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Religious Coping is Associated with the Quality of Life of Patients with Advanced Cancer

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Abstract

Background—For patients confronting a life-threatening illness such as advanced cancer, religious coping can be an important factor influencing their quality of life (QOL).

Objective—The study's main purpose was to examine the association between religious coping and QOL among 170 patients with advanced cancer. Both positive religious coping (e.g., benevolent religious appraisals) and negative religious coping (e.g., anger at God) and multiple dimensions of QOL (physical, physical symptom, psychological, existential, and support) were studied.

Design—Structured interviews were conducted with 170 patients recruited as part of an ongoing multi-institutional longitudinal evaluation of the prevalence of mental illness and patterns of mental health service utilization in advanced cancer patients and their primary informal caregivers.

Measurements—Patients completed measures of QOL (McGill QOL questionnaire), religious coping (Brief Measure of Religious Coping [RCOPE] and Multidimensional Measure of Religion/Spirituality), self-efficacy (General Self-Efficacy Scale), and sociodemographic variables.

Results—Linear regression analyses revealed that after controlling for sociodemographic variables, lifetime history of depression and self-efficacy, greater use of positive religious coping was associated with better overall QOL as well as higher scores on the existential and support QOL dimensions. Greater use of positive religious coping was also related to more physical symptoms. In contrast, greater use of negative religious coping was related to poorer overall QOL and lower scores on the existential and psychological QOL dimensions.

Conclusions—Findings show that religious coping plays an important role for the QOL of patients and the types of religious coping strategies used are related to better or poorer QOL.

Introduction

There has been growing recognition of the importance of asking patients in palliative care what matters to their quality of life (QOL),[1–3] rather than relying on the preferences of clinicians and family members. Accordingly, some of these studies have found that patients identify

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multiple dimensions that they perceive are important to their QOL. This includes the quality of their palliative care, relationships with family and friends, engagement in activities and hobbies, general outlook on life, and consideration of future issues related to their death.[1–3] For many patients who are confronting a life-threatening illness such as advanced cancer, religion and the use of religious coping becomes an important factor influencing their QOL. In fact, a review of studies on psychospiritual well-being among individuals with advanced cancer highlighted six themes through which religion/spirituality influenced well-being: self-awareness, coping and adjusting effectively with stress, relationships and connectedness with others, sense of faith, sense of empowerment, and confidence and living with meaning and hope.[4] Those living with terminal illness face multiple challenges that can impede their QOL. For instance, individuals with advanced cancer are required to cope with the physical and psychological impact of their treatment[5] as well as the impact that their illness can have on their family members.[6] Many patients living with terminal illnesses also have to deal with psychiatric problems, mainly anxiety and depression,[7,8] which can further complicate how they manage their illness. Consequently, the strategies that patients use to cope with these challenges can be important in predicting their QOL.[9,10]

In several studies, religion has been consistently found to be an important coping resource for those with life threatening illnesses.[7,11,12] Religious coping can be particularly compelling for disenfranchised populations, such as the elderly, minorities, and women,[13,14] who often confront challenges in accessing health care.[15] More specifically, religious practices such as prayer and meditation can enhance a sense of control over stressful events[16] by helping individuals achieve a personal relationship with a higher entity that offers strength and support to cope with their illness. Furthermore, religion provides a sense of purpose and meaning for seemingly incomprehensible events or chronic adversity.[17,18] Religious belief systems can provide a framework for understanding the experience of death and dying.[19] Religious resources may provide individuals with a terminal illness a sense of self-efficacy to accept their illness and manage problems associated with it more effectively. Self-efficacy has been posited by some[20] to be crucial to the psychological adjustment of individuals living with chronic illnesses.

Cross-sectional and longitudinal studies reveal that religious coping has been predictive of better mental health and physical health of individuals, after controlling for the effects of socio-demographic variables and nonreligious coping measures.[21,22] However, less attention has been paid to determining the type of religious coping, positive or negative, that may differentially affect health outcomes. Positive religious coping methods, such as prayer and benevolent religious appraisals of negative situations, reflect the perception of a secure relationship with God, a belief in a benevolent purpose to life, and a sense of connectedness with a religious community. In contrast, negative religious coping methods, such as attributions of situations to a punishing God and feelings of abandonment by God, reflect a struggle that grows out of a perception of a tenuous relationship with God, a more ominous view of life, and a sense of disconnectedness with a religious community.[23]

Studies that distinguish positive from negative religious coping report that greater use of "positive religious coping" strategies is associated with improved mental health status,[24] stress-related growth, and spiritual growth.[25] Conversely, greater use of "negative religious coping" strategies is tied to more psychological distress[26–28] and increased risk of mortality.[29]

Even though research has documented the significance of religion for patients with chronic and terminal illnesses, much of the focus has been on the positive dimension of religious coping. In light of the health risks associated with negative religious coping, it seems critical to examine the negative dimension as well. Furthermore, the influence of religious coping on the QOL of

patients with terminal illness has, to our knowledge, never been examined comprehensively (i.e., included positive and negative dimensions). Moreover, the outcomes that have been typically measured in QOL research are limited to a few dimensions.[2] Given that patients perceive their QOL to comprise multiple dimensions, we used the McGill QOL questionnaire to examine how religious coping, both positive and negative, influenced multiple dimensions of QOL relevant to seriously ill individuals. In summary, the purpose of this paper is to examine whether religious coping, positive and negative, is associated with the five QOL dimensions of the McGill questionnaire: physical, physical symptoms, psychological, existential, and support[30,31] among patients with advanced cancer, after controlling for sociodemographic variables (age, gender, and race), self-efficacy, and lifetime diagnosis of depression, all variables that have been shown to independently influence patient QOL. We hypothesized that positive religious coping would be associated with better QOL while negative religious coping would be associated with worse QOL.

