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The Relationship Between Optimism and Quality of Life in Newly Diagnosed Cancer Patients

Susan R. Mazanec, PhD, RN, AOCN®, Barbara J. Daly, PhD, RN, FAAN, Sara L. Douglas, PhD, RN, and Amy R. Lipson, PhD

Frances Payne Bolton School of Nursing, Case Western Reserve University, Cleveland, Ohio (Drs. Mazanec, Daly, Douglas, and Lipson); Case Comprehensive Cancer Center Prevention Research Educational Postdoctoral Training Program (Dr. Mazanec); and Clinical Ethics Program, University Hospitals Case Medical Center, Cleveland, Ohio (Dr. Daly)

Abstract

Background—Understanding the relationships between social and psychological determinants of health-related quality of life (HRQOL) is a critical step in developing effective screening tools and targeted interventions for psychosocial care.

Objective—The purpose of this study was to examine the relationships between dispositional optimism and HRQOL in newly-diagnosed adult cancer patients.

Interventions/Methods—A cross-sectional, predictive correlational design was used. The sample consisted of 163 patients with mixed diagnoses and stages who were within 180 days since diagnosis and had completed a battery of psychosocial measures upon enrollment into a psychosocial data registry during their first outpatient visit or treatment. Hierarchical multiple regression analyses were conducted to determine predictors of HRQOL.

Results—Optimism was significantly correlated with spiritual well-being, anxiety, depression, and HRQOL. Optimism was not a significant predictor of HRQOL at initial diagnosis and treatment when age, and scores for functional status, spiritual well-being, depression, and anxiety were entered into the regression equation.

Conclusions—Dispositional optimism is not a primary factor in HRQOL at initial diagnosis and treatment. Further exploration is needed to determine if optimism exerts a greater influence on HRQOL at another point along the cancer trajectory and if there is overlap between the constructs of optimism and spirituality.

Implications for Practice—Although systematic screening for dispositional optimism is not recommended, patients who display characteristics associated with low optimism require further assessment. Also, patients with poor functional status, young age, low levels of spirituality, and high levels of depression may be vulnerable for poor HRQOL.

Corresponding author: Susan R. Mazanec, PhD, RN, AOCN®, Case Western Reserve University, Frances Payne Bolton School of Nursing, 10900 Euclid Ave, Cleveland, OH 44106-4904 (susan.mazanec@case.edu)..

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Introduction

The Institute of Medicine has recently underscored the importance of psychosocial services and interventions to optimize the health-related quality of life (HRQOL) of patients and families with cancer and has challenged health care professionals to improve the delivery of psychosocial care. In its report, *Cancer Care for the Whole Patient: Meeting Psychosocial Needs*,¹ the Institute described a comprehensive model for the provision of psychosocial health services that includes early identification of patient's psychosocial needs, development and implementation of a tailored plan to address those needs, and follow-up care. The need for more effective screening tools and interventions was highlighted as a research priority to assist clinicians in meeting the standards for psychosocial care. A preliminary and critical step in creating screening tools and interventions is understanding relationships between social and psychological determinants of HRQOL.

Patients who are newly-diagnosed with cancer and embarking on a course of treatment display a complex array of psychosocial responses that is highly individualized. There is a vast body of empirical literature that describes common psychological and social reactions in patients with cancer. Yet there are fewer studies of personality characteristics that may influence HRQOL and account for the variability seen in psychosocial responses. Optimism is a personality feature that has been associated with psychological well-being and positive health outcomes in healthy individuals² and in patients with cancer.³ However, there is a need to expand our understanding of optimism and the role it plays in quality of life so that characteristics of vulnerable groups in need of targeted interventions may be described.

The purpose of this investigation was to examine the relationships between dispositional optimism, quality of life, anxiety, depression, and spiritual well-being in newly diagnosed adult cancer patients who had enrolled in a psychosocial data registry. We hypothesized that higher levels of optimism would be associated with higher quality of life and that dispositional optimism would play a significant role in predicting quality of life.

