Predictors of Quality of Life in Elderly Hospice Patients with Cancer

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Abstract

Purpose—While quality of life is the focus of care in hospices, limited research has been conducted on the quality of life of cancer patients in hospice home care. The purpose of this study was to explore the predictors of quality of life of older adults who are receiving hospice care in their homes.

Methods—A secondary analysis of data from a larger study was conducted using linear regression and including the following predictor variables: age, functional status, number of symptoms endorsed, overall symptom distress, pain intensity, and depressive symptoms. The outcome variable was quality of life.

Results—The sample consisted of 533 adults with an average age of 78.1 years (SD=7.4). A regression model that included symptom distress, number of symptoms, depression, and functional status accounted for 46% of the variance in quality of life. Pain, age, and caregiver depression did not contribute to predicting quality of life and therefore were not included in the final model.

Conclusions and Implications—Because both physical symptoms and depression are predictors of quality of life, a continued focus is needed on these factors by those providing care to older adults with cancer near the end of life.

Introduction

Approximately 83% of the people cared for by the hospices in the U.S. are over the age of 65 years, and almost 40% of these are diagnosed with some form of cancer[1] which is considered to be a disease of aging [2]. The focus of hospice care is improving the quality of life (QOL) of patients and families[1]. Patients diagnosed with cancer who are nearing the end of life face more QOL declines as compared to those in hospice care who are not diagnosed with cancer[3]. Because so many hospice and palliative care patients are older adults who are diagnosed with cancer, it is important to identify some of the issues that can affect their QOL. The purpose of this study was to explore the predictors of quality of life of older adults who are receiving hospice care in their homes.

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Background

Differences in Older Adults

Older patients differ from younger adults in several important respects. First, many older people live with chronic disease. The average person over the age of 75 lives with three chronic conditions and takes 4.5 prescription medications[4]. Second, patients living with chronic disease benefit from a focus on maintaining function since their condition cannot be cured[5]. Third, the elderly respond to pharmaceuticals differently than younger adults. They have atypical clinical responses and metabolize medications more slowly. The older adult is much more prone to polypharmacy, putting them at risk for interactions between multiple drugs prescribed for a variety of conditions[6]. In addition, prior studies have shown that older adults with advanced cancer report less symptom intensity than younger patients[7].

Quality of Life

QOL is a complex construct that considers issues of physical, social, functional, spiritual, and emotional well-being, [7–10] and may be defined as "those aspects that make life worth living"[11](p. 282). As distressing symptoms increase, QOL decreases in older cancer patients at end of life [12]. Cancer patients who are receiving chemotherapy experience problems with symptom control which also have an impact on QOL [13]. Factors such as psychological symptom distress, pain, and anxiety are associated with decreased QOL in hospice patients [14,15]. Problems associated with caregiver availability, depression, functional status, and age are also aspects to consider when measuring QOL.

It is important to evaluate QOL at each patient contact. Asking the patient to express QOL concerns is important because many caregivers inaccurately report distressing symptoms[16,17]. When assessing QOL by patient interview, better QOL is often reported at end-of-life than might have been expected[18].

Depression in Palliative Care

One dimension of QOL is emotional health. People who suffer from depression tend to experience other problems such as pain and fatigue[19] which can lead to lower reported QOL. Approximately 45% of people in palliative care suffer from depression[20]. Depression is associated with symptom distress in older cancer patients, and the total number of distressing symptoms is increased in patients who suffer from moderate clinical depression[21]. Depression not only affects the patient, but it also affects the family members and caregivers[22]; thus, attention should be directed to support the family members and caregivers to manage problems such as depression[23].

Functional Status in Palliative Care

Functional Status is defined as the ability to perform basic activities that are important to maintain independence such as eating, dressing, bathing, continence, and walking[24]. Other activities that are vital to independence are more refined activities such as the ability to cook, clean, drive, manage money, and other everyday tasks[25]. Functional status is an important element of patient assessment in that scores predict survival in hospice patients[26]. Depression and functional status have been shown to be related, and improvement in emotional or functional status will improve QOL[27].

Pain

Pain is a central component of hospice care and one of the most common problems addressed by palliative care teams[28]. QOL, fatigue, nausea, and sleep problems are all improved when cancer pain is managed[29]. Pain is often part of a symptom cluster in that it is

generally accompanied by feelings of reduced energy, poor nutritional intake[30], and sleep problems[31]. By controlling pain, other problems may also resolve that affect QOL of the patient and caregiver. Interestingly, patients with cognitive impairment report more intense pain as compared to people who are receiving hospice care and are not cognitively impaired[32].

