RESEARCH COMMUNICATION

Quality of Life in Women with Gynecologic Cancer in Turkey

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Abstract

  <u>Aim</u>: The management of gynecological cancer patients mainly aims at prolonging survival but modern therapy focuses on good survival combined with a good quality of life (QoL). The aim of this study was to evaluate QoL and identify its associated factors in Turkish women with gynecologic cancer. <u>Method</u>: The study included 119 women diagnosed with endometrial, cervical, ovarian or vulvar cancer and treated at the Gynecologic Oncology Department of Celal Bayar University Faculty of Medicine. The data were collected between January and June 2011. QoL was measured with EORTC QLQ-C30 version 3.0. Relationships between clinical and socio-demographic characteristics and QoL scores were analyzed using the Mann-Whitney U, Kruskal Wallis and t-tests. <u>Result</u>: Global health status, physical and role function scores were found higher in women under the age of 60 years. Role function scores were found lower, and emotional and social scores were found to be higher in single women than in married women. Physical scores were found higher in women who had graduated from secondary school or above. Women with ovarian cancer had the highest while women with cervical cancer had the lowest global health score (65.3 ±24.7 and 43.0±24.1, respectively). Women with endometrial cancer were found to have better role function, and social well being than those with vulvar, cervical or ovarian cancer. Global, physical, role function, cognitive and social scores were found higher in women who had been treated with surgery. <u>Conclusion</u>: Gynecological cancer and treatment processes cause significant problems that have negative effects on physical, emotional, social and role function aspects of QoL. Health care providers play a key role in the identification and treatment of the complications of cancer therapy. Minimizing the effect of the symptoms of gynecologic cancer may positively impact on patient QoL.

Keywords: Quality of life - gynecological cancer - women's health - EORTC QLQ-C30

Introduction

Gynecological cancers are a frequent group of malignancies in women, accounting for approximately 18% of all female cancers worldwide. The most common are, in order, endometrial, ovarian and cervical cancer. Vaginal and vulvar cancers are rare. Cervical cancer is more common in premenopausal women, whereas the incidence of endometrial and ovarian cancers increase in the perimenopausal years (Gonçalves, 2010). According to 2007 year data of the American Cancer Society, endometrial and ovarian cancers are in the fourth and fifth rank. Cervical cancer is the eighth most frequent cancer in general now, as a result of scanning tests and early diagnosis and third among gynecological cancer cases (American Cancer Society, 2008).

After the diagnosis of gynecologic cancer the women are faced with the diagnosis itself, personal interpretation of cancer, physical effects of the disease, long and short term side effects of the treatment regimes and the reaction of family and friends (Pınar et al., 2008; Özaras and Özyurda 2010). Despite the high mortality rate of gynecologic cancers, cervical and endometrial cancer have a high chance of survival (Reis et al., 2010). The

chance of survival is increased by generalized screeening programs and advances in treatment modalities. Women with a long term of survival are named survivors and these women regain their normal functioning. Both new patients and survivors are under the risk of a wide range of sequel namely sexual dysfunction, pain, premature menopause, fatigue and impaired physical functioning. These symptoms may negatively affects cancer patient's or cancer survivor's quality of life (QoL) (Gonçalves, 2010). Cancer itself causes comorbid symptoms and treatment strategies are also debilitating by decreasing cardiorespiratory capacity, pain, fatigue and suppressing immune function. Psychological stress, anxiety, depression, fear of recurrence, sleep dysfunction and impaired QoL are residual symptoms after cancer treatment (Lerman et al., 2011).

Quality of life is a multidimensional concept which is defined as a person's view of life, and with her satisfaction and pleasure with life (Dow and Melacon, 1997; Arriba 2010). QoL for patients is defined as "extend to which one's usual or expected physical, emotional and social well-being is affected by a medical condition or its treatment". For cancer patients, all these aspects of life are influenced negatively (Cella et al., 1993; Ferrell et al.,

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1995; Reis et al., 2010; Wilailak et al., 2011).