The research questions were:

1. Are there differences in dispositional optimism scores at initial diagnosis and treatment by gender, diagnosis, and stage of cancer?
2. What is the relationship between dispositional optimism and spirituality, depression, and anxiety in newly diagnosed patients with cancer?
3. Does dispositional optimism predict quality of life within the initial months after cancer diagnosis?

Review of Literature

Dispositional optimism was defined by Scheier and Carver⁴ as the general expectation or belief in positive outcomes in the future. This definition is based on a self-regulation model of behavior in which a person's actions are driven by their expectations of achievement of goals. In adverse situations, when achievement of a goal is challenged, optimists expect positive outcomes and continue to work towards the goal, whereas pessimists anticipate negative outcomes and do not pursue the goal.² Optimism and pessimism have been linked to coping style. Optimists tend to use active problem-focused coping strategies when confronted with a stressor, whereas pessimists generally use avoidant coping.²

Dispositional optimism, as operationalized by Carver and Scheier,² places optimism and pessimism as two poles on a continuum. However, others suggest that the two concepts are not on the same unidimensional continuum, meaning optimism is more than the opposite of pessimism.⁵ Optimism is a complex characteristic with cognitive, emotional and motivational

aspects.⁶ Although optimism is considered a personality trait that is relatively stable over time and experiences,⁷ it is also modifiable through the use of cognitive therapy, a psychotherapeutic approach that aims to reduce negative thinking and the associated behavioral and emotional responses.⁸ Bolstering optimism by reducing negative thoughts is an interventional strategy that may have implications for patients with cancer.

Dispositional optimism has been associated with a variety of positive outcomes related to well-being and HRQOL throughout the cancer trajectory. During diagnostic and initial treatment periods, optimism was associated with lower distress and better HRQOL in patients with ovarian cancer undergoing chemotherapy⁹ and positive mood in patients undergoing radiation therapy for prostate cancer.¹⁰ The beneficial association between dispositional optimism and HRQOL persists into the post-treatment period. Cross-sectional studies of cancer survivors have found that optimism is a significant predictor of emotional well-being in breast cancer survivors³ and in older adult survivors who were more than five years from diagnosis.¹¹

An important finding in recent studies is that dispositional optimism during the earlier phase of the cancer trajectory is a strong predictor of long-term positive outcomes in patients with cancer. Longitudinal studies have found that dispositional optimism, measured at the time of diagnosis or treatment, was a significant predictor of better emotional and social functioning one year after surgery in women with breast cancer¹² and better HRQOL three months after treatment in patients with head and neck cancer.¹³ In another study of 163 early stage breast cancer patients, baseline scores for optimism that were taken the year following surgery predicted well-being 5-13 years after treatment as indicated by less distress, less depression, and better HRQOL.⁷ These results highlight the importance of thorough initial psychosocial assessments in patients beginning cancer treatment, which include exploration of dispositional optimism. Early identification of patients at risk for poor adjustment may direct the use of interventions aimed at fostering a sense of optimism and ultimately improve HRQOL during survivorship.

Other factors influencing HRQOL include mood disturbance and spiritual well-being. There is a substantial amount of literature indicating that depression and anxiety are strongly and inversely correlated with HRQOL in patients in the early phase of diagnosis and initial treatment.¹⁴⁻¹⁶ Another relevant predictor of positive outcomes in patients with cancer is spirituality, broadly defined as having a sense of meaning and purpose in life and a transcendent relationship between the self, others, the environment, and a higher being.¹⁷⁻¹⁸ Spirituality has been found to be related to HRQOL in various cancer populations including men with prostate cancer¹⁹ and in patients with advanced cancer undergoing radiation therapy.²⁰ Spiritual well-being was found to be as strongly associated with HRQOL as physical well-being in a large sample (N = 1610) of patients with diverse cancer diagnoses.²¹

Few studies have included both optimism and spirituality in their predictive models of quality of life in patients with cancer. Edmondson and colleagues²² partitioned spiritual well-being into existential and religious components and explored their relationships to optimism and health-related quality of life in a sample of 237 cancer survivors with mixed diagnoses. In addition to being significantly correlated with optimism, existential well-being was a strong predictor of mental quality of life.²² Similarly, optimism was correlated with spirituality in a sample of 162 women with breast cancer.²³ Although optimism has been identified as a mediator between spirituality and depressive symptoms in healthy adults,²⁴ further studies of the mechanisms by which optimism influences health outcomes in patients with cancer is needed.

