

# The Effects of Spirituality on Well-Being of People With Lung Cancer

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**Purpose/Objectives:** To examine the effects of spirituality on the sense of well-being of people with lung cancer.

**Design:** Descriptive, correlational study.

**Setting:** Urban and rural oncology and radiation centers.

**Sample:** 60 adults ranging from 33–83 years of age. Most participants had non-small cell lung cancer and were female, Caucasian, and older than 50.

**Methods:** Participants completed a questionnaire composed of six survey instruments: Life Attitude Profile–Revised, Adapted Prayer Scale, Index of Well-Being, Symptom Distress Scale, a background information sheet, and a cancer characteristics questionnaire. Correlations among study concepts were examined, and multiple regression analysis was used to determine the effects of spirituality.

**Main Research Variables:** Meaning in life, prayer activities and experiences, symptom distress, and psychological well-being.

**Findings:** Higher meaning in life scores were associated with higher psychological well-being and lower symptom distress scores. Higher prayer scores were associated with higher psychological well-being scores. Regression analysis indicated that meaning in life mediated the relationship between functional status and physical responses to lung cancer and explained 9% of the variance in symptom distress. Prayer mediated the relationship between current physical health and psychological responses and explained 10% of the variance in psychological well-being.

**Conclusions:** Aspects of spirituality, meaning in life, and prayer have positive effects on psychological and physical responses in this group of people with lung cancer.

**Implications for Nursing:** This research provides knowledge about spirituality and sense of well-being to guide the care of people with lung cancer.

## Key Points . . .

- Spirituality has a positive effect on physical and psychological well-being in people with lung cancer.
- Higher levels of meaning in life are associated with higher psychological well-being and lower symptom distress.
- Higher prayer scores are related to higher psychological well-being.
- Meaning in life and prayer lessen the impact of lung cancer on well-being.

(*Merriam-Webster Dictionary*, 2003). The vast majority of published writings about spirituality focus on the theoretical aspects of the term. Most agree that spirituality is an ongoing, dynamic process that reflects and expresses the human spirit. Previous concept analyses of spirituality provide more detailed discussions (Meraviglia, 1999; Tanyi, 2002).

Spirituality in the nursing literature is discussed from numerous perspectives. Highfield (1992) described spirituality as the essence of human beings that transcends the immediate awareness of the self. Stoll (1989) described spirituality as a person's sense of being that gives life. Several authors incorporated a personal relationship with God in their discussion of the spiritual dimension (Emblen, 1992; Halstead & Mickley, 1997; Martsof & Mickley, 1998), whereas others focused on the psychological perspective with a primary emphasis on the self and the capacity for healing and self-evolution (Barnum, 1996; Malinski, 2002). A review of oncology nursing literature demonstrated that spirituality was examined frequently in people with cancer either as the main focus of the study or as a theme that emerged in qualitative studies (Flannelly, Flannelly, & Weaver, 2002). Taylor (2001) concluded that spirituality must be considered within a cultural context because previous research has demonstrated differences among ethnic groups.

Researchers have attempted to measure spirituality in its totality by operationalizing concepts such as spiritual well-being, spiritual perspective, spiritual health, and quality of

The current five-year survival rate for people diagnosed with lung cancer is only 14%. The frequent presence of metastases at the time of diagnosis and the generally poor metastase rate to conventional treatment make lung cancer the leading cause of cancer deaths in men and women (Thomas, Williams, Cobos, & Turrisi, 2001).

Diagnosis of a life-threatening disease such as lung cancer can cause enormous distress. The threat to life can challenge people's beliefs about their life and sense of well-being. Some people, however, have found that their spirituality provides them with the resources needed to withstand the physical and psychological crises brought on by the diagnosis and subsequent treatment of cancer (Moadel et al., 1999).

## Background

Spirituality is an abstract and elusive term defined as an attachment to the values of the spirit. The human spirit is described as the immaterial aspect of a person that never dies

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life. Research findings have been inconclusive in providing a complete understanding of spirituality. A synthesized definition of spirituality, including all of the attributes described in the literature, was derived from an analysis of the concept. Spirituality was defined as the experiences and expressions of a person's spirit in a unique and dynamic process reflecting faith in God or a supreme being; connectedness with self, others, nature, or God; and integration of the dimensions of mind, body, and spirit (Meraviglia, 1999).