The quality of life of cancer survivors is recently considered of great importance and has led to the emergence of a body of research that has been focusing on QoL issues (Gonçalves, 2010). Both the National Cancer Institute (NCI) and the Food and Drug Administration (FDA) recently suggest that the goals of cancer research should be to improve not only survival rates but also QoL of cancer survivors (Arriba et al., 2010). Knowledge about QoL issues is crucial to constitute follow-up care programs adjusted to the survivors' needs and provide appropriate education in prevention and early detection of survivors' needs and ultimately improve their QoL (Gonçalves, 2010). The perception of quality of life changes according to social environment and differences in country's cultures. It is important to asses gynecologic cancer cases in a Turkish population and compare the results with literature.

It is important to develop an understanding of variables that may influence QoL for patients with gynecological cancer, so that these can be accounted for in clinical trials; it is also important to identify vulnerable groups, so that their QoL can be specifically addressed and optimized. The aim of the study was to examine the QoL of women with gynecologic cancer (ovarian, endometrial, cervical and vulvar) and the factors which affected this situation.

Materials and Methods

Design and Subjects

The study used a cross-sectional design to elicit information about QoL using face-to-face interview. The study included 119 women who had a gynecologic cancer diagnosis and were treated at Celal Bayar University Faculty of Medicine Gynecologic Oncology DepartmentThe data were collected between January and June 2011 in women who had gynecologic cancer and who agreed to participate in the study.

Eligibility criteria included at least three months from completion of treatment for a gynecologic cancer, no recurrence of disease, ability to understand and communicate in Turkish, and consent to participate in the study. Patients with psychiatric disorders and accompanying severe medical conditions were excluded. A small number refused to participate: two women did not have adequate time; three women did not feel well enough for an interview and five women did not meet the study's inclusion criteria.

After been recruited, the women were given information sheets explaining objectives, benefits and confidentiality of the study and the women gave their consents. Data regarding type of cancer and mode of treatment were extracted from the medical records by the researchers.

Questionnaire

The questionnaire included two parts. First part included questions about women's characteristics including socio-demographic features, type of cancers and treatment method. Women's characteristics consisted of questions related to demographic features (age, education, marital status, income level) and disease status (cancer type, type of therapy). In addition, researchers reviewed medical records to document and verify cancer type and cancer treatment status. Second part included EORTC QLQ-C 30 version 3.0 questionnaire which is an integrated system for assessing the health related QoL of cancer patients. The core questionnaire, the QLQ-C30, is the product of collaborative research. It was first released in 1993 and has been used in a wide range of cancer clinical trials, by a large number of research groups (Aaronson et al., 1993).

The QLQ-C30 version 3.0 incorporates five functional scales (physical, role, cognitive, emotional, and social), a global health status/ QoL scale and symptom scales which include a number of single items assessing additional symptoms commonly reported by cancer patients. This questionnaire includes a total of 30 items and is composed of scales that evaluate physical (5 items), emotional (4 items), role (2 items), cognitive (2 items) and social (2 items) functioning as well as global health status (2 items). Higher mean scores on these scales represent better functioning. The questionnaire also comprises 3 symptom scales measuring nausea and vomiting (2 items), fatigue (3 items) and pain (2 items), and 6 single items assessing financial impact and various physical symptoms such as dyspnea, insomnia, appetite loss, constipation and diarrhea. All of the scales and single-item measures range in score from 0 to 100. A high scale score represents a higher response level. Thus a high score for a functional scale represents a high/ healthy level of functioning; a high score for the global health status/ QoL represents a high QoL; but a high score for a symptom scale/ item represents a high level of symptomatology (Aaronson et al., 1993).

Statistical analyses were performed with SPSS, version 11.5 (SPSS Inc, Chicago, IL, USA). To determine the quality of life levels descriptive statistics were used (means, standard deviations and frequencies). QoL scores were compared between subgroups according to women's socio-demographic and disease characteristics using t test, Mann Whitney U and Kruskal Wallis test. A two-sided $p < 0.05$ was considered statistically significant.

The study protocol was approved by the Celal Bayar University Ethical Committee and written informed consents were obtained from all patients.

