Quality of Life and Sociodemographic Characteristics of Patients With Cancer in Turkey

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Purpose/Objectives: To determine whether a relationship exists between quality of life (QOL) and the sociodemographic characteristics of gender, age, marital status, educational level, occupation, and level of income in patients with cancer in Turkey.

Design: Exploratory study using a convenience sample.

Setting: Five hospitals in the capital city of Turkey.

Sample: 620 patients with cancer (44 inpatients and 576 outpatients).

Methods: The study was carried out using face-to-face interviews. A questionnaire was used as a tool for collecting data on the sociodemographic characteristics of patients, and the Rolls-Royce Quality-of-Life Scale was employed to measure QOL.

Main Research Variables: Gender, age, marital status, educational level, occupation, level of income, and QOL.

Findings: Men, older adults, widowed spouses, patients with lower levels of education, housewives, and those with lower income had lower QOL scores.

Conclusions: Considering the results and giving the groups referred to in the study priority in the planning of patient care would be useful.

Implications for Nursing: In the field of nursing in Turkey, a limited number of studies have examined the relationship between the sociodemographic characteristics of patients with cancer and QOL. The results will help nurses assess patient needs and engage in nursing interventions that are appropriate to the needs.

P atients with cancer are not confronted by limited or individual stressors but by numerous and continuous stress factors. Cancer and treatment for the illness adversely affect all biopsychosocial aspects of patients' quality of life (QOL). The results of some studies have revealed that failure to detect and solve the problems of patients with cancer caused by prolongation of treatment and lengthened hospital stays increased hospital costs and had a negative effect on patient compliance and QOL (Ibbotson, Maguire, Selby, Priestman, & Wallace, 1994; Keller, 1998; Ozkan, 1995; Thatcher, Hopwood, & Anderson, 1997). More effective methods of treatment, however, allow patients with cancer to live longer, bringing to the forefront the importance of examining their QOL (Guner, 1999; Hanchett, 2001; Harper, 2000; Hughes, 1987; Keller).

Sociodemographic characteristics are some of the factors affecting patients' QOL. In Turkey, however, limited studies have examined the ways in which cancer affects QOL (Kizilci, 1997; Uzun, Aslan, Selimen, & Koc, 2004). Furthermore, the results of studies conducted in Turkey and in other countries are inconsistent regarding the relationship between sociodemographic variables and QOL (Andrykowski et al., 1997; Ganz,

Lee, Sim, Polinsky, & Schag, 1992; Given, Given, & Stommel, 1994; Hann et al., 1997, Kizilci; Uzun et al.). The inconsistency in the results of research concerning the relationship among sociodemographic variables (e.g., gender, age, marital status, education level, occupation, income level) as well as the limited number of studies carried out in the area in Turkey in which the the authors were interested led to the decision to undertake the present study.

Literature Review

Interest in evaluating QOL has increased in recent years. Concern exists now not only for the length of patients' life span but also for its quality. As the length of survival continues to increase among patients with cancer, QOL becomes one of the most important issues to be addressed (Einhorn, 1994; Glajchen, Blum, & Calder, 1995; John, 2001; Varricchio, 2006). Classical medical evaluation of treatment for cancer encompasses assessment of disease-free periods, response to the tumor, and total survival spans. This type of assessment does not evaluate the effects of cancer and cancer treatment on patients' daily life and therefore cannot help clinicians determine the needed interventions that will allow patients to maintain or improve QOL (Abbey & Andrews, 1985; Ganz, 1994; Houston & Kendall, 1992). In recent years, however, methods and criteria of assessing the outcome of treatment in patients with cancer have changed. Now, the pervasive view is that a complete assessment of the effectiveness of cancer treatment cannot be made without evaluating the experiences of patients and that QOL is as important as the length of survival (Bush, Haberman, Donaldson, & Sullivan, 1995; Carr, Gibson,

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& Robinson, 2001; D'Antonio et al., 1998; Schipper & Clinch, 1988). Because QOL assessment can provide a means of understanding the nature not only of disease-free survival but also of the experiences of individual patients, it now is considered an efficacy index for treatment. Moreover, QOL is one of the most important indicators of the medical outcome of treatment (Calman, 1984; Gotay, Korn, McCabe, Moore, & Cheson, 1992; Hann et al., 1997; Isikhan et al., 2001).

