conclusion: The study findings demonstrated that palliative care services, typically provided to individuals nearing the end of life, enhanced the quality of life for cancer patients. Policymakers should prioritize support for patients, and healthcare managers must collaborate to improve and provide palliative care services with qualified personnel, especially nurses.

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Highlights

What is current knowledge?

Palliative care is a comprehensive approach designed to alleviate symptoms and enhance the quality of life for patients with life-threatening illnesses. Evidence has demonstrated the effectiveness of such services in improving the quality of life and satisfaction of cancer patients; however, access to these services in Iran remains limited, highlighting the need for developing culturally adapted models and evaluating their effectiveness.

What is new here?

Providing palliative care improves the quality of life and life satisfaction in cancer patients, and nurses can play a crucial role in clinical settings by delivering education and palliative care to manage disease symptoms and treatment-related side effects.

Introduction

Cancer is one of the most critical health problems worldwide (1). Statistics show that the number of people affected by cancer will reach 21 million by 2030 (2). In Iran, cancer is also the third leading cause of death (3).

Receiving a cancer diagnosis significantly stresses both the patient and their family. The physical symptoms, psychological distress, social needs, and spiritual suffering profoundly disrupt their lives (4). Additionally, cancer treatments often result in side effects and, in some instances, permanent disorders, disabilities, and a reduced quality of life (5). Quality of life is a complex, multidimensional concept associated with indicators such as life satisfaction, physical health, social well-being, hopefulness, and mental health (6). In patients with cancer, the primary goal of nursing care is to enhance individual functioning and maximize quality of life (7). One way to achieve this goal is through the provision of palliative care (8).

Palliative care is an interdisciplinary field that focuses on enhancing the quality of life for patients with life-threatening illnesses, as well as supporting their families and caregivers. It addresses symptoms related to the disease, meets communication and decision-making needs, and relieves discomfort caused by the illness (9). Palliative care is founded on the belief that, in the final stages of disease, patients require greater support for compassionate human care than invasive interventions, while still benefiting from both pharmacological and non-pharmacological approaches to symptom management (10). This care is delivered to alleviate symptoms, reduce the side effects of treatment, and improving the quality of life in individuals suffering from life-threatening illnesses such as cancer (11). Palliative care can minimize unplanned hospitalizations and the economic burden associated with cancer (12). It leads to improved symptom control, pain management, and reduced anxiety for both patients and their families, while ensuring high-quality care (13). A systematic review of 43 randomized controlled trials (N = 12,731) found that palliative care interventions can significantly improve patients' quality of life, alleviate symptoms, and lead to higher patient and caregiver satisfaction (14).

In the coming years, there will be an increase in the number of patients with chronic illnesses, making their care one of the significant challenges for the healthcare system (15). Despite the growing need for palliative care, its implementation in Iran faces substantial challenges, including inadequate organizational support, limited specialized training, a lack of national guidelines, and cultural barriers (16). Currently, 37% of countries worldwide have implemented national operational policies for palliative care. This is despite the fact that 80% of individuals in need of palliative care live in low-income countries, where such services are scarce (17). Iran is among the nations where palliative care has not been comprehensively integrated into the health system. As the burden of chronic illnesses such as cancer continues to rise, integrating palliative care into routine health services has become a strategic priority to improve patient outcomes (18).

Despite the extensive evidence supporting the effectiveness of palliative care, context-specific and culturally sensitive interventions are scarce. This study aimed to facilitate the implementation of a palliative care program that includes education, psychological support, symptom management, individual and family counseling, and the enhancement of coping skills, to improve patients' quality of life and life satisfaction within the cultural context of Iran.

Methods

This quasi-experimental study involved 320 patients with breast, tongue, stomach, thyroid, osteosarcoma, and colon cancer who were referred to Shohadaye Tajrish Teaching Hospital, a university hospital in Tehran, Iran, between May and October 2024. Patients were selected using convenience sampling. The sample size was determined based on similar previous studies on palliative care interventions in cancer patients, considering an expected moderate effect size, a power of 80%, and a significance level of 0.05, while accounting for potential attrition (19).