Results

Characteristics of women with gynecologic cancer

The mean age of the women was 58.9±10.4 (Min: 33, Max:82). 48.7% of the patients was over the age of 60, 62.2% were married, most of the women (91.6%) were graduated from primary school or less and 34.5% had less income than 500 USD a month. When the type of cancer of women was considered; 43.7% of the women were diagnosed with ovarian, 34.5% of the women had endometrial, 16.0% of the women had cervical and 5.9% of the women had vulvar cancer. Overall, most of the women (92.4%) had been treated by surgery, about half of the women (52.1%) had received chemotherapy and 33.6% of the women had radiotherapy.

Table 1. The Relationship Between Women's Characteristics and Quality of Life Scores

Characteristic	Global score Mean±SD	test	Physical Mean±SD	test	Role function Mean±SD	test	Emotional Mean±SD	test	Cognitive Mean±SD	test	Social Mean±SD	test
Age of women		t=2.439		t=3.074		t=3.384		t= -0.386		t=0.233		t=0.239
<60	64.6±25.3	df=117	25.7±22.2	df=117	83.7±24.3	df=117	65.3±28.9	df=117	82.0±25.7	df=117	71.7±27.7	df=117
≥60	54.0±21.9	p=0.016	62.6±24.3	p=0.003	68.0±26.4	p=0.001	67.3±25.9	p=0.700	81.0±20.2	p=0.816	70.5±25.1	p=0.811
Marital status		t= -0.850		t=1.722		t=2.047		t= -2.646		t= -0.143		t= -2.081
Married	57.9±21.5	df=75.3	72.3±22.9	df=117	79.8±23.5	df=117	61.5±29.4	df=111.7	81.3±23.9	df=117	67.3±25.5	df=117
Single	62.9±28.1	p=0.398	64.5±25.3	p=0.088	69.7±29.9	p=0.043	74.1±22.1	p=0.009	81.9±21.8	p=0.887	77.5±26.8	p=0.040
Education level												
Secondary or more	68.3±19.6	M=400.5	86.5±8.4	M=293.0	90.0±16.1	M=377.0	72.5±31.6	M=457.5	91.7±16.2	M=385.0	70.1±25.6	M=503.0
Primary or less	58.6±24.5	p=0.165	67.8±24.4	p=0.016	74.7±26.9	p=0.090	65.7±27.1	p=0.398	80.6±23.5	p=0.107	71.2±26.5	p=0.680
Income level		t= -0.627		t= -2.017		t= -0.098		t= 1.652		t= -1.996		t= 0.641
<500$	57.5±25.5	df=117	63.3±24.9	df=117	75.7±29.3	df=117	72.0±22.6	df=117	75.1±28.3	df=59.91	73.2±29.0	df=117
≥500$	60.4±23.6	p=0.532	72.5±23.1	p=0.046	76.2±25.0	p=0.922	63.3±29.3	p=0.101	84.9±19.2	p=0.050	70.0±24.9	p=0.530
Type of cancer												
Endometrial	61.6±21.1	K=11.789	71.6±22.9	K=2.152	80.9±24.6	K=8.292	67.5±20.4	K=7.128	79.6±25.0	K=4.020	77.7±25.1	K=11.121
Cervical	43.0±24.1 53.7±28.6	df=3	63.6±27.9	df=3	68.5±29.3	df=3	58.0±28.0	df=3	72.0±29.4	df=3		
Ovarian	65.3±24.7	p=0.008	70.5±24.2	p=0.541	78.3±26.0	p=0.040	71.0±30.9	p=0.068	86.3±18.8	p=0.259	74.5±23.1	p=0.011
Vulvar	47.6±16.5		63.0±18.3		50.4±16.5		46.5±25.9		83.6±13.5		55.1±28.2	
Having Operation												
No	25.9±17.9	M=108.8	40.8±22.3	M=154.0	44.6±27.6	M=189	64.9±25.5	M=468	61.3±34.3	M=301	50.1±35.3	M=294.5
Yes	62.2±22.6	p=0.000	71.7±22.7	p=0.001	78.6±24.7	p=0.001	66.4±27.7	p=0.784	83.2±21.3	p=0.040	72.9±24.9	p=0.039
Having Chemotherapy		t= -0.100		t= 1.456		t= 0.853		t= -0.795		t= -0.923		t= 0.593
No	59.2±21.4	df=117	72.6±19.8	df=111.5	78.2±23.5	df=117	64.2±24.1	df=114.8	79.5±23.9	df=117	72.6±26.7	df=117
Yes	59.6±26.7	p=0.920	66.3±27.1	p=0.148	74.0±29.0	p=0.395	68.2±30.2	p=0.428	83.4±22.4	p=0.358	69.8±26.1	p=0.554
Having Radiotherapy		t= 0.287		t= -0.188		t= 0.390		t= 0.530		t= -0.487		t= 0.668
No	59.9±24.5	df=117	69.1±23.6	df=117	76.7±24.7	df=117	67.2±28.1	df=117	80.8±23.4	df=117	72.3±25.7	df=117
Yes	58.5±23.8	p=0.774	69.9±25.2	p=0.851	74.7±29.9	p=0.697	64.4±26.3	p=0.597	83.0±22.8	p=0.627	68.9±27.7	p=0.505

