



Assessment of the Quality of Life in Turkish Breast Cancer Patients

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ABSTRACT

Objective: Breast cancer significantly influences the quality of life (QoL) in women. The aim of this study was to assess the QoL in breast cancer patients and to determine the factors that have an effect on the QoL.

Materials and Methods: We used sociodemographic data questionnaire, European Cancer Research and Treatment Organization QLQ-C30 questionnaire and linear regression analysis to determine the factors that affect the QLQ-C30 global health score, functional score, and symptom score.

Results: This study included 113 patients with a median age of 50.61 years (range: 17-80 years). Half of the patients used complementary and alternative treatments, 45.5% used painkillers, and 19.4% used antidepressants. The most important factors related to the global health score were the place of birth, use of painkillers, and employment status. The most important factors related to the functional status were the disease stage at the time of diagnosis and the information status about the disease. The most important factors related to symptom status were age, the disease stage at the time of diagnosis, the information status about the disease, and psychiatric referral.

Conclusion: The findings indicated the consistency and strength of the relationship between clinical and sociodemographic factors and the QoL in breast cancer patients. Psychological support, when necessary, and the use of painkillers and antidepressants may improve the QoL in breast cancer patients.

Key words: Breast cancer, quality of life, questionnaire

Introduction

Breast cancer is the most common cancer in women. It is reported that there are over 1.1 million newly diagnosed women with breast cancer worldwide each year, and 410,000 women die from the disease annually (1). However, improvements in the early detection and treatment of breast cancer have led to longer survival among these patients. Additionally, breast cancer affects women's self-image, and therefore, studies focusing on the quality of life is vital in women who have their breasts surgically removed. Currently, the assessment and improvement of quality of life (QoL) is an important research topic (2).

The QoL is a subjective concept, and its definition and subconcepts may show variations. The QoL has been defined as the subjective evaluation of life, or appraisal and satisfaction of the patient with their current level of functioning as compared to what they perceive to be possible or ideal (3). The QoL is a multidimensional structure encompassing perceptions of the positive and negative aspects of physical, emotional, social, and cognitive functioning as well as the negative aspects of somatic discomfort and other symptoms produced by a disease or its treatment (3).

In the present study, we used both sociodemographic data questionnaire and European Cancer Research and Treatment Organization (EORTC) questionnaire in order to assess the QoL in Turkish breast cancer patients. Then, we aimed to determine the factors that affect the quality of life in breast cancer patients.

Materials and Methods

Breast cancer patients aged ≥ 18 years who received a diagnosis ≥ 3 months earlier were included in the study. The majority of patients was followed-up and treated at our clinic and inpatient wards, and a lower proportion were followed-up and treated at the Radiation Oncology outpatient clinic. After obtaining informed consent, the patients were asked to complete a sociodemographic data questionnaire, which could be completed in approximately 10 min, and the EORTC Quality of Life Questionnaire C30 (QLQ-C30). Some of the interviews were performed one-on-one, and some were performed via the questionnaire, however, for the part that included questions about the QoL, all patients were asked to respond to the questions themselves. The patients were informed that they could drop out of the study whenever they wished to and could refuse to answer questions when they did not want to answer. Preterminal patients and those with a disease severity that would interfere with the interview were excluded from the study.

The sociodemographic data questionnaire collected the following data: age, gender, level of education, occupation, birthplace, place of residence, marital status, health insurance status, employment status, way of access to the hospital, medical characteristics (date of diagnosis, disease stage at the time of diagnosis, disease stage at the time of the study, concomitant diseases, current and previous treatments, and presence of malignancy within first-degree relatives), information on their disease, use of complementary and alternative treatments after the diagnosis of cancer and during the previous 3 months, beliefs and expectations about complementary and alternative treatments, reasons for using complementary and alternative treatments, whether her physician had knowledge on paramedical treatments, whether complementary and alternative treatments were used in combination with conventional cancer treatment (chemotherapy, radiotherapy) and other medical treatments, and the use of opiates and painkillers. In addition, the EORTC QLQ-C30, which consists of 30 questions regarding social, emotional, and physical functioning symptoms, and the QoL that was designed to provide a global evaluation, was administered. This questionnaire was prepared in accordance with EORTC guidelines.

The QLQ-C30 was used to assess the QoL. This questionnaire is a valid and reliable questionnaire for the evaluation of QoL in Turkey (4). The QLQ-C30 is a 30-item self-reported, multidimensional, cancer-specific questionnaire designed to assess the QoL in cancer patients. The QLQ-C30 was proven useful in many clinical trials, as it assesses the primary factors that influence the health-related QoL (HRQoL) in patients with cancer (5, 6). The QLQ-C30 includes 5 functional domains (physical, role, emotional, cognitive, and social), 1 global QoL domain, 3 symptom domains (fatigue, nausea/vomiting, and pain), and 6 single items. The scores are transformed into 0-100-point scales. In terms of the 5 functional domains and the global QoL domain, high scores indicate a high level of functioning and global QoL. On the other hand, in terms of the symptom domains and single items, high scores indicate a greater severity of symptoms or problems (7-9).

