

# Comfort and Quality of Life of Cancer Patients

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**Purpose** This study aimed to quantify the comfort level and quality of life (QoL) of cancer patients, to identify the variables associated with comfort level and QoL, and to identify the relationship between comfort level and QoL.

**Methods** This was a cross-sectional descriptive study. The participants comprised 100 cancer patients, of which 98 were analyzed. Participants completed a self-reporting questionnaire that included the Hospice Comfort Questionnaire and the European Organization for Research and Treatment of Cancer Quality of Life Core Questionnaire-C30 at outpatient clinics, inpatient units, at home, and a day-care chemotherapy unit.

**Results** The mean age of the participants was 53.36 years, and 56.1% of them were female. The mean  $\pm$  standard deviation score for total comfort was  $61.50 \pm 12.02$ , with the sociocultural comfort score being the highest ( $71.05 \pm 16.01$ ), followed by physical comfort ( $60.30 \pm 16.71$ ), psychospiritual comfort ( $57.65 \pm 16.81$ ), and environmental comfort ( $56.32 \pm 16.86$ ). There were significant subgroup differences in educational attainment, the site where they completed the questionnaire, and perceived disease status and prognosis. The QoL score for global health status was  $46.34 \pm 20.76$ , and comfort was significantly correlated with all dimensions of QoL ( $r = -.549 - .581$ ).

**Conclusion** This study showed lower comfort level in psychospiritual and environmental comfort than physical and sociocultural comfort in cancer patients. Improvement in environment and psychospiritual support is suggested as strategies to enhance the comfort of cancer patients. [*Asian Nursing Research* 2007;1(2):125-135]

**Key Words** cancer, comfort, quality of life

## INTRODUCTION

Being diagnosed and living with a life-threatening illness such as cancer is a stressful event that may profoundly affect multiple aspects of an individual's

life. Cancer patients suffer from multiple physical symptoms such as fatigue and pain (Miaskowski et al., 2006), and also from psychological changes such as fear of death and fear of progression or recurrence of disease, and changes in the quality of life (QoL)

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(Kang, 1999; Schreier & Williams, 2004). The physical distress and psychological distress of cancer patients are mutually related (Yang, Jeon, Han, Han, & Eom, 2000), and demographic variables and social support are generally associated with measures of adjustment and QoL, whereas medical variables such as time since diagnosis, recurrence status, treatment variables, and stage of disease are not generally associated with measures of adjustment and QoL (Parker, Baile, de Moor, & Cohen, 2003).

Comfort is an outcome that is highly desired by patients and their family, and hence represents an important goal of nursing care. Although nurses know intuitively what comfort is and what nursing interventions are necessary to enhance it, nurses and researchers currently utilize measures of discomfort that designate a neutral sense of comfort as being the absence of a specific discomfort (Miaskowski et al., 2006), rather than measuring the comfort level directly. This is due to the concept of comfort being too subjective, equivocal, and changeable to conceptualize and to define plainly. So, this makes the development and evaluation of nursing interventions that directly enhance comfort difficult (Kim et al., 2000). The emphasis on different types of comfort varies among theorists. However, there is a consensus on the key element of comfort, which is defined as a state linked to ease, wellbeing and relief (Morse, Mitcham, Hupcey, & Tason, 1996) in a multidimensional aspect (Tutton & Seers, 2003). Kolcaba (Kolcaba & Kolcaba, 1991; Kolcaba, 2003) defined comfort as "the immediate state of being strengthened through having the human needs for relief, ease, and transcendence addressed in four contexts of experience (physical, psychospiritual, sociocultural and environmental)", and quantified comfort by developing comfort questionnaires. The juxtaposition of the three states of comfort with the four contexts of comfort experience results in a 12-cell grid called the taxonomic structure that has been used in both research and practice. Assessing comfort as a positive, holistic outcome enables nurses to direct their care in ways that are both goal-directed and measurable.

However, only a few studies have quantified the comfort level of cancer patients or developed nursing

interventions focused on enhancing comfort as an outcome (Kim, Byun, Gu, & Jang, 1996; Kolcaba, Dowd, Steiner, & Mitzel, 2004; Williams & Irurita, 2005), despite QoL having been widely accepted as a multidimensional outcome measurement in health care. Comparing comfort with the QoL of cancer patients will aid in the understanding of discrepancies and the value of comfort as a multidimensional nursing outcome. In addition, it is worthwhile to adopt and to test the comfort questionnaires, the validity and reliability of which have already been proven, since the effort to quantify comfort level has been limited in Korea.

