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Psychosocial Interventions for Cancer Patients and Outcomes Related to Religion or Spirituality: A Systematic Review and Meta-Analysis

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Abstract

***Introduction*:** Religion and spirituality are important aspects of life for many individuals and have been shown to be potentially useful in therapy. They also hold relevance to patients' coping with cancer.

***Study Design*:** In this systematic and meta-analytic review, we examined the extent to which psychosocial interventions for cancer patients improve spiritual or religious quality of life.

Materials and Methods: We drew reports from a database of 932 unique projects that evaluated the effectiveness of psychosocial interventions for cancer patients reported over three decades. We identified 78 projects that measured religious or spiritual outcomes for inclusion in the current review. We investigated the types of interventions that these comprised and the types of spiritual or religious outcomes assessed. For 20 studies for which data were available we calculated effect sizes for religious or spiritual quality of life and examined the potential moderating roles of patient gender and race/ethnicity on the interventions' effects.

Results: We found that overall psychosocial interventions were beneficial for cancer patients' religious or spiritual quality of life (d = .29), but did not find any moderating effects.

***Conclusions*:** Psychosocial interventions have small but significant effects on outcomes related to religion or spirituality. Yoga, meaning-centered therapy, and life review therapy may be particularly useful interventions for cancer patients for improving outcomes in these important domains.

Key Words: Neoplasms, therapy, quality of life

Introduction

Religion and spirituality have a central place in life for many individuals, with telephone surveys documenting that 83% of Americans believe that religion is either very important or fairly important in their lives, that 91% believe in God or a universal spirit, and that 83% identify with some form of religion [1-3]. Religious and spiritual elements can also be an important part of therapeutic interventions, although this depends on the preferences of the client and provider [4]. The awareness of different religious beliefs and values is part of the American Psychological Association's definition of multicultural competence for therapists [5] and this competence is associated with higher client ratings of therapists' empathy, the quality of their working alliance, and satisfaction with therapy [6]. Religious individuals prefer religiously similar counselors and choose to discuss more intimate topics with them [7,8].

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Table 1: Respresentative Interventions

Group Therapy	Lifestyle change and group support program with the emphasis on psychospiritual issues and inner process. Health series discussion group: information on nutrition and exercise. Dance/movement group: yoga, dance therapy, experiential work with silent meditation, experiential work with imagery, and writing and drawing exercises. Discussion group: emphasis on support.
Meaning Centrered Therapy	Utilizes didactics, discussion, and experiential exercises that focus around themes related to meaning and advanced cancer. (e.g., Session 3: addresses the historical context of meaning. Patients are asked to reflect on their life and identify the most significant memories, relationships, and traditions that have made the greatest impact on them. Session 5: explores attitudinal sources of meaning. Patients participated in an experiential exercise where they are asked to respond to questions like "What would you consider a good or meaningful death?")
Psychoeducational Therapy	Session 1 = addresses physical well-being, pain, lymphedema, and cancer-related fatigue. Session 2 = addresses psychological well-being, social well-being, menopausal symptoms, emotions, family, financial, and social relationships, and health maintenance. Session 3 = addresses spiritual well being, hope, meaning in illness, uncertainty over the future, and spirituality.
Mindfulness Therapy	Guides participants to achieve greater awareness of themselves, their thoughts, and their bodies through class discussion, meditation, and yoga.

Religion and spirituality have also been shown to play important roles in coping with cancer diagnosis and treatment[9-15].Religion and spirituality may be particularly important elements of therapeutic interventions for cancer patients because the disease often evokes existential themes of control, identity, relationships with others, and meaning [16,17]. Psychosocial interventions may help patients work through tensions between the meaning they attribute to cancer and their beliefs about a higher power[18] or their acceptance of a difficult situation [19]. Religious affiliation may also play a role in coping with illness. For example, Seventh Day Adventists may experience more distress over illnesses because the emphasis on maintaining one's body's health [20]. Religious affiliation may influence the efficacy of particular psychosocial interventions. Because the Jewish tradition focuses on knowledge, emotional expression, and understanding inner emotions, talking or insight-oriented therapies may resonate more with Jewish individuals [21].

