Spirituality and Emotional Distress Among Lung Cancer Survivors

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Abstract

The purpose of this study was to examine the relationship between spirituality and distress among lung cancer survivors. In a cohort of 864 lung cancer survivors, spirituality was associated with a lower prevalence of emotional distress, being married, fewer years of cigarette smoking, and better Eastern Cooperative Oncology Group performance status. Additionally, in patients who were experiencing low emotional distress at the time of diagnosis, spirituality was associated with a lower risk of experiencing high emotional distress at a 1-year follow-up.

Background: Emerging research is highlighting the importance of spirituality in cancer survivorship as well as the importance of early distress screening. The purpose of this study was to prospectively examine the relationships among spirituality, emotional distress, and sociodemographic variables during the early period of lung cancer survivorship. **Patients and Methods:** Eight hundred sixty-four lung cancer survivors completed the Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being, and the Short-Form-8 for emotional distress within the first year after lung cancer diagnosis, and 474 of these survivors completed the survey again 1 year later. **Results:** At baseline, spirituality was associated with lower prevalence of emotional distress, being married, fewer years of cigarette smoking, and better Eastern Cooperative Oncology Group performance status. Additionally, high baseline spirituality was associated with lower rates of high emotional distress at 1-year follow-up. **Conclusion:** These findings suggest that spirituality might serve as a protective factor for emotional distress among lung cancer survivors. Further research is warranted to explore the role of spirituality in promoting distress management among lung cancer survivors.

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Introduction

The American College of Surgeons Commission on Cancer mandate for distress screening and referral for distress management highlights the need to better understand factors associated with distress to facilitate early and effective intervention.[1,2] Emotional distress refers to emotional difficulties or "unpleasant feelings" (American Cancer Society), which can negatively affect well-being, or quality of life (QoL), and limit individuals' overall ability to cope with life challenges. Emotional distress is common among cancer survivors, defined by the American Cancer Society as individuals with a history of cancer, from the point of diagnosis onward.[3] Lung cancer survivors, in particular, have been shown to experience elevated distress compared with survivors of other cancer types,[4] and emotional difficulties in cancer survivors are directly associated with lower QoL and greater symptom burden.[5]

The relationship between emotional distress and spirituality represents a growing area of research and clinical interest in cancer

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survivorship. Indeed, the National Comprehensive Cancer Network Distress Thermometer and Problem Checklist developed for use by cancer centers include "spiritual/religious concerns" in the problem list.[6] The definition of spirituality is personal and dynamic but refers broadly to connection to something greater than oneself through which humans pursue a sense of purpose, meaning, and peace.[7] In this broad definition, spirituality might or might not involve a connection and commitment to a religious denomination or faith. Research on spirituality and spiritual struggle has highlighted the importance of spirituality as a key component of QoL that needs to be better understood and addressed in the midst of illness.[8,9]

Our multidisciplinary research team has been following a large cohort of lung cancer survivors for nearly 2 decades and seeking to better understand factors associated with disease status, overall QoL, spirituality, and distress. For example, in a cohort of 2205 newly diagnosed lung cancer patients, emotional distress was associated with greater symptom burden.[5] In early examinations of the role of spirituality in this cohort, spiritual QoL was associated with physical activity level among a subset of 272 long-term lung cancer survivors.[10,11] In a follow-up study, 116 lung cancer survivors who increased their level of physical activity also improved their overall QoL and their spiritual QoL.[12] These results led to an exploration of long-term spiritual QoL among 1578 lung cancer survivors, which showed that higher spirituality was associated with better long-term QoL.[13]

Because of the effect of emotional distress on the QoL of lung cancer survivors, the primary aim of this study was to better understand the potential relationship between spirituality and emotional distress in newly diagnosed lung cancer survivors. The study hypothesized that higher spirituality would be associated with lower emotional distress among lung cancer survivors.

Patients and Methods

Participants and Procedures

English-speaking North American adults with small-cell lung cancer and non–small-cell lung cancer were recruited, consented, and enrolled into the Mayo Clinic Epidemiology and Genetics of Lung Cancer Research Program. The parent study was approved by the Mayo Clinic Institutional Research Review Board, and enrollment started in 1997. Participants were asked to complete surveys within the first year after lung cancer diagnosis and again 1 year later. Cross-sectional and longitudinal associations among spirituality, emotional distress, and QoL were examined.