Hereby, this study aimed to quantify the comfort level and QoL of cancer patients, to identify the variables associated with comfort level and QoL, and to determine the relationship between comfort and QoL.

## METHODS

### *Design*

This was a cross-sectional descriptive study conducted from March 2006 to March 2007.

### *Participants and data collection procedures*

The study participants comprised 100 cancer patients who were under active anticancer treatment and/or receiving palliative care, of which 98 were analyzed. This study was approved by the institutional review board of Seoul National University, Seoul, Korea, prior to the participants being approached, and their written, informed consent was obtained. Participants were recruited from four outpatient settings including university-based cancer centers and day-care chemotherapy units, four inpatient settings including a hospice unit and oncology units, and home settings that provided home care at two university hospitals in Seoul, Korea. Those who volunteered to participate completed a brief self-reporting questionnaire at the site where they were invited to join the study. It took each participant approximately 30 minutes to complete the questionnaire. Upon completion of the questionnaire, the participant

received a gift certificate to compensate them for their assistance.

## Measures

### Comfort

Comfort level was measured using the Hospice Comfort Questionnaire (HCQ) developed by Kolcaba, Dowd, Steiner, and Mitzel (2004). After obtaining written permission from the principal author of the HCQ, we performed a rigorous translation process consisting of a repeated forward-backward procedure and subsequent review and revision, since the perception of comfort and its determinants may differ with cultural background, and given that the HCQ was originally developed in the USA. The translated questionnaire was subsequently reviewed by two expert nursing professors.

The HCQ is a shortened form of the original End of Life Comfort Questionnaire (EOLCQ), which consists of 49 items. The HCQ is shorter but contains core questions from the EOLCQ so that it is more suitable for patients who are not able to complete a long questionnaire. The HCQ is a 24-item scale with items scored from 1 (strongly disagree) to 6 (strongly agree) points that measure holistic comfort defined as the immediate state of being, and strengthened by having needs for relief, ease, and transcendence addressed in four contexts of experience: physical, psychospiritual, sociocultural, and environmental (Kolcaba et al., 2004). These attributes of comfort are diagrammed on a 12-cell grid. To score the HCQ, negatively worded items were reversed so that higher scores indicated higher comfort. The total comfort score was normalized to range from 0 to 100 using linear transformation. Kolcaba et al. reported that the validity of the HCQ had been proved for cancer patients and Cronbach's  $\alpha$  of the 24-item HCQ was .70. In this study, Cronbach's  $\alpha$  of the 24-item HCQ was .76.

Although Kolcaba and Fisher (1996) recommended that this was not advisable during data analysis since the 12 cells were interrelated, the comfort score in each context of comfort beside holistic comfort level was analyzed to investigate which variables

were associated with which contexts of comfort in this study.

### QoL

QoL was measured using the European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Core Questionnaire (QLQ)-C30 (EORTC, 2001), which was designed specifically for cancer and which is multidimensional in structure. The EORTC QLQ-C30 was developed by the EORTC. Written permission to use the EORTC QLQ-C30 was obtained from the EORTC.

The EORTC QLQ-C30 incorporates five functional scales (physical, role, cognitive, emotional, social), three symptom scales (fatigue, pain, nausea and vomiting), a global health status/QoL scale, single items assessing additional symptoms that are commonly reported by cancer patients (dyspnea, loss of appetite, insomnia, constipation, diarrhea), and perceived financial impact of the disease. The scores for all of the scales and single-item measures ranged from 0 to 100, with a higher score representing a higher ("better") level of functioning or a higher ("worse") level of symptoms. Yun et al. (2004) reported that Cronbach's  $\alpha$  of the eight multiple-item scales of the EORTC QLQ-C30 were greater than .70, with the exception of cognitive functioning (for which it was .67). In the present study, Cronbach's  $\alpha$  of the eight multiple-item scales of the EORTC QLQ-C30 ranged from .71 to .87, that of the global health status/QoL was .80, physical functioning was .86, role functioning was .71, emotional functioning was .80, cognitive functioning was .72, social functioning was .79, fatigue was .76, nausea and vomiting was .87, and pain was .77.

