Original Article

Association between quality of life and palliative care at the cancer patients

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Abstract

Context: Patients with cancer experience great pain and stress. Many studies show that palliative care has a positive effect on many clinical outcomes involving symptom distress, quality of life, satisfaction, and survival.

Aims: This study aimed to survey the association between quality of life and palliative care in cancer patients.

Setting and Design: This was a descriptive correlational study conducted from February 2019 to August 2019 on 399 patients diagnosed with cancer recruited from seven universities of medical sciences.

Materials and Methods: The sample size consisted of 97 cancer patients who had received palliative care and 302 cancer patients who did not receive palliative care. The convenience sampling method was used. The World Health Organization quality of life (QOL)-BREF questionnaire was used for data collection.

Statistical Analysis Used: Data were analyzed using SPSS software version 22. Data were described with mean, standard deviation, and frequency and analyzed using Mann–Whitney, K-S test. A generalized linear regression model was used in this study.

Results: The mean score of total QoL in patients who did not receive palliative care was higher than those who received (51.038 ± 23.771 vs. 48.195 ± 27.361), and this difference was not statistically significant ($P > 0.05$). A statistically significant association was observed between palliative care and psychological and environmental health, total QoL, education, employment and income status ($P < 0.05$).

Conclusion: The utilization of palliative care was associated with improved psychological health and environmental health.

Keywords: Cancer, Palliative care, Quality of life, Supportive care

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INTRODUCTION

According to the increasing cancer incidence and mortality, new cancer cases and cancer deaths estimated at 18.1 million (17.0 million without nonmelanoma skin cancer) and 9.6 million (9.5 million without nonmelanoma skin cancer), respectively, in 2018, according to the International Agency for Research on Cancer.[1] The global burden of cancer is rising at an alarming rate, and it remains as one of the top causes of morbidity and mortality globally.[2] It is estimated that the number of new cancer cases and cancer-related deaths will reach 26.4 and 17 million people, respectively, by 2030.[3] More than half of the cancer patients living in developing countries.[4] It is predicted that a significant rise in cancer burden will occur in the low- and middle-income countries.[2]

In Iran, cancer is the third most common cause of death after heart disease, accidents, and other natural phenomena.[5] In Iran, in 2018, about 110,000 cancer cases occurred, and about 56,000 patients died of this disease, as reported by global cancer statistics. The age-standardized incidence rate of all the cancer types, except for nonmelanoma cancer, was 154.8 and 127.7/100,000 for men and women, respectively. Besides, about 59,000 and 51,000 cancer patients were diagnosed among Iranian men and women, respectively.[6]

One of the main goals of cancer management is attributable to improve patients' quality of life (QoL).[7] Assessment of QoL is an important aspect of cancer care.[8] QoL is one of the most important issues at the terminal stage of cancer. The improvement or maintenance of QoL will be the first consideration when cancer cannot be cured.[9] QoL is a complex and multidimensional construct with a range of conceptual definitions, and it often evaluated using health-related QoL tools.[10] Recently, QoL has been considered as a primary end point measure for the quality of the management and care in oncology medicine.[8]

Since cancer patients experience many difficulties in all aspects of their lives, providing comprehensive care in the form of a supportive and palliative care is necessary to avoid the influence of the negative consequences of the disease and improve patients' QoL.[11,12] Palliative care is the set of measures and interprofessional discipline that aims to improve patients' QoL and their family members so as to solve the problems resulting from the disease by addressing their symptom concerns and their communication and decision-making needs.[13,14] In palliative care, the primary goal is relieving symptoms of distress resulting from multiple symptoms and enhancing QoL for patients and their families.[15] In 1990, the World Health Organization (WHO) emphasized that the ultimate goal of palliative care is the achievement of the best QOL for patients and their families.[16]

Contrary to the progression of the primary health-care programs in Iran, a developed program does not exist yet for providing specialist palliative care services as health-care services do not provide specifically designed end-of-life palliative care to patients and their family members.[17]

Numerous studies have been conducted on examining the impact of palliative care on patients' QOL, which have shown different results according to the type of palliative care provided, the initiation of palliative care, and the type of study.[18-27] Due to the increasing trend of cancer incidence in Iran, the importance of improving cancer patients' QOL and their family members, and a limited history of palliative care in Iran, a study is needed to examine the impact and effectiveness of palliative care on cancer patients' QOL. Therefore, this study aimed to examine the association between palliative care and QOL in cancer patients in Iran using the WHOQOL-BREF questionnaire.