Measures

Spirituality. Spirituality was assessed using the Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being (FACIT-Sp),[14] which has previously been shown to have good internal reliability, with moderate to strong correlations with other health-related QoL measures, including the Profile of Mood States and the Functional Assessment of Cancer Therapy–General, as well as other measures of spiritual well-being and religion.[14] The 12 Likert-scale items of the FACIT-Sp assess spiritual well-being over the past week from 0 (not at all) to 4 (very much) on overall total spirituality and within 3 spirituality subdomains: faith (eg, "I find strength in my faith or spiritual beliefs"), peace (eg, "I am able to reach down deep into myself for comfort"), and meaning in life (eg, "I feel a sense of purpose in my life").[15] In the present study, survivors were categorized into high versus low spirituality groups at baseline using predetermined cutoff scores of their overall total score at baseline assessment. Specifically, high spirituality was defined as a FACIT-Sp overall T-score of > 50, whereas low spirituality was defined as a FACIT-Sp overall T-score < 50.[13]

Emotional Distress. Self-reported emotional distress was assessed using the Short-Form-8 (SF-8),[16,17] which is derived from the Short-Form-36[18] measure of health-related QoL. The SF-8 is a commonly used patient-reported outcome tool that has been validated in multiple settings.[17] The present analyses focused on the SF-8 question: "In the past month, how much have you been bothered by emotional problems, such as feeling anxious, depressed, or irritable?" This item has been previously used with lung cancer survivors.[5] Study participants were categorized into groups representing the presence of emotional distress or the relative absence of emotional distress using previously established cutoff scores.[5] Specifically, the presence of "high" emotional distress was defined as a response of *moderately*, *quite a lot*, or *extremely* on this question, whereas "low" emotional distress was defined as a response of *not at all* or *slightly*. This dichotomization is consistent with current national efforts to determine the relative presence or absence of distress using cutoff scores to inform referrals in clinical settings.[2]

Quality of Life. Quality of life was assessed using a series of 0 to 10 scale items, which have been previously developed and validated by the research team in a sample of > 9000 individuals.[19] These items have been used with several different populations, including lung cancer survivors,[10] oncology patients receiving radiation therapy[20] and 13,000 members of an employee wellness center.[21] The 6 items assess QoL over the past week within 6 domains: (1) overall QoL; (2) mental (intellectual); (3) physical; (4) social; (5) emotional; and (6) spiritual QoL. Items range from 0 (as bad as it can be) to 10 (as good as it can be), and a 1-point difference on these scales has been shown to be clinically meaningful.[19]

Covariates. Theoretically and empirically-derived covariates included age, biological sex, racial group (Caucasian vs. other), marital status (married vs. not married), employment status (employed vs. not employed), smoking status (current smoker vs. former smoker vs. never/some), number of years of tobacco use ("pack-years"), lung cancer stage (stages 1-4), cancer treatment (surgery [yes/no], radiation [yes/no], or chemotherapy [yes/no]), and performance status, measured according to the Eastern Cooperative Oncology Group (ECOG).[5] ECOG performance status scores can range from 0 to 4, with higher scores indicating worse functioning.[22]

Analytic Approach

Demographic, medical, and overall QoL differences between survivors with high versus low spirituality were assessed using χ^2 tests for categorical variables and Wilcoxon nonparametric tests for continuous variables. Spearman correlations were used to assess the

associations between emotional distress and spirituality at baseline as well as the associations between changes in emotional distress, spirituality, and QoL over time from baseline to the 1-year follow-up. Changes in emotional distress levels over 1 year were assessed using Fisher exact tests. Analyses were adjusted for the aforementioned covariates (ie, age, biological sex, racial group, marital status, employment status, smoking status, pack-years, stage, treatment, and ECOG performance status) using linear regression models for continuous outcomes and logistic models for binary outcomes. Effect sizes for differences were Cohen d effect sizes calculated as the difference in the means divided by the pooled SDs. All analyses were conducted using Statistical Analysis Software version 9.4 (SAS Institute Inc, Cary, NC).

Results

Sample Demographic Characteristics

A total of 864 adult lung cancer survivors completed baseline surveys between 1999 and 2009. The sample ranged in age from 32 to 94 years old, with an average age of 66.8 years (SD = 10.3 years). The sample was 51.2% male, 94% Caucasian, 55.1% former smokers, and 26% current smokers (Table 1). Seventy-three percent of survivors were unemployed at baseline with 95% of those considered unemployed having already retired.