Statistical Analyses

Statistical analysis was performed using SPSS 20.0 for Windows, (IBM SPSS Statistics, New York, USA). Definitive statistical values were given as mean values, standard deviations, and median, minimum, and maximum values for numeric variables and as number and percentage for categorical variables. Differences between categorical variables were determined using Pearson's chi-square and Fisher's exact tests. Differences between groups of numeric variables were determined using the Mann-Whitney U test in the presence of 2 groups and the Kruskal-Wallis test in the presence of ≥ 2 groups when the distribution was not normal. When a difference was observed between >2 groups, the differences between the groups were interpreted using the Bonferroni correction. Relationships between numeric variables were determined using Spearman's correlation. Parameters thought to affect the QLQ-C30 global health score, functional score, and symptom score were examined using linear regression analysis. P values <0.05 were considered significant.

Results

The study population included 113 patients with a median age of 50.61 years (range: 17-80 years). Most patients (85%) were aged 18-59 years, and 44.2% had 1-9 years of education. 69.9% of the patients were married, and 80.8% of the patients were not actively

Table 1. Sociodemographic characteristics of patients with breast cancer

	Number of patients	Percentage (%)
Age (years)		
18-59	96	85.0
60-89	17	15.0
Birth Place		
Black Sea Region	22	20.2
Marmara Region	42	38.5
Aegean Region	5	4.6
Eastern Anatolia Region	13	11.9
Central Anatolia Region	15	13.8
Southeastern Anatolia Region	4	3.7
Abroad	8	7.3
Level of Education		
Illiterate	2	1.8
1-9 years	50	44.2
10-12 years	34	30.1
>13 years	27	23.9
Marital status		
Married	79	69.9
Single	16	14.2
Widowed	18	15.9
Active employment		
Yes	20	19.2
No	84	80.8
Do you receive CAM?		
Yes	56	49.6
No	57	50.4
Do you talk with physician about CAM?		
Never	9	13.8
Sometimes	18	27.7
Generally	38	58.5

CAM: complementary/alternative medicine

working (i.e., housewives, unemployed or retired) (Table 1). Half of the patients had 1-9 years of education and their birthplace was mostly from Black Sea (22%) and Marmara regions (42%). 49.5% of the patients used complementary/alternative medicine (CAM), including plants, religious practices, and vitamin/antioxidants. Among the patients using CAM, 58.5% reported that they mentioned CAM to their physicians, and 27.7% reported that they sometimes talked to their physicians about CAM, whereas 13.8% reported that they did not (Table 1).

When the patients were asked the question, "Do you have information about your disease?" 96.5% of them responded positively. Overall, 43.3% of the patients had stage 1-2 disease at the time of the diagnosis, 32.3% had stage 3, and 24.3% had stage 4 disease. Most of the patients (87.1%) received chemotherapy and 59.4% received radiotherapy. Only few patients were referred to psychiatric consultation

Table 2. Clinical characteristics of patients with breast cancer

	Number of patients	Percentage (%)
Stage at the time of diagnosis		
1-2	43	43.4
3	32	32.3
4	24	24.2
Do you have knowledge about your disease?		
Yes	109	96.5
No	4	3.5
Did you ever receive chemotherapy?		
In the past	29	26.9
In the previous 3 months	65	60.2
No	14	13.0
Did you ever receive radiotherapy?		
In the past	48	47.5
In the last 3 months	12	11.9
No	41	40.6
Psychiatric referral		
Yes	26	25.2
No	77	74.8
Use of antidepressants		
Yes	20	19.4
No	83	80.6
Use of painkillers		
Yes	46	45.5
No	55	54.5

(25.2%). As a supportive therapy, 45.5% of patients used painkillers and 19.4% used antidepressants (Table 2).

Based on the univariate analysis, the QLQ-C30 general wellness score was low in patients who did not have information about their diseases, those who received radiotherapy in the previous 3 months, those who were referred to a psychiatrist, those who used painkillers, and those who did not work. The symptom state was worse in patients who did not have information on their disease, received radiotherapy in the previous 3 months, were referred to a psychiatrist, used painkillers and in patients with advanced-stage cancer. There was no relationship between general wellness, functional and symptom states and age or the period after diagnosis (Table 3 and Table 4).