MATERIALS AND METHODS

This descriptive correlational study was conducted from February 2019 to August 2019. The study population consisted of all patients diagnosed with cancer recruited from seven various universities in Iran involving Tehran, Esfahan, Kermanshah, Lorestan, Mazandaran, Babol, and Golestan. The convenience sampling method was used. The sample size consisted of 399 known cancer cases, of whom 97 received palliative care and 302 did not receive palliative care. All patients were at the end stages of the disease. Those cancer patients who were diagnosed with stage II and had received palliative care for at least 8 weeks were included in this study. Patients were selected through medical records existing in hospitals and based on the result of pathology reports.

The WHOQOL-BREF questionnaire was used for data collection. The WHOQOL QOL assessment was developed by the WHOQOL Group with 15 international field centers, simultaneously, in an attempt to develop a QOL assessment that would be applicable cross-culturally.[28]

The WHOQOL-BREF is a 26-item instrument consisting of four domains: physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items) and two overall QoL and general health items.

In this study, WHOQOL-BREF consists of four parts. The first part was related to the patients' life condition during the recent week (two questions), the second part was related to patients' experiences during the four last weeks (seven questions), the third part was related to patients' experiences and abilities during the four recent weeks (16 questions), and the fourth part was related to the patients' experiences about specific things (one question).

All questions are scored on a 5-point Likert scale. Raw scores in each domain were transformed into a 4–20 score according to the guideline. The mean score of questions in each domain is used to calculate the domain score, and finally, they transformed linearly to a 0–100-scale. Higher scores indicate a higher QoL.[29] The scores are then transformed linearly to a 0–100 scale.

The validity and reliability of the Iranian version of the questionnaire were already confirmed by Nejat *et al*., on 1167 people in Tehran, Iran. Using Cronbach's α and interclass correlation, all domains met the minimum reliability standards, with the exception of the social relationship domain ($\alpha = 0.55$). The test reliability for subscales of physical health, psychological health, social relationships, and environmental health was obtained 0.77, 0.77, 0.75, and 0.84, respectively.[29]

Ethical considerations

This study was approved and supported by the Mazandaran University of Medical Science, Sari, Iran [grant number IR. Mazums Rec. 95.2357]. Written consent was obtained from the authorities of the hospital before the start of the study. The questionnaire was completed by an in-person interview. Besides, before conducting the study, study objectives were explained to the participants, and informed consent was obtained from them. They were informed that the data were kept confidential and anonymous.

Data were analyzed using SPSS software version 22 (IBM SPSS Statistics 22). Descriptive statistics (mean and standard deviation [SD], frequency, and percent) were used to assess the demographic status and QOL; the Kolmogorov–Smirnov (K-S) test was applied to assess the normality of data. With regard to the K-S test and nonnormality of data, the Mann–Whitney test was used to compare the QoL status among cancer patients receiving palliative care and those who do not receive and to examine the association between age, gender, income status, housing status, habitation status, and QoL. Kruskal–Wallis test was used to assess the association between education status, employment status, basic insurance coverage status, and QoL. A generalized linear regression model was conducted to determine the effect of demographic variables on the cancer patients' QoL.

RESULTS

The sociodemographic characteristics are shown in Table 1. Three hundred and ninety-nine patients with cancer were included in the study. The majority of patients did not receive palliative care ($n = 302$; 75.7%). Most of the patients were female ($n = 233$; 62.3%) and married ($n = 359$; 90.0%). Nearly 50.1% of patients were aged < 50 years. Around 32% and 52.1% of patients had a high school education and were a housewife, respectively. Most of the patients lived in urban areas ($n = 259$; 73.9%). Monthly income in most of the patient was < 10,000,000 Rials ($n = 226$; 56.6%).

As shown in Table 1, a statistically significant association was observed between general and overall QoL and education status, employment status, income status, and type of basic insurance ($P < 0.05$). The mean score of QoL in patients who received palliative care was higher than those who did not receive, and this difference was not statistically significant ($P > 0.05$).

The mean ± SD of QoL subscales is shown in Table 2. The mean score of psychological health status and environmental health status among patients who did receive palliative care was higher than those who did not receive, and this difference was statistically significant ($P < 0.05$). By contrast, the mean score of physical health status, social relationship health status, and general and overall health status among those who did not receive palliative care were higher than those who received palliative care, and this difference was not statistically significant ($P > 0.05$).

The results of the generalized linear model are shown in Table 3. Quality of life in married patients was higher compared to single ones ($P < 0.05$).