The EORTC QLQ-C30 scores for women with gynecological cancer

The women's mean EORTC QLQ-30 scores are also given in Table 1. When the patients' QoL scores were evaluated, the mean of global health QoL score was determined as 59.4±24.2. When the subdimensions of the functional status scale were evaluated, the mean of cognitive score (81.6±23.1) was found higher than other dimensions. However, emotional score (66.3±27.4) was the lowest score in women with gynecologic cancer. Fatigue score (41.0±25.1) was found higher than all other symptoms. The second and third highest scores were insomnia and pain for cancer patients.

The relationship between women's characteristics and quality of life scores

When the EORTC QLQ-30 general and subscale scores were examined according to women's age; global health status, physical and role function score were found higher in women under the age of 60 years than women over 60 years. There was a statistically significant relationship between the score and women's age (p<0.05). Role function score was found lower in single women than married women. Emotional and social score were found higher in single women (p<0.05). When the QLQ-C30 scale scores of the women were examined according to educational level of women, only the physical well-being score was found higher in women who were graduated from secondary school or more. Better physical functioning (86.5 versus 67.8) was indicated among women with secondary or more education compared to those having primary or less education. Physical scores

increase as the education level increases in the women. Women who had monthly income <500 USD, had lower physical well-being scores than women with ≥500 USD income.

There was a statistically significant relationship between the type of cancer and global score of QoL. Women with ovarian cancer had the highest global health score (65.3 ±24.7) and women who had cervical cancer had the lowest global health score (43.0±24.1) for QoL. When the type of cancer was compared with QoL scores, the women with endometrial cancer were found to have better role function, and social well being than those with vulvar, cervical and ovarian cancer, respectively and this difference was statistically significant (p<0.05). The global health score of women treated by surgery was significantly higher than those without surgery (62.2±22.6 vs 25.9±17.9, p<0.05). We also found higher physical, role function, cognitive and social scores in women who had been treated by surgery. But, no differences were observed between global and functional subscale scores according to nonsurgical treatment methods which included chemotherapy and radiotherapy (Table 1).

The relationship between women's characteristics and symptom scores

The relationship between women's characteristics and symptom scores are presented in Tables 2 and 3. Women aged over 60 reported more fatigue, pain, insomnia, appetite loss and constipation when compared to women who were younger than 60 years. There was a statistically significant difference between the two groups (p<0.05). The lowest score for fatigue, nausea and pain