### Data analysis

Data were analyzed using SPSS version 12.0 (SPSS Inc., Chicago, IL, USA). The general characteristics, comfort, and QoL of the participants were expressed using descriptive statistics. ANOVA and *t* test were used to explore subgroup differences in comfort and QoL relative to general characteristics. The correlations among the dimensions of QoL and

total comfort were analyzed using the Pearson correlation coefficient. Cronbach's  $\alpha$  was calculated to test the internal reliability.

## RESULTS

### General characteristics

The 98 participants had a mean age of 53.36 years (standard deviation [SD], 14.45 years; range, 16–79 years), 56.1% of them were female, 72.3% had at least a high school education, 74.5% were unemployed, 82.6% were married, and 77.6% followed a religion. The participants answered the questionnaire at outpatient clinics during routine follow-up

visits (45.9%), at inpatient oncology units and palliative care units (22.4%), and at day-care chemotherapy units that they visited only for daytime chemotherapy (27.6%) (Table 1).

The participants had diverse primary diagnoses, with the majority having cancers of the gastrointestinal tract (39.8%), followed by breast cancer (21.4%) and lung cancer (14.3%). The mean time since initial diagnosis was 1.60 years (SD, 1.43 years; range, 0–14.75 years). Ninety percent of the participants were receiving active treatment for cancer such as chemotherapy (76.5%), radiotherapy (6.1%), or chemoradiotherapy (8.2%). Participants had an Eastern Cooperative Oncology Group performance status (ECOG PS) (Oken et al., 1982) of 0 (27.6%) or

**Table 1**  
*General Characteristics of Study Participants (N = 98)*

	<i>n (%)</i>	<i>Mean <math>\pm</math> SD</i>	<i>Range</i>
Age (years)		53.36 $\pm$ 14.45	16–79
< 45	22 (22.4)		
45–64	54 (55.2)		
$\geq$ 65	22 (22.4)		
Gender			
Male	43 (43.9)		
Female	55 (56.1)		
Educational level			
Primary school	13 (13.3)		
Middle school	12 (12.2)		
High school	40 (40.8)		
College or above	33 (33.7)		
Occupation			
Employed	25 (25.5)		
Unemployed	73 (74.5)		
Marital status			
Married	81 (82.6)		
Single	17 (17.4)		
Religion			
Buddhist	24 (24.5)		
Christian	52 (53.1)		
None	22 (22.4)		

**Table 1**

(Continued)

	n (%)	Mean ± SD	Range
Site where questionnaire was completed			
Outpatient clinic	45 (45.9)		
Inpatient unit	22 (22.4)		
Day-care chemotherapy unit	27 (27.6)		
Home	4 (4.1)		
Primary diagnosis			
Cancer in gastrointestinal tract <sup>a</sup>	39 (39.8)		
Breast cancer	21 (21.4)		
Lung cancer	14 (14.3)		
Other <sup>b</sup>	24 (24.5)		
Time since initial diagnosis (year)		1.60 ± 1.43	0–14.75
≤ 1	63 (64.3)		
> 1	35 (35.7)		
Current treatment			
Chemotherapy	74 (76.5)		
Radiotherapy	6 (6.1)		
Chemoradiotherapy	8 (8.2)		
Palliative care only	10 (9.2)		
ECOG PS			
0	27 (27.6)		
1	53 (54.1)		
2–4	18 (18.4)		
Perceived disease status			
Very serious	26 (26.5)		
Neither serious nor minor	60 (61.2)		
Not serious at all	12 (12.3)		
Perceived prognosis <sup>c</sup>			
Will be cured	63 (64.3)		
Incurable but manageable	22 (22.4)		
Will get worse	7 (13.3)		

<sup>a</sup>Included colorectal cancer, gastric cancer, oropharyngeal cancer, pancreatic cancer, hepatocellular cancer; <sup>b</sup>included ovarian cancer, skin cancer, neuroendocrinologic cancer, lymphoma, leukemia; <sup>c</sup>sample sizes vary slightly because of missing data for some indices. ECOG PS = Eastern Cooperative Oncology Group performance status.

1 (54.1%). Disease status was perceived as being “very serious” and “neither serious nor minor” by 26.5% and 61.2% of the participants, respectively, and 64.3% and 22.4% of them considered that they would be cured and that their prognosis was incurable but manageable, respectively (Table 1).