Methods

Patients

Patients were recruited between August 1, 2002 and May 1, 2004 as part of an ongoing multi-institutional longitudinal evaluation (MH63892, CA106370) of the prevalence of mental illness and patterns of mental health service utilization in patients with advanced cancer and their primary informal (nonpaid) caregivers in the Coping with Cancer Study. This report focused on the religious coping and QOL of the patients from the baseline evaluation; the caregiver experience is reported elsewhere.[32] Inclusion criteria for the study were: (1) diagnosis of advanced cancer (presence of distant metastasis and failure of first-line chemotherapy); (2) diagnosis at a participating site; (3) age 20 years or younger; (4) identified unpaid, informal caregiver; and (5) adequate stamina to complete the interview. Excluded were patient–caregiver dyads in which either the patient or the caregiver met criteria for dementia or delirium (by Neurobehavioral Cognitive Status Examination) or could not speak English or Spanish. The participating centers were the Yale Cancer Center (Connecticut), the Veterans Affairs Connecticut Healthcare System Comprehensive Cancer Clinics (Connecticut), Memorial Sloan-Kettering Cancer Center (New York), and the Parkland Hospital Palliative Care Service (Texas). Members of the oncology clinic staff at participating centers identified potentially eligible patients who were then approached by trained research staff to ascertain interest in participation in the study. Interested patients and caregivers were contacted by telephone or a hospital room visit within the week to obtain informed consent. After receipt of the patients' informed consent, eligibility was confirmed through review of medical records and consultation with clinic staff.

Separate patient and caregiver interviews were then scheduled to occur in the hospital room, clinic, or home. Patients and caregivers each received $25 for completing the baseline interview. Interviewers from each site were trained by research staff at Yale University where they were required to achieve a high standard of accuracy and reliability based on concordance with the Yale Project Director's Rating of the SCID diagnoses (target $\kappa > 0.85$). Interview duration was an average of 45 minutes for patients. Patients who declined participation were asked to complete a brief questionnaire regarding their reasons for refusal, amount of emotional and physical distress, and demographics.

Of the 321 patients who were approached for participation from September 18, 2002 to April 8, 2004 and confirmed to be eligible, 116 (36%) declined participation. The most common reasons for nonparticipation included “not interested” ($n = 49$), “caregiver refuses” ($n = 18$), and “too upset” ($n = 13$). Compared to participants, non-participants had completed fewer years of education (mean, 12.1 versus 13.3, $p = 0.02$) and reported more distress on a five-point Likert scale the extremes of which ranged from 1, minimal/nonexistent to 5, distraught (mean

score, 3.2 versus 2.2, $p < 0.0001$). They did not differ significantly from participants in age, race/ethnicity, or gender.

All study protocol and contact documents were reviewed and approved by the Human Subjects Committee at Yale University and at each of the participating institutions.

Measures

Quality of life—Patients completed the McGill QOL Questionnaire that is designed to measure QOL of people at all stages of a life-threatening illness. Unlike other scales, this scale incorporates the existential domain, balances physical and nonphysical aspects of QOL, and includes both positive and negative influences on QOL. Factor analysis of the 16-item scale[31] yielded 5 subdomains: physical well-being (1 item), physical symptoms (3 items), psychological (4 items), existential (6 items), and support (2 items). Cronbach α of the subdomains ranged from 0.62 to 0.81 for those scales with more than a single item. Each item uses a 0–10 scale with anchors at each end. The item mean scores were summed to obtain a subdomain score; these subdomain mean scores were summed to obtain a total QOL score.

The items, anchors, and Cronbach α of the sub-domains for this study are shown in Appendix A. The subdomains were scored such that higher scores reflected better QOL. The Cronbach α for the total scale was 0.88. Also, the five subdomains were significantly correlated with each other (r ranged from 0.18 to 0.58) with one exception: the support and physical symptom subdomains were not significantly associated with one another. Finally, all five subdomains were significantly associated with the total QOL score (r ranged from 0.41 to 0.82).

Religious coping—Items from two scales, the Brief Measure of Religious Coping (RCOPE)[33] and the Multidimensional Measure of Religion/Spirituality (MMRS)[34] were used to assess the religious coping strategies used by the participants. Appendix A provides a list of the items. Positive religious coping was measured by seven items from the MMRS (e.g., I have been looking for a stronger connection with God) while negative religious coping was measured using seven items from the Brief RCOPE (e.g., I have been wondering whether God has abandoned me). Even though the Brief RCOPE had positive religious coping strategies, we did not use these items because many of them seemed to assess negative religious coping (e.g., I've been seeking help from God in letting go of my anger, I've been asking for forgiveness for my sins). Responses to the Brief RCOPE items ranged from 0 = not at all to 3 = a great deal while the MMRS item responses ranged from 0 = never or almost never to 6 = many times a day. Scores on the seven items for each scale were summed, with higher scores representing greater presence of the construct. In this study, the MMRS positive religious coping scale had an α of 0.97 while the α for the negative religious coping scale was 0.73. The two scales were not significantly associated with one another ($r = 0.06$).