Method

Data Source

The data for this study were obtained from the psychosocial registry at a Midwestern National Cancer Institute-designated Comprehensive Cancer Center. The registry, which was initiated in 2005, is a collection of longitudinal psychosocial data from approximately 70% of new adult patients being seen at the cancer center.²⁵ Patients and their caregivers were invited to participate in the psychosocial registry during their first visit or treatment at the cancer center. After obtaining informed consent, a standardized set of psychosocial measures were administered during face-to-face interviews or via mail at enrollment and 3 and 12 months later.

Design

A predictive correlational design using a cross-sectional approach was used to answer research questions. Data for the study variables were obtained during enrollment into the registry. Adult patients having no prior history of cancer and within 180 days of cancer diagnosis were included in this study.

Instruments

Life Orientation Test - Revised—Dispositional optimism was evaluated with the Life Orientation Test-Revised (LOT-R).²⁶ The LOT-R, which assesses an individual's current expectations for a generally positive outcome, consists of 10 items, four of which are fillers. Examples of items are, "In uncertain times, I usually expect the best" and "If something can go wrong for me, it will." Respondents are asked to indicate their agreement with an item on a four-point scale, ranging from 0 (strongly disagree) to 4 (strongly agree). Higher scores indicate greater optimism with an overall optimism score ranging from 0 to 24. Psychometric properties of the LOT-R have been reported.²⁶ Cronbach's alpha in this study was .80.

Functional Assessment of Chronic Illness Therapy – Spiritual Well-Being Scale—The Functional Assessment of Chronic Illness Therapy – Spiritual Well-Being Scale (FACIT-Sp-12 Version 4) was used to measure spirituality.¹⁸ This instrument consists of 12 items. There are two subscales with eight items aimed at measuring an individual's sense of meaning, purpose and peace and four items assessing faith. Subjects are asked to indicate how true each statement has been for them over the past seven days by circling a response on a five point Likert scale ranging from 0 (not at all) to 4 (very much). The twelve responses are summed, with a range of 0 to 48. Higher scores indicate more spirituality. Reliability and validity of the FACIT-Sp in patients with cancer have been supported.¹⁸ Cronbach's alpha was .88 in the present study.

Profile of Mood States - Short Form—Two subscales of the 30-item short-form of the Profile of Mood States (POMS) were used to assess anxiety and depression.²⁷ Each subscale consists of adjectives that reflect that particular mood or feeling. Patients are asked to rate on a five point scale from 0 (not at all) to 4 (extremely) if they experienced that feeling during the past several days. Subscale scores range from 0 to 20 with higher scores indicating more of the attribute. For the current study, Cronbach's alpha was .82 for the tension/anxiety subscale and .81 for the depression/dejection subscale.

Functional Assessment of Cancer Therapy - General—Health-related quality of life is a multi-dimensional construct that reflects one's satisfaction with physical, social, emotional, functional and spiritual dimensions of life as impacted by one's health. The Functional Assessment of Cancer Therapy - General (FACT-G Version 4), a 27 item self-administered questionnaire, was used to assess quality of life.²⁸ There are four subscales on the FACT-G

that assess physical well-being, social well-being, emotional well-being, and functional well-being. Subjects are asked to rate their responses to questions on a five point Likert-type scale, ranging from 0 (not at all) to 4 (very much). Subscales scores are summed, providing a total score with a range of 0 – 108. Potential ranges for the subscale scores are: physical well-being 0 - 28, social well-being 0 - 28, emotional well-being 0 - 24, and functional well-being 0 - 28. Higher scores indicate greater satisfaction with quality of life. The FACT-G is an instrument with well described psychometric properties.²⁸ Cronbach's alphas for the subscales in the present study were: physical well-being .84, social well-being .70, emotional well-being .78, and functional well-being .84.