Table 2. The Relationship Between Women's Characteristics and Symptom Scores

Characteristic	Fatigue Mean±SD	test	Nausea Mean±SD	test	Pain Mean±SD	test	Dyspnea Mean±SD	test	Insomnia Mean±SD	test
Age of women		t= -2.160		t= -0.169		t= -2.893		t= -0.636		t= -2.854
<60	35.8±24.3	df=117	13.1±21.1	df=117	25.7±25.6	df=117	17.5±28.3	df=117	28.9±30.1	df=117
≥60	45.6±25.0	p=0.033	13.8±22.3	p=0.866	38.5±22.5	p=0.005	20.7±26.3	p=0.526	44.2±28.2	p=0.005
Marital status		t=0.597		t=0.033		t= -0.859		t= -1.460		t=0.451
Married	41.7±24.5	df=117	14.0±22.6	df=117	30.8±23.1	df=117	16.2±25.9	df=117	37.4±30.2	df=117
Single	38.8±26.1	p=0.552	12.6±20.2	p=0.739	34.4±27.6	p=0.392	23.7±28.9	p=0.147	34.8±30.1	p=0.653
Education level										
Secondary or more	23.3±24.3	M=309.5	1.7±5.3	M=350.0	16.6±15.7	M=335.0	13.3±23.3	M=484.5	30.0±33.1	M=498.0
Primary or less	42.2±24.6	p=0.023	14.5±22.2	p=0.034	33.3±25.1	p=0.042	19.6±27.7	p=0.510	37.0±29.8	p=0.635
Income level		t=0.444		t= 0.733		t= -0.581		t= 1.081		t= -1.898
<500$	42.0±23.1	df=117	15.4±19.1	df=117	30.1±26.7	df=117	22.8±28.3	df=117	29.3±27.1	df=117
≥500$	39.9±26.1	p=0.658	12.4±22.9	p=0.465	32.9±24.0	p=0.563	17.1±26.7	p=0.282	40.1±31.0	p=0.060
Type of cancer										
Endometrial	39.9±22.1		10.6±16.1		25.6±20.4		19.5±28.8		33.3±24.7	
Cervical	46.2±19.7	K=7.611	14.9±19.1	K=3.120	42.9±27.9	K=7.187	19.3±27.9	K=0.817	36.8±31.2	K=3.862
Ovarian	37.8±29.5	df=3	16.7±26.6	df=3	31.1±25.8	df=3	19.9±27.4	df=3	35.9±34.2	df=3
Vulvar	50.8±15.5	p=0.055	2.4±6.3	p=0.373	45.2±23.0	p=0.066	9.5±16.3	p=0.845	57.1±16.2	p=0.277
Having Operation										
No	59.2±22.2	M=238.5	18.5±17.6	M=346.5	59.3±29.0	M=196.5	37.0±30.9	M=274	44.4±33.3	M=290.5
Yes	39.1±24.7	p=0.009	13.0±21.9	p=0.090	29.7±23.3	p=0.002	17.6±26.6	p=0.012	35.7±29.8	p=0.278
Having Chemotherapy		t= 0.195		t= -0.843		t= -0.765		t= -0.796		t= -0.459
No	41.1±21.3	df=112.9	11.7±18.4	df=117	30.1±22.1	df=115.3	17.0±26.1	df=117	35.1±27.8	df=116.5
Yes	40.2±28.2	p=0.846	15.0±24.3	p=0.401	33.6±27.2	p=0.446	20.9±28.4	p=0.428	37.6±32.2	p=0.647
Having Radiotherapy		t= 1.581		t= 1.786		t= 0.599		t= 0.673		t= 0.623
No	43.0±26.4	df=92.91	15.6±24.1	df=111.7	32.9±24.9	df=117	20.2±27.4	df=117	37.5±32.2	df=95.8
Yes	35.8±21.8	p=0.117	9.2±15.1	p=0.077	30.0±25.1	p=0.550	16.7±27.2	p=0.502	34.1±25.6	p=0.535

was in the education group of secondary school or more (p<0.05). Women with no surgery reported significantly more dyspnea, fatigue and pain than the women who had surgery. Constipation was frequently reported by the