Of the full sample, 814 lung cancer survivors reported having high spirituality (94%) and only 50 lung cancer survivors reported having low spirituality (6%). In examining baseline differences between those with high spirituality and those with low spirituality, survivors with low spirituality at baseline were less likely to be married ($P < .01$), had more pack-years of smoking ($P < .001$), and had higher ECOG performance scores than survivors with high spirituality ($P = .0001$; Table 1). Spirituality was also associated with distress level, such that only 26% of lung cancer survivors with high spirituality reported high emotional distress, compared with 72% of lung cancer survivors with low spirituality ($P < .0001$).

To further examine the association between spirituality and emotional distress, the sample was divided between those with high emotional distress and those with low emotional distress. Spirituality was positively associated with QoL at baseline among lung cancer survivors with high or low emotional distress. In other words, survivors with high spirituality reported better QoL overall and across all QoL domains, regardless of distress level (all Ps $< .001$; Table 2). Effect sizes for the difference in overall QoL between high versus low spirituality groups were medium for those with high emotional distress ($d = 0.68$) and high for those with low emotional distress ($d = 1.08$). Further examination of FACIT-Sp subscales revealed that the meaning subscale explained 21% of the variance in overall QoL, peace explained 18%, and faith explained 8% of the variance.

Table 1 Baseline Demographic, Medical, and Distress Variables According to Spirituality Group

	High Spirituality ($n = 814$)	Low Spirituality ($n = 50$)	*P*
Age at Diagnosis			.46
<50	56 (6.9)	5 (10.0)	
50 to <65	240 (29.5)	17 (34.0)	
65 to 80	465 (57.1)	27 (54.0)	
>80	53 (6.5)	1 (2.0)	
Male Sex	415 (51.0)	29 (58.0)	.34
Caucasian Ethnicity	766 (94.1)	46 (92.0)	.54
Married	570 (79.5)	27 (62.8)	<.01
Employed	218 (27.6)	8 (16.3)	.09
Smoking Status			.10
Current	210 (25.8)	17 (34.0)	
Former	446 (54.8)	29 (58.0)	
Never/some	158 (19.4)	4 (8.0)	
Pack Years			<.01
0 to <20	277 (34.1)	8 (16.0)	
20 to <40	182 (22.4)	8 (16.0)	
40 to <60	178 (21.9)	15 (30.0)	
≥60	175 (21.6)	19 (38.0)	
Stage			.56
1	337 (41.7)	18 (36.0)	
2	66 (8.2)	6 (12.0)	
3/Limited	213 (26.4)	16 (32.0)	
4/Extensive	192 (23.8)	10 (20.0)	
Treatment			.95
Surgery	559 (69.2)	33 (68.8)	
Radiation and Chemotherapy	88 (10.9)	6 (12.5)	
Radiation or Chemotherapy	150 (18.6)	8 (16.7)	
Other	11 (1.4)	1 (2.1)	
ECOG PS			<.001
0	271 (33.5)	4 (8.2)	
1	428 (53.0)	28 (57.1)	
2	76 (9.4)	13 (26.5)	
3 or 4	33 (4.1)	4 (8.2)	
Emotional Distress			<.0001
High distress	212 (26.0)	36 (72.0)	
Low distress	602 (74.0)	14 (28.0)	

Data are presented as n (%) except where otherwise noted.
Abbreviation: ECOG PS = Eastern Cooperative Oncology Group performance status.

Longitudinal Results—Change Over 1 Year

A total of 474 (55.8%) of the 864 survivors who completed a baseline survey also completed the 1-year survey, whereas 3 individuals (0.35%) were known to have passed away and an additional 372 (43.82%) were lost to follow-up for unknown reasons. Comparing those who completed 1-year follow-up surveys with those who did not, there were significant differences in baseline demographic, medical, and psychosocial variables. Survivors who did not complete 1-year follow-up were more likely to be male ($P < .01$) and current smokers ($P < .01$) and were more likely to have stage III or IV disease ($P < .0001$), undergone radiation or chemotherapy ($P < .0001$), worse ECOG performance status ($P < .0001$), higher emotional distress ($P < .0001$), and have lower spirituality ($P < .01$). There were no significant differences between those who completed 1-year follow-up surveys and those who did not in terms of age, racial group, marital status, or employment status.