Eastern Cooperative Oncology Group Scale—The patient's functional and physical activity level was assessed using the Eastern Cooperative Oncology Group (ECOG) performance status scale.²⁹ The ECOG performance status is graded on a five-point scale, from 0 (fully active, able to carry on all pre-disease performance without restriction) to 5 (dead).

Other Measures—Demographic and medical/disease status information were obtained from the registry enrollment form. Data regarding age, race/ethnicity, gender, marital status, education, employment, and annual household income were used to describe the sample. Medical information included type of cancer, history of prior cancers, stage and current treatment.

Analysis

Data were analyzed with SPSS Version 15. All tests of significance were two-tailed with an alpha level of .05. Descriptive statistics, Independent Samples *t*-tests, the Kruskal-Wallis Test and bivariate correlations were used for univariate analyses. Hierarchical multiple regression analyses were undertaken to determine predictors of overall quality of life and each subscale. For each regression, covariates were entered in the first step, followed by spirituality, depression, and anxiety in the second step. Optimism was entered in the third step to assess its unique contribution to the model.

Results

Sample Characteristics

The sample included 163 patients, however, due to missing data, 146 individuals were included in the regression analyses. Using G*Power 3, this sample size was deemed adequate to achieve power of .95 with a medium effect size, six predictors, and alpha set at .05.³⁰ The mean age was 58. The sample was predominantly female, Caucasian, and married. More than 28 types of cancer were represented in the sample with the most common cancer diagnoses being lung cancer, gynecologic cancer, leukemia/lymphoma, breast cancer, and colorectal cancer. The mean time since initial diagnosis was 87 days. The most common type of patient had advanced stage cancer, was high functioning, and was receiving chemotherapy. Demographic characteristics are shown in Table 1. Mean scores for the outcome measures and independent variables can be found in Table 2.

Differences in Optimism Scores

Using Independent Samples *t*-tests, pairwise comparisons were conducted to examine differences in optimism scores by demographic characteristics. As seen in Table 3, there was not a statistically significant difference between LOT-R scores between men and women, $t(161) = 1.90, p > .05$. Stage categories in the registry were collapsed into two groups for analysis. There was not a statistically significant difference in LOT-R scores between patients with earlier stage cancer (I, II, or local) and later stage cancer (III, IV, or advanced), $t(133) = 1.01, p > .05$. The types of cancer were compressed into nine categories to facilitate analysis

using the Kruskal-Wallis test. Although there was not a significant difference found in mean optimism scores amongst these diagnostic groups, $H(8) = 8.38, p > .05$, variation in mean scores was noted with patients having head & neck cancer having the lowest mean score.

Correlates of Optimism

The total score of the LOT-R was not significantly correlated with age, gender, race, marital status, or employment status. Medical factors such as type of cancer, stage, and ECOG status were not significantly correlated with optimism. Optimism had a significant, direct relationship with education ($r_s = .16, p < .05$), with higher academic credentials associated with greater optimism.

Optimism had a significant direct relationship with the total score of the Fact-G ($r = .30, p < .001$) and three subscales: social well-being ($r = .32, p < .001$), emotional well-being ($r = .39, p < .001$), and functional well-being ($r = .19, p < .05$). In addition, a statistically significant, direct linear relationship was found between optimism and spirituality ($r = .45, p < .001$).

Lastly, a statistically significant, inverse linear relationship was found between optimism and depression ($r = -.35, p < .001$) and between optimism and anxiety/tension ($r = -.38, p < .001$). Higher scores on the POMS for depression and anxiety were associated with lower optimism scores on the LOT-R.