Although QOL research has been conducted in the social sciences for more than 40 years, interest in health-related QOL has increased since the 1990s. Although no definite consensus has been reached regarding how QOL should be defined and what dimensions should be included in the definition, nor on how QOL should be measured and assessed, clinicians agree that, regardless of the type of cancer, QOL is affected in many different dimensions among patients with cancer (Galbraith, Ramirez, & Pedro, 2001; Hanchett, 2001; King, 2006; Rustoen, Moum, Wiklund, & Hanestad, 1999; Schumacher, Olschewski, & Schulgen, 1991; van Knippenberg & de Haes, 1988; Varricchio, 2006). QOL in patients with cancer is a complex issue and

is difficult to define. Various definitions can be found in the literature. Most refer to QOL as a state of happiness, satisfaction, and accord (Hornquist, 1989; King; Murrel & Norris, 1983; Schreier & Williams, 2004; Schulmeister, Quiett, & Mayer, 2005; Varricchio). QOL also has been defined as positive personal assessment and feeling joy in being alive. Ganz (1994) stated that two definitions of QOL, presented in the research of two groups, have been accepted in recent years. One is the subjective assessment of life as a whole, and the other involves the present perception of patients about their condition in relation to the level of their functions. The first definition stresses the subjectivity of measurement and the importance of a global assessment. The second points to the subjectivity of QOL itself and to the priority patients give to their condition and the value they place on it. According to King, an analysis of 68 studies of QOL showed that it frequently is defined as subjective and multidimensional and that it constitutes a major outcome. Two individuals with the same functional difficulty, for example, will perceive their respective conditions differently. Sociodemographic characteristics affect perception.

Methods

Sample and Setting

The current descriptive study was carried out at five oncology centers in Ankara, Turkey: Gülhane Military Medical Academy, Hacettepe University Oncology Institute, Ankara Demetevler Oncology Hospital, Ahmet Andiçen Oncology Hospital, and Ankara University Ibn-i Sina Hospital. Using a nonrandom convenience sampling technique, inpatients and outpatients presenting at the hospitals from August 1998–February 2001 who agreed to participate in the research were accrued to the study. A total of 620 patients who presented at the hospitals during the study period were willing to participate in the research. The study sample consisted of those 620 patients (44 inpatients and 576 outpatients). Visits to obtain consent were made to all patients; then, questionnaires were given to the patients in the departments in which they were being treated. The researchers used face-to-face interviews to complete the questionnaire for all patients because some may have been illiterate.

Instruments

The first set of questions collected information regarding patients' gender, age, marital status, educational level, occupation, and level of income. The second set of questions comprised the **Rolls-Royce Quality-of-Life Scale** developed by Ozyilkan et al. (1995) for patients in Turkey. Half-split reliability and signal effect demonstrated reliability and responsiveness of the tool. Ozyilkan et al. also reported that content and construct validity were $r = 0.996$ ($p < 0.0001$). The QOL scale has been used in various cancer populations in Turkey (Isikhan et al., 2001; Kizilci, 1997; Uzun et al., 2004). The scale consists of 42 items with eight subscales that assess general well-being (seven items), physical symptoms and activity (eight items), sleep dysfunction (three items), appetite (two items), sexual dysfunction (four items), cognitive functions (six items), medical interaction (four items), and social participation and work performance (eight items). A global score is calculated by summing the subscale scores. Items on the scale reflect areas that are important to patients with cancer and what patients have said about how the disease affects their lives. Each question is rated on a scale from 1–5. A score of 5 indicates "yes, fits me

exactly," 4 indicates "fits me very well," 3 indicates "fits me partly," 2 indicates "does not fit me well," and 1 indicates "does not fit me at all" for positive questions and are reverse-scored for negative questions (25 items). Total possible scores on the scale are 42–210; the higher the score, the higher the level of perceived QOL.