**Comfort and associated variables**

The mean score for total comfort was 61.50 ± 12.02, with the score for sociocultural comfort being the highest (71.05 ± 16.01), followed by physical comfort (60.30 ± 16.71), psychospiritual comfort (57.65 ± 16.81), and environmental comfort (56.32 ± 16.86).

Table 2

Descriptive Statistics of Each Item in the Four Contexts of Comfort (N = 98)

Context of comfort	Item	Mean $\pm$ SD <sup>a</sup>	Mean $\pm$ SD <sup>b</sup>
Physical comfort	My body is relaxed right now	3.18 $\pm$ 1.41	60.30 $\pm$ 16.71
	My breathing is difficult	5.06 $\pm$ 1.49	
	I sleep soundly	3.80 $\pm$ 1.75	
	I feel nauseous	4.42 $\pm$ 1.51	
	My mouth and throat feel very dry	4.16 $\pm$ 1.76	
	I can rise above my pain	3.89 $\pm$ 1.41	
	I feel good enough to do some things for myself	3.60 $\pm$ 1.56	
Psychospiritual comfort	I have difficult resting	4.77 $\pm$ 1.49	57.65 $\pm$ 16.81
	I feel peaceful	3.74 $\pm$ 1.67	
	I am afraid of what will come next	4.03 $\pm$ 1.72	
	I have experienced changes that make me feel uneasy	3.26 $\pm$ 1.40	
	I feel confident spiritually	3.56 $\pm$ 1.78	
	In retrospect, I've had a good life	3.94 $\pm$ 1.43	
Environmental comfort	These surroundings are pleasant	3.99 $\pm$ 1.41	56.32 $\pm$ 16.86
	I like being here	2.02 $\pm$ 1.52	
	The mood here is depressing	4.13 $\pm$ 1.45	
	This chair/bed makes me hurt	4.80 $\pm$ 1.60	
	I feel helpless	4.14 $\pm$ 1.54	
Sociocultural comfort	There are those I can depend on when I need help	4.70 $\pm$ 1.69	71.05 $\pm$ 16.01
	I worry about my family	3.15 $\pm$ 1.59	
	I know I am loved	4.97 $\pm$ 1.25	
	I am able to communicate with my loved ones	5.10 $\pm$ 1.34	
	I'm okay with my personal relationships	4.72 $\pm$ 1.32	
	I feel lonely	4.66 $\pm$ 1.47	
Total			61.50 $\pm$ 12.02

<sup>a</sup>The raw score ranged from 1 to 6 points; <sup>b</sup>linear transformation was used to standardize the mean score so that scores ranged from 0 to 100, with a higher score representing a higher comfort level.

The items that reportedly gave the highest and lowest comfort were "I am able to communicate with my loved ones" (5.10  $\pm$  1.34) and "I like being here" (2.02  $\pm$  1.52), respectively (Table 2).

There were no significant subgroup differences in age ( $p = .140$ ) or occupation ( $p = .106$ ) (Table 3), or in gender, marital status, religion, current treatment, or time since initial diagnosis (data not shown). There were significant differences between patients who graduated from primary school as a final attainment and who graduated in sociocultural context

( $p = .033$ ). There were significant differences among sites, where the participants completed the questionnaire, in total comfort ( $p < .001$ ) and all contexts of comfort except the sociocultural context ( $p = .131$ ). The score for total comfort was significantly lower for patients who perceived their disease status as being very serious compared to others ( $p < .05$ ), as were all contexts of comfort except the environmental context ( $p = .094$ ). Participants who thought that they could be cured reported higher total comfort than participants who thought they were incurable