Predictors of HRQOL

A series of five hierarchical regressions were performed to determine predictors of overall HRQOL, as well as predictors of each subscale of the FACT-G. Age and ECOG performance score were entered into the first step of the regression as control variables because they were found to be significantly correlated with overall quality of life. The independent variables entered into the second step of the regression were spirituality, tension/anxiety, and depression. Optimism was entered as the third step in the regression. Regression diagnostics indicated that the assumptions for regression were met and that multicollinearity and influential data points were not present for any of the five analyses.

Overall HRQOL—Table 4 displays the hierarchical regression model. Results indicated that the overall model including the variables of age and scores for ECOG, spirituality, depression, anxiety/tension, and optimism significantly predicted HRQOL, $R^2_{adj} = .697, F(6, 139) = 56.72, p < .001$. These six independent variables predicted 69.7% of the variability in total HRQOL score. Age, ECOG score, spirituality, and depression were significant predictors of HRQOL. Of these, the ECOG performance score made the largest contribution to explaining the variance in HRQOL. However, as shown in the third step of the model, optimism was not a significant contributor to the model and did not explain any additional variance in HRQOL.

Physical well-being—Results of the hierarchical regression indicated that the combination of age and scores for ECOG, spirituality, depression, anxiety/tension, and optimism explained 43.4% of the variance in physical well-being, $R^2_{adj} = 43.4$. The overall equation was significant, $F(6, 143) = 20.05, p < .001$. ECOG score made the largest significant contribution to the model, with lower scores predicting higher physical well-being ($\beta = -.531, t = -8.26, p < .001$). Significant variance was also predicted by age ($\beta = .132, t = 2.09, p < .05$) and anxiety/tension ($\beta = -.219, t = -2.42, p < .05$) with higher physical well-being being predicted by older age and low levels of anxiety/tension. Optimism was not a significant explanatory variable and when entered in the third step of the model, did not add any further prediction of physical well-being ($\beta = -.056, t = -.76, R^2_{Change} = .002, p = .451$).

Social well-being—The overall model, including the same variables of age and scores for ECOG, spirituality, depression, anxiety/tension, and optimism, significantly predicted social

well-being, $R^2_{\text{adj}} = .381$, $F(6, 140) = 15.95$, $p < .001$. These variables explained 38.1% of the variance in social well-being. Of the independent variables, spirituality made the largest contribution to explaining variance in social well-being ($\beta = .401$, $t = 4.98$, $p < .001$). Other significant explanatory variables included scores for depression ($\beta = -.331$, $t = -3.34$, $p < .001$), anxiety/tension ($\beta = .222$, $t = 2.33$, $p < .05$), ECOG status ($\beta = -.148$, $t = -2.17$, $p < .05$), and age ($\beta = .172$, $t = 2.58$, $p < .05$). Higher social well-being was predicted by higher levels of spirituality, lower scores for depression, higher anxiety scores, lower ECOG scores, and older age. Optimism, again, did not contribute significantly to the model and when entered as the third step in the model, did not significantly improve R^2 ($\beta = .065$, $t = .82$, $R^2_{\text{Change}} = .003$, $p = .412$).

Emotional well-being—In the hierarchical model to predict emotional well-being, 67.7% of the variance was predicted by age and scores for ECOG, spirituality, depression, anxiety/tension, and optimism, $R^2_{\text{adj}} = .677$. The overall equation was significant, $F(6, 141) = 52.31$, $p < .001$. Significant predictors of higher emotional well-being included older age, higher spirituality, and lower depression and anxiety/tension scores. Of these variables, depression made the greatest statistically significant contribution to explaining variance ($\beta = -.409$, $t = -5.73$, $p < .001$), followed by spirituality ($\beta = .288$, $t = 4.96$, $p < .001$), anxiety/tension ($\beta = -.267$, $t = -3.89$, $p < .001$), and age ($\beta = .137$, $t = 2.85$, $p < .01$). Optimism, when added in the third step of the regression, was not a significant explanatory variable and did not improve the model ($\beta = -.043$, $t = -.75$, $R^2_{\text{Change}} = .001$, $p = .453$).