Two empirical indicators that represent important aspects of spirituality for people with cancer were selected to examine the broader concept. Meaning in life is one aspect that represents the process of finding and fulfilling meaning and purpose, regardless of the circumstances. Prayer is another significant aspect of spirituality that is defined as any form of communication with God or a supreme being, including verbal and contemplative prayer.

Meaning in life and prayer rarely have been investigated in people with cancer, although the concepts have been found to be useful with other populations. Peacock and Reker (1982), Reker (1994), and Reker, Peacock, and Wong (1987), for example, found that personal meaning was associated with the physical and psychological well-being of older adults. Other authors also have reported that finding meaning is related to physical and psychological well-being (Smith et al., 1993; Thompson & Pitts, 1993). Studies of people with cancer have shown that people who derived meaning from their experiences had higher levels of self-esteem and an internal locus of control and lower levels of anxiety, symptom distress, and social dependence (Skinn, 1994; Taylor, 2002).

Investigators have reported positive relationships between prayer and well-being (Gartner, Larson, & Allen, 1991; King, 1990; Meisenholder & Chandler, 2000; Poloma & Pendleton, 1991). A few experimental studies have shown a positive effect of prayer on physical responses to disease (Byrd, 1988; Harris et al., 1999). Personal prayer can have various positive effects on increasing one's sense of trust, satisfaction with life, general well-being, and internal sense of peace (Duckro & Magaletta, 1994; Epperly, 1995; McCullough, 1995). A frequently cited benefit of prayer is that it can strengthen a person's relationship with God and lead to a deeper understanding of God, self, and community (Foster, 1992).

This study examined the effects of spirituality on sense of well-being among people with lung cancer. Spirituality was operationalized as meaning in life and prayer, and sense of well-being was defined as physical and psychological responses to lung cancer.

## Theoretical Framework

The theoretical framework guiding this study was derived from the nursing theory of modeling and role modeling (Erickson, Tomlin, & Swain, 1983), the motivational theory of meaning (Frankl, 1962), and the concept of prayer. Modeling and role modeling emphasize a holistic understanding of people in which the individual is viewed as having physical, psychological, social, and spiritual dimensions, with each dimension affecting the remaining dimensions. People are unique and are much more than an accumulation of their dimensions, and they differ in their interpretation of and response to stress-producing events.

Additionally, Frankl's (1962) motivational theory emphasizes that the spiritual dimension is the way that people become "fully human." People are motivated intrinsically to find and fulfill meaning and purpose in life under any and all circumstances. The concept of prayer, as an experience and expression of the spirit, is incorporated in the theoretical framework to expand the understanding of spirituality.

## Methods

### Sample

The sample was recruited from adults with lung cancer attending oncology and radiation clinics or cancer support groups in central Texas and from people with lung cancer on e-mail discussion lists. Inclusion criteria for participants were being aged 21 or older, having a diagnosis of lung cancer within the last two years, and being able to read and write in English. A power analysis determined that with two predictor and two mediator variables and  $R^2 = 0.20$ , 53 participants were needed to have 80% power ( $p < 0.05$ ).

### Instruments

Data were collected using six instruments to assess participant characteristics, characteristics of cancer, meaning in life, prayer, symptom distress, and psychological well-being. All instruments had acceptable reliability in previous studies and with this sample.

The **background information sheet** gathered data on a variety of participant characteristics, including age, ethnicity, gender, education, marital status, religion, satisfaction with income, and employment. A **cancer characteristics questionnaire** asked about type of lung cancer, presence of metastasis, length of illness, past and present treatment, present physical health status, functional status, and presence of other diseases.