**Table 3**  
Differences in the Level of Comfort According to Participant Characteristics

Characteristic	Context of comfort				
	Physical Mean ± SD	Psychospiritual Mean ± SD	Environmental Mean ± SD	Sociocultural Mean ± SD	Total Mean ± SD
<b>Age (years)<sup>a</sup></b>					
< 45*	65.19 ± 18.38	57.72 ± 20.24	60.54 ± 15.18	78.78 ± 14.45	65.75 ± 13.23
45–64 <sup>φ</sup>	60.00 ± 14.31	58.51 ± 14.03	53.40 ± 17.95	70.24 ± 12.81	60.81 ± 10.01
≥ 65 <sup>δ</sup>	56.23 ± 19.84	55.45 ± 19.80	59.27 ± 14.79	65.30 ± 21.49	58.93 ± 14.56
F (p)	1.623 (.203)	0.256 (.775)	1.867 (.160)	4.330 (.016) <sup>b</sup>	2.006 (.140)
<b>Educational attainment<sup>a</sup></b>					
Primary school*	60.21 ± 16.01	49.74 ± 14.36	52.92 ± 13.07	61.53 ± 21.75	56.41 ± 11.94
Middle school <sup>φ</sup>	55.71 ± 18.33	52.77 ± 16.31	53.66 ± 18.32	72.50 ± 14.77	58.75 ± 10.65
High school <sup>δ</sup>	58.92 ± 15.44	59.75 ± 15.17	53.30 ± 17.68	69.41 ± 13.77	60.58 ± 11.27
College or above <sup>ζ</sup>	63.72 ± 17.96	60.00 ± 19.02	62.30 ± 15.65	76.26 ± 14.99	65.63 ± 12.59
F (p)	0.848 (.471)	1.757 (.161)	2.163 (.098)	3.047 (.033) <sup>c</sup>	2.470 (.067)
<b>Occupation<sup>b</sup></b>					
Employed*	64.57 ± 11.86	62.66 ± 19.83	59.84 ± 16.71	72.00 ± 15.39	64.96 ± 11.09
Unemployed <sup>φ</sup>	58.96 ± 18.02	55.92 ± 15.53	55.38 ± 16.81	70.92 ± 16.34	60.45 ± 12.20
t (p)	1.759 (.083)	1.736 (.086)	1.142 (.256)	0.287 (.775)	1.630 (.106)
<b>Site<sup>a</sup></b>					
Outpatient clinic*	64.57 ± 14.93	56.37 ± 15.20	55.55 ± 17.70	68.07 ± 16.13	61.51 ± 10.86
Inpatient unit <sup>φ</sup>	45.97 ± 15.81	49.8485 ± 17.80	49.63 ± 15.30	69.54 ± 14.48	53.59 ± 11.78
Day-care chemotherapy unit <sup>δ</sup>	65.07 ± 14.76	64.93 ± 15.48	59.55 ± 13.78	75.80 ± 16.47	66.57 ± 10.73
Home <sup>ζ</sup>	59.28 ± 11.75	65.83 ± 20.43	80.00 ± 11.31	80.83 ± 13.15	70.62 ± 13.11
F (p)	8.821 (.000) <sup>a,d</sup>	4.014 (.010) <sup>d</sup>	4.607 (.005) <sup>c,e</sup>	1.926 (.131)	6.478 (.000) <sup>a,b</sup>
<b>ECOG PS<sup>a</sup></b>					
0*	66.13 ± 16.02	64.81 ± 15.94	65.33 ± 11.36	76.66 ± 13.13	68.27 ± 10.31
1 <sup>φ</sup>	61.07 ± 15.33	55.47 ± 14.38	52.75 ± 17.24	67.10 ± 17.30	59.44 ± 10.67
2–4 <sup>δ</sup>	49.36 ± 17.33	53.33 ± 21.81	53.33 ± 18.35	74.25 ± 13.17	57.40 ± 14.47
F (p)	6.141 (.003) <sup>b,d</sup>	3.682 (.029)	5.859 (.004) <sup>a</sup>	5.809 (.055)	13.456 (.001) <sup>a,b</sup>
<b>Perceived disease status<sup>a</sup></b>					
Very serious*	51.75 ± 15.98	51.28 ± 17.81	50.92 ± 16.61	66.66 ± 15.31	55.19 ± 10.87
Neither serious nor minor <sup>φ</sup>	61.66 ± 14.64	58.72 ± 14.78	59.20 ± 15.42	70.72 ± 16.11	62.68 ± 10.86
Not serious at all <sup>δ</sup>	72.14 ± 19.94	66.11 ± 20.49	53.66 ± 21.93	82.22 ± 12.41	69.30 ± 14.31
F (p)	7.487 (.001) <sup>a,b</sup>	3.701 (.028) <sup>a,b</sup>	2.425 (.094)	4.161 (.019) <sup>b</sup>	7.218 (.001) <sup>a,b</sup>
<b>Perceived prognosis<sup>a</sup></b>					
Will be cured*	64.12 ± 16.13	62.16 ± 15.50	58.47 ± 16.80	74.92 ± 14.27	65.15 ± 11.05
Incurable but manageable <sup>φ</sup>	57.01 ± 16.07	51.66 ± 17.17	53.63 ± 17.65	62.12 ± 19.58	56.25 ± 11.98
Will get worse <sup>δ</sup>	44.08 ± 13.78	42.38 ± 16.96	44.00 ± 13.46	66.19 ± 11.12	49.16 ± 8.59
F (p)	5.816 (.004) <sup>b</sup>	7.177 (.001) <sup>a,b</sup>	2.676 (.074)	5.938 (.004) <sup>a</sup>	10.107 (.000) <sup>a,b</sup>