Data Analysis

Variance analysis or Kruskal Wallis variance analysis was used to determine whether a relationship existed among QOL and age, marital status, level of education, and occupation. The Student's t test and the Mann-Whitney U test were used to explore the relationship among QOL and the characteristics of gender and level of income.

Findings

More than half of the subjects were male, and most were in the 16–44 age group, married, and primary school graduates. The most common occupation was housewife, and most patients responded that their income was adequate (see Table 1).

In the analysis of the relationship between gender and QOL (see Table 2), the finding that mean scores for total QOL were quite low in men compared to women was striking (112.68 versus 156.91, respectively; $p < 0.05$). Men also scored significantly lower statistically ($p < 0.05$) compared with women in the areas of general well-being, physical symptoms and activities, sleep, sexual disturbance, cognitive functions, and social relationships and work performance.

Examination of the relationship between age and QOL showed that patients in the group aged 16–44 years had the highest mean total QOL score (133.87), whereas patients in the group aged 65 years or older displayed the lowest total QOL score (107.75) as well as the lowest mean in all the subscales. Patients in the 16–44 age group had significantly higher QOL point averages in five subscales (i.e., general well-being, sleep, sexual disturbance, cognitive functions, and social relationships and work performance) than patients in the group aged 45–65 and those aged 65 or older ($p < 0.05$).

Regarding marital status and QOL, unmarried patients had the highest total QOL point-average (137.74) and widowed spouses displayed the lowest (116.78) total point average. Subscale scores indicated that unmarried patients had significantly higher point totals for general well-being, physical symptoms and activities, sleep, cognitive functions, and social relationships and work performance, whereas married patients' mean scores were significantly higher on the sexual disturbance subscale (meaning less sexual disturbance) ($p < 0.05$).

The relationship between level of education and QOL showed that the total point average for illiterate patients (114.62, $p < 0.05$) was significantly lower than that of high school and university graduates. The mean total QOL scores of high school graduates and university graduates were similar (139.13 versus 137.00, respectively). The lower the level of education, the lower the QOL scores. A comparison in terms of subscales revealed that patients who were high school graduates had received statistically higher points in the sexual disturbance (meaning less sexual disturbance) and social relationships and work performance subscales ($p < 0.05$) and that patients who were university graduates received the highest points on the physical symptoms and activities, sleep, and perception subscales ($p < 0.05$). No differences were found in point aver-

Table 1. Comparison of Sociodemographic Characteristics With Mean Scores From a Quality-of-Life Scale

Characteristic	n	%	$\overline{X}$ Score[a]
Gender			
Female	294	47	156.91
Male	326	53*	112.68
Age (years)			
16–44	287	46*	133.87
45–64	239	39	126.72
65 or older	94	15	107.75
Marital status			
Married	444	72*	132.32
Single	126	20	137.74
Widow or widower	50	8	116.78
Education level			
Illiterate	90	15	114.62
Primary school graduate (five years)	232	37*	124.31
Middle school graduate (three years)	43	7	133.53
High school graduate (three years)	166	28	139.13
University graduate (four years)	89	15	137.00
Occupation			
Housewife	224	36*	118.07
Blue- or white-collar worker	142	23	136.62
Student	20	3	134.49
Pensioner	87	14	131.12
Unknown	147	24	–
Income			
Adequate	364	59*	151.02
Inadequate	256	41	117.83

N = 620

* $p < 0.05$

[a] Possible score range = 42–210

Note. Because of rounding, percentages may not total 100.

ages between groups on the medical interaction and appetite subscales ($p > 0.05$).

Examination of occupation and QOL revealed that white- and blue-collar workers together had the highest total QOL point average (136.62, $p < 0.05$), followed by students (134.49). Housewives had the lowest total QOL point average (118.07). Students had the highest mean scores in four subscales (i.e., general well-being, physical symptoms and activities, sleep, and social relationships and work performance); white- and blue-collar workers had the highest sexual disturbance (meaning less sexual disturbance) subscale scores, and retirees scored highest on the cognitive functions subscale ($p < 0.05$).

Finally, the total QOL point average of patients who rated their income levels as adequate was 151.02, and patients who were unsatisfied with their incomes scored significantly lower at 117.83 ($p < 0.05$). With the exception of the appetite subscale, patients who indicated that their incomes were adequate scored significantly higher in all subscales ($p < 0.05$).