Hospice care has traditionally focused on pain assessment and management. Patients in hospice care who have been admitted with severe pain reported reduced pain as they received ongoing care[33]. One study showed that approximately 70% of patients underwent a pain assessment upon admission to hospice care[34]. Pain is also assessed by observing issues such as global health improvement, satisfaction with treatment, and physical and emotional functioning[35].

Age

Because cancer is a disease of aging[2], it is important to consider age in a QOL model. Many older people and even those aged 90 years and over, receive both curative and palliative cancer treatment with 41% receiving surgical interventions, 9% receiving chemotherapy, and 12% receiving radiation therapy[36]. Despite the number of older adults who are diagnosed and treated with cancer, many older people are not offered hospice services. People aged 85 years and over are least likely to receive hospice care when compared to younger people[37].

Selection of Predictors

The selection of predictor variables was based on prior findings on QOL in hospice patients with cancer. Decline in functional status, increased number of symptoms, symptom distress, pain, depression, and social support have all been associated with QOL in hospice patients with cancer[11,19].

Summary

Care of the older hospice patient with cancer is a complex orchestration of assessment and intervention. Understanding how to identify and manage problems that impact QOL will aid in the care of patients and families.

Research Question

This study was designed to answer the following question: What are the predictors of quality of life in older adults with advanced cancer in home hospice care?

Methods

Design

This is a secondary analysis of data from a larger NIH-funded clinical trial of systematic assessment of cancer patients in home hospice care (5R01 NR008252). Although it was a longitudinal study, only baseline data were used for this analysis and only patients over 65 years of age were included.

Setting

This multisite study was conducted at two large hospices in the area surrounding a large, public university. Both are private, not-for-profit hospices that serve more than one county and do not compete with one another. A unique feature of this study is the research coalition formed by a group of five hospices and the university. The hospices involved in this project

are two of the five hospices that are involved in the *Center for Hospice, Palliative Care and End of Life Studies* at the affiliated university.

Sample

The original study sample consisted of patients and caregivers who were receiving hospice home care from one of the two involved hospices. Baseline data were available for 709 patients; 533 of these were 65 years or older and were included in this secondary analysis. Some caregiver data also were included in the analysis because of the effect the caregiver's status could have on the patient.

Instruments

Palliative Performance Scale

The purpose of the Palliative Performance Scale (PPS) is to assess the physical condition and functional status of persons receiving palliative care[38]. The PPS is scored from 0–100% at 10% increments. Data collectors interviewed patients to determine PPS scores. Validity and reliability of the instrument were evaluated[38]. Reliability was evaluated in our earlier work. Inter-rater reliability between two raters was very strong (r=.95)[19].

Short Portable Mental Status Questionnaire

The 10-item Short Portable Mental Status Questionnaire (SPMSQ) was used as a screening instrument for cognitive impairment in both patients and caregivers. While the SPMSQ is a brief instrument that may lack sensitivity to mild cognitive impairment, it has demonstrated validity in detecting moderate-to-severe cognitive impairment[39,40].

Memorial Symptom Assessment Scale

Symptom distress has been defined as how bothered patients were by symptoms[41,42]. Earlier investigators have emphasized the need to differentiate symptom distress from symptom intensity and frequency[41–44]. The Memorial Symptom Assessment Scale (MSAS) was designed to differentiate between intensity and distress from symptoms. The original MSAS has 33 items reflecting symptoms commonly associated with cancer. Separate five-point (0–4) Likert-type scales measure these dimensions: (1) severity of the symptom; and (2) the distress it produces. The items are scored by summing the items in each subscale (i.e., physical, psychological). The higher the score, the more severe or distressing the cluster of symptoms is for the patient[45]. Validity and reliability data have been strong when the tool was used with persons receiving active cancer therapy.

For this project, a revised MSAS was used that had been previously developed and used with hospice patients with cancer to increase appropriateness of items and to decrease the burden on very ill patients. A group of hospice experts including researchers reviewed the items and removed those that seemed least likely to be problematic for hospice patients; for example, alopecia is a side effect seen with chemotherapy but seldom in palliative care. In addition, a constipation item was added because it had been omitted from earlier versions. A total of 25 items was included in the revised version of the MSAS. Items are rated from 0 to 4 for severity and from 0 to 4 for distress, resulting in subscale scores for intensity and distress that range from 0–100 for each. Global distress scores for this study reflect the summed distress scores for all items[46,47].