Scheffé's test: <sup>a</sup>significant difference between groups marked \* and φ, <sup>b</sup>significant difference between groups marked \* and δ, <sup>c</sup>significant difference between groups marked \* and ζ, <sup>d</sup>significant difference between groups marked φ and δ, <sup>e</sup>significant difference between groups marked φ and ζ.

or would be worse ( $p < .05$ ), as well as higher scores for all contexts of comfort except the environmental context ( $p = .074$ ) (Table 3).

### QoL and group differences in QoL

The mean QoL score for global health status was  $46.34 \pm 20.76$ . The highest QoL score on the functional scale was for cognitive functioning ( $68.53 \pm 21.25$ ), followed by role functioning ( $64.62 \pm 30.20$ ), emotional functioning ( $61.98 \pm 23.99$ ), physical functioning ( $61.90 \pm 26.19$ ), and social functioning ( $56.35 \pm 29.21$ ). The highest QoL score on the symptoms scale was fatigue ( $51.02 \pm 25.26$ ), followed by appetite loss ( $43.19 \pm 34.58$ ), constipation ( $40.47 \pm 36.21$ ), nausea and vomiting ( $37.11 \pm 32.94$ ), insomnia ( $37.07 \pm 33.46$ ), pain ( $36.56 \pm 30.61$ ), and financial difficulties ( $36.39 \pm 34.21$ ) (Table 4).

Patients who were younger than 45 years old reported significantly better functioning ( $p < .05$ )

and less severe symptoms ( $p < .01$ ) than patients who were over 65 years old. Participants who were employed reported significantly better functioning ( $p < .01$ ) and less severe symptoms ( $p < .01$ ) than those who were unemployed. There were significant subgroup differences according to the sites where the questionnaires were completed and ECOG performance status in global health status ( $p < .01$  and  $p < .01$ ), functioning ( $p = .001$  and  $p < .01$ ) and symptoms ( $p = .001$  and  $p = .001$ ). There were significant subgroup differences based on the perceived disease status in global health status ( $p = .001$ ), functioning ( $p < .01$ ) and symptoms ( $p < .01$ ), and based on the perceived prognosis in functioning ( $p = .001$ ) and symptoms ( $p = .001$ ) (Table 5).

### Correlations between comfort and all dimensions of QoL

The correlations among the dimensions of QoL and total comfort are listed in Table 6. Comfort was significantly correlated with all the dimensions of QoL ( $r = -.549 - .581$ ).

**Table 4**

*Descriptive Statistics of the EORTC QLQ-C30 (N = 98)*

Scale/item	Mean $\pm$ SD
Global health status/quality of life	46.34 $\pm$ 20.76
Functioning <sup>a</sup>	
Physical functioning	61.90 $\pm$ 26.19
Role functioning	64.62 $\pm$ 30.20
Emotional functioning	61.98 $\pm$ 23.99
Cognitive functioning	68.53 $\pm$ 21.25
Social functioning	56.35 $\pm$ 29.21
Symptoms <sup>b</sup>	
Fatigue	51.02 $\pm$ 25.26
Nausea and vomiting	37.11 $\pm$ 32.94
Pain	36.56 $\pm$ 30.61
Dyspnea	28.23 $\pm$ 30.77
Insomnia	37.07 $\pm$ 33.46
Appetite loss	43.19 $\pm$ 34.58
Constipation	40.47 $\pm$ 36.21
Diarrhea	31.61 $\pm$ 34.14
Financial difficulties	36.39 $\pm$ 34.21

<sup>a</sup>Scores ranged from 0 to 100, with a higher score representing better functioning; <sup>b</sup>scores ranged from 0 to 100, with a higher score representing worse symptoms.

## DISCUSSION

Assessing the comfort status of and providing comfort interventions for patients form the very essence of nursing practice and research. Although "making the patient comfortable" has long been a vital nursing task, holistic comfort has not been quantified for utilization as a nursing outcome.