Discussion

The results show that the total QOL mean scores for male patients were significantly lower than for women. Andrykowski et al. (1997) found in their study of patients with cancer, conducted one year after patients had undergone bone marrow transplantation, that male patients had experienced a

Table 2. Comparison of Sociodemographic Characteristics With Mean Scores From Subscales on the Quality-of-Life Scale

Characteristic	General Well-Being	Physical Symptoms and Activities	Sleep	Appetite	Sexual Disturbance	Cognitive Functions	Medical Interaction	Social Relationships and Work Performance
Score (range)	7–35	8–40	3–15	2–10	4–20	6–30	4–20	8–40
Characteristic	X̄ Score	X̄ Score	X̄ Score	X̄ Score	X̄ Score	X̄ Score	X̄ Score	X̄ Score
Gender								
Female	25.28*	29.60*	11.78*	7.02	16.03*	22.31*	14.20	30.85*
Male	19.39*	21.06*	7.54*	5.71	9.55*	16.25*	11.60	21.51*
Age (years)								
16–44	24.34	24.06*	10.04	6.69	10.95*	19.45	12.03	26.63*
45–64	22.75	26.04*	9.19	6.55	8.13*	17.40	13.62	23.61*
65 or older	19.31	21.43*	7.72	5.85	7.96*	15.50	9.60	20.87*
Marital status								
Married	23.14	23.07*	9.60*	6.75	13.17*	18.10	12.00	24.98*
Single	24.88	25.23*	10.52*	6.91	11.71*	19.26	12.07	27.20*
Widow or widower	22.78	21.00*	8.68*	6.40	5.83*	17.86	11.64	23.37*
Education level								
Illiterate	21.54*	20.02*	8.80*	6.12*	7.20*	16.36*	11.12*	23.55*
Primary school graduate (five years)	22.78*	22.27*	9.69*	6.70*	8.50*	18.01*	11.39*	24.60*
Middle school graduate (three years)	25.44*	23.33*	9.85*	6.63*	11.00*	18.70*	12.51*	26.26*
High school graduate (three years)	24.91*	24.85*	9.90*	7.02*	11.36*	19.09*	12.95*	27.68*
University graduate (four years)	24.33*	25.44*	10.66*	6.91*	10.39*	19.29*	12.61*	27.67*
Occupation								
Housewife	22.45*	21.82*	8.77*	6.34	7.33*	16.88	11.33	23.81*
Blue- or white-collar worker	24.21*	23.67*	10.67*	6.90	11.84*	19.40	12.55	26.06*
Student	24.65*	25.03*	10.78*	6.39	9.19*	19.13	12.41	28.68*
Retiree	24.38*	23.58*	9.48*	6.99	9.51*	19.41	12.01	26.15*
Income								
Adequate	24.90*	30.77*	10.73*	6.83	13.19	21.32*	14.47*	31.15*
Inadequate	20.32*	21.15*	8.69*	6.12	11.17	17.27*	11.20*	19.70*

* p < 0.05

greater decrease in QOL compared to women. Although their findings support the outcome of the current research, they are not in agreement with other studies that have been conducted on the subject (Given et al., 1994; Kizilci, 1997). Different physical, psychological, and social characteristics of female and male patients can create differences in their perception of QOL (Andrykowski et al.). In observing female and male roles in Turkey, the researchers found that women more easily assume the role of patient compared to men and that men feel more of a negative impact of cancer on their lives. In the current research, male patients also received significantly lower mean scores compared to women in six subscales (i.e., general well-being, physical symptoms and activities, sleep, sexual disturbance, cognitive functions, and social relationships and work performance).