Table 2 Quality of Life, Spirituality, and Emotional Distress at Baseline

	High Emotional Distress				Low Emotional Distress					
	High Spirituality (n = 205)		Low Spirituality (n = 36)		High Spirituality (n = 592)		Low Spirituality (n = 13)			
	Score	SD	Score	SD	Score	SD	Score	SD	*P*	Adjusted *P*
Mental QoL	6.5	1.8	5.1	2.5	8.6	1.5	6.6	2.5	<.0001	<.0001
Physical QoL	5.4	2.0	4.6	2.1	7.4	1.9	4.7	2.3	<.0001	<.0001
Spiritual QoL	7.1	2.1	4.6	2.7	8.8	1.4	4.6	2.7	<.0001	<.0001
Social QoL	5.4	2.3	4.0	2.2	7.8	2.0	5.2	3.1	<.0001	<.0001
Emotional QoL	6.0	1.8	4.6	2.1	8.5	1.4	5.6	2.3	<.0001	<.0001
Overall QoL	6.0	2.0	4.6	1.9	7.8	1.8	5.9	2.4	<.0001	<.0001

Adjusted *P* values are on the basis of linear models including age, sex, race, marital status, smoking status, pack-years, stage, employment status, treatment, and ECOG performance status.
Abbreviations: ECOG = Eastern Cooperative Oncology Group; QoL = quality of life.

Among lung cancer survivors with low emotional distress at baseline, those with low overall spirituality were more likely to report emotional distress within the next year ($P < .05$; Figure 1). Specifically, 44% of individuals with low baseline spirituality fell into the high distress category 1 year later compared with only 12% of individuals with high baseline spirituality reporting distress at 1-year follow-up. Among lung cancer survivors with high emotional distress at baseline, overall spirituality was not significantly associated with change in emotional distress ($P = .056$), with 46% of individuals with high spirituality reporting low emotional distress at the 1-year follow-up compared with 19% of individuals with low spirituality reporting low emotional distress at the 1-year follow-up. We further examined spirituality subscales, and baseline meaning was significantly related to change in emotional distress at 1-year follow-up. Specifically, lung cancer survivors reporting high levels of emotional distress and high levels of meaning at baseline were more likely to experience less distress within the next year ($P < .05$; Figure 2), with 45% of individuals with high meaning falling into the low distress category 1 year later compared with 0% of individuals with low meaning reporting low emotional distress by the 1-year follow-up.

Discussion

In this large sample of lung cancer survivors, the finding that more than one-quarter of lung cancer survivors reported high emotional distress is not unexpected, because approximately 20% to 25% of cancer survivors have previously been found to be distressed, with lung cancer survivors reporting higher distress than survivors of other cancer types.[4] Because of the high level of distress among lung cancer survivors, the purpose of this study was to examine a potential relationship between emotional distress and spirituality. Results of the present study showed that higher reported spirituality was related to lower emotional distress and better overall QoL after a lung cancer diagnosis. Findings show a significant association between spirituality and distress above and beyond the influence of age, biological sex, racial group, marital status, employment status, smoking status, pack-years, stage, treatment, and ECOG performance status. Results show that lung cancer survivors with high spirituality and low emotional distress at baseline were less likely to report high emotional distress at 1-year follow-up, compared with lung cancer survivors with low emotional distress and low spirituality. Additionally, for lung cancer survivors with high distress at baseline, the spirituality domain of high