The **Life Attitude Profile-Revised (LAP-R)** is a 48-item scale based on Frankl's (1962) motivational theory of meaning that measures discovered meaning, purpose in life, and motivation to find meaning. This multidimensional instrument assesses six dimensions: life purpose, coherence, choice and responsibility, death acceptance, existential vacuum, and goal seeking (Reker, 1992). The composite score from the six dimensions, termed existential transcendence, represents the person's meaning and purpose in life and motivation to find meaning. Internal consistency reliabilities for the LAP-R subscales were acceptable in this study except for the low existential vacuum subscale alpha, but it was not used separately. Alpha coefficient for the composite index, existential transcendence, was 0.87 in this study. Reker (1992) reported slightly higher internal consistency alphas for the subscales (0.79–0.86) and for the existential transcendence composite index (0.90).

The **Adapted Prayer Scale (APS)** was adapted from Poloma and Pendleton's (1991) prayer scale by the investigator for use with people who have cancer (Meraviglia, 2002). APS assesses types of prayer activities, prayer experiences, and attitudes toward prayer since being diagnosed with cancer. In addition, items assess frequency, focus, and length of prayers. High scores reflect high degrees of prayer activities, prayer experiences, positive attitudes toward prayer, and overall prayer. Reliability testing using Cronbach's alpha also was calculated for the APS subscales. The alpha coefficient of 0.94 for

the total APS was much higher than the previous alpha of 0.85 reported by Poloma and Pendleton.

The **Symptom Distress Scale** is a 14-item scale assessing the degree of discomfort related to appetite, nausea (presence and intensity), insomnia, pain (presence and intensity), fatigue, bowel patterns, concentration, appearance, breathing, outlook, cough, and mobility. High scores represent more symptom distress and more physical responses to lung cancer. Alpha reliability in this study was 0.84, which is consistent with the reliability reported by McCorkle (1987).

The **Index of Well-Being (IWB)** is a nine-item semantic differential scale assessing the cognitive and affective dimensions of psychological well-being. Respondents are asked to rate their life "at this point in time" based on eight pairs of adjectives. A ninth item asks respondents to rate their satisfaction with life as a whole. High scores represent more psychological well-being. In this study, the alpha reliability for IWB was 0.90, which is consistent with the alpha reported by Campbell, Converse, and Rodgers (1976).

## Procedure

People from urban and rural oncology and radiation centers were recruited through posted informational flyers. In addition, people attending cancer support groups were invited to participate. Finally, members of lung cancer e-mail discussion lists were invited to participate.

After people expressed interest, a packet containing a cover letter describing the study, the consent procedure, the survey questionnaire, and a postage-paid return envelope was mailed to them. The completed and returned questionnaire constituted a person's consent to participate in the study.

## Data Analysis

Descriptive statistics (frequencies, means, standard deviations, range) were used to summarize data. Categorical variables such as occupation and religious group were dummy coded for regression analysis. Bivariate correlations of study variables were computed, with statistical significance set at alpha less than 0.05.

Multiple regression was used to analyze the effects of meaning in life and prayer on the relationships among the predictor and outcome variables. The mediation model is displayed in Figure 1. Three regression equations were used for each outcome variable, as described by Bennett (2000). In the first two equations, the predictor variable was a significant predictor of the mediator and outcome variables. The third equation showed that (a) the mediator variable was a signifi-

cant predictor of the outcome variable, and (b) the direct relationship of the predictor variable to the outcome variable was less than in the second equation.

## Findings

The participants in the study were 60 adults with lung cancer ranging in age from 33–83 years, with an average age of 58. The characteristics of the participants are shown in Table 1. The majority of participants were older than 50 years, and 61% were female and 39% male. Forty-nine were Caucasian, five were African American, three were Hispanic or Latino, and two were Asian American. Sixty-nine percent of the participants were married, and 22% reported being either widowed or divorced. Most participants described themselves as Christian (66%) (Protestant, Catholic, or nondenominational), or they did not respond to the question (20%). Seven people used other terms, such as the 12-step program, Unitarian, and Universalist, to describe their religious or spiritual group.