Self-efficacy—The General Self-Efficacy Scale[35] was used to assess perceived self-efficacy required to cope with daily hassles as well as adaptation to stressful life events (e.g., I can always manage to solve difficult problems if I try hard enough; If I am in trouble I can usually think of a solution). Each item refers to successful coping and implies an internal-stable attribution of success. Responses on the 10-item scale range from 1 = not at all true to 4 = exactly true. All responses are summed to yield a total score; high scores suggest greater perceived self-efficacy. In samples from 23 nations, Cronbach α ranged from 0.76 to 0.90, with the majority in the high 0.80s.[35] In our study, the scale had an α of 0.87.

Other variables—Patients were asked to indicate their religious affiliation and the extent to which they considered religion to be important to them (1 = very important, 2 = somewhat, 3 = not important). Frequency of attending church services and time spent in private religious

activities was also measured on a scale from 1 = never to 6 = more than once per week. Race/ethnicity was determined by patient self-report in response to the open-ended question, "What race or ethnicity do you consider yourself to be?" A dichotomous score was created to divide patients into white (1) or non-white (0). Patients also provided information on gender (1 = male; 2 = female), age, and years of schooling. In addition, a variable was created that identified patients as being recruited at the Parkland Hospital in Texas (1) or from Connecticut or New York in the Northeast (0). Dichotomous scores were also created for those who reported a history of depression (1) and those who did not (2). The Zubrod Performance Scale was completed[36] as a summary measure of current health status based on four categories: activity, pain, food intake, and nausea. Zubrod scores of 2 or more are considered poor performance.[37]

Data analysis

Data analysis was conducted in three steps. First, we calculated means and frequencies to provide a description of the sample. Next, we examined how sociodemographic variables, namely race, gender, age, and schooling, were related to the key variables in the study: self-efficacy, religious coping, and QOL dimensions. We used *t* tests and χ^2 analyses to examine the effects of race/ethnicity and gender, while correlational analyses were used to study associations between age and schooling and the key variables. In the third and final step, we used linear regression analyses to test our hypotheses about the associations between positive and negative religious coping and QOL. For these analyses, we examined if positive and negative religious coping was related to QOL dimensions, after controlling for race, gender, age, schooling, self-efficacy, and lifetime history of depression.

Results

Patient characteristics

Of the 205 eligible patients, 35 patients from the Memorial Sloan-Kettering Cancer Center were not included in the present analyses because these patients did not complete religious coping measures that were added as part of a follow-up (CA106370) to a longitudinal evaluation of the prevalence of mental illness and mental health service utilization in patients with advanced cancer and their caregivers (MH63892). However, these 35 missing respondents did not differ significantly on key demographic variables (age, gender, race) from the 170 patients for whom we had this information. In general, the sample of 170 patients (54% male) tended to be white (65.9%), elderly (mean age, 57.46 years), at least high school-educated (61.2%), married (59%), of relatively good health status (87% with Zubrod Score ≤ 2), and had health insurance (77.6%). Seventeen percent reported a lifetime history of depression. There was some religious diversity among patients: 87.1% were either Catholic (40%), Protestant (20%), Jewish (3.5%), belonged to other religions (17.1%), or practiced no religion (6.5%). Religion was "very important" to 65.9% of patients; 20% said it was "somewhat important" and 14% said it was "not important." Currently, 45% reported not attending church, while 13.5% attended church once or twice per year and the rest at least once per month. Majority of patients (75%) reported spending time in private religious activities at least once per month. Most patients (72%) were from Connecticut in the Northeast and the rest (28%) from the Parkland Hospital in Texas. However, there were some important differences among patients from these two regions. There were more non-whites in Texas than in the Northeast ($\chi^2 = 30.62$, $p = 0.000$); also, patients in Texas were less likely to have health insurance ($\chi^2 = 93.49$, $p = 0.000$), were in school for fewer years ($t = (5.03$, $p = 0.000$) and were younger ($t = -2.45$, $p = 0.015$).

Prevalence of positive and negative religious coping across race and gender

Because of the skewed distribution of the scores on the negative religious coping scale, a median split was used to create a present (score of 1 and above) and absent (score of 0) negative religious coping score for all participants. Table 1 displays data for the use of positive and negative religious coping across race and gender. Females used more positive religious coping ($t = -2.05$, $p = -0.042$); non-whites reported greater use of positive religious coping ($t = -4.34$, $p = 0.000$) and lower use of negative religious coping ($\chi^2 = 10.95$, $p = 0.001$). Those with more schooling also reported less use of both types of religious coping ($r = -0.23$ for positive coping, $p = 0.003$ and $r = -0.35$, $p = 0.000$ for negative coping).

Patient quality of life across race and gender

Table 1 shows QOL dimension scores by race and gender ($n = 170$). There were few differences in QOL dimension scores by gender, with one exception. Males reported better psychological QOL ($t = 2.45$, $p = 0.015$). Also, non-Whites ($t = -2.96$, $p = 0.004$) reported better scores on existential QOL. Finally, more schooling was related to better scores on the psychological QOL dimension ($r = 0.17$, $p = 0.025$).

Linear regression analyses

Religious coping and quality of life—Table 2 summarizes results of the regression analyses of positive religious coping on QOL dimensions. After controlling for self-efficacy, life history of depression, and other sociodemographic variables, positive religious coping was related to better overall quality of life ($\beta = 0.173$, $p = 0.043$). In addition, more use of positive religious coping was related to better scores on the existential ($\beta = 0.225$, $p = 0.005$) and support ($\beta = 0.285$, $p = 0.001$) QOL dimensions. Interestingly, more positive religious coping was associated with greater report of physical symptoms ($\beta = -0.22$, $p = 0.009$).