Although religion and spirituality have relevance to healing, the influence of religion on health and mental health is an understudied topic. For example, in a review of publications in seven major American Psychological Association journals from 1991 to 1994, only 2.7% included a religion-oriented variable, and in a majority of these (79%) the religion-oriented measure only involved a single item [22]. In a review of four

Table 2: Types of Religious or Spiritual Outcomes Assessed

	Number (%) of Studies
Religious or Spiritual Quality of Life	41 (53%)
Religious or Spiritual Coping	16 (21%)
Post Traumatic Growth	5 (6%)
Existential Quality of Life	5 (6%)
Qualitatively Assessed Outcomes	5 (6%)
Locus of Control	3 (4%)
Hope	2 (3%)
Forgiveness	1 (1%)
Interference with Life Activities	1 (1%)

major psychiatric journals, just 2.5% of studies included a religion-oriented variable [23]. Furthermore, a focus on the Christian faith dominates the limited research on religion and health [24] and researchers that study religion have focused on theistic religions at the exclusion of agnostic or atheist belief systems[25,26]. Despite the potential importance of religion and spirituality for cancer patients, no review has systematically examined the research on the ways in which psychosocial interventions for cancer patients designed to improve quality of life may affect outcomes related to religion or spirituality. Related reviews have focused on religious coping and psychological adjustment to stress [27], intercessory prayer [28-30], spiritual needs in health care settings [31], religion and psychotherapy [8], religion or spirituality and mental health [32,33], religious attendance and health [34], spirituality and end of life care [35], religious involvement and mortality [36], psychotherapeutic practices and religion [37], and religion and spirituality's relationship to breast cancer patients' quality of life [38].

In sum, religion and spirituality hold a central place for many individuals, are potentially useful in therapy, and are relevant to patients coping with cancer. In our prior systematic review work [39,40], we generated a database of 932 unique projects that evaluated the effectiveness of psychosocial interventions designed to improve several aspects of quality of life for cancer patients reported over three decades. In the current systematic and meta-analytic review, we used this database to examine the extent to which such psychosocial interventions for cancer patients improve spiritual or religious quality of life specifically. Furthermore, we sought to describe the types of interventions that these comprise and the types of spiritual or religious outcomes assessed.

We also aimed to examine the potential moderating roles of gender and race/ethnicity on these effects. Religion and spirituality have been shown to be particularly important for women [1,41-43] and various elements of religion appear to affect the health of men and women differently [44-46]. In the context of cancer, a survey of older White lung cancer patients showed that women were more likely than men to favor spiritual practices, use religious coping, endorse having a life mission, and feel that they were part of a divine plan [47]. Religion and spirituality have also been shown to be particularly relevant for African Americans [1,48,49] and their physical [43] mental health [50,51] and possibly to coping with cancer.

In our review, we did not differentiate between religion and spirituality due to the significant overlap between these two concepts [28,52]. We included projects that looked at existential quality of life because some authors have defined this as a sub-construct of religion or spirituality [53,54]. We hypothesized that psychosocial interventions would have a beneficial effect on the religious or spiritual quality of life in cancer patients. Additionally, because of the importance women and African Americans place on religion and spirituality, we expected that studies that included a larger proportion of women and African Americans in their samples might show stronger effects.

Table 3: Representative of Types of Religious and Spirituality Outcome Measures Assessed