Inclusion criteria included willingness to participate in the study, being at least 18 years old, literacy (The ability to read and write), the ability to understand and speak Persian, having been diagnosed with cancer at least six months before the study, and being aware of the diagnosis. Exclusion criteria included individuals with psychological conditions that significantly impaired their daily functioning or ability to participate in the study, a history of psychiatric hospitalization, or unsupervised use of psychotropic medications.

To develop the palliative care content, related service packages were utilized in the form of a translated version of the Oxford Textbook of Palliative Care (20), under the technical supervision of the Office for Health Promotion and Nursing Services, affiliated with the Deputy for Nursing. This package was implemented by nurses who had received specialized training in palliative care. Since the care program should be tailored to the patients' level of understanding, the researcher attempted to avoid using medical terminology that was difficult for the patients to comprehend. Several medical and nursing professors reviewed the content validity of the educational materials. After incorporating their suggestions and comments, the materials were ready for use. Additionally, to assess the face validity of the texts in terms of simplicity and patient understanding, 10 participants were asked to review the texts and confirm their validity in the above aspects.

This program included various educational components designed to enhance patient self-care, identify barriers to information access for patients and caregivers, improve coping skills in stressful situations, and assess pain. This was achieved using appropriate tools, such as the Visual Analogue Scale (VAS), as well as non-pharmacological methods, including music therapy, therapeutic touch, hot and cold therapy for pain management, and education about the side effects of drugs. Initially, the patients completed the questionnaires as a pre-test. Palliative care services were provided over six sessions, each lasting two hours, and conducted over a period of two months. These sessions included interactive lectures, discussions, and Q&A sessions, held in groups in the hospital classroom. Visual aids such as computer graphics and posters were also used to facilitate learning. At the end of each session, booklets, pamphlets, and CDs containing the key educational points were distributed to patients and their companions to help them retain and apply the information. Additionally, educational content was reinforced through social media channels where patients were added for ongoing engagement. To support the implementation of palliative care, researchers followed up with patients via telephone to address their questions and concerns. Following the palliative care intervention, patients followed the structured program for eight weeks. The structured follow-up program consisted of three biweekly telephone calls conducted by 15 shift nurses who had received specialized training.

During these calls, the patients' overall condition, adherence to the recommendations provided during the palliative care sessions, potential challenges in symptom management, and emotional or supportive needs were assessed. If necessary, patients were guided to receive additional services or referred to relevant specialists for further care. The follow-up program aimed to sustain and enhance the intervention's effects while offering continuous support to patients after the in-person sessions ended. Ultimately, the post-test questionnaires were completed. The intervention flowchart is presented in Figure 1.