Hospice Quality of Life Index-14

The Hospice Quality of Life Index-14 (HQLI-14) was used as a general assessment of patient QOL. It is a shortened version of the previously used and validated Hospice Quality

of Life Index[11]. The HQLI includes three aspects of overall QOL: psychophysiological well-being; functional well-being; and social/spiritual well-being[11]. The last item on the scale asks about intensity of pain at its worst, but is not added into the total score. Evidence of validity for the original was provided by the ability of the HQLI to differentiate between hospice patients and apparently healthy controls using both discriminate analysis (p=.00) and comparison of means (p=.00). The finding that HQLI scores correlated at the expected level (r=.26; p=.00) with functional status scores provides further evidence of validity. Finally, factor analysis confirmed the factor structure of the HQLI. Reliability of the HQLI was provided by generation of coefficient alphas for both total scale scores and subscale scores. Subscale alphas all were .84 and the total scale alpha was high for both cancer (r=.88) and AIDS (r=.93) patients[48].

The shortened version (HQLI-14) is designed for repeated clinical use with hospice patients. Each item is scored on a 0 to 10 scale with 10 being the most favorable response; item scores are added to obtain a total scale score ranging from 0 (worst QOL) to 140 (best QOL).

As part of the parent NIH-funded trial, construct validity of the short form was evaluated by correlation with the original HQLI. The correlation between total scale scores was very strong (r=.94; r=.000). Correlations between the original subscales and the shortened subscales were as follows: psychophysiological well-being (r=.90, r=.000), functional well-being (r=.96, p=.000), and social/ spiritual well-being (r=.89, p=.000). These strong correlations provide excellent evidence of the validity of the shortened HQLI. Reliability of the short form was estimated using Cronbach's alpha. Alpha for the total tool was strong (r=.77). For the subscales, the alphas were as follows: psychophysiological (r=.68), functional (r=.72), and social/spiritual (r=.82). It is to be expected that shorter scales with fewer items have lower alpha coefficients. Thus, these results are acceptable.

Brief Pain Inventory

The purpose of the Brief Pain Inventory (BPI) is to assess pain in cancer and non-cancer patients by using a self-administered questionnaire that measures pain at its worst, its least, average, and current level[49,50]. Only present pain intensity was used in this analysis. The instrument can be self administered if the patient is able to do so or completed by the interviewer with the patient answering the questions. The majority of the instrument is scored on a 0–10 numeric rating scale for level of pain.

Center for Epidemiological Studies – Depression Short Form

The Center for Epidemiological Studies – Depression (CES-D) scale[51] is a widely used scale that has proven useful both as a screening instrument to detect individuals at risk for depression and to measure the symptoms of depression. The CES-D is widely used in research on depression, has been translated into multiple languages, and has impressive reliability, validity, sensitivity, and specificity[52].

A shorter version of the CES-D (sometimes referred to as the "Boston short form") has been validated for use in clinical settings and large-scale survey research projects. The CES-D SF has been developed to balance ease of administration and psychometric concerns. Items are scored as either present or absent, rather than rated for frequency as with the full CES-D. Results of reliability testing showed strong internal consistency reliability (Cronbach's alpha =.92) for this short form, and very good test-retest reliability (r=.83; p=.00). Correlation of the short form and full CES-D was .88, suggesting that the short form is highly correlated with the lengthier and more widely validated full version[53].

Procedures

Approvals

The study was approved by each of the two involved hospices and the Institutional Review Board of the University. Interdisciplinary teams in each of the hospices were identified that provided homecare.

Patients and caregiver dyads from these teams were approached by the Research Assistants (RAs), consisting of an RN and a social worker team in each hospice. The RA teams contacted caregivers to arrange visits during which the study was explained, consent of both patient and caregiver obtained, and the mental status of the patient and caregiver assessed with the SPMSQ. Patients who did not pass screening were dropped from the study. About 2% of caregivers in the study failed this screening; they also were dropped from the study and the hospice was notified. Baseline data were collected from dyads if both met eligibility criteria.

Data Analysis

Data was analyzed using SPSSR version 18 statistical software (IBM, Somers, NY). Bivariate correlations were computed for the potential predictor variables and the outcome variable of interest. Caregiver depression was not significantly correlated with patient QOL ($r = -.055$, p= .233), so it was not entered into the initial model. All other hypothesized predictors were significantly correlated with QOL (see table 1). Stepwise linear regression was used to further examine the relationship between the predictor variables and QOL. We made no a priori assumptions about which predictors would contribute to the model so the stepwise method was chosen with backward entry of predictors.