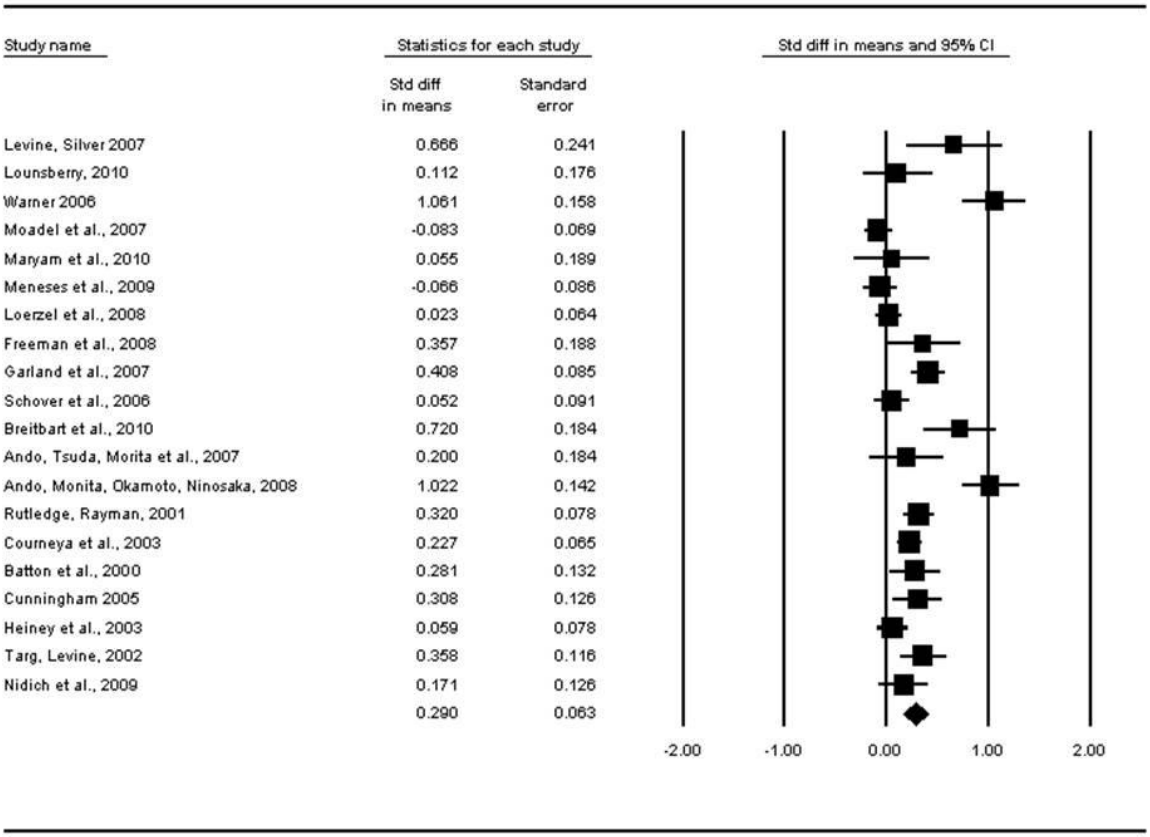
Quality of Life	FACIT-SP	This is a self-report measure of quality of life designed for cancer patients. It has 28 items designed to assess 7 domains common to all cancer patients. It measures meaning and purpose, harmony and peace, and closeness to God or a higher power. It is divided into two subscales, faith/spiritual beliefs and meaning/peace. It has a Cronbach's alpha of .87 (Peterman et al., 2002).
Coping	The Brief COPE	The Brief COPE is a 28-item inventory. It contains scales for adaptive and maladaptive coping. Under adaptive coping there is a religious coping question. This scale is based on a 4-point response format indicating the overall use of the coping method from 1 (not at all) to 4 (a lot). Cronbach's alpha is .81 and .57 for adaptive coping and maladaptive coping, respectively (Carver, 2007)
Existential Quality of Life	McGill QOL Scale	This is a 16-item self-report scale that measures quality of life. It has four subscales, physical, psychological, existential (e.g., "In achieving life's goals, I have made no progress whatsoever/progressed to complete fulfillment), and support. The McGill QOL scale has a Cronbach alpha of >.79 (Cohen et al., 1995)
Post Traumatic Growth	PTGI-R	This is a 21-item self-report inventory that measures the individual's perception of positive changes after a traumatic life experience. An individual rates from 0-6 the extent to which their views changed as a result of their illness. There are five subscale scores and a total score that can be derived from these subscales. The subscales are: relation to others; new possibilities; personal strength; spiritual change, and appreciation for lifef. Cronbach's alpha was .90. Test-retest reliability two months later was .71 (Tedeschi & Calhoun, 1996).
Hope	Herth Hope Index	This is a 32-item self-report inventory. This measure delineates three factors in hope: temporality and future, positive readiness and expectancy, and interconnectedness. Sample items include: "I have a positive outlook towards life," "I believe each day has potential," and "I am able to give and receive caring love." In past studies the measure had a test-retest reliability of .91 and a Cronbach's alpha of 0.97 (Hearth, 1992).
Forgiveness	Enright Forgiveness Inventory	This is a 60-item self-report measure of interpersonal forgiveness towards a person who has been unfair. It includes 6 subscales (10 items each): positive and negative affect, positive and negative behavior, and positive and negative cognition. It ranges from 60-360 with a higher score equal to a higher level of forgiveness (e.g., "I feel positive towards him or her" [the offender], "Regarding the person [the offender], I do or would show friendship" and "I think he or she [the offender] is worthy of respect.") Cronbach's alpha is .90 and above. Test retest-reliability ranges from .67-.91 (Hansen et al., 2009).