DISCUSSION

Given the findings, the highest amount of mean ± SD among QOL subscales was attributed to the environmental health in patients who received palliative care and social relationship health in those who did not receive palliative care at 58.463 ± 18.540 and 56.284 ± 18.582, respectively, followed by social relationship health in patients who received palliative care at 55.463 ± 21.189 and environmental health among those who did not receive at 51.733 ± 15.345.

Physical health had the lowest mean ± SD in patients who received palliative care, and those who did not receive palliative care (46.763 ± 14.389 vs. 47.342 ± 11.666), indicating palliative care had no much effect on the physical health status of cancer patients. Besides, the results showed that palliative care has a significant impact merely on the psychological health status and environmental health status of cancer patients ($P < 0.01$). Bahrami conducted a transcultural study on 166 Australian cancer and 198 Iranian cancer patients and reported the highest mean of QoL was related to the environmental health and social relationship health in Australian and Iranian cancer patients, respectively.[30]

It is noteworthy that the mean of psychological health status and environmental health status was higher in patients who received palliative care than those who did not receive palliative care, and this difference was statistically significant, whereas the mean of physical health status, social relationship health status, and general and overall health status was higher in patients who did not receive palliative care than those who received, and this difference was not statistically significant.

Jang in 2015 showed that the palliative care consultation resulted in decreased use of chemotherapy near death, lower risk of intensive care unit (ICU) admission, multiple emergency department visits, and multiple hospitalizations near death in patients with advanced pancreatic cancer.[31]

Zhuang *et al*. conducted a study on 150 patients with lung cancer in two groups (control group with conventional care and study group with early palliative care) in India. They showed that the levels of pulmonary function indexes of peak expiratory flow, functional residual capacity, and tracheoesophageal fistula 25% in patients assigned to early palliative care were remarkably higher than those in the control group.[32] Another study in the USA, in 2017, showed that adult inpatients with Stage IV cancer with specialty palliative care more frequently had pain screening (91% vs. 81%, $P = 0.020$), spiritual assessment (48% vs. 10%, $P < 0.001$), and hospice referral (39% vs. 9%, $P < 0.001$), and also they were less likely to be re-admitted within 30 days (12% vs. 21%, $P = 0.059$).[33]

According to our results, a statistically significant association was observed between total QoL and employment

Table 1: Demographic variables and the total quality of life in terms of demographic variables (n=399)

Variables	Modes	Frequency (%)	Mean±SD	*P*
Palliative care status	Under coverage of palliative care	97 (24.3)	52.36±16.06	0.60
	No under the coverage of palliative care	302 (75.7)	50.93±13.13	
Age (years)	<50	200 (50.1)	51.90±14.32	0.38
	>50	199 (49.9)	50.64±13.45	
Gender	Male	150 (37.7)	51.58±14.42	0.95
	Female	249 (62.3)	51.15±13.59	
Marital status	Single	40 (10.0)	48.58±17.32	0.43
	Married	359 (90.0)	51.58±13.45	
Education status	illiterate	85 (21.3)	47.75±12.86	0.001**
	High school	234 (58.6)	51.10±14.29	
	Academic	80 (20.1)	55.49±12.75	
Employment status	Housewife	208 (52.1)	50.29±13.65	0.002**
	Employer	63 (15.8)	57.61±13.15	
	Student	16 (4.0)	55.56±13.95	
	Etc.	112 (28.1)	48.92±13.73	
Income (per month)	<10000000 Rial	226 (56.6)	49.50±14.46	0.02*
	>10000000 Rial	173 (43.4)	53.59±12.78	
Basic insurance coverage status	Health insurance	185 (46.3)	49.58±14.33	0.01*
	Social security insurance	179 (44.7)	53.87±13.32	
	Armed Forces Insurance	35 (8.46)	55.18±13.69	
Housing status	Housing owned	308 (77.2)	51.05±13.64	0.70
	Rented housing	91 (22.8)	52.02±14.77	
Habitation status	Urban	295 (73.9)	51.72±13.46	0.41
	Rural	104 (26.1)	49.99±15.05	

*$P<0.05$ was considered significant, **$P<0.01$ was considered significant. SD: Standard deviation

Table 2: Mean±standard deviation WHO quality of life subscales

Variables	Receiving palliative care	Not receiving palliative care	*P*
Physical health status	46.763±14.389	47.342±11.666	0.84
Psychological health status	52.734±16.050	48.269±13.374	0.01*
Social relationship health status	55.816±21.189	56.284±18.582	0.94
Environmental health status	58.463±18.540	51.733±15.345	0.001**
General and overall health status	48.195±27.361	51.038±23.771	0.24

*$P < 0.05$ and **$P < 0.01$

Table 3: Multiple regression analysis of related to quality of life subscales (*n*=399)