Results

Sample

The sample of 533 hospice patients with cancer had a mean age of 78.1 years (SD=7.4) and were primarily married (Table 2). The majority of caregivers (63%) were spouses. The most common type of cancer, by far, was lung (36.2%) followed by pancreas (9.4%) and colon (7.3%). The vast majority of the sample (97%) was white.

Descriptive Results

Means and standard deviations for the measures included in the study were calculated (Table 3). Functional performance measured by the PPS was low at 56.5 (SD=10.8). Patient and caregiver depression means were similar at 2.8. An average of 9.6 symptoms was endorsed by patients; however, their global distress score was low at 19.9 (SD=13.6). Present pain ratings from the BPI for the first site of pain mentioned was also low at 1.6 (SD=2.4). With a possible range of 0–140, QOL scores were relatively high at 103 (SD=17.2).

Regression

Bivariate correlations were calculated among the study variables. Significant relationships were found between QOL scores and functional status, patient depression, number of symptoms, symptom distress, and pain intensity (Table 1).

The following predictors were entered in the initial model: pain scale score, patient age, global symptom distress as measured by the MSAS, number of symptoms, patient depression scale score as measured by the CES-D, and functional status as measured by the PPS. The initial regression model accounted for 46% of the variance in QOL score, F(6,

489) = 70.323, p = .00. In this model neither pain intensity score (t= −1.903, p = .058) nor age (t = 1.669, p = .096) had significant partial effects in the model, so a second regression model was run without these predictors. The final model using global distress, number of symptoms, patient depression score, and functional status accounted for 46% of the variance in QOL scores, F(4, 492) = 103.092, p = .00. The full regression is detailed in Table 4.

Assessment of the Model

The model was assessed to ensure that all assumptions for linear regression were met. All predictor variables were quantitative and continuous. The Durbin-Watson statistic was 1.897 confirming independence of error. The data were assessed for multicollinearity. None of the predictors correlated above the level of .90. The variance inflation factor (VIF) was run as a collinearity diagnostic. VIF for predictors ranged from 1.019 to 3.134 and tolerance statistics ranged from .319 to .981 indicating that excessive collinearity was not a significant problem. Casewise diagnostics were performed to assess for the influence of outliers on the model. Only one case of 497 had a standardized residual more than three standard deviations from the mean and 19 of 497 cases or 3.8% of cases had standardized residuals more than two standard deviations from the mean. Standardized residuals were plotted against standardized predicting values. The plot supports the assumptions of homogeneity of variances and linearity. A normally distributed histogram and linear P-P plot support that residuals are normally distributed.

Discussion

Sample

The sample size was dictated by the original clinical trial and provided a sizable sample for conducting this analysis with only patients over 65 years. The fact that most were married is an artifact of the study; patients could only be in the study if they had family caregivers. Thus, single and widowed patients were more likely to be excluded. The very low representation of minorities in the sample is a limitation of the study; available patients were included, and relatively few minority patients are receiving services from these two hospices. Both hospices strive to reach underserved minorities, but accepting the hospice benefit from Medicare is voluntary, and minority patients may not choose it. The fact that the most common cancer seen in the sample was lung is consistent with mortality statistics in this country. Lung cancer is a very common cancer and is the one most likely to cause death[54].

Descriptive Results

Functional performance (PPS) scores were low with a mean in the 50's. This is to be expected in a group of hospice patients. However, this score has a restricted range because patients with scores lower than 40 were systematically excluded from the original study. Thus, results may be biased in some unknown ways by exclusion of lower-functioning elders.

Both patients and caregivers reported approximately three depressive symptoms out of the list of 10. This score is not as revealing as the numbers who endorsed four or more symptoms. In this sample, 23.5% of patients and 22.5% of caregivers reported scores higher than 4. A score of 4 has been correlated with clinical depression in earlier studies[52]. Thus, depression and depressive symptoms is an issue that deserves the hospice team's attention.