According to Table 3, more use of negative religious coping was associated with worse overall QOL ($\beta = 0.171$, $p = 0.046$), after controlling for self-efficacy, life history of depression, and other socio-demographic variables. In addition, greater negative religious coping was related to lower scores on the psychological ($\beta = -0.209$, $p = 0.016$) and existential ($\beta = -0.209$, $p = 0.011$) QOL dimensions.

Discussion

The purpose of this paper was to examine how use of positive and negative religious coping methods among patients with advanced cancer was related to multiple dimensions of QOL, after controlling for sociodemographic variables, life history of depression, and self-efficacy. Consistent with our hypotheses, we found that greater use of positive religious coping was related to better overall QOL, as well as better scores on the existential and support dimensions of QOL. Also, greater use of negative religious coping was associated with worse overall QOL, as well as lower scores on the psychological and existential dimensions of QOL. The one exception to our hypotheses was the finding that greater use of positive religious coping was also related to more physical symptoms. As these data are cross-sectional, conclusions about causality cannot be made in either direction. Thus, although it is likely that religious coping influences QOL in particular ways, it is equally possible that patients who experience better QOL also turn to religious resources for coping with their illness and other stressors. Perhaps patients who experienced greater physical symptoms turned to religion more often for strength, comfort, and guidance.

Although the data in the current study are cross-sectional, a few longitudinal studies on religious coping have reported stability in its use. For instance, a study among medical rehabilitation patients that distinguished positive and negative religious coping[38] reported

stable means on positive and negative religious coping between admission and follow-up. In another 2-year study among older, hospitalized men and women,[29] both positive and negative religious coping at baseline and follow-up were significantly correlated. Furthermore, qualitative studies among individuals who have experienced some form of trauma have found that the religiosity of many individuals often increases or deepens after the traumatic experience.[39–41] All of this suggests that the results of the current study, although cross-sectional, may well hold for the future quality of life of patients with advanced cancer, especially for patients who endorse greater use of religious coping methods, although longitudinal research is needed before such conclusions may be drawn.

In particular, our comprehensive examination of religious coping indicates that, both positive and negative religious coping are associated with overall patient QOL and hence, may have an affect on health outcomes.[42] Why should positive or negative religious coping correlate with QOL or other health outcomes? One possibility is that for patients who are intrinsically committed (i.e., observe their religion for the sake of faith itself), religious coping provides meaning and control over their situation.[43] Another possibility is that religious coping is related to other variables, which may in turn influence QOL. In analyses of data related to caregivers of the patients in our study,[32] it was found that the effect of religious coping on well-being was mediated to some extent by social support and optimism, and not by self-efficacy. The same mechanisms may be at work here and future work will explore these possibilities. A third possibility could be that certain emotional or personality related variables are tied to religious coping and indirectly influence QOL. However, note that in our analyses, we controlled for self-efficacy and lifetime history of depression, two variables that tap into dimensions of personality and emotionality. In summary, future research should examine the longitudinal impact of religious coping on health outcomes and if emotional and personality factors and other psychosocial factors such as social support function as potential mediators or moderators of the observed effects.

In addition to being cross-sectional, this study is limited in that the number of non-whites was far fewer than the number of whites. Hence, moderating effects of race on religious coping and QOL outcomes could not be conducted. Also, we did not find any significant relationships between positive or negative religious coping and physical QOL. Perhaps other variables, such as satisfaction with care provided at the hospital are more tied to this dimension of QOL. For instance, Tables 2 and 3 reveal that for patients at Parkland Hospital in Texas (who were mostly non-white, less educated, and less likely to have health insurance), greater use of both positive and negative religious coping was related to more report of physical symptoms. Future studies should include health service variables, such as satisfaction with care and quality of patient–physician relationship that could be related to patient QOL. Furthermore, participants in our study were likely to be less distressed and hence more likely to report greater use of positive religious coping than negative religious coping. Thus, our study results need to be replicated among more distressed samples. Moreover, the persistence of negative religious coping over time needs to be examined. Despite these limitations, our study makes a contribution by asking patients to report on their own QOL and by comprehensively examining both positive and negative aspects of religious coping. Other studies that examine the use of religion/spirituality among patients with cancer and other illnesses have used a few non-specific items (e.g., prayer, church attendance, and bible reading) or constructs such as spiritual well-being[7,44,45] as a means to study religious coping.

Implications

Overall, the study demonstrates that religious coping is related to the QOL of patients with advanced cancer. A recent study among patients at a family medicine clinic found that 83% of the patients expressed preference to be asked about their spiritual beliefs by their physicians

under three conditions: life-threatening illnesses, serious medical conditions, and loss of loved ones.[46] Although addressing the topic of religion in medical practice is laden with controversy,[47] it is evident that for religious/spiritual patients with advanced cancer, use of religious coping is likely to be common and important for their QOL. Moreover, our findings show that assessing religious coping (especially negative religious coping) might be important to understand patients who experience poorer QOL. Even though the use of negative religious coping might be rare,[38] it is important to attend to issues such as anger at God and feelings of abandonment by God, so as to increase the likelihood of improving patient psychological and existential QOL (sense of meaning and control) and reducing the likelihood of negative outcomes. On the other hand, for patients who turn to positive religious coping, it would be important to ensure that related resources (e.g., opportunity for worship) are available so that they can maintain their QOL—by enhancing their sense of support and existential meaning. A longitudinal study among female sexual assault survivors found that those who were able to sustain or increase their use of religious coping (in addition to other coping resources) reported the most positive change (e.g., spiritual growth, relationships, self-care) after the traumatic event.[48]