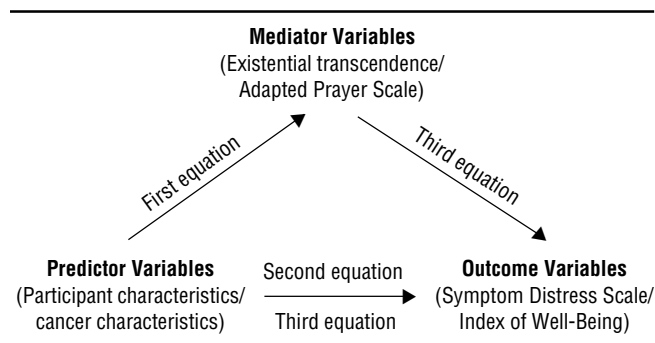
Forty-two participants had non-small cell and six had small cell lung cancer; the majority of people (55%) said that they had metastasis at diagnosis. More than half of the participants (54%) currently were receiving chemotherapy, 8% were receiving radiation therapy, and another 10% were receiving chemotherapy and radiation. Most participants (60%) described their current physical health as good or very good. Twenty-six percent reported disability with limitations, and another 7% said that their physical health was poor. Sixty percent of the people described their current functional status as usual activities with or without effort, and 35% said that they could care only for themselves. The cancer characteristics are displayed in Table 2.

**Table 1. Participant Characteristics**

| Characteristic                      | n  | %  |
|-------------------------------------|----|----|
| <b>Age (years)</b>                  |    |    |
| 33–50                               | 12 | 20 |
| 51–60                               | 22 | 38 |
| 61–70                               | 19 | 32 |
| 71–83                               | 6  | 10 |
| <b>Gender</b>                       |    |    |
| Female                              | 36 | 61 |
| Male                                | 23 | 39 |
| <b>Ethnic background</b>            |    |    |
| Caucasian                           | 49 | 83 |
| African American                    | 5  | 9  |
| Hispanic or Latino                  | 3  | 5  |
| Asian American                      | 2  | 3  |
| <b>Marital status</b>               |    |    |
| Married                             | 41 | 69 |
| Divorced                            | 7  | 12 |
| Widowed                             | 6  | 10 |
| Single                              | 5  | 9  |
| <b>Religious or spiritual group</b> |    |    |
| Protestant                          | 21 | 36 |
| Catholic                            | 16 | 27 |
| Nondenominational                   | 2  | 3  |
| Agnostic                            | 2  | 3  |
| Other                               | 7  | 11 |
| No response                         | 11 | 20 |

N = 59

Note. Some data are missing for some variables.



**Figure 1. The Multiple Regression Model for the Mediating Effects of Meaning in Life and Prayer on Well-Being**

Significant correlations were noted among general personal characteristics and the outcome variables (see Table 3). Being married was related negatively to symptom distress ( $r = -0.24$ ) and positively to psychological well-being ( $r = 0.41$ ). Also, satisfaction with income was related positively to psychological well-being ( $r = 0.40$ ). In addition, having an income that met daily needs was related to both outcome variables. The less adequately income met a person's daily needs, the greater his or her symptom distress ( $r = -0.27$ ) and the lower his or her psychological well-being ( $r = 0.36$ ).

Several characteristics of cancer also were related significantly to outcome variables. Participants who were not currently receiving treatment ( $r = -0.36$ ), had poorer physical health ( $r = -0.33$ ), and were less able to maintain usual activities ( $r = -0.42$ ) reported more symptom distress. Participants who reported better physical health ( $r = 0.38$ ) and greater ability to maintain their usual activities ( $r = 0.27$ ) had better psychological well-being.

Six variables—two personal characteristics (being married and income meeting daily needs) and four characteristics of cancer (current physical health, functional status, currently receiving treatment, and received treatment in past)—were identified as predictor variables based on having a significant relationship with an outcome variable and a low correlation with other predictor variables (Bennett, 2000).