Figure 1 Change in Distress for Survivors With Low Baseline Emotional Distress

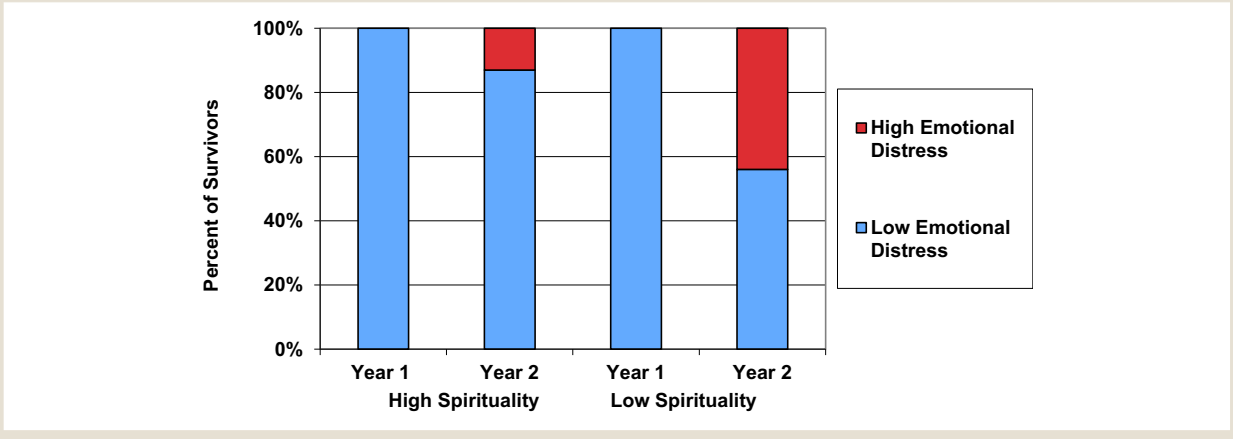
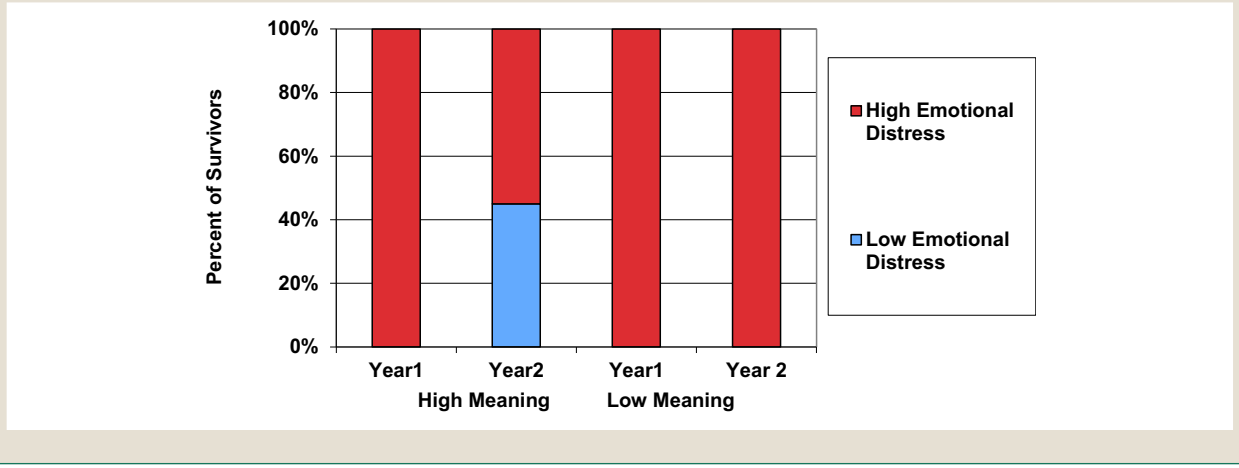


Figure 2 Change in Distress for Survivors With High Baseline Emotional Distress



meaning was associated with reduced distress at follow-up. These results support the premise that spirituality, in particular, feeling that life has meaning, might represent a protective factor against distress and prevent the development of distress over time. Similarly, increased spirituality might be associated with improved overall QoL over time. Recent consensus-based models have recommended assessing and treating spiritual distress.[23]

This study, similar to previous studies by the research team, found an association between emotional distress and lower overall QoL and lower mental, physical, and social QoL. This finding underscores the importance of screening for distress, as recommended by the National Comprehensive Cancer Network. This finding also further highlights the need to identify risk factors for distress and to develop effective interventions to prevent and treat distress and poor QoL in lung cancer survivors.

Findings provide a potential direction for clinical intervention, suggesting that interventions to enhance spirituality for lung cancer survivors might help reduce emotional distress and improve QoL. Manualized interventions, such as Managing Cancer and Living Meaningfully that address specific aspects of spiritual well-being, such as meaning and purpose, might provide guidance for cancer survivors. Lo and colleagues reported that individuals with a diagnosis of metastatic cancer who used Managing Cancer and Living Meaningfully reported increased spiritual well-being and reduced depressive symptoms and anxiety about death.[24] Meaning-centered psychotherapy has also been shown to improve psychological well-being in patients with advanced cancer.[25-27]