Functional well-being—The overall model including the variables of age and scores for ECOG, spirituality, depression, anxiety/tension, and optimism significantly predicted functional well-being, $R^2_{\text{adj}} = .555$, $F(6, 140) = 31.41$, $p < .001$. These six independent variables predicted 55.5% of the variability in functional well-being. Only two variables significantly contributed to the model: ECOG score ($\beta = -.532$, $t = -9.20$, $p < .001$) and spirituality ($\beta = .340$, $t = 4.50$, $p < .001$). Higher functional well-being was associated with lower ECOG score and higher spirituality. Optimism did not contribute significantly to explaining variance in HRQOL and did not improve R^2 when entered into the third step of the regression ($\beta = -.085$, $t = -1.28$, $R^2_{\text{Change}} = .005$, $p = .202$).

Discussion

The purpose of the present study was to explore the role of dispositional optimism in predicting HRQOL in newly-diagnosed cancer patients enrolled in a psychosocial data registry. We found that dispositional optimism was not a significant predictor of HRQOL in newly diagnosed cancer patients. This finding is contradictory to other studies that have reported that dispositional optimism is predictive of positive health outcomes in cancer patients and post-treatment survivors.^{3,9,11} However, the results may support the conclusions of researchers who have measured both optimism and pessimism on two separate scales of the LOT and have studied their predictive ability in newly-diagnosed cancer patients.⁵ Pinquart and colleagues⁵ found that less pessimism, rather than more optimism, predicted psychological health. They suggested that optimists, when confronted with a life-threatening stressor such as cancer, are challenged when their expectations during the treatment period are often not fulfilled and their typically active coping style is rendered ineffective due to their lack of control in the situation. Yet in contrast to this belief, Scheier and colleagues³¹ have found that optimists are likely to switch to adaptive emotion-focused coping strategies, such as humor, positive reframing, and acceptance, when their problem-focused coping strategies are compromised in the face of a severe stressor such as the diagnosis and treatment of cancer. Regardless of one's perspective on how an optimist responds to a severe stressor, it is likely that the time period of initial diagnosis and treatment is so stressful that other physical and psychosocial variables, such as functional status, depression, and anxiety, play a greater role than optimism in

explaining variability in HRQOL. Perhaps dispositional optimism exerts a greater effect on HRQOL later in the cancer continuum during survivorship, as has been described in several research studies.^{7,11-13} Dispositional optimism may become more powerful and more relevant in influencing HRQOL once the immediacy and intensity of the physical and psychosocial stressors of the initial diagnostic and treatment period are past.

Another interesting finding in this study was that although optimism was significantly correlated to all of the other independent variables, it was most strongly associated with spirituality, which was a significant predictor of overall HRQOL. Only ECOG performance score explained more variance in overall HRQOL than spirituality. Spirituality was the strongest predictor of social well-being and a significant predictor of emotional and functional well-being. Other studies have reported positive correlations between spirituality and optimism in patients with cancer.^{22,23} Mofidi and colleagues²⁴ posited that the relationship between spirituality and optimism is bidirectional in that spirituality may foster optimism and optimism may support spirituality. Less is known about how optimism and spirituality may interact to influence HRQOL. Future studies should analyze possible mediating and moderating roles of optimism on spirituality and quality of life.

Lastly, consideration must be given to two additional findings in the study. First, the finding that ECOG performance score was the strongest predictor of overall HRQOL, physical well-being and functional well being is not surprising given the orientation of questions on the FACT-G. However, this sample was high functioning with 80% having ECOG scores of zero or one. With such little variability in ECOG scores, it is difficult to examine the true nature of the relationship between ECOG status and HRQOL. Second, although we did not find a significant difference in optimism scores between men and women, the 95% confidence interval for the difference in means is in the direction of there being a difference. Replicating this study with a larger sample size may provide greater variability in ECOG scores and may detect a significant difference in optimism between men and women.