Relationships among the six predictor variables and the two mediator variables, existential transcendence and prayer, were examined to identify significant relationships. The pre-

**Table 3. Significant Correlations Among Predictor Variables and Outcome Variables**

| Characteristics  | Symptom Distress Scale | Index of Well-Being |
|--|------------------------|---------------------|
| Married/not married <sup>a</sup>                                       | -0.24*                 | 0.41**              |
| Satisfaction with income   | -0.10                  | 0.40**              |
| Income meets daily needs   | -0.27*                 | 0.36*               |
| Currently receiving treatment/<br>not receiving treatment <sup>a</sup> | -0.36*                 | -0.10               |
| Received treatment in past/<br>no treatment in past <sup>a</sup>       | 0.31*                  | -0.02               |
| Physical health  | -0.33**                | 0.38**              |
| Functional status  | -0.42**                | 0.27*               |

\*  $p < 0.05$  level, two tailed

\*\*  $p < 0.01$  level, two tailed

<sup>a</sup> Dichotomous variable (1 = characteristic, 0 = not having characteristic)

dictor variable functional status was related to existential transcendence: As functional status improved, scores on existential transcendence increased. The predictor variable current physical health was related weakly to prayer: Better physical health was associated with higher scores on the APS.

Multiple regression was used to test for mediation by analyzing the effects of the mediator variables on the relationships among the predictor and outcome variables. Only predictor and mediator variables that met the assumptions for regression and had significant correlations with the outcome variables were included in the regression analysis. Each outcome variable was analyzed separately. In the first analysis, the mediator variable prayer was left out because APS scores were not correlated significantly with the outcome variable symptom distress. In the second analysis, the mediator variable meaning in life was left out because existential transcendence scores were not related significantly to predictor variables.

Regression analysis tested the effect of existential transcendence on the relationship between the predictor variable functional status and the outcome variable symptom distress. In the first regression equation, functional status was a significant predictor of existential transcendence and explained 8% of the variance. In the second equation, functional status was a significant predictor of symptom distress and explained 16% of the variance. The third regression equation ( $\beta = -0.298$ ) showed that existential transcendence was a significant predictor of symptom distress, explaining 9% of the variance, and the direct relationship between functional status and symptom distress was less than in the second equation, as evidenced by a drop in the beta weights from  $-0.429$  to  $-0.346$  (see Table 4).

Multiple regression was repeated for the outcome variable of well-being. The first regression equation showed that current physical health was a weak predictor of APS scores. In the second equation, current physical health was a significant predictor of well-being and explained 15% of the variance. The third equation ( $\beta = 0.325$ ) showed that APS scores were a significant predictor of well-being, which explained 10% of the variance. In the equation, the direct relationship between current physical health and well-being was reduced from 0.398 to 0.338 beta weights (see Table 5).

**Table 2. Cancer Characteristics**

| Characteristic                           | n  | %  |
|--|----|----|
| <b>Type of lung cancer</b>               |    |    |
| Non-small cell                           | 42 | 70 |
| Small cell                               | 6  | 10 |
| Not specified                            | 12 | 20 |
| <b>Metastasis of cancer at diagnosis</b> |    |    |
| Yes                                      | 33 | 55 |
| No                                       | 18 | 30 |
| Not known                                | 9  | 15 |
| <b>Length of time since diagnosis</b>    |    |    |
| Less than six months                     | 25 | 42 |
| 6–12 months                              | 12 | 20 |
| More than one year                       | 23 | 38 |
| <b>Current therapy</b>                   |    |    |
| Chemotherapy                             | 32 | 54 |
| Radiation                                | 5  | 8  |
| Chemotherapy and radiation               | 6  | 10 |
| Surgery                                  | 2  | 3  |
| None                                     | 15 | 25 |
| <b>Current physical health status</b>    |    |    |
| Poor                                     | 4  | 7  |
| Some disability                          | 4  | 7  |
| Disability with limitations              | 16 | 26 |
| Good                                     | 28 | 47 |
| Very good                                | 8  | 13 |
| <b>Current functional status</b>         |    |    |
| Unable to care for self                  | —  | —  |
| Needs assistance with care               | 3  | 5  |
| Cares for self only                      | 21 | 35 |
| Usual activities with effort             | 24 | 40 |
| Usual activities                         | 12 | 20 |

N = 60

**Table 4. Regression Analysis to Predict Symptom Distress**

| Model | Multiple R         | R <sup>2</sup> | Adjusted R <sup>2</sup> | b      | F      | p     |
|-------|--------------------|----------------|-------------------------|--------|--------|-------|
| 1     | 0.429 <sup>a</sup> | 0.184          | 0.169                   | −0.429 | 12.389 | 0.001 |
| 2     | 0.516 <sup>b</sup> | 0.266          | 0.239                   | −0.346 | 9.779  | 0.000 |