Table 3. The Relationship Between Women's Characteristics and Symptom Scores

Characteristic	Appetite loss Mean±SD	test	Constipation Mean±SD	test	Diarrhea Mean±SD	test	Financial difficulty Mean±SD	test
Age of women		t= -2.838		t= -2.176		t= -0.804		t= 1.377
<60	18.6±24.7	df=117	21.3±25.8	df=117	9.3±17.4	df=117	27.3±28.2	df=117
≥60	32.7±29.6	p=0.005	32.2±28.6	p=0.032	6.9±15.0	p=0.423	20.7±24.0	p=0.171
Marital status		t=0.559		t= -0.246		t= -0.401		t= -1.804
Married	26.6±28.1	df=117	26.1±27.7	df=117	7.7±15.2	df=117	20.7±23.9	df=117
Single	23.7±28.1	p=0.591	27.4±27.8	p=0.806	8.9±17.9	p=0.689	29.6±29.5	p=0.074
Education level								
Secondary or more	16.7±17.6	M=461.0	13.3±23.3	M=392.5	3.3±10.5	M=479.0	30.0±24.6	M=466.0
Primary or less	26.3±28.7	p=0.393	27.8±27.7	p=0.124	8.6±16.6	p=0.381	23.5±26.6	p=0.422
Income level		t= -1.228		t= 1.949		t= 1.463		t= 1.069
<500$	21.1±26.6	df=117	33.3±26.9	df=117	11.4±19.2	df=63.873	27.6±28.8	df=117
≥500$	27.8±28.6	p=0.222	23.1±27.5	p=0.054	6.4±14.3	p=0.148	22.2±24.9	p=0.287
Type of cancer								
Endometrial	20.3±20.9		25.2±26.6		9.8±18.6		24.4±25.8	
Cervical	31.5±30.3	K=1.388	40.3±26.2	K=10.829	8.8±15.1	K=2.910	38.6±27.8	K=13.695
Ovarian	27.5±32.1	df=3	25.0±28.7	df=3	7.7±15.6	df=3	17.9±24.2	df=3
Vulvar	23.8±25.2	p=0.708	9.5±16.3	p=0.013	0.0±0.0	p=0.406	28.6±30.0	p=0.055
Having Operation		M=364.5		M=410		M=376.5		M=283
No	37.0±35.1	p=0.164	29.6±26.0	p=0.368	14.8±17.6	p=0.076	40.7±22.2	p=0.024
Yes	24.5±27.3		26.3±27.9		7.6±16.1		22.7±26.3	
Having Chemotherapy		t= -1.910		t= -0.327		t= 0.042		t= 0.884
No	20.5±24.2	df=114.5	25.7±28.2	df=117	8.2±17.0	df=117	26.3±27.8	df=117
Yes	30.1±30.6	p=0.059	27.4±27.3	p=0.744	8.1±15.6	p=0.966	22.0±26.9	p=0.378
Having Radiotherapy		t= 0.651		t= 0.917		t= -0.101		t= -0.005
No	26.6±30.4	df=99.8	28.3±28.3	df=117	8.1±16.2	df=117	22.3±24.9	df=117
Yes	23.3±22.9	p=0.517	23.3±26.4	p=0.361	8.3±16.4	p=0.919	27.5±29.1	p=0.317

older age group and women with cervical cancer (p<0.05). Receiving chemotherapy or radiotherapy did not have any significant effect on QoL or symptom scores (p>0.05).

Discussion

In this study, we evaluated the QoL of Turkish women with gynecological cancer and its relation to socio-demographic and disease variables. Some social characteristics in gynecological cancer survivors are associated with poor QoL.

In the present study, the subdimensions of the functional status scale were evaluated, the mean of cognitive score was found higher and emotional score was found the lowest in women with gynecological cancer. Similarly, one study in Turkey, which evaluated QoL of women using EORTC QLQ-C30 scale, stated that emotional (49.55±32.42) aspects of QoL were mostly affected among the functional parameters and cognitive function (66.33±27.45) was found higher (Pinar et al., 2008).

In the study, we found especially emotional funtions have been observed to decrease significantly in the women with gynecological cancer and the findings indicates the impaired QoL in cancer patients. Similiarly, it has been shown in number of studies in this field (Dow and Melacon, 1997; Miller et al., 2003; Pınar et al., 2008; Reis et al., 2010) that anxiety and depression increased during the cancer patients that affects the QoL negatively and that most of the cancer patients lived in fear of the recurrence or spread of disease.

In the study, the second most affected parameter was physical well-being. In the past studies it was argued that physical problems arose in the post-treatment period, while exhaustion, as one of these problems, had a major effect on the physical functions (Reis et al., 2010). In this study, social aspect was the third affected area. In Turkish families, parental, familial and friends' support is at quite a high level, thus making an immense contribution to the improvement of social well-being. Modern management of cancer includes psychological and social aspects of the patient and in addition to treating the disease these must be taken into account to achieve a better QoL (Wilailak et al., 2011). Reis et al. (2010) study was carried out in Istanbul and gynecologic cancer and treatment procedures caused important problems that had a negative effect on physical, psychological, social and spiritual aspects of QoL. Özaras and Özyurda (2010) stated that averages of total scores and all components of the SF-36 scale of the gynecologic cancer patients were significantly lower than the control group.