Assessments regarding religion/spirituality could be conducted by a few questions posed by physicians to the patients that examine the significance of religion to the patient, how religion influences the patients' coping process and understanding of their illness, and whether their religious needs are being met. Depending on their level of comfort, physicians could refer patients to hospice chaplains or handle discussions on religious coping with the patients themselves. In the future, studies should also determine the benefits of spiritually integrated interventions for patients with terminal illness. Such interventions might be provided within existing palliative care programs or patients might be referred to pastoral care and/or mental health programs that provide such services. These interventions could address patients' religious struggles by providing a safe and empathic space where they can express their feelings of abandonment, punishment, and anger at God without feelings of guilt. This might be an important step for them to find meaning and significance in life and in their illness, and perhaps develop or re-build their relationship with God or a higher power. Discussions could also include how religion/spirituality can promote adjustment to life-threatening illness and impending death. Given that the manifestation of religion can vary across cultures[49] and across different stages of the illness,[41] the interventions need to be sensitive to how they are defining religion and spirituality and its practice. Given that the religious coping measures in our study use the term “God,” they may not be applicable for individuals who are more spiritual or for adherents of religions (e.g., Theravada Buddhists) who do not identify with a particular “God.” However, from our perspective, religion and spirituality are related rather than independent constructs.[50] In other words, like religion, spirituality also represents a search for the sacred. The search takes place within a larger religious context that could be traditional or non-traditional. Of note, a few studies have observed that a significant portion of Americans who say they are religious are also spiritual.[51,52] Moreover, the difference between the two constructs is more apparent among younger persons than older persons,[53] and given that our sample was generally older (mean age, 57.46 years), this is less of a concern for the results reported. Nonetheless, it would be important to study how the findings from our study translate to other religious groups, such as Buddhists, Muslims, and Hindus.

In summary, the findings from our study highlight the importance of religious coping for QOL of patients with advanced cancer, and show that the types of religious coping strategies that patients use is related to better or poor QOL. Although it remains to be seen if these associations are held longitudinally, it is likely that religious coping and QOL are connected for patients with terminal illness, and that addressing religious issues within palliative care would be particularly beneficial for patients who use religion to cope with their illness and related stressors.

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Appendix A. Religious Coping and Mcgill Quality of Life Items

Positive religious coping items from the MMRS ($\alpha = 0.97$)

1. I feel God's presence
2. I find strength and comfort in my religion
3. I desire to be closer to or in union with God
4. I feel God's love for me, directly or through others
5. I ask for God's help in the midst of daily activities
6. I feel guided by God in the midst of daily activities
7. During worship, or at other times when connecting with God, I feel joy, which lifts me out of my daily concerns.

Negative religious coping items from the Brief RCOPE ($\alpha = 0.73$)

1. I've been wondering whether God has abandoned me.
2. I've been feeling that the cancer is God's way of punishing me for my sins and lack of devotion.
3. I've been questioning God's love for me.
4. I've been wondering what I did for God to punish me like this.
5. I've been wondering whether my church has abandoned me.
6. I've been thinking that the devil made this happen.
7. I've been questioning the power of God.

Physical subdomain of QOL

1. Over the past two (2) days, I have felt (physically terrible/physicall well)

Physical symptoms subdomain of QOL ($\alpha = 0.67$)

Which of the following physical symptoms bothered you over the past two days:

	Yes	No
Pain	1	2
Tiredness	1	2
Weakness	1	2
Nausea	1	2
Vomiting	1	2
Lack of appetite	1	2
Trouble sleeping	1	2
Shortness of Breath	1	2
Constipation	1	2
Diarrhea	1	2
Sweating	1	2
Other (specify): _____	1	2

Psychological subdomain of QOL ($\alpha = 0.85$)

1. Over the past two (2) days, I have been depressed (not at all/extremely)
2. Over the past two (2) days, I have been nervous or worried (not at all/extremely)
3. Over the past two (2) days, I felt sad (never/always)
4. Over the past two (2) days, when I thought of the future, I was (not afraid/extremely)

Existential subdomain of QOL ($\alpha = 0.84$)

1. Over the past two (2) days, my life has been (utterly meaningless and without purpose/very purposeful and meaningful)
2. Over the past two (2) days, when I though about my whole life, I felt that in achieving life goals I have (made no progress whatsoever/progressed to complete fulfillment
3. Over the past two (2) days, when I thought of my life, I felt that my life to this point has been (completely worthless/very worthwhile)
4. Over the past two (2) days, I have felt that I have (no control over my life/complete control over my life)
5. Over the past two (2) days, I felt good about myself as a person (completely disagree/completely agree)
6. To me, the past two (2) days were (a burden/a gift)

Support subdomain of QOL ($r = 0.66$)

1. Over the past two (2) days, the world has been (an impersonal, unfeeling place/caring and responsive to my needs)
2. Over the past two (2) days, I have felt supported (not at all/completely)

QOL, quality of life; MMRS, Multidimensional Measure of Religion/Spirituality; Brief RCOPE, Brief Measure of Religious Coping.