Multidisciplinary interventions targeting all domains of QoL in cancer survivorship represent another potential strategy to help improve QoL for cancer survivors.[28] In one study of 131 advanced cancer survivors, our multidisciplinary intervention, which included a spiritual component conducted by a board certified chaplain, improved cancer survivors' QoL.[29] In this study, the chaplain was involved in 3 of 6 sessions and led participants in a discussion of spiritual beliefs, experience of being diagnosed with cancer, meaning and purpose, and grief and hope, using a semistructured interview process. The results suggest that there is value of directly addressing these important spiritual issues among cancer survivors.[29] Another study, in survivors with advanced cancer also provides support for the importance of addressing spirituality. This intervention included spiritual assessment and spiritual care of palliative care patients with advanced cancer and resulted in improved spiritual well-being 4 months after the beginning of the intervention.[30] A third randomized controlled trial did not find improvement in spiritual well-being, using a narrative approach to relieve suffering but did show an improvement in depression and anxiety.[31] Further investigation into how best to enhance spirituality among cancer survivors is clearly warranted.

This study has several important limitations. First, many patients did not complete long-term follow-up surveys (55.8% response rate), which is a common challenge with longitudinal survey studies, and there is inherent sample bias for those who completed the 1-year survey compared with those who did not. Men, those who smoked at baseline survey, those with more advanced disease and worse performance status, and those with higher distress and lower spirituality were less likely to complete the 1-year survey. Second, although representative of the region, participants were primarily Caucasian, which might limit generalizability of study findings to more diverse populations. Future research should include a more heterogeneous racial/ethnic sample and should examine cultural and religious factors that might influence the relationships among spirituality and distress. The study sample reported high overall spirituality, consistent with previous work,[13] which might not generalize to broader national and international populations. In addition, interpretation of spirituality findings is limited by lack of data on spirituality before receiving a lung cancer diagnosis. It is not clear from available data whether baseline and postdiagnosis spirituality scores represent a change in spirituality from pre- to postdiagnosis, limiting the understanding of spiritual change patterns over lung cancer survivors' lifetimes. Emotional distress was assessed using a single item of a health-related QoL measure, which could certainly be augmented by a structured clinical interview to assess distress or use of a validated measure of depression or anxiety. Additionally, the inclusion of a clinical interview with opportunities to gather more qualitative data on spirituality would have strengthened the study. Study covariates were intended to be comprehensive, but lack of data on income and/or education represents a limitation. Finally, changes in spirituality and distress were assessed over the course of only 1 year. Although the first

year after diagnosis represents an important period of treatment-related and other challenges, we are not able to determine longer-term changes in the relationship between spirituality and distress beyond 1 year into lung cancer survivorship.

Conclusion

Our study findings show that high spirituality after diagnosis is associated with lower distress at the time of lung cancer diagnosis. Findings also suggest that high spirituality might be protective against the development of distress in the year after lung cancer diagnosis, and the ability to find meaning in life might help to lower distress among distressed lung cancer survivors. The present study offers a detailed, longitudinal examination of the relationship between spirituality and distress in the early phase of cancer survivorship among lung cancer survivors, who experience lower QoL compared with other cancer subgroups. The effort to better understand factors associated with distress using brief, patient-friendly, and clinic-friendly measures is timely in light of the distress screening and referral mandate for cancer centers. Furthermore, the findings contribute to emerging research on spirituality among cancer survivors and provide additional data to help begin answering clinical questions, such as, "When do we refer to a chaplain?" and "How might intervening early on spiritual QoL be helpful for survivors long-term?" These results suggest that referring patients who endorse low spirituality and intervening early might help reduce long-term distress. Future research should further examine potential moderators and mediators of these effects. Because of the strength of the present prospective observational findings, further exploration of interventions tailored to enhance spirituality among lung cancer survivors is clearly warranted.

Clinical Practice Points

- All too frequently psychosocial interventions for cancer patients focus on a single domain of functioning. This limits their appeal and effectiveness.
- Novel approaches that combine approaches, strategies, and interventions from different disciplines might be more effective and engaging for the cancer survivor.
- If confirmed by other investigators, these findings suggest that, in addition to screening for distress, it might be beneficial to assess the patient's level of spirituality, because spirituality appears to have the potential to protect against the development of distress, and in those with active emotional distress, spirituality might help to lower distress.

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Disclosure

The authors have stated that they have no conflicts of interest.

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