The incidence of cancer changes according to age, gender, the type of cancer, and other environmental factors (Ibbotson et al., 1994; Mirand & Knoop, 1996). In the present study, age was found to affect QOL in that the older the patient, the lower the QOL. This finding is in keeping with the conclusions drawn by Andrykowski et al. (1997). The finding, however, is not consistent with the results of the study by Given et al. (1994), in which QOL increased as patients grew older. On the other hand, Ganz et al. (1992), Kizilci (1997), and Uzun et al. (2004) found that age had no affect on QOL. As can be seen from the various

results of research, the relationship between age and QOL is not consistent. According to the literature, older adults are better able to cope with crises as a result of their life experiences, so that when cancer is diagnosed, they are less prone to display negative psychosocial reactions. They may, however, because of their physical condition, be more dependent on others for activities of daily living (Mor, Allen, & Malin, 1994). In Turkey, older adults have very few expectations concerning themselves and society also has very limited expectations of older adults. For this reason, many patients aged 65 years or older generally believe that cancer is the end of the road for them and consequently give up many things in their lives. In many cases, they believe that they no longer have any reason for living. This perspective, therefore, may have adversely affected the psychosocial aspects of QOL in the older age group in the current study.

The finding that mean total QOL was the highest among unmarried patients compared to those who were married or widowed is consistent with the research of Uzun et al. (2004) but is not compatible with the findings of Kizilci (1997). Unmarried patients in Turkey generally live with their families and, for this reason, are able to enlist the family's support. Also, unmarried patients, because they have fewer responsibilities than those who are married or widowed, are able to create more time for themselves. These factors may have caused a higher QOL rating among unmarried patients. The expectation may have been that

married patients, rather than unmarried ones, would be able to receive more support from their families and therefore would score higher on QOL. However, in Turkey, when the patient is a woman, she usually will not receive the same support and help from her spouse that she would offer herself if she were single and in a similar situation. In general, women are expected to fulfill all of their domestic tasks even during illness and feel pressured to continue to meet their responsibilities. Marriage also carries with it more responsibilities. Married patients generally fulfill their responsibilities on their own, but such responsibilities are taken on by the family with unmarried patients. This may explain why QOL appeared to be lower among married patients in the present study compared to those where patients were unmarried. The fact that widowed patients had the lowest QOL scores also supports this view. The widowed are unable to receive support from their families, like the unmarried, or from their spouses, as in the case of married patients, and must take care of their needs themselves. The finding that married patients had higher ratings for sexual disturbance (i.e., less disturbance) may not be, in itself, a result of the effects of the disease on patients' sexual life. In Turkey, sexuality is held to be almost exclusively restricted to marriage. Unmarried patients who were asked about sexuality generally responded by saying, "I'm not married," "I'm a widow," or, "I don't have a husband, so I don't have a sex life." It was not surprising, then, that unmarried and widowed patients received lower points on the sexual disturbance subscale.

Level of education, occupation, and income also affected QOL, and, as levels of education and income increased, QOL improved. The fact that white- and blue-collar workers, although comprising a low percentage of the study population, and students had higher QOL points in the occupation category may be explained by the higher educational level of these two groups. The results were in keeping with those of Kizilci (1997), Andrykowski et al. (1997), and Uzun et al. (2004), who found that QOL increased as participants' levels of education rose. This finding may be attributed to the development of better coping mechanisms through education or to material affluence and better access to resources and increased ability to benefit from resources. In addition, patients with higher incomes and better education are better able to find the resources that will help them to conduct their daily activities, thus reducing physical burden and stress. They also have the opportunity to search and find the means that will help them to get well. Furthermore, such patients will be under less pressure to return to their jobs as soon as possible.

Conclusion

The present study investigated sociodemographic factors influencing QOL in inpatients and outpatients with cancer in Turkey. However, in collecting data in connection with these sociodemographic characteristics, the researchers were unable to collect information about the type of medical condition, the stage of the disease, and current treatment. These variables are some of the factors that were affecting patients' QOL. If these variables had been included in the current study, the results obtained would have been more reliable. Results of the study showed that a statistically significant lower QOL mean existed for men, patients aged 65 years or older, the widowed, those with lower educational levels, housewives, and those with low income compared to other groups. Despite these weaknesses, considering the results and giving the groups referred to in the study priority in the planning of patient care and treatment would be useful.