This study measured and compared both the comfort and QoL of cancer patients using the HCQ and the EORTC QLQ-C30. QoL was chosen because it has been widely used as a multidimensional health care outcome variable in cancer patients. The results of this study indicate that: (a) the HCQ has high reliability; (b) there is a medial correlation between the HCQ and functioning and symptoms on the EORTC QLQ-C30; (c) the HCQ has value in reflecting the multidimensional nature of comfort.

The internal consistency of the HCQ was acceptable, as assessed by Cronbach's  $\alpha$  coefficient, indicating that the translated instrument was reliable.

**Table 5**  
Differences in Quality of Life According to Participant Characteristics

Characteristic (n)	Quality of life subscale		
	Global health status Mean ± SD	Functional scale (total) Mean ± SD	Symptoms scale (total) Mean ± SD
Age (years) <sup>a</sup>			
< 45 (22)*	54.92 ± 19.18	70.54 ± 13.74	27.58 ± 14.99
45–64 (54) <sup>φ</sup>	46.60 ± 18.06	62.97 ± 18.85	37.64 ± 19.01
≥ 65 (22) <sup>δ</sup>	37.12 ± 25.16	54.07 ± 21.86	48.09 ± 23.09
F (p)	4.332 (.016) <sup>b</sup>	4.323 (.016) <sup>b</sup>	6.263 (.003) <sup>b</sup>
Educational attainment <sup>a</sup>			
Primary school (13)*	39.10 ± 17.47	49.92 ± 17.64	43.77 ± 18.24
Middle school (12) <sup>φ</sup>	39.58 ± 16.71	65.38 ± 12.52	36.70 ± 17.65
High school (40) <sup>δ</sup>	45.41 ± 22.32	62.19 ± 19.85	41.60 ± 20.54
College or above (33) <sup>ζ</sup>	52.77 ± 20.16	67.26 ± 19.47	30.78 ± 20.30
F (p)	2.104 (.105)	2.765 (.046)	2.219 (.091)
Occupation <sup>b</sup>			
Employed (25)*	52.00 ± 17.39	73.64 ± 13.21	27.67 ± 12.47
Unemployed (72) <sup>φ</sup>	44.32 ± 21.70	59.31 ± 19.34	40.56 ± 20.97
t (p)	1.596 (.114)	4.092 (.000)	–3.619 (.001)
Site <sup>a</sup>			
Outpatient clinic (45)*	48.88 ± 14.27	64.08 ± 16.25	35.28 ± 18.04
Inpatient unit (22) <sup>φ</sup>	25.00 ± 21.36	50.69 ± 22.75	51.85 ± 22.30
Day-care chemotherapy unit (27) <sup>δ</sup>	59.25 ± 17.80	71.19 ± 15.08	29.82 ± 17.91
Home (4) <sup>ζ</sup>	47.91 ± 7.97	52.00 ± 26.28	37.03 ± 9.78
F (p)	17.215 (.000)	5.709 (.001) <sup>c</sup>	5.821 (.001) <sup>a,c</sup>
ECOG PS <sup>a</sup>			
0 (27)*	58.64 ± 18.98	71.86 ± 13.45	28.79 ± 15.71
1 (53) <sup>φ</sup>	46.06 ± 16.87	64.30 ± 17.10	37.26 ± 19.30
≥ 2 (18) <sup>δ</sup>	28.70 ± 21.62	44.16 ± 20.68	51.98 ± 21.77
F (p)	14.325 (.000)	14.996 (.000) <sup>a,b</sup>	8.036 (.001) <sup>a,c</sup>
Perceived disease status <sup>a</sup>			
Very serious (26)*	33.65 ± 22.42	50.67 ± 22.22	51.36 ± 23.13
Neither serious nor minor (60) <sup>φ</sup>	50.55 ± 17.88	66.28 ± 16.60	33.55 ± 17.22
Not serious at all (12) <sup>δ</sup>	52.77 ± 20.51	70.86 ± 12.89	31.32 ± 16.97
F (p)	7.570 (.001)	8.281 (.000) <sup>a,b</sup>	8.451 (.000) <sup>a,b</sup>
Perceived prognosis <sup>a</sup>			
Will be cured (63)*	49.73 ± 21.53	67.98 ± 14.60	32.61 ± 16.87
Incurable but manageable (22) <sup>φ</sup>	43.56 ± 15.83	55.36 ± 24.30	42.73 ± 21.18
Will get worse (7) <sup>δ</sup>	32.14 ± 19.50	45.80 ± 16.77	59.34 ± 17.54
F (p)	2.791 (.067)	7.932 (.001) <sup>b</sup>	8.266 (.001) <sup>b</sup>

Scheffé's test: <sup>a</sup>significant difference between groups marked \* and φ, <sup>b</sup>significant difference between groups marked \* and δ, <sup>c</sup>significant difference between groups marked φ and δ.