Comparison of the groups in terms of diagnostic and therapeutic features based on a linear regression model obtained from variables with a P value <0.1 , showed that the most important factors that determined the general health score were birthplace ($P=0.016$), use of painkillers ($P=0.003$), and employment status $P=0.031$ (Table 5). The most important factors that determined the functional state were the disease stage at the time of diagnosis ($P<0.001$) and information on their disease ($P<0.001$) (Table 5). The most important factors that determined the symptom status were age ($P=0.009$), the stage at the time of diagnosis ($P<0.001$), information on their disease ($P=0.016$), and psychiatric referral ($P=0.093$) (Table 5).

Discussion and Conclusions

Generally, the HRQoL encompasses patients' subjective perceptions of the positive and negative aspects of symptoms, including physical, emotional, social, and cognitive functioning, the symptoms of disease and the side effects of treatment. The HRQoL is now considered an important outcome in cancer clinical trials. It has been shown that assessing the QoL in cancer patients could contribute to improving treatment and could even be as prognostic as medical factors (10, 11). Above all, studies regarding QoL can aid in the development of more-efficient cancer treatment.

In the present study, the univariate analysis showed that the QLQ-C30 general wellness score in patients who did not have information on their disease, those who received radiotherapy in the previous 3 months, those who were referred to psychiatric treatment, those who used painkillers, and those who were not working was low. The functional score was low in patients with stage 4 disease, those who received radiotherapy in the previous 3 months, those being referred to psychiatric treatment, and those who used antidepressants and painkillers. The symptom state was worse in patients who did not have information on their disease, received radiotherapy in the previous 3 months, were referred for psychiatric treatment, and used painkillers. The linear regression model was used for the factors included in the QLQ-C30 global health score in order to determine the factors that affected QLQ-C30 global health score. It was noted that birthplace, use of painkillers, and employment status were the most important factors that determined QLQ-C30 global health score, while the disease stage at the time of diagnosis and information on their disease status were the most important factors that determined functional status. The disease stage at the time of diagnosis, status of information on their disease, and psychiatric referral were the most important factors that determined symptom status.

Breast cancer has received the greatest attention among studies related to QoL in cancer patients for several reasons. First, the number of women with breast cancer is increasing (1, 12). Second, early detection and treatment of breast cancer have improved, and survivors now live longer; therefore, studying the QoL in this context is important (13, 14). Besides, breast cancer affects women's self-image, and maintenance of QoL is vital in those who have their breasts removed (15). In addition, women play an important role as partners, wives, and mothers (16, 17). Therefore, when a woman develops breast cancer, her family members can also experience the consequences of that illness (18). In fact, breast cancer is a family disease. Other reasons could also be considered, but overall, it is crucial to acknowledge that along with improvements in treatment, the study of QoL in patients with all types of cancer, regardless of gender, is highly relevant.

In a large-scale review that assessed the studies on breast cancer in terms of QoL, almost all studies indicated that breast cancer patients receiving chemotherapy might experience several side effects and symptoms that negatively affect QoL. Anxiety and depression were common among breast cancer patients, even years after diagnosis and treatment. Psychological factors also predicted subsequent QoL and overall survival in breast cancer patients (19). Another study evaluated whether breast cancer patients express similar levels of needs for equivalent severity of symptoms, functioning difficulties, or degrees of satisfaction with care aspects, by EORTC QLQ-C30 and other questionnaires that measure the level of satisfaction with care. HRQoL or other scores revealed significant variability in psychological (41%), physical/daily living needs (45%), information/health system (40%), and care/support needs (22%) (20). Sim-

Table 3. Comparison of the QLQ-C30 global health, functional, and symptom scores of patients with breast cancer, according to sociodemographic data