It has been reported in the literature that for cancer patients fatigue is the most significant problem affecting the daily activities and life (Hoskins et al., 1997). In the present study, fatigue score was found higher than all other symptoms. The second and third highest scores were insomnia and pain for cancer patients. Pinar et al. (2008) study findings indicated that pain was one of the negatively affected parameters (Pinar et al., 2008).

When the EORTC QLQ-30 general and subscale scores were examined according to women's age,

younger women (age <60 years) had higher scores for global health status, physical and role function than older women (age≥60 years). The older women also tended to report more fatigue, pain, insomnia, appetite loss and constipation than younger women. Jordhy et al. (2001) stated that the older patients reported more appetite lost while most pain was found among the youngest and there were not any statistically significant differences.

In the present study, physical QoL score was found higher in women with primary or less education. The finding was found similar with other studies findings (Cella et al 1991; Özaras and Özyurda 2010; Wilailak et al 2011). Miller et al. (2002) compared QoL in disease-free gynecologic cancer patients (n= 85) to that of 42 unmatched healthy women seen for standard gynecologic screening exams. Their data stated that lower educated women had lower QoL scores. Lower levels of education were associated with less supportive social environment, limited knowledge regarding health issues and poor health.

We found that women who had income <500 USD per monthly, had higher physical score and economic problems also significantly affected physical QoL scores. Cella et al. (1991) and Wilailak et al. (2011) reported that patients with the poorest income and lowest educational level generally had lower performance status and significant survival disadvantage. Evidence shows that economic stress is negatively associated with QoL (Bradley et al., 2006; Ell, 2008) consequently, attention to the economic consequences of cancer has grown as the number of cancer survivors has increased. Education and income levels are inter-related parameters and these parameters affects women's physical QoL score. The people who have good levels of economic status indicate that the payment of treatment costs and devotion to the patients of their family members who are at good levels of economic status indicates this situation increases the perceived support.

The mean of role function scale point was found higher in married women but emotional score was found lower. It shows us that partner support for women only affects role function area and the support, which is more important on the cancer patient, makes positive effect on QoL for role function. In Finland, high levels of partner support were associated with female cancer patients' optimistic appraisals and both were predictors of better health- related QoL at 8 months follow-up (Gustavsson-Lillus et al., 2007). Tan and Karabulutlu (2005) stated that the social support was higher in women who had taken support from the cancer patients' families (Tan and Karabulutlu, 2005).

The reason for lower score for emotional area for married women is probably due to familial stress and problems with their sex life which may affect the patients' social health. Reis et al. (2010) and Dow and Melancon (1997) too, had similar results and the studies stated that changes in the sex life along with perceived reductions in physical appreciation and attractiveness are the other important factors that have an effect on the patients' life quality. Most of the women are in need of support of their families, relatives and also health care providers during the period of the illness. Cancer diagnosis, a long

treatment process and obscurity keep the patients away from social life and lead to disturbances in interpersonal relationships. It is important that social support should be given to the patients to reduce anxiety and will be useful to help to cope with the disease process and finally will have positive effects on QoL.

Surprisingly, being married was found to have a negative influence on social functioning. This finding is similar with Jordhy et al. (2001) study and the authors explained this situation as follows. The explanation can be found in the wordings of the items within this scale. It is asked if physical condition or medical treatment has affected the respondent's family life and social activity. Patients, who are living alone or have low social activity in the first place, may be likely to answer 'not at all' and thus, obtain higher scores. Answering the questions also gives no indication whether a charge is for the worse or for the better, hence these items do not seem to be an entirely useful measure of cancer patients' present social functioning.

The statistical evaluation in the study revealed that the type of cancer had a major influence on the patient's QoL and women with ovarian or endometrial cancer had a better health status, role function and social well-being than those with vulvar or cervical cancer. Similar to our study findings, Matulonis et al. (2008), studied QoL of 58 early stage ovarian cancer patients and observed that patients reported good physical QoL scores (Matulonis et al., 2008). Traditionally, treatment of ovarian cancer involves removal of both ovaries and the uterus and women with early stage ovarian cancer often have a good prognosis (5 year survival > 90%) (Arriba et al., 2010). The results indicate that patients with endometrial or over cancer may have had children or the women were older patients, have something that protects their self-esteem and familial support to contribute to their care. In the literature, endometrial cancer is often seen in women at the age of and older than 45, is slow to grow and late in causing metastasis. Also, when diagnosed at an early stage, it is the gynecological malingnancy with the best prognosis.