Implications for Nursing

The mention of cancer; the fear it creates in individuals; anxieties it induces about the future, the disease, the process of treatment; and stress it creates adversely affect QOL in patients more than is seen in any other disease cluster (Hughes, 1987). The research carried out in Turkey on this subject is limited, and results are not consistent with previous findings. Therefore, the use of different tools of assessment for QOL and examining exactly which dimension or dimensions affect the lives of individuals the most have been difficult. The Rolls-Royce QOL Scale was used in this study because it was developed specifically for patients in Turkey. Considering that research on this topic in Turkey is so limited, use of the scale in a study of this nature may render the results more significant.

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References

Abbey, A., & Andrews, F.M. (1985). Modeling the psychological determinant of life quality. *Social Indicators Research, 16,* 1–34.

Andrykowski, M.A., Carpenter, J.S., Greiner, C.B., Altmaier, E.M., Burish, T.G., Antin, J.H., et al. (1997). Energy level and sleep quality following bone marrow transplantation. *Bone Marrow Transplantation, 20,* 669–679.

Bush, N.E., Haberman, M., Donaldson, G., & Sullivan, K.M. (1995). Quality of life of 125 adults surviving 6–18 years after bone marrow transplantation. *Social Science and Medicine, 40,* 479–490.

Calman, K.C. (1984). Quality of life in cancer patients—An hypothesis. *Journal of Medical Ethics, 10,* 124–127.

Carr, A.J., Gibson, B., & Robinson, P.G. (2001). Measuring quality of life: Is quality of life determined by expectations or experience. *BMJ, 322,* 1240–1243.

D'Antonio, L.L., Long, S.A., Zimmerman, G.J., Peterman, A.H., Petti, G.H., & Chonkich, G.D. (1998). Relationship between quality of life and depression in patients with head and neck cancer. *Laryngoscope, 108,* 806–811.

Einhorn, J. (1994). Future health and cancer care. Possibilities, hopes and realities. *Acta Oncologica, 33,* 341–344.

Galbraith, M.E., Ramirez, J.M., & Pedro, L.W. (2001). Quality of life, health outcomes, and identity for patients with prostate cancer in five different treatment groups. *Oncology Nursing Forum, 28,* 551–560.

Ganz, P.A. (1994). Long-range effect of clinical trial interventions of quality of life. *Cancer, 74*(9, Suppl.), 2620–2624.

Ganz, P.A., Lee, J.J., Sim, M.S., Polinsky, M.L., & Schag, C.A. (1992). Exploring the influence of multiple variables on the relationship of age to quality of life in women with breast cancer. *Journal of Clinical Epidemiology, 45,* 473–485.

Given, C.W., Given, B.A., & Stommel, M. (1994). The impact of age, treatment, and symptoms on the physical and mental health of cancer patients. A longitudinal perspective. *Cancer, 74*(7, Suppl.), 2128–2138.

Glajchen, M., Blum, D., & Calder, K. (1995). Cancer pain management and the role of social work: Barriers and interventions. *Health and Social Work, 20,* 200–206.

Gotay, C.C., Korn, E.L., McCabe, M.S., Moore, T.D., & Cheson, B.D. (1992). Quality-of-life assessment in cancer treatment protocols: Research issues in protocol development. *Journal of the National Cancer Institute, 84,* 575–579.

Guner, P. (1999). *Effect of problem solving training on anxiety, depression, hopelessness and ways of coping in patients with stage I–II breast cancer.* Unpublished doctoral thesis, Hacettepe University, Ankara, Turkey.

Hanchett, M. (2001). Quality of life of cancer patients receiving home infusion services: A pilot study. *Journal of Infusion Nursing, 24,* 244–248.

Hann, D., Jacobsen, P.B., Martin, S.C., Kronish, L.E., Azzerello, L.M., & Fields, K.K. (1997). Quality of life following bone marrow transplantation for breast cancer: A comparative study. *Bone Marrow Transplantation, 19,* 257–264.

Harper, P. (2000). Summary of the symposium: Important issues regarding quality of life in cancer patients. *International Journal of Pharmaceutical Medicine, 14,* 98–99.

Hornquist, J.O. (1990). Quality of life: Concept and assessment. *Scandinavian Journal of Social Medicine, 18,* 69–79.