References

1. Carter H, MacLeod R, Brander P, McPherson K. Living with a terminal illness: Patients' priorities. J Adv Nurs 2004;45:611–620. [PubMed: 15012639]
2. Cohen SR, Leis A. What determines the quality of life of terminally ill cancer patients from their own perspective. J Palliat Care 2002;18:48–58. [PubMed: 12001403]
3. Vig EK, Pearlman RA. Quality of life while dying: A qualitative study of terminally ill older men. J Am Geriatr Soc 2003;51:1595–1601. [PubMed: 14687389]
4. Lin H, Bauer-Wu SM. Psycho-spiritual well-being in patients with advanced cancer: An integrative review of the literature. J Adv Nurs 2003;44:69–80. [PubMed: 12956671]
5. Chochinov HM, Hack T, Hassard T, Kristjanson LJ, McClement S, Harlos M. Dignity in the terminally ill: A cross-sectional, cohort study. Lancet 2002;360:2026–2030. [PubMed: 12504398]
6. Keefe FJ, Ahles TA, Porter LS, Sutton LM, McBride CM, Pope MS, McKinstry ET, Furstenberg CP, Dalton J, Baucom DH. The self-efficacy of family caregivers for helping cancer patients manage pain at end-of-life. Pain 2003;103:15–162.
7. McClain CS, Rosenfled B, Breitbart W. Effect of spiritual well-being on end-of-life despair in terminallyill cancer patients. Lancet 2003;361:1603–1607. [PubMed: 12747880]
8. Smith EM, Gomm SA, Dickens CM. Assessing the independent contribution to quality of life from anxiety and depression in patients with advanced cancer. Palliat Med 2003;17:509–513. [PubMed: 14526884]
9. Gathchel, RJ.; Oordt, MS. Coping with chronic illness. In: Gathchel, RJ.; Oordt, MS., editors. Clinical Health Psychology and Primary Care: Practical Advice and Clinical Guidance for Successful Collaboration. Washington, D.C.: American Psychological Association; 2003. p. 213-233.

10. Lazarus, R.; Folkman, S. Stress, Appraisal, and Coping. New York: Springer Publishing Company; 1984.
11. Siegel K, Schrimshaw EW. The perceived benefits of religious and spiritual coping among older adults living with HIV/AIDS. J Sci Study Relig 2002;41:91–102.
12. Abraido-Lanza AF, Vasquez E, Echeverria SE. En las Manos de Dios [in God's Hands]: Religious and other forms of coping among Latinos with arthritis. J Consul Clin Psychol 2004;7:91–102.
13. Krause N. Church-based social support and health in old age: Exploring variations by race. J Gerontol B Psychol Sci Soc Sci 2002;57:S332–S347. [PubMed: 12426442]
14. Tarakeshwar N, Hansen N, Kochman A, Sikkema KJ. Gender, ethnicity, and spiritual coping among bereaved HIV-positive individuals. Mental Health Relig Culture. in press
15. Epstein AM. Health care in America—Still too separate, not yet equal. N Engl J Med 2004;351:603–605. [PubMed: 15295055]
16. Dull VT, Skokan LA. A cognitive model of religion's influence on health. J Soc Issues 1995;51:49–64.
17. Taylor EJ. Factors associated with meaning in life among people with recurrent cancer. Oncol Nurs Forum 1993;20:1399–1407. [PubMed: 8265444]
18. Thomas J, Retsas A. Transacting self-preservation: A grounded theory of the spiritual dimensions of people with terminal cancer. Int J Nurs Stud 1999;36:191–201. [PubMed: 10404288]
19. Daaleman T, Vandecreek L. Placing religion and spirituality at end-of-life care. JAMA 2000;284:2514–2517. [PubMed: 11074785]
20. Moos, RH. Coping with acute health crises. In: Millon, T.; Green, C.; Meagher, R., editors. Handbook of Clinical Health Psychology. New York: Plenum Press; 1982. p. 129-149.
21. Koenig HG, Cohen JJ, Blazer DG, Kudler HS, Krishnan KRR, Sibert TE. Religious coping and cognitive symptoms of depression in elderly medical patients. Psychosomatics 1995;36:369–375. [PubMed: 7652139]
22. Tix AP, Frazier PA. The use of religious coping during stressful life events: Main effects, moderation, and mediation. J Consult Clin Psychol 1998;66:411–422. [PubMed: 9583344]
23. Pargament, KI. The Psychology of Religion and Coping: Theory, Research, and Practice. New York: Guilford Press; 1997.
24. Pargament KI, Ishler K, Dubow E, Stanik P, Rouiller R, Crowe P, Cullman E, Albert A, Royster B. Methods of religious coping with the Gulf War: Cross-sectional and longitudinal analyses. J Sci Study Relig 1994;33:347–361.
25. Tarakeshwar N, Pargament KI. Religious coping in families of children with autism. Focus Autism Other Dev Disabil 2001;16:247–260.
26. Exline JJ, Yali AM, Lobel M. When God disappoints: Difficulty forgiving God and its role in negative emotions. J Health Psychol 1999;4:364–379.
27. Jenkins RA. Religion and HIV: Implications for research and intervention. J Soc Issues 1995;51:131–144.
28. Thompson MP, Vardaman PJ. The role of religion in coping with loss of a family member in homicide. J Sci Study Relig 1997;36:44–51.
29. Pargament KI, Koenig H, Tarakeshwar N, Hahn J. Religious struggle as a predictor of mortality among medically ill elderly patients. Arch Intern Med 2001;161:1881–1885. [PubMed: 11493130]
30. Cohen SR, Hassan SA, Lapointe BJ, Mount BM. Quality of life in HIV disease by the McGill quality of life questionnaire. AIDS 1996;10:1421–1427. [PubMed: 8902073]
31. Cohen SR, Mount BM, Bruera E, Provost M, Rowe J, Tong K. Validity of the McGill Quality of Life Questionnaire in the palliative care setting: A multi-centre Canadian study demonstrating the importance of the existential domain. Palliat Med 1997;11:3–20. [PubMed: 9068681]
32. Pearce, MJ. Religious Coping and Belief Systems Associated with the Well Being and Experience of Caregivers of Terminally Ill Patients [dissertation]. New Haven, CT: Yale University; Dec 7. Dec 7. 2004
33. Pargament KI, Smith B, Koenig H, Perez L. Patterns of positive and negative religious coping with major life stressors. J Sci Study Relig 1998;37:710–724.