Method

Study Identification for the Larger Database

Studies included in the database examined psychosocial interventions for adult cancer patients that: (1) reported outcomes on psychological, emotional, behavioral, physiological, functional, or medical status; (2) were first reported as a published article or an unpublished dissertation between January 1980 and December 2010; and (3) included 10 or more individuals per group. Electronic databases (PsycINFO, Pubmed, and Dissertation Abstracts International) were searched using key terms (e.g., *cancer*, *neoplasms*, *tumor*, and *psychosocial intervention*, *psychotherapy*, *psychological treatment*, *education*, *cognitive behavioral*, *relaxation*, *stress management*, *support group*,

Figure 1: Individual and aggregate effect sizes for religious or spiritual quality of life



self-help group, *nursing intervention*, *biofeedback*; a full list is available from the authors upon request). The reference lists of included reports and of 146 prior reviews and meta-analyses also were examined. Descendancy searches were conducted on prior reviews (i.e., for subsequent studies citing them), and tables of contents of several journals (e.g., *Psycho-Oncology*, *Journal of Clinical Oncology*, *Cancer*) were searched. The sample included 932 reports. Separate reports based on the same sample (e.g., separate studies reporting outcomes at 3-month and 12-month follow-up) were treated as a single project.

Project Eligibility for the Current Review

Projects eligible for this review were those in the database that included a religious- or spirituality-related outcome. Because one goal was to describe the content and scope of this literature broadly in addition to summarizing findings quantitatively, we included any article that assessed this type of outcome regardless of whether or not results were reported in a way that allowed us to calculate an effect size. We subjected the subset of studies for which an effect size could be calculated to statistical meta-analysis. Religious- or spirituality-related outcome measures were those that were identified as such in the title of the assessment instrument (e.g., Functional Assessment of Chronic Illness Therapy-Spiritual Well Being, FACIT-Sp), regardless of whether the full instrument, or a portion thereof, was used. Projects also were eligible if they included any outcome measure that made reference to having a connection to a higher power, existential quality of life, or religious institutional beliefs or practices (e.g., prayer, reading the bible).

Project Abstracting

We abstracted from each project: the types of religion and spirituality outcomes measured, a

description of the type of intervention(s) delivered, and, participants' gender, race/ethnicity, and religion.

Data Analysis

For a study to be included in the meta-analytic syntheses, sufficient data to calculate individual effect sizes for religion and spirituality outcomes needed to be presented. In calculating aggregate effect sizes, we included only studies that used the complete religious or spiritual quality of life measure. We also did not include studies that combined spiritual or religious quality of life with other types of quality of life. If a study compared two active interventions we randomly selected one of these to include in the aggregate effect size analysis to preserve the independence of study effect sizes.

Prior to aggregating study effect sizes, we screened for potential outliers that were two or more standard deviations away from the mean and ran sensitivity analyses with and without these outliers. We ran separate mixed-effect meta-regressions (method of moments) using the two potential moderator variables gender (percentage of the sample that was female) and race/ethnicity(percentage of sample that was African American) for the subset of studies that reported these.

Results

We identified 78 studies for this review. The majority of studies included samples that were predominantly female (86%) and White (83%). Many studies (38%), however, did not report the race/ethnicity of their participants and a substantial proportion did not report their religious affiliation (77%). Where this was reported, 13 studies included a mostly Christian population and two studies recorded only on the presence or absence of religion or religious practice.

Table 1 highlights details of the variety of activities and techniques comprising representative interventions (i.e., group therapy, meaning-centered therapy, psycho-educational therapy, mindfulness therapy) used in studies that assessed religious or spiritual outcomes. These included education about religious issues, yoga, meditation, reflecting on life, imagery exercises, support groups, art therapy, cognitive restructuring, exercising, tai chi, music therapy, and counseling.