Houston, S.J., & Kendall, J.A. (1992). Psychosocial implications of lung cancer. *Nursing Clinics of North America, 27,* 681–690.

Hughes, J.E. (1987). Psychological and social consequences of cancer. *Cancer Surveys, 6,* 455–475.

Ibbotson, T., Maguire, P., Selby, P., Priestman, T., & Wallace, L. (1994). Screening for anxiety and depression in cancer patients: The effects of disease and treatment. *European Journal of Cancer, 30A,* 37–40.

Isikhan, V., Guuner, P., Komurcu, S., Ozet, A., Arpaci, F., & Ozturk, B. (2001). The relationship between disease features and quality of life in patients with cancer—I. *Cancer Nursing, 24,* 490–495.

John, L.D. (2001). Quality of life in patients receiving radiation therapy for non-small cell lung cancer. *Oncology Nursing Forum, 28,* 807–813.

Keller, M. (1998). Psychosocial care of breast cancer patients. *Anticancer Research, 18,* 2257–2259.

King, C.R. (2006). Advances in how clinical nurses can evaluate and improve quality of life for individuals with cancer. *Oncology Nursing Forum, 33*(1, Suppl.), 5–12.

Kizilci, S. (1997). *Life quality in relatives of cancer patients treated with chemotherapy and factors affecting their life quality.* Unpublished doctoral thesis, Hacettepe University, Ankara, Turkey.

Mirand, A.L., & Knoop, J.M. (1996). Incidence and epidemiology of cancer. In N. Platin (Trans. Ed.), *Manual for nurses* (S. Abaan, Trans.). Ankara, Turkey: American Cancer Society.

Mor, V., Allen, S., & Malin, M. (1994). The psychosocial impact of cancer on older versus younger patients and their families. *Cancer, 74*(7, Suppl.), 2118–2127.

Murrel, S.A., & Norris, F.H. (1983). Quality of life as the criterion for need assessment and community psychology. *Journal of Community Psychology, 11,* 88–97.

Ozkan, S. (1995). Psychiatric and psychological aspects of cancer. *Psychological Medicine, 1,* 12–14.

Ozyilkan, O., Karaagaoglu, E., Topeli, A.A., Kars, A., Baltli, E., Tekuzman, G., et al. (1995). A questionnaire for the assessment of quality of life in cancer patients in Turkey. *Materia Medica Polona, 27,* 153–156.

Rustoen, T., Moum, T., Wiklund, I., & Hanestad, B.R. (1999). Quality of life in newly diagnosed cancer patients. *Journal of Advanced Nursing, 29,* 490–498.

Schipper, H., & Clinch, J. (1988). Assessment of treatment of cancer. In G.T. Smith (Ed.), *Measuring health: A practical approach* (pp. 109–139). New York: John Wiley and Sons.

Schreier, A.M., & Williams S.A. (2004). Anxiety and quality of life of women who receive radiation or chemotherapy for breast cancer. *Oncology Nursing Forum, 31,* 127–130.

Schulmeister, L., Quiett, K., & Mayer, K. (2005). Quality of life, quality of care, and patient satisfaction: Perceptions of patients undergoing outpatient autologous stem cell transplantation. *Oncology Nursing Forum, 32,* 57–67.

Schumacher, M., Olschewski, M., & Schulgen, G. (1991). Assessment of quality of life in clinical trials. *Statistics in Medicine, 10,* 1915–1930.

Thatcher, N., Hopwood, P., & Anderson, H. (1997). Improving quality of life in patients with non-small cell lung cancer: Research experience with gemcitabine. *European Journal of Cancer, 33*(Suppl. 1), S8–S13.

Uzun, O., Aslan, F.E., Selimen, D., & Koc, M. (2004). Quality of life in women with breast cancer in Turkey. *Journal of Nursing Scholarship, 36,* 207–213.

van Knippenberg, F.C., & de Haes, J.C. (1988). Measuring the quality of life of cancer patients: Psychometric properties of instruments. *Journal of Clinical Epidemiology, 41,* 1043–1053.

Varricchio, C.G. (2006). Measurement issues in quality-of-life assessments. *Oncology Nursing Forum, 33*(1, Suppl. 1), 13–21.