Limitations of the Study

The data used in this study were collected as part of a psychosocial registry. Therefore, there was no control over sampling and data collection procedures and it is unknown if bias was introduced. Although the sample size was adequate for the analysis in this study, the generalizability of findings is limited because it was a convenience sample of predominantly Caucasian individuals. The heterogeneity of cancer diagnoses was another limitation in this study. Although we collapsed the 28 diagnoses into nine groups for analysis and found no statistical difference between them in relation to optimism scores, it is difficult to draw conclusions about any one diagnostic group. Further analyses, looking at specific groups, by diagnosis or stage, may help to tease out further relationships between the variables. Also, the cross-sectional design impedes us from making any causal inferences between variables. Lastly, two items on the POMS subscales overlapped with items on the emotional subscale of the FACT-G. This overlap may have contributed to an overestimate of the predictive relationship between depression and anxiety/tension and HRQOL.

Implications for Nursing Practice

The result in this study that dispositional optimism did not predict HRQOL in patients who are newly diagnosed or beginning cancer treatment suggests that further research is needed prior to recommending systematic screening of all patients for optimistic dispositions using a tool such as the LOT-R. However, the finding in the current study that low optimism was significantly associated with poor HRQOL and the evidence in the literature that optimism early in the cancer trajectory may predict future HRQOL emphasize the importance of nurses having a heightened awareness for patients who display characteristics that are associated with

a low level of optimism. Patients who consistently express low expectations for a positive outcome in the future or who demonstrate use of avoidant coping strategies, such as denial or disengagement, require further psychosocial assessment, early intervention, and possibly referral to mental health professionals for ongoing support and treatment.

Evaluation of a patient's sense of spiritual well-being may also provide another avenue by which to assess optimism, given the significant correlation between optimism and spirituality and the finding that spirituality significantly predicted HRQOL in this study. Screening for spiritual distress is an integral component of psychosocial care provided by oncology nurses³² and may be facilitated by use of a simple assessment tool such as the FICA (Faith or Beliefs, Importance, Community, Action).³³ Characteristics of spiritual distress or issues include: existential concerns, anger towards God or religious others, inner conflict/questions about religious beliefs, feelings of abandonment by God, grief/loss, despair/hopelessness, and guilt/shame.^{32,34} Patients with spiritual distress or concerns should be referred to a trained spiritual care provider for additional assessment and care.³⁴ The results of this study also highlight other characteristics of vulnerability for poor HRQOL including poor functional status, young age, and high levels of depression and anxiety. Presence of these characteristics should trigger further assessment by the nurse and interventions to maximize HRQOL.

Implications for Research

Although dispositional optimism was not a significant explanatory variable for HRQOL, its strong correlation with spirituality, depression, and anxiety stimulate questions for future research. For example, does dispositional optimism mediate the relationship between spiritual well-being and HRQOL? Further explorations of these relationships and the mechanisms by which they influence HRQOL will form the foundation on which to design psychosocial screening tools and interventions.

Studies are needed to describe the relationship between dispositional optimism and HRQOL at other time points along the cancer trajectory, such as the time of cancer recurrence. The findings in longitudinal studies that dispositional optimism during the initial phases predicts HRQOL later in the post-cancer treatment survivorship period should be explored in patients with other cancer diagnoses. If this relationship is confirmed, then interventional studies using cognitive therapy to bolster dispositional optimism should be designed and tested.

Lastly, this study highlights the feasibility of using data from a psychosocial registry. Challenges to using registry data include lack of control over data collection and missing data. In addition, the researcher is limited to the variables in the registry, which may restrict the scope of the investigation. For example, in this study, a measure of hope would have been helpful in further identifying clinically-relevant predictors of HRQOL. Despite these limitations, registries are a wonderful resource to investigators because they provide ready-access to a large data set, often including longitudinal data with good variability. The data can be used to quickly answer research questions in a pilot study, thus expediting the research process.