Patients had multiple symptoms, with the average patient reporting almost 10 symptoms. This supports earlier studies[12,19,21] and points to the need for hospice staff to focus on multiple symptoms simultaneously, as a way to help support overall QOL. Both global

symptom distress and present pain intensity were low and QOL scores were high. This is consistent with earlier studies of older cancer patients who typically report less symptom intensity and better overall QOL[55]. It is not clear why older patients have lower symptom intensity. It may be that there is a diminution of sensation so that physical symptoms actually do not cause as much discomfort. It also could be that older cancer patients have different expectations and life experiences so that they take symptoms in stride more than younger patients might. Further study into this area seems warranted.

Regression

The significant correlations found between QOL and other patient variables (functional status, depressive symptoms, number of symptoms, global symptoms distress, and pain intensity) support findings of earlier studies[14,15]. However, when these predictors were entered into the model, pain intensity and age were not found to have significant partial effects and were removed.

There is potential overlap between the predictors and the outcome of QOL that may explain some of predictive power of the model; however, prior research has shown that QOL is a multi-faceted concept that can be influenced by a combination of factors and the complex interplay between physical, psychosocial, and functional variables[11]. For example, depression may impact how an individual experiences their physical symptoms and functional decline. It is likely that QOL is a construct that is composed of more than the sum of its parts. It therefore appropriate to evaluate predictors using a regression model, rather than by simple correlations, to better capture the interplay between the various factors underlying QOL.

The purpose of this secondary analysis was to explore what factors predict QOL in older adult hospice patients with cancer. Several interesting findings emerged from this analysis. In this sample, caregiver depression scores, pain intensity, and age did not predict patient QOL. The mean pain intensity score was relatively low at 1.6 on a 0–10 scale indicating that pain was relatively well-controlled. It is possible that being in hospice care resulted in improved pain management, although these data were collected within 24–72 hours of hospice admission. The findings that symptom distress, number of symptoms, and functional status impacted QOL are consistent with prior findings in the literature [12,19, 21]. It is not clear what impact this restriction of range might have had on these regression results. Number of symptoms and symptom distress both contributed separately to QOL. In addition, patient depression scores uniquely contributed to predicted QOL as much as symptom distress and the number of symptoms.

Clinical Implications

Findings of this study have implications for hospice professionals in terms of patient assessment and care planning. Completing a thorough symptom assessment, including assessing for a wide range of possible symptoms, will be important to plan individualized care that maximizes QOL. In addition, a focus on the level of distress caused by symptoms also seems warranted. Current practice focuses on symptom intensity; however, because symptom distress was shown to be a separate predictor of QOL, it deserves attention by the health care team. It also will be important for the hospice team to address psychosocial as well as physical concerns.

Functional decline has been associated with lower QOL in community dwelling older adults[56]. Evaluating function in elderly hospice patients with cancer is complicated by the interplay between existing chronic conditions and the terminal diagnosis. In addition, functional decline in an older adult may be a manifestation of a readily treatable condition

such as a urinary tract infection or an adverse drug reaction rather than progression of their malignancy. The hospice team should incorporate functional assessment into routine evaluation of older adult clients. When evaluating symptoms, in addition to assessing the intensity and distress caused by the symptom, the impact on function needs to be considered.

Depression is prevalent in seriously ill older adults, is often unrecognized or under-treated, and results in significant declines in QOL[57, 58]. Depression in older adults can present atypically and older adults may be more likely to deny psychiatric symptoms[7]. The hospice team should incorporate assessment for depression into on-going patient evaluation. It is recommended that assessment for depression in older adults be done with a screening instrument that has been validated for use with this population such as the CES-D or the Geriatric Depression Scale (GDS) [59, 60]. On-going assessment for depression resulted in improved QOL among hospice patients with cancer [61].

Recommendations for clinicians from this study for the care of older adults with cancer in home hospice include the following:

- When assessing symptoms, assess not only for the presence and intensity of symptoms, but also for the degree of distress that the symptom is causing the patient.

- Assess for the impact of symptoms on the patient's functional abilities.

- When a patient experiences functional decline look for correctable problems such as infections or adverse drug reactions.

- Incorporate depression screening, using a validated tool, into on-going patient assessment.

Limitations and Implications for Future Research

There are several limitations of this analysis. First, we were limited to the variables assessed in the original trial. There may be other important predictors of QOL in older adults that were not included in this analysis. Future research should attempt to identify other predictors. Findings from a cross-sectional study need to be interpreted cautiously because of the inability to control for confounding variables. Causation cannot be established due to the use of a non-experimental design. The sample was limited to hospice patients from a single region in one state and was overwhelmingly white. It would be helpful to be able to replicate these findings in a multi-site study with a more diverse sample. The findings from this study could be used to identify targets for a controlled trial of interventions to promote QOL in older adult cancer patients in hospice.