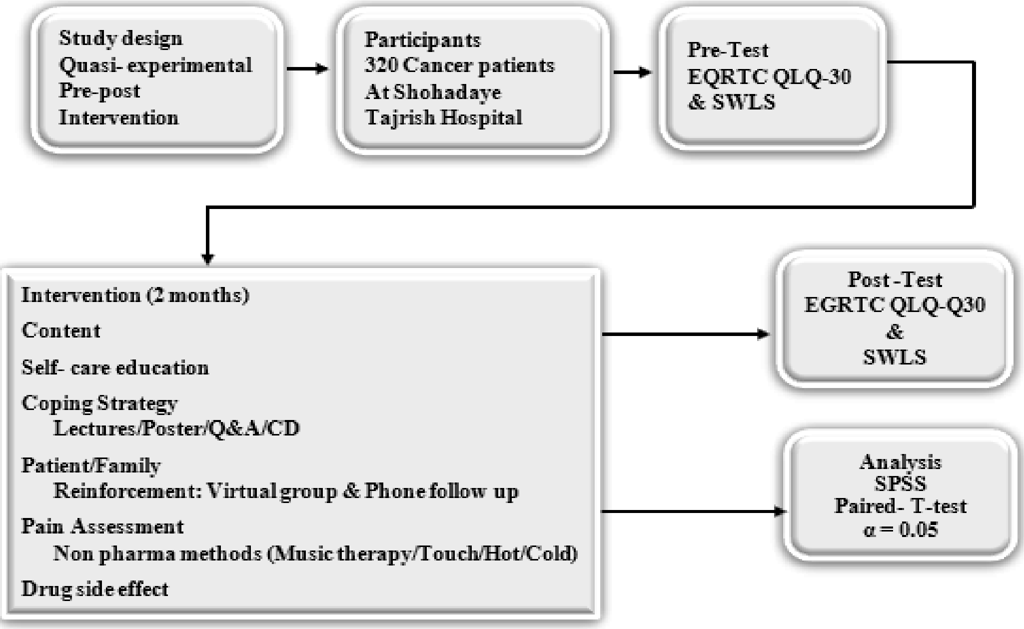

Figure 1. The intervention flowchart

The data collection tool consisted of a three-part questionnaire. The first part gathered demographic information and disease-related variables, including age, gender, education level, marital status, and type of cancer. The second part of the assessment was the EORTC QLQ-C30 Quality of Life Questionnaire, specifically designed for cancer patients. This questionnaire consists of 30 items that measure quality of life across five functional domains: physical, role, emotional, cognitive, and social. Additionally, it addresses nine symptom domains, which include fatigue, pain, nausea and vomiting, diarrhea, constipation, sleep disturbances, loss of appetite, shortness of breath, and financial difficulties related to the illness. There is also one global quality of life domain included in the assessment (21). Scores for each domain ranged from 0 to 100. In the functional and international quality of life domains, a higher score indicates a better condition, while in the symptom domains, a higher score indicates greater symptom severity or discomfort. The EORTC QLQ-C30 has demonstrated good psychometric properties across diverse cancer populations. The internal consistency reliability, measured by Cronbach's alpha, was greater than 0.70 for most functional and symptom scales. The tool also demonstrated strong content, construct, and criterion validity, making it suitable for evaluating quality of life in oncology settings (22,23). The third part was the Satisfaction with Life Scale (SWLS), developed by Diener et al. (1985) (24). This tool consists of five items rated on a 7-point Likert scale ranging from "strongly disagree" (Score 1) to "strongly agree" (Score 7). The scale has demonstrated high internal consistency, with Cronbach's alpha values typically exceeding 0.80, and strong test-retest reliability over time. Its validity has been confirmed through correlations with measures of subjective well-being, mental health, and emotional functioning (25,26). To establish face and content validity, 10 expert faculty members reviewed the tools, and their feedback was incorporated into the development process. For reliability assessment, questionnaires were administered to 20 patients with cancer. Cronbach's alpha was calculated, resulting in 0.96 for the quality-of-life questionnaire and 0.97 for the satisfaction with life scale.

The data were analyzed using SPSS version 26, applying statistical tests including paired t-tests at a significance level of 0.05, along with descriptive statistics such as frequency, percentage, mean, and standard deviation. The normality of the data distribution was evaluated using the Kolmogorov-Smirnov test.

Results

The results showed that the mean age of the participants was 50.67 years with a standard deviation of 13.23. The participants' ages ranged from 36 to 71 years (36-71). Most of the participants had breast cancer. The mean duration of disease was 2.5 ± 1.2 years. Other demographic variables are presented descriptively in Table 1.

Table 1. Demographic characteristics of cancer patients (n=320)

Variable	Involvement site	Frequency	Percentage
Type of cancer	Tongue	3	0.9
	Breast	257	80.4
	Stomach	13	4.3
	Colon	19	5.9
	Thyroid	14	4.4
	Osteosarcoma	8	2.5
	Esophagus	6	1.8
Gender	Male	30	9.4
	Female	290	90.6
Marital status	Single	49	15.3
	Married	271	84.7
Employment status	Unemployed/Homemaker	241	75.3
	Employed	79	24.7
Education level	Below diploma	127	39.7
	Diploma	114	35.6
	Bachelor	58	18.1
	Master	18	5.6
	PhD	3	0.9

Data on the quality of life and life satisfaction among patients were collected and analyzed before and after the provision of palliative care (Table 2). The study found that after the palliative care intervention, the overall mean quality of life score and its dimensions (Excluding emotional functioning, sore throat, and diarrhea) as well as patient life satisfaction significantly improved. Specifically, mean total quality of life improved from 69.60 ± 5.84 to 83.80 ± 6.20, and life satisfaction increased from 17.42 ± 4.23 to 21.75 ± 4.35 (P < 0.001).