	Global health score (mean±SD)	P	Functional score (mean±SD)	P	Symptom score (mean±SD)	P
Age (years)		0.141		0.268		0.092
18-34	66.7±0.0		68.9±28.3		47.4±56.2	
35-59	63.5±23.5		73.8±15.0		25.3±15.1	
60-89	52.4±19.2		59.7±27.2		38.5±21.6	
Place of birth		0.092		0.207		0.330
Black Sea Region	46.3±26.8		61.8±21.7		35.5±23.5	
Marmara Region	63.6±24.7		71.5±20.4		28.8±20.0	
Aegean Region	62.5±4.8		72.2±6.4		30.8±5.9	
Eastern Anatolia Region	67.4±23.4		71.9±20.6		20.9±13.7	
Central Anatolia Region	70.2±16.9		79.4±9.1		22.3±11.8	
Southeastern Anatolia Region	69.4±4.8		82.2±3.8		33.3±8.9	
Abroad	66.7±11.8		73.8±10.4		21.6±11.6	
Level of education		0.432		0.297		0.205
Illiterate	66.7±0.0		86.7±0.0		10.3±0.0	
1-9 years	60.3±26.2		69.8±23.9		32.7±22.1	
10-12 years	58.3±21.0		72.1±14.3		24.9±12.1	
≥13 years	69.2±19.2		71.8±12.5		23.5±13.4	
Marital status		0.868		0.872		0.552
Married	62.0±24.1		70.5±19.9		29.3±19.9	
Single	59.0±20.0		72.0±14.2		24.1±6.3	
Widow	64.7±19.9		75.9±9.5		21.9±11.0	
History of tumors in family members		0.491		0.511		0.071
Yes	61.1±20.0		70.9±17.7		31.7±17.1	
No	63.2±23.0		70.6±20.0		24.6±18.3	
Disease knowledge		0.027		0.012		0.026
Yes	62.8±22.8		72.5±17.4		26.9±17.7	
No	36.1±4.8		41.5±14.1		47.9±5.9	
Use of CAM		0.318		0.292		0.438
Yes	64.6±23.7		69.8±19.2		29.2±18.4	
No	59.2±22.0		73.4±17.0		25.8±17.1	
Employment status		0.035		0.339		0.510
Yes	71.7±19.9		72.3±9.8		27.9±12.5	
No	58.8±23.8		71.1±20.5		27.6±17.9	

CAM: complementary/alternative medicine

ilar to our results, psychological and physical status may differ substantially among breast cancer patients and appropriate intervention strategies may improve their QoL.

In conclusion, the present study revealed the close relationship between clinical and sociodemographic factors and the QoL in patients with breast cancer. Use of painkillers and antidepressants and psychological assistance when necessary, may improve the QoL in breast cancer patients. Understanding the impact of these factors that influence QoL, and the differences in QoL among breast cancer survivors can guide new interventions that target improvement in their overall well-being.

Ethics Committee Approval: N/A.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

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Table 4. Comparison of the QLQ-C30 global health, functional, and symptom scores of patients with breast cancer, according to medical variables

	Global health score (mean±SD)	P	Functional score (mean±SD)	P	Symptom score (mean±SD)	P
Stage at initial diagnosis		0.406		0.001		<0.001
1-2	63.7±18.7		73.0±15.4		22.8±13.9	
3	61.4±28.5		78.8±11.8		25.2±14.3	
4	55.6±24.9		57.7±23.0		42.1±17.8	
Chemotherapy		0.431		0.949		0.204
Past	58.0±26.7		73.5±14.3		25.8±14.8	
Recent/current use	61.3±20.4		69.8±20.9		30.2±19.7	
Never used	71.2±24.9		75.3±10.6		19.1±12.2	
Radiotherapy		0.036		<0.001		0.001
Past	62.1±20.2		73.7±13.1		27.9±14.0	
Recent/current use	44.7±24.2		45.9±24.3		48.1±19.8	
Never used	64.3±24.3		76.5±15.7		22.3±16.2	
Referral to psychiatry		0.038		0.019		0.005
Yes	54.0±20.4		64.5±21.3		35.5±15.5	
No	63.4±23.4		74.3±16.6		24.7±16.6	
Use of antidepressants		0.164		0.049		0.454
Yes	55.3±24.7		62.2±24.0		31.4±17.5	
No	62.3±21.9		73.8±15.8		27.8±18.2	
Use of painkillers		0.007		0.005		0.003
Yes	53.4±22.2		65.8±21.1		33.4±17.6	
No	67.8±22.1		76.3±15.2		22.4±13.4	

Table 5. Linear regression model of the QLQ-C30 findings

	Global health of patients with breast cancer 95% CI				
	B	Lower limit	Upper limit	Beta	P
Constant number	57.093	42.080	72.106		<0.001
Birth place	2.927	0.572	5.281	0.258	0.016
Use of painkillers	14.410	4.944	23.875	0.307	0.003
Employment status	-14.383	-27.381	-1.386	-0.230	0.031
r ² =0.256					
	Functional scores of patients with breast cancer 95% CI				
	B	Lower limit	Upper limit	Beta	P
Constant number	83.142	76.122	90.162		<0.001
Stage at the time of diagnosis	-11.579	-17.054	-6.104	-0.473	<0.001
Awareness of the disease/thinking of being aware	-41.661	-62.371	-20.950	-0.450	<0.001
r ² =0.314					
	Symptom scores of patients with breast cancer 95% CI				
	B	Lower limit	Upper limit	Beta	P
Constant number	11.725	-0.804	24.254		0.066
Age group	12.504	3.291	21.718	0.296	0.009
Stage at the time of diagnosis	8.800	4.417	13.183	0.431	0.000
Awareness of the disease/thinking of being aware	21.599	4.172	39.027	0.277	0.016
Referral to psychiatry	-6.302	-13.689	1.085	-0.176	0.093
r ² =0.427					

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