Table 2 shows the broad types of religious and spiritual outcomes assessed. The most commonly assessed were spiritual or religious quality of life (53%) and spiritual and religious coping (21%). Less commonly assessed types included posttraumatic growth, existential quality of life, locus of control, hope, forgiveness, and the extent to which cancer interferes with a patient's standard life activities. A small subset of studies (6%) assessed outcomes qualitatively. In terms of specific instruments, the FACIT-Sp [55]was commonly used to measure spiritual quality of life(23/41 studies) while the Brief RCOPE [56]and the Trier Coping with Illness Scale[57]were commonly used to assess religious coping (3/16 and 3/16 studies, respectively). There was substantial variability in how religious coping was assessed, however. These measures included counts of the number of people who used a particular coping method (3 studies), tallies of the use of particular religious coping strategies (e.g., prayer [11 studies], the extent to which a patient endorsed a particular statement [1 study], and measures that considered both positive and negative forms of religious coping [1 study]). The 11 studies that tallied the use of religious coping strategies can be further categorized into measures that focused on the total use of particular coping strategies like prayer (2 studies), measures that measured religious coping with just one item (3 studies), and measures that focused on constructs (e.g., search for religious meaning) peripheral to specific types of religious coping like prayer (6 studies).To highlight the operational definitions of religious and spiritual outcomes, **Table 3** provides descriptions of a subset of the measures that assessed the most common types of outcomes presented in these studies.

Pretest-posttest effect sizes were calculated for the largest category of outcome, religious or spiritual quality of life, in active, rather than control, conditions. We did not calculate between-condition effect sizes because, due to the variety of comparison conditions, ranging from waitlist control to other types of active interventions, combining these disparate comparisons would be uninformative. Of the 78 studies identified for the review, 41 studies contained information on religious or spiritual quality of life outcomes. In aggregating individual effect sizes for this outcome we excluded 12 studies because they did not provide relevant data to do so, 4 studies because they only used a subscale of the entire spirituality measure, and 5 studies because they combined spiritual or religious aspects of quality of life with other types of quality of life. Additionally, because one article [58] compared two active interventions (Mindfulness Based Stress Reduction and Healing Arts Therapy), we randomly selected the Mindfulness Based Stress Reduction intervention to include in the aggregate effect size. We also chose to include data from two studies that reported adjusted means rather than raw means [59,60]. This resulted in a sample 20 studies to calculate a pretest-post test aggregate effect sizes (*N*= 861).

In calculating individual study pretest-posttest effect sizes, if the test-retest reliability necessary to make this calculation for a particular measure was not reported in the literature, we used .8 as a conservative estimate. This was the case for the majority of the measures assessed, however, a .9 test-retest reliability for the Quality of Life Instrument Breast Cancer Version spirituality subscale was reported [61].

We found the three largest effect sizes in studies that used yoga (*d* = 1.06;[62]), life review therapy (*d*= 1.02) [63]), and meaning-centered therapy (*d* = .72) [64]). The studies investigating yoga and life review therapy were statistical outliers. Pooled random-effect inverse-variance weighted aggregate analyses including these two outliers indicated that psychosocial interventions for cancer patients had a fairly small but significant effect on spiritual or religious quality of life (*d* = .29, *Z* = 4.63, *p*< .001) with a significant amount of heterogeneity(*Q(19)* = 127.51, *p*< .001, I^2 = 85.10; Figure 1).[1]To explain this heterogeneity, we ran separate mixed-effect meta-regressions (method of moments) using the two potential moderators (percentage female and percentage African American).Neither analysis was significant, with or without the outliers.

Discussion

One goal of our review was to describe the types of psychosocial interventions for cancer patients used in studies that measure religious or spirituality outcomes and to describe the types of these outcomes that have been assessed. We found that interventions used in studies that assess spiritual or religious outcomes were diverse, ranging from simple educational interventions, to interventions focusing on religious or spiritual issues, to mind/body practices such as yoga. We found the three largest effects in studies that used yoga, life review therapy, and meaning-centered therapy. Yoga can facilitate mindfulness and self-compassion [56,65]. Life review therapy may allow patients to reframe their life in a positive way and become more comfortable with death by seeing their life as full, generative, and meaningful [66]. Meaning-centered therapy deals directly with reappraising the role of cancer in a patient's life. These benevolent appraisals are related to better mental health outcomes [67,68].

The most commonly assessed outcome was religious or spiritual quality of life whereas smaller numbers of studies measured religious or spiritual coping, existential quality of life, posttraumatic growth, locus of control, forgiveness, hope, and qualitatively assessed religious or spiritual outcomes. For the studies that focused on religious or spiritual quality of

[1]When excluding the outliers we found similar but less strong results (*d* = .20, *Z* = 4.19, *p*< .00), again with a significant level of heterogeneity (*Q(17)* = 60.95, *p*< .001, I^2 = 72.11).

life, the FACIT-SP was the most common measure used. For religious coping there was variability in the measures used, with the Trier Coping with Illness Scales and the Brief COPE Survey being the most common. Studies tended to recruit female samples, and of the studies that reported race/ethnicity of their samples a majority of these studies were predominantly White.