Table 2. Quality of life and satisfaction before and after palliative care (n=320)

Variables and dimensions		Before	After	P-Value*	Effect size (Cohen's d)
		Mean ±Standard deviation	Mean ±Standard deviation		
Functional domain of quality of life	Physical functioning	4.5 ± 9.9	49.5 ± 16.8	P < 0.001	3.27
	Role functioning	64.7 ± 24.7	82.3 ± 28.0	P < 0.001	0.67
	Cognitive functioning	67.3 ± 26.3	93.0 ± 29.5	P < 0.001	0.92
	Emotional functioning	8.0 ± 12.8	9.6 ± 18.0	P= 0.786	0.1
	Social functioning	67.5 ± 24.3	90.5 ± 26.8	P < 0.001	0.9
Symptom domain of quality of life	Fatigue	66.6 ± 20.0	35.8 ± 19.8	P < 0.001	-1.55
	Nausea	67.8 ± 24.8	48.7 ± 26.3	P < 0.001	-0.75
	Pain	69.2 ± 24.8	48.7 ± 25.3	P< 0.001	-0.82
	Sore throat	51.7 ± 37.0	49.0 ± 37.7	P= 0.362	-0.07
	Sleep disturbance	70.0 ± 37.0	35.0 ± 32.0	P< 0.001	-1.01
	Loss of appetite	97.3 ± 34.7	36.0 ± 33.3	P < 0.001	-1.8
	Constipation	99.0 ± 34.7	38.7 ± 35.7	P < 0.001	-1.72
	Diarrhea	54.3 ± 37.3	45.3 ± 37.3	P= 0.938	-0.24
	Financial impact of cancer	72.7 ± 32.3	35.0 ± 37.0	P < 0.001	-1.08
	Overall quality of life score	25.8 ± 18.2	36.8 ± 18.5	P < 0.001	0.6
Quality of life (Total)		69.6 ± 5.8	83.8 ± 6.2	P < 0.001	2.36
Life satisfaction		17.42 ± 4.23	21.75 ± 4.35	P < 0.001	1.01

* Paired t-test

Discussion

This study investigated the effect of a palliative care intervention on the quality of life and satisfaction among patients with cancer. The results showed significant improvement in patients' quality of life, except for emotional functioning, sore throat, and diarrhea.

Numerous studies have been conducted on the quality of life in palliative care. Nevertheless, the topic has been examined from various viewpoints, and there is no thorough evaluation of the available evidence. Additionally, the role of health-related quality of life in terminal or permanently disabling illnesses, which are among the leading causes of distress and reduced quality of life, remains controversial. Patients are often referred to palliative care when curative treatment is no longer effective (27). In this regard, a study's findings showed that palliative care improves the quality of life for patients with severe, end-stage illnesses at the end of life. Palliative care services reduce patient symptoms and eliminate the need for unnecessary medical interventions and imaging, thereby enhancing the quality of life for patients and their families compared to non-palliative care units (28). A study conducted in Indonesia demonstrated that the intervention resulted in significant improvements in emotional and social functioning, as well as alleviations in pain, fatigue, dyspnea, insomnia, appetite loss, constipation, and financial difficulties among patients (29). The findings of a meta-review by Demuro et al. (2024), which examined 14 systematic reviews, confirmed the effectiveness of palliative care interventions for patients with end-stage conditions or permanent disabilities (27). These findings align with previous evidence supporting the benefits of nurse-led palliative care programs in enhancing the physical, psychological, and emotional well-being of patients with advanced illnesses (30,31).

The current study further enhances understanding by implementing a culturally adapted model within Iran's healthcare system, where palliative care remains in its developmental phase. In Iran, the delivery of palliative care faces several systemic challenges, including insufficient nurse training, lack of infrastructure, and cultural taboos surrounding death and end-of-life conversations (32,33). Despite these limitations, our findings suggest that structured, culturally sensitive care provided by trained nurses under professional supervision can lead to significant improvements in patient outcomes. This suggests a practical pathway for expanding palliative services, even in resource-constrained hospital settings.