In the study, cervical cancer patients, who were treated mostly by combination therapy, reported lower QoL for global and social aspect score than patients with other types of gynecologic cancer. According to Capelli et al's (2002) study, the poorest QoL scores were reported by the youngest women with cervical cancer. In literature, ovarian cancer survivors have good QoL, with few physical symptoms. Cervical cancer survivors treated with radiotherapy reported more QoL impairments than survivors treated with other approaches (Gonçalves, 2010). Cervical cancer presents unique issues for QoL research that perhaps are not addressed in the ovarian cancer research. The usual treatment involves surgery for early stages followed by possible radiation and/or chemotherapy for high-risk cases versus chemotherapy and radiation alone for more advanced stages. Cervical cancer patients present with a unique set of symptoms, side effects from treatment and socioeconomic issues not present in ovarian cancer patients. For example, women with cervical cancer have a lower median age at presentation and have a larger percentage of lower income

patients. Furthermore, the chemotherapy and specifically the radiation received by these women can lead to developing symptoms such as sexual dysfunction and urinary and bowel dysfunction that perhaps affect women in unique ways. According to Greimel et al's (2009) study findings, patients treated with radiation therapy were more likely to have significant complaints of urinary, sexual and gynecologic symptoms whereas those patients treated with surgery or chemotherapy alone seemed to return to relatively 'normal' functioning.

In the present study constipation scores were found higher in cervical cancer patients. Eisemann & Lalos (1999) assessed well-being in women with endometrial and cervical cancer at pre-treatment and also at 6 months and 1 year post-treatment. Results showed that cervical cancer patients reported significantly more symptoms at all time points.

In the study, women who underwent surgery had higher scores for global, physical, role function, cognitive and social. This finding indicated that recovery from treatment for gynecological cancer has a positive effect upon QoL. Tahmasebi et al.(2007) stated that social, emotional and functional well-being was significantly better after treatment. One study in Thailand stated that the QoL scores were higher in gynecologic cancer patients after treatment than healthy group (Wilailak et al., 2011). Recovery after surgery was more rapid while the effect of chemoradiotherapy persisted; thus this might explain their effect on the patients QoL. When the QoL and the types of treatment (chemotherapy and radiotherapy) applied to the patients were compared, the difference between the type of treatment and QoL scores was not found to be statistically significant.

In the present study fatigue, pain and dyspnea were determined as the most frequent symptoms for women who did not have surgery. Steginga and Dunn (1997) carried out interviews with 81 patients with gynecological cancer and majority of the patients reported that they had physical problems resulting from the diagnosis and treatment. Of these problems, the commonest ones were exhaustion (14%) and pain (11%).

There are some limitations to this study. First, these findings were generated from a hospital in one region of Turkey, and may not be generalized to other cities or women without health insurance and without access to health care.

Available findings are crucial to develop interventions to support those at risk for QoL impairments. Future research efforts should identify not only how these will affect QoL but also develop strategies for identifying women at risk of serious QoL disruption. Efforts should also be focused on developing effective interventions to prevent or minimize the detrimental effects of both gynecological cancer and treatment on the QoL of patients and to identify the specific QoL needs of patient.

In conclusion, the findings of the study are important for documenting the QoL for women with gynecological cancer. Gynecological cancer and treatment process cause significant problems that have a negative effect on physical, emotional, social and role function aspects of QoL. It is essential to ensure multidisciplinary approaches

especially for living areas determined to be affected by gynecological cancer and also to make efforts for enhancing QoL. Rehabilitation centers and psychosocial appoaches to the cancer patients may have a positive affect in the therapy and prognosis of these patients. Health care providers have important role in providing social support to the patients and to their families, and gynecologist and nurses have a characteristic role in establishing the positive interaction between patients and their relatives.

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