Conclusions

Study results suggest that symptom distress, number of symptoms experienced, depression, and functional status are predictors of quality of life in older patients with cancer receiving hospice home care. Hospice interdisciplinary teams should focus on the symptom experience, including number of symptoms and the distress they cause, as well as management of depression. Further research with this vulnerable population is needed.

Acknowledgments

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Table 1

Correlations Among Study Variables

		PPS	Patient CES-D	Caregiver CES-D	Number of Symptoms	Global Distress	Pain Intensity	Age	HQLI
PPS	r	-	−.096	−.081	−.046	−.103	−.032	−.036	.174
	p		.027	.061	.293	.019	.469	.408	.000
	n		525	530	521	518	530	531	499
Pt. CES-D	r	−.096	-	.076	.421	.451	.185	−.045	−.507
	p	.027		.082	.000	.000	.000	.301	.000
	n	525		525	517	514	525	526	500
CG CES-D	r	−.081	.076	-	.056	.036	−.008	−.054	−.055
	p	.061	.082		.204	.412	.852	.213	.223
	n	530	525		521	518	531	532	499
# Symptoms	r	−.046	.421	.056	-	.820	.252	−.206	−.596
	p	.293	.000	.204		.000	.000	.000	.000
	n	521	517	521		519	521	522	500
Distress	r	−.103	.451	.036	.820	-	.238	−.179	−.597
	p	.019	.000	.412	.000		.000	.000	.000
	n	518	514	518	519		518	519	498
Pain	r	−.032	.185	−.008	.252	.238	-	−.104	−.250
	p	.469	.000	.852	.000	.000		.017	.000
	n	530	525	531	521	518		532	499
Age	r	−.036	−.045	−.054	−.206	−.179	−.104	-	.165
	p	.408	.301	.213	.000	.000	.017		.000
	n	531	526	532	522	519	532		500
HQLI									

	PPS	Patient CES-D	Caregiver CES-D	Number of Symptoms	Global Distress	Pain Intensity	Age	HQLI
r	.174	−.507	−.055	−.596	−.597	−.250	.165	-
p	.000	.000	.223	.000	.000	.000	.000	
n	499	500	499	500	498	499	500	

Table 2

Frequency and Percent of Patients by Demographic Variables

Variable	Frequency	Percent
Gender		
Male	307	57.6
Female	226	42.4
Ethnicity		
White	517	97.0
Black	8	1.5
Hispanic	5	<1
Other	3	<1
Marital Status		
Married	342	64.2
Widowed	126	23.6
Divorced	42	7.9
Never married	18	3.4
Separated	4	<1
Missing data	1	<1
Relationship to Caregiver		
Spouse	334	63
Parent	111	21
Significant other	23	4.3
Sibling	15	3.0
Adult Child	10	2.0
Friend/other	39	7.0
Missing data	1	<1
Type of Cancer		
Lung	193	36.2
Pancreas	50	9.4
Colon	39	7.3
Prostate	36	6.8
Gynecological	26	5.0

Variable	Frequency	Percent
GU/Bladder or kidney	26	5.0
Breast	25	4.7
Liver	21	3.9
Stomach or esophagus	21	3.9
Lymphoma	18	3.0
Sarcoma/bone	12	2.0
Other solid tumors	60	11.0
Leukemias/Myelodysplastic Syndrome	10	2.0
Multiple Myeloma	6	1.1

Table 3

Means and Standard Deviations for Predictor and Outcome Variables

Variable	N	Mean	Standard Deviation	Range
Palliative Performance Scale score	531	56.6	10.8	30–100
Patient CES-D (Depression) Scale score	526	2.8	2.2	0–9
Caregiver CES-D Scale score	532	2.8	2.1	0–10
Number of symptoms endorsed	522	9.6	4.2	0–23
MSAS Global Distress Score	519	19.9	13.6	0–131
Present Pain Rating from BPI	532	1.6	2.4	0–10
Hospice Quality of Life Index score	500	103.4	17.2	59–140

Table 4

Regression Model

Predictor	B	SE of B	Beta	t	p
Constant	116.389	3.469		33.288	.000
# of Symptoms	−1.147	.240	−.276	−4.774	.000
Depression	−2.094	.298	−.264	−7.025	.000
Global Distress	−.302	.074	−.238	−4.047	.000
Function	.175	.053	.110	3.271	.001

$R^2 = .456$