Findings regarding life satisfaction suggest that palliative care services have a positive impact on the life satisfaction of cancer patients. Measuring patient satisfaction with the services provided by the care team is crucial for evaluating the quality-of-care outcomes. This measurement offers valuable insights into patients' experiences with these services, assesses their treatment adherence, identifies structural weaknesses, and evaluates the performance of the care team (34). A study conducted in Egypt, which assessed elderly patients' satisfaction with palliative care services for cancer, revealed that 42% of patients were indifferent to the quality of palliative care, and 47% expressed moderate satisfaction with healthcare providers. These findings differ from those of the present study (35). This discrepancy may be attributed to cultural differences, the study population, and the training and experience of the palliative care team. In another study conducted in Bangladesh, which evaluated patient satisfaction with palliative care, over 88% of patients were satisfied with the services provided by the care team. The leading indicators of satisfaction in this study included assessment of physical symptoms, information on pain management, inclusion of family members in decision-making, coordination of care among healthcare providers, and the availability of physicians (34).

Although patient satisfaction with healthcare services is a key indicator of care quality, it is worth noting that life satisfaction is a broader and more complex concept. Life satisfaction encompasses various domains, including physical health, psychological well-being, social support, spiritual fulfillment, and the individual's sense of purpose. While the quality of care received can influence life satisfaction, it is only one of many contributing factors. Therefore, studies that focus exclusively on patient satisfaction with care services may not fully capture the multidimensional nature of life satisfaction. In this study, the observed improvements in life satisfaction may reflect the cumulative impact of symptom relief, emotional support, family engagement, and culturally relevant education provided through the structured palliative care intervention.

One limitation of the study was the potential impact of patients' knowledge, previous experiences, motivation, and interest on the outcomes. Additionally, individual differences and the mental and emotional states of the patients at the time of completing the questionnaire may have influenced the program's implementation. These factors were beyond the researchers' control. Furthermore, the study's generalizability was limited by its quasi-experimental design and the use of convenience sampling from a single hospital in Tehran. The findings may not apply to the broader population of cancer patients in Iran or other cultural contexts. Future research utilizing randomized controlled trial (RCT) designs and multi-center sampling could enhance the external validity of the results. Other limitations of the study include the duration of the intervention and the follow-up period. Various factors influence quality of life and life satisfaction, and the results from the educational intervention may have only short-term effects.

Despite these limitations, the study's results have practical implications. The structured palliative care intervention, administered by trained nurses, had positive effects on patients' quality of life and life satisfaction. These findings support the integration of nurse-led palliative care programs into oncology services in Iran. Additionally, the culturally tailored educational components could serve as a model for similar interventions in settings with similar cultural and healthcare structures.

Conclusion

The findings of this study showed that palliative care services improved patients' life satisfaction and all dimensions of quality of life (Except emotional functioning, sore throat, and diarrhea) in cancer patients. Therefore, nurses can play a crucial role in clinical settings by providing education and palliative care to manage symptoms and side effects of treatment, thereby enhancing patients' quality of life and satisfaction. It is recommended that future studies develop targeted interventions to improve aspects of emotional well-being and specific physical symptoms. Additionally, long-term follow-up studies are necessary to assess the sustainability of the benefits of palliative care. Moreover, examining the impact of palliative care on families and caregivers, as well as its cost-effectiveness, can provide a more comprehensive understanding of its value.

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Ethical statement

All ethical considerations in human studies have been strictly upheld, including the protection of confidentiality, obtaining informed consent, the participants' right to withdraw from the study at any time, and compliance with ethical publication practices. Patients were provided with detailed information regarding the purpose and procedures of the study, and the principles of research ethics were followed in accordance with the Declaration of Helsinki, ensuring that all ethical guidelines were actively implemented throughout the study. This study received approval from the Ethics Committee of Shahid Beheshti University of Medical Sciences, under the Ethics Code: IR.SBMU.CRC.REC.1400.018.

Conflicts of interest

The authors state that they have no competing interests.

Author contributions

M.K. and M.R. contributed to the formation of the research idea. M.K., M.R., and ME.A. participated in the study design. M.K. conducted the sampling. M.K. and K.N. performed the data analysis and interpretation. Sh.S.A prepared the initial draft of the manuscript. Sh.S.A and H.E. reviewed and completed the manuscript. All authors participated sufficiently and contributed to the final version of the manuscript.

Data availability statement

Data will be accessible upon reasonable request, pending review by the research team and consideration of data confidentiality.

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