34. Idler EL, Musick MA, Ellison CG, George LK, Krause N, Ory MG, Pargament KI, Powell LH, Underwood LG, Williams DR. Measuring multiple dimensions of religion and spirituality for health research. Res Aging 2003;25:327–365.
35. Schwarzer, R.; Jerusalem, M. Generalized Self-Efficacy scale. In: Weinman, J.; Wright, S.; Johnston, M., editors. Measures in Health Psychology: A User's Portfolio Causal and Control Beliefs. Windsor, UK: NFER-NELSON; 1995. p. 35-37.
36. Zubrod C, Schneiderman M, Frei E, Brindley C, Gold G, Shnider B. Appraisal of methods for the study of chemotherapy of cancer in man: Comparative therapeutic trial of nitrogen mustard and trimethylene thiophosphoramide. J Chron Dis 1960;11:7–33.
37. Escalante CP, Weiser MA, Manzullo E, Benjamin R, Rivera E, Lam T, Ho V, Valdres R, Lee EL, Badrina N, Fernandez S, DeJesus Y, Rolston K. Outcomes of treatment pathways in outpatient treatment of low risk febrile neutropenic cancer patients. Support Care Cancer 2004;12:657–662. [PubMed: 15185134]
38. Fitchett GF, Rybarczyk BD, DeMarco GA, Nicholas JJ. The role of religion in medical rehabilitation outcomes: A longitudinal study. Rehabil Psychol 1999;44:333–353.
39. Richards TA, Acree M, Folkman S. Spiritual aspects of loss among partners of men with AIDS: Postbereavement follow-up. Death Stud 1999;23:105–127. [PubMed: 10848134]
40. Decker LR. The role of trauma in spiritual development. J Humanistic Psychol 1993;33:33–46.
41. Halstead MT, Hull M. Struggling with paradoxes: The process of spiritual development in women with cancer. Oncol Nurs Forum 2001;28:1534–1544. [PubMed: 11759301]
42. Powell LH, Shahabi L, Thoresen CE. Religion and spirituality: Linkages to physical health. Am Psycho 2003;58:36–52.
43. McIntosh, DN.; Spilka, B. Religion and physical health: The role of personal faith and control beliefs. In: Lynn, ML.; Moberg, DO., editors. Research in the Social Scientific Study of Religion. 2. Greenwich, CT: JAI Press; 1990. p. 167-194.
44. Peterman AH, Fitchett G, Brady MJ, Hernandez L, Cella D. Measuring spiritual well-being in people with cancer: The Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale (FACITSp). Ann Behav Med 2002;24:49–58. [PubMed: 12008794]
45. Cotton SP, Levine EG, Fitzpatrick CM, Dold KH, Targ E. Exploring the relationships among spiritual well-being, quality of life, and psychological adjustment in women with breast cancer. Psychooncology 1999;8:429–438. [PubMed: 10559802]
46. McCord G, Gilchrist VJ, Grossman SD, King BD, McCormick KE, Oprandi AM, Schrop SL, Selius BA, Smucker DO, Weldy DL, Amorn M, Carter MA, Deak AJ, Hefzy H, Srivastava M. Discussing spirituality with patients: A rational and ethical approach. Ann Fam Med 2004;2:356–361. [PubMed: 15335136]
47. Sloan RP, Bagiella E, VandeCreek L, Hover M, Casalone C, Jinpu Hirsch T, Hasan Y, Kreger R, Poulos P. Should physicians prescribe religious activities? N Engl J Med 2000;342:1913–1916. [PubMed: 10861331]
48. Frazier P, Tashiro T, Berman M, Steger M, Long J. Correlates of levels and patterns of positive life changes following sexual assault. J Consult Clin Psychol 2004;72:19–30. [PubMed: 14756611]
49. Tarakeshwar N, Stanton J, Pargament KI. Religion: An overlooked dimension in cross-cultural psychology. J Cross-Cult Psychol 2003;34:377–394.
50. Hill PC, Pargament KI, Hood RW Jr, McCullough ME, Swyers JP, Larson DB, Zinnbauer B. Conceptualizing religion and spirituality: Points of commonality, points of departure. J Theory Soc Behav 2000;30:51–77.
51. Scott RO. Are you religious or are you spiritual: A look in the mirror. Spirituality Health 2001 Spring;: 26–28.
52. Zinnbauer BJ, Pargament KI, Cole B, Rye M, Butter EM, Belavich TG, Hipp KM, Scott AS, Kadar JL. Religion and spirituality: Unfuzzying the fuzzy. J Sci Study Relig 1997;36:549–564.
53. Marler PL, Hadaway CK. Being religious or being spiritual in America: A zero-sum proposition. J Sci Study Relig 2002;41:289–300.