N = 56

<sup>a</sup> Predictors: (constant), functional status<sup>b</sup> Predictors: (constant), functional status, existential transcendence

## Discussion

The current study's findings provide early evidence that people with lung cancer are unique in their responses to the impact of cancer. For example, people who were unmarried, in need of income to meet their daily needs, experiencing poor physical health or functional status, or currently receiving cancer treatment reported more symptom distress. These findings emphasize the importance of an individualized approach to care based on a thorough and ongoing assessment.

People who reported more meaning in life had better psychological well-being. Moreover, as people's level of meaning in life increased, their symptom distress decreased. Prayer also was related positively to psychological well-being. In addition, the findings demonstrated mediating effects of meaning in life and prayer on sense of well-being.

The holistic view of the theoretical framework was supported by the findings. Participants who were married reported less symptom distress and more psychological well-being than those who were not married. Higher levels of participant satisfaction with income were associated with higher psychological well-being. Additionally, the majority of participants reported good or very good physical health and functional status even while receiving cancer treatment. However, much more research on these spiritual concepts is needed to refine the framework.

Nevertheless, findings from this study must be interpreted cautiously because of the study limitations. The small convenience sample and lack of representation of minorities, in particular African Americans, limits the interpretation of findings. In addition, participants were having different types of cancer treatments, which could affect their sense of well-being. Finally, data were collected at one point in time and do not reflect changes in attitudes toward meaning in life, prayer experiences, or physical and psychological responses to lung cancer over time.

**Table 5. Regression Analysis to Predict Well-Being**

| Model | Multiple R         | R <sup>2</sup> | Adjusted R <sup>2</sup> | b     | F     | p     |
|-------|--------------------|----------------|-------------------------|-------|-------|-------|
| 1     | 0.398 <sup>a</sup> | 0.159          | 0.142                   | 0.398 | 9.420 | 0.003 |
| 2     | 0.510 <sup>b</sup> | 0.261          | 0.230                   | 0.338 | 8.631 | 0.001 |

N = 51

<sup>a</sup> Predictors: (constant), current physical health<sup>b</sup> Predictors: (constant), current physical health, Adapted Prayer Scale

## Implications for Nursing

The study findings have implications for nursing practice, research, and education because they confirm that people with lung cancer have unique responses to cancer. Previous research has shown that people with lung cancer report more symptom and psychological distress than people with other cancers (Kurtz, Kurtz, Stommel, Given, & Given, 1999; McClement, Woodgate, & Degner, 1997). In this sample, participants had high levels of psychological well-being even when experiencing symptom distress. Cooley (2002) also found psychological well-being in the midst of symptom distress in those receiving treatment for lung cancer.

Interestingly, the study findings provide further support for the holistic view of health, adding to the growing body of nursing literature. For example, the majority of people reported good physical health and normal functional status even while receiving treatment for their cancer. This information must be used in nursing education to develop continuing education programs for nurses and other healthcare providers.

Recent movements such as holistic nursing care and parish nursing focus more attention on spiritual needs. Furthermore, nurses practicing in end-of-life care incorporate spiritual care more effectively than nurses in other clinical settings. For example, a study comparing oncology and hospice nurses found that hospice nurses used more spiritual care interventions and had more positive viewpoints about their spiritual caregiving than oncology nurses (Taylor, Highfield, & Amenta, 1999).

Furthermore, information gained from the current study can be used to develop nursing interventions that enhance the spirituality of people with lung cancer. Testing the effectiveness of these nursing interventions will add greatly to the body of nursing knowledge.

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## For more information . . .

- Lung Cancer Online  
[www.lungcanceronline.org](http://www.lungcanceronline.org)
- Lung Cancer.org  
[www.lungcancer.org](http://www.lungcancer.org)
- Alliance for Lung Cancer Advocacy, Support, Education  
[www.alcase.org](http://www.alcase.org)

Links can be found at [www.ons.org](http://www.ons.org).