Table 6

Correlation Between Comfort and All Dimensions of Quality of Life (N = 98)

		QL	PF	RF	EF	CF	SF	Symptoms
<b>Comfort</b>	<i>r</i>	.484	.429	.471	.581	.310	.313	-.549
	<i>p</i>	.000*	.000*	.000*	.000*	.002*	.002*	.000*

\**p* < .01. QL=global health status/quality of life; PF=physical functioning; RF=role functioning; EF=emotional functioning; CF=cognitive functioning; SF=social functioning.

The HCQ proved to be a sensitive instrument for discriminating between subgroups of patients known to differ in ECOG performance status and the site where they completed the questionnaire and in terms of the correlations with the functional and symptoms QoL subscales. The reported environmental comfort was significantly higher for home-based patients than for those in outpatient and inpatient settings, and patients with better functioning and less severe symptoms on the EORTC QLQ-C30 reported higher comfort in all contexts.

Jo and Kim (2003) reported that comfort and social support (consisting of emotional, informational, evaluative, and materialistic support) were positively correlated; we found that patients with higher educational attainment—which is known to be related to social support—demonstrated higher comfort status. Interestingly, although functioning and symptoms differed significantly with age and employment status, they were not related to comfort. Patients younger than 45 years reported higher comfort only in the sociocultural context. This can be explained by the highly subjective nature of comfort. Although there was a significant correlation between comfort and QoL, better functioning and the absence of symptoms may not ensure comfort. Hospitalized patients showed significantly higher comfort than healthy subjects in terms of the environmental and physical contexts, but lower comfort in terms of sociocultural and psychospiritual contexts (Kim et al., 1996).

Absence of disease and physical symptoms is not a necessary and sufficient condition for achieving comfort. Even after the completion of chemotherapy, which can induce numerous new physical symptoms, cancer patients continue to have numerous physical,

emotional, informational, and environmental needs in addition to the need to maintain their dignity (Han et al., 2005). Therefore, nursing efforts to comfort patients should not be discontinued. We found that comfort was not related to either medical diagnosis or disease duration. Instead, how patients perceived the status of their disease and prognosis was related to all contexts of comfort except the environmental context. Medical condition and disease status may be the most influential factor in both comfort and QoL. The important intermediate factor is how patients perceive their disease and prognosis. The presence of connections between comfort status and the perception of personal control has been suggested to be a central feature of emotional comfort (Williams & Irurita, 2006). Since comfort is a multidimensional concept, it is possible that an individual can still feel comfort even in the presence of worse comfort in a certain context. This information will help in the development of optimal strategies for enhancing comfort and determining those contexts that need to be captured, such as enhancing the therapeutic potential of the hospital environment (Williams & Irurita, 2005).

Considering utilization of the concept of comfort as a nursing outcome, it is inappropriate to obtain normative data for comfort to make direct comparisons of comfort levels among individuals due to the extremely individual and dynamic nature of comfort (Kolcaba & Fisher, 1996). Instead, changes in comfort resulting from nursing interventions in individual subjects should be measured over time. There is a limitation to the application of the results of this study; since a convenient sampling method was used, the results should not be generalized to apply to the comfort and QoL of all cancer patients.

## CONCLUSION

The continuing growth in the population of cancer patients in Korea has prompted nurses and researchers to develop nursing interventions that promote patient comfort. However, directly measuring comfort has been substituted by the measurement of discomfort. This study showed relatively lower comfort levels in psychospiritual and environmental comfort than physical and sociocultural comfort in patients with cancer. Physical symptoms including pain and dyspnea were found to be lower than functioning in QoL. Although comfort is not identical to QoL, it is correlated with it. The site where the patient was placed and the patient's perception of disease status and prognosis were suggested as variables that were associated with comfort and QoL. Improvement in environment and psychospiritual support is suggested as strategies to enhance comfort for patients with cancer.

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