Variables	*B*	SE	95% CI	*P*
Palliative care status (Reference: No under palliative care coverage)				
Under palliative care coverage	2.532	3.300	−3.938-9.001	0.44
Age (reference: >50 years)				
<50 years	−0.532	3.365	−7.129-6.064	0.87
Gender (reference: female)				
Male	−5.619	5.174	−15.761-4.524	0.27
Marital status (reference: single)				
Married	16.331	5.690	−5.178-27.485	0.004
Education status (reference: academic)				
Illiterate	−7.535	6.116	−19.524-4.454	0.21
High school	−2.930	4.797	−12.333-6.472	0.54
Employment status (reference: etc.)				
Housewife	−3.457	5.669	−14568-7.654	0.54
Employer	2.545	5.184	−7.616-12.707	0.62
Student	9.570	8.846	−7.769-26.908	0.27
Monthly income level status (reference: >10,000,000 Rials				
<10,000,000 Rials	−1.085	3.207	−7.370-5.201	0.73
Basic insurance coverage status (reference: no insurance)				
Health insurance	−0.929	11.446	−23.364-21.506	0.935
Social security insurance	4.586	11.460	−17.877-27.048	0.689
Armed Force Insurance	8.123	12.625	−16.622-32.869	0.520
Relief foundation insurance	−12.780	20.729	−53.408-27.848	0.538
Housing status (reference: rentals)				
Private	−1.603	3.700	−8.856-5.651	0.665
Habitation status (reference: rural)				
Urban	−2.904	3.614	−9.988-4.180	0.422

SE: Standard error, CI: Confidence interval

status ($P < 0.01$), meaning that cancer patients with better employment status would be more likely to have a better QOL than those who did not. The results also indicate that higher education and higher income level has a significant effect on total QoL and patients with higher education and income levels had a better QoL than those who did not ($P < 0.01$). Likewise, health insurance coverage may influence the level of QOL in cancer patients ($P < 0.01$). In our study, patients who were covered by Armed Forces Insurance had a better QoL. A cross-sectional study in 2018 reported that women preferred palliative care more than men, and also education had not a statistically significant effect on preferences for palliative care.[34]

Further, Ziegler *et al*. reported that those who received PC were significantly more likely to die in a hospice (39.4% vs. 14.5%, $P < 0.005$) and less likely to die in hospital (23.3% vs. 40.1%, $P < 0.05$).[35] Shreenivas *et al*., in the USA, reported minorities with lung cancer had feeling more hopeful and more secure with palliative care referral ($P < 0.05$).[36] Another study in the USA conducted by Parikh *et al*., 3,040,740 cases with prostate, lung, colorectal, and breast cancer analyzed, 289,600 patients had palliative care. Cancer-related pain and failure to thrive were associated with palliative care referrals.[37] A study showed that each additional palliative care visits during the 1st month of follow-up using an area under the curve approach increased patient functioning measured (0.008 per visit, $P = 0.01$). However, patient functioning as measured at the initial visit was the strongest predictor of subsequent functioning (0.52, $P < 0.001$) than are additional palliative care visits.[27] Horton showed that the mean ICU length of stay in hospitals was shorter in patients with palliative care (0.23 days); also, the mean length of hospice enrollment in patients with palliative care was longer by 0.22 days.[38]

Furthermore, a significant association was found between monthly income status and environmental health that means patients, who had higher income, had better environmental health. There was a significant association between basic insurance coverage status and social relationship and environmental health status. Moreover, in our study, the association between habitation and social relationship health status was significant, while the association between housing status and QOL subscales was not statistically significant. Regression analysis revealed that the QOL in married patients was higher compared with single patients ($P < 0.05$). Other variables in the regression model had no association with QoL.

Limitations

This study has several limitations. First, matching was not performed for confounding variables among cancer patients who received palliative care and those who did not receive (due to the limitation of the centers of the palliative care services provider and patients treated with palliative care, there was no possibility of matching);

Second, random sampling was not conducted, and this limits the generalizability of the findings.

CONCLUSION

Our study showed that palliative care has only effect on the psychological health and environmental health status of cancer patients. Our findings support the role of palliative care clinics in cancer centers and the need to address both the proportion and timing of palliative care referral. We need to consolidate infrastructures such as outpatient clinics, increase training of palliative care professionals and oncologists, conduct research regarding novel integration models and quality improvement measures, educate patients and their family members, and advocate for public health policy changes.

Conflicts of interest

There are no conflicts of interest.

Authors' contribution

All authors have contributed to this article.

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