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Table 1
Demographic Characteristics (N = 163)

Characteristic	N (%)	Mean (SD)
Age (years)		58.24 (12.74)
Gender		
Female	88 (54.0)	
Male	75 (46.0)	
Race/Ethnicity		
Caucasian	124 (76.1)	
African American	33 (20.2)	
Hispanic	3 (1.8)	
Other	3 (1.8)	
Marital status		
Married	103 (63.2)	
Not married	60 (36.8)	
Employment Status		
Employed	69 (42.3)	
Retired	45 (27.6)	
Not Employed	26 (16.0)	
Disabled	17 (10.4)	
Other	6 (3.7)	
Annual Household Income		
\$20,000 or less	36 (22.8)	
\$21,000 to \$49,999	43 (27.2)	
\$50,000 or greater	79 (50.0)	
Education		
High school or less	91 (55.8)	
Post high school	72 (44.2)	
Type of Cancer		
Breast	19 (11.7)	
Colorectal	15 (9.2)	
Gynecologic	22 (13.5)	
Head & Neck	21 (12.9)	
Lung	28 (17.2)	
Gastrointestinal	17 (10.4)	
Prostate	3 (1.8)	
Leukemia/Lymphoma	25 (15.3)	
Other	13 (8.0)	
Current Treatment		
Chemotherapy IV	138 (86.8)	
Chemotherapy Oral	15 (9.9)	
Radiation Therapy	44 (28.4)	
Hormonal Therapy	1 (.7)	

Characteristic	N (%)	Mean (SD)
None	7 (4.6)	
Participating in a clinical trial	31 (23.8)	
Cancer Stage		
I, II, localized	48 (35.6)	
III, IV, advanced	87 (64.4)	
ECOG Performance status		
0	63 (40.4)	
1	61 (39.1)	
2	24 (15.4)	
3	8 (5.1)	

Table 2
Sample Characteristics for Outcome Measures and Independent Variables (N = 161)

Variable (n)	Mean (SD)	95% Confidence Interval for Mean
Overall HRQOL	80.23 (16.35)	77.65 – 82.81
Physical well-being	20.82 (5.96)	19.88 – 21.76
Social well-being	23.31 (4.07)	22.66 – 23.95
Emotional well-being	18.80 (4.25)	18.13 – 19.47
Functional well-being	17.30 (6.43)	16.29 – 18.32
Spirituality	37.20 (8.37)	35.90 – 38.50
Depression	2.93 (3.37)	2.40 – 3.45
Anxiety	4.60 (3.87)	4.00 – 5.20
Optimism	17.78 (5.35)	16.95 – 18.60

Table 3
Mean scores for Life Orientation Test - Revised N = 163

Variable (n)	Mean (SD)	Mean Difference	95% C I of the Difference	p
Gender *				
Female	18.51 (5.31)			
Male	16.92 (5.30)	1.59	-.06 to 3.23	.059
Cancer Stage *				
I, II, localized	18.88 (4.71)			
III, IV, advanced	17.95 (5.31)	.93	-.89 to 2.74	.315

Variable (n)	Mean (SD)
Type of cancer *	
Breast	17.42 (5.22)
Colorectal	17.50 (4.56)
Gynecologic	19.27 (4.41)
Head & Neck	16.00 (5.13)
Lung	19.00 (4.94)
Gastrointestinal	19.12 (5.40)
Prostate	17.33 (5.77)
Leukemia/Lymphoma	16.36 (6.64)
Other	17.38 (5.92)

Note. The higher the score, the greater the amount of optimism. Possible range of scores is 0 to 24.

*
p > .05

Table 4
Hierarchical regression analysis predicting overall quality of life (N = 146)

Variable	Standardized beta coefficient	Adjusted R^2	ΔR^2
Model 1		.387	.395***
Age	.154*		
ECOG status	-.598***		
Model 2		.698	.313***
Age	.126**		
ECOG status	-.460***		
Spirituality	.328***		
Depression	-.253***		
Anxiety/tension	-.117		
Model 3		.697	.002
Age	.133**		
ECOG status	-.459***		
Spirituality	.347***		
Depression	-.255***		
Anxiety/tension	-.127		
Optimism	-.047		

*
 $p < .05$

**
 $p < .01$

 $p < .001$