Table 1

Mean Scores (SD) on Self-efficacy, Religious Coping, and QOL Dimensions Across Race and Gender (n = 170)

Variable	Whites (n = 112)	Non-whites (n = 58)	Sign χ^2 and t	Male (n = 92)	Female (n = 78)	Sign χ^2 and t
Self-efficacy	3.43 (0.43)	3.55 (0.38)		3.50 (0.44)	3.44 (0.39	
Religious coping						
Negative	53.4%	26.7%	$\chi^2 = 10.95^a$	31.5%	42.3%	
Positive	3.71 (1.72)	4.82 (1.22)	$t = -4.34^a$	3.85 (1.75)	4.37 (1.49)	$t = -2.05^b$
QOL dimensions						
Total QOL	31.97 (6.03)	32.58 (6.28)		32.36 (5.96)	31.95 (6.29)	
Physical symptom	1.70 (0.20)	1.67 (0.21)		1.71 (0.18)	1.67 (0.22)	
Physical	6.46 (2.40)	6.07 (2.40)		6.34 (2.28)	6.31 (2.55)	
Psychological	7.72 (2.21)	7.41 (2.73)		8.02 (1.92)	7.13 (2.80)	$t = -2.45^c$
Existential	7.64 (1.72)	8.42 (1.47)	$t = -2.96^c$	7.87 (1.69)	7.95 (1.67)	
Support	8.45 (1.80)	9.00 (1.60)		8.42 (1.93)	8.89 (1.45)	

[a] $p \leq 0.001$.

[b] $p \leq 0.05$.

[c] $p \leq 0.01$.

SD, standard deviation; QOL, quality of life.

Table 2

Summary of Adjusted Model of Positive Religious Coping Predicting Quality of Life of Patients with Advanced Cancer

	Total QOL		Physical		Physical symptoms		Psychological		Existential		Perceived support	
Variable	**β**	***p***	**β**	***p***	**β**	***p***	**β**	***p***	**β**	***p***	**β**	***p***
Positive RC	**0.173**	**0.043**	−0.043	0.635	**−0.220**	**0.009**	0.124	0.152	**0.255**	**0.005**	**0.285**	**0.001**
Self-efficacy	**0.162**	**0.049**	0.090	0.298	0.030	0.711	0.071	0.391	**0.210**	**0.007**	0.132	0.096
History depr diagnosis	0.037	0.657	−0.029	0.750	0.050	0.549	0.119	0.165	−0.010	0.902	0.007	0.933
Race (white)	−0.067	0.482	0.040	0.695	−0.160	0.092	0.019	0.843	−0.176	0.053	−0.124	0.181
Gender (female)	−0.027	0.733	0.019	0.824	−0.072	0.360	**−0.169**	**0.039**	0.028	0.714	0.091	0.243
Years of schooling	**0.276**	**0.002**	0.115	0.225	0.015	0.861	**0.215**	**0.018**	**0.240**	**0.005**	**0.263**	**0.003**
Age (years)	0.130	0.130	0.002	0.979	−0.065	0.439	0.114	0.190	**0.188**	**0.020**	0.113	0.172
Parkland Care (Texas)	0.121	0.206	0.070	0.491	**−0.330**	**0.001**	0.032	0.744	**0.213**	**0.019**	0.112	0.226
Total R^2	**0.138**	**0.006**	0.03	0.856	**0.17**	**0.001**	**0.12**	**0.022**	**0.24**	**0.000**	**0.19**	**0.000**

depr, depression; RC, religious coping.

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Table 3

Summary of Adjusted Model of Positive Religious Coping Predicting Quality of Life of Patients with Advanced Cancer

Variable	Total QOL		Physical		Physical symptoms		Psychological		Existential		Perceived support	
	β	*p*	β	*p*	β	*p*	β	*p*	β	*p*	β	*p*
Negative RC	**−0.171**	**0.046**	−0.094	0.300	−0.052	0.541	**−0.209**	**0.016**	**−0.209**	**0.011**	0.023	0.792
Self-efficacy	**0.162**	**0.048**	0.086	0.318	0.026	0.752	0.063	0.441	**0.211**	**0.007**	0.148	0.073
History depr diagnosis	−0.021	0.803	−0.037	0.676	0.081	0.342	0.058	0.493	−0.083	0.301	−0.032	0.707
Race (white)	−0.125	0.188	0.038	0.708	−0.115	0.227	−0.037	0.694	**−0.248**	**0.006**	−0.177	0.065
Gender (female)	−0.006	0.937	0.015	0.857	−0.100	0.212	−0.148	0.064	0.054	0.472	0.116	0.147
Years of schooling	**0.218**	**0.018**	0.096	0.326	0.025	0.783	0.148	0.108	0.168	0.054	**0.249**	**0.008**
Age (years)	0.124	0.146	−0.002	0.979	−0.076	0.374	0.113	0.182	**0.180**	**0.026**	0.109	0.202
Parkland Care (Texas)	0.155	0.102	0.066	0.510	**−0.363**	**0.000**	0.061	0.520	**0.256**	**0.005**	0.156	0.101
Total R^2	**0.14**	**0.000**	0.035	0.739	**0.13**	**0.008**	**0.14**	**0.005**	**0.23**	**0.000**	**0.12**	**0.012**

depr, depression; RC, religious coping.

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