We examined the extent to which psychosocial interventions for cancer patients increase cancer patients' or survivors' spiritual or religious quality of life and found that, overall, they had a small but significant effect. This effect was not moderated by the gender or race/ethnicity of the samples studied, perhaps due to limited variability in the gender and racial/ethnic makeup of samples studied. Thus, these interventions show some promise even though they may not be useful for cancer patients who do not desire a spiritual orientation in their therapy. For patients who do not desire such an orientation, useful elements might include helping them find meaning in their lives, maintaining connection with family and friends, and experiencing and appreciating the natural world [69].

Our observation that a large number of studies included predominantly female samples is similar to what has been observed in the literature on psychosocial interventions for cancer patients as a whole[39] and may reflect a greater amount of federal funding towards breast cancer and ovarian cancer [70,71].Researchers may need to develop and test religious- or spiritually-focused interventions specifically directed at men with cancer. Because feelings of vulnerability are more commonly accepted for women than men[72], future research may need to explore whether or not its beneficial for men to explore vulnerable feelings they may have about God, the afterlife, and death while experiencing cancer. This may be useful in allowing men to express suppressed feelings of fear or anxiety [73].

We found that only a few studies reported the religious affiliation of their participants. Out of those studies that measured religious affiliation, a majority of them used a predominantly Christian population. This is important because it may limit the generalizability of the results to those who identify as Christian. We suggest that future research attend to specific religious orientations when considering the match between therapeutic ingredients and the traditions and beliefs that are involved in a religious faith. However, due to the fact that there are common concepts shared among various faiths [74], it is possible that interventions that are generic in their spiritual offerings, such as those found to be most effective in the current study, will still benefit cancer patients of different religious orientations. We also found that, of the studies that measured race/ethnicity, a majority of the studies studied predominantly White samples. This represents an area for expansion, as cancer patients from minority populations, in particular African Americans, may resonate with spiritually-oriented interventions [50].

The variety of coping measures used in this literature indicates that there is, as yet, little consensus regarding how to measure religious coping in studies examining individuals dealing with cancer. One of the most commonly used measures, the Brief RCOPE, makes an important distinction between positive and negative forms of religious coping that is critical to understanding the effect of psychosocial interventions on a cancer patient's religious quality of life[56]. This 14-item measure was generated from interviews with people experiencing major life stressors. Positive religious coping (7 items) reflects a secure relationship with a transcendent force and benevolence towards oneself and others. Negative religious coping (7 items) reflects spiritual tensions within oneself, others, and the divine. Positive religious coping is related to stress-related growth, spiritual growth, positive affect, and higher self-esteem, and less depression, anxiety, and distress, whereas negative religious coping is related to more depression, anxiety, and distress [27]. For interventions like mindfulness (Table 1) that do not attempt to change a patient's religious coping or view of God, this measure may also provide

information on the extent to which a patient's style of religious coping is related to the influence of an intervention on religious or spiritual quality of life.

The significant, small overall effect size found in this review suggests that psychosocial interventions do improve religious or spiritual quality of life. In addition, meaning-centered therapy, life review therapy, and yoga had the three largest effect sizes among the active treatment conditions studied. These findings are limited in that they are based upon pretest-posttest effect sizes rather than comparisons of active conditions with control conditions. In addition, we were not able to analyze the distinction between positive and negative religious coping.

The lack of support for our hypothesis that there would be a positive relationship between the number of African Americans in a study and the study's effect on spiritual or religious quality of life, may be due to the limited number of African Americans included in the current literature. More interventions targeted specifically towards African American populations are needed for more conclusive results. Future work could also consider whether practical needs (e.g., money) or spiritual needs (e.g., a church community) play a greater role in the mental health, specifically the religious or spiritual quality of life of an African American with cancer. The lower socio-economic status of African American populations may not influence their religious or spiritual quality of life.

Conclusions

In conclusion, our review highlights that psychosocial interventions for cancer patients do influence religious and spiritual quality of life. However, the existing research is not available to unequivocally determine whether race/ethnicity or gender plays a role in this relationship. Thus, there is a need for research that further explores the possible differential effect of psychosocial interventions on religious and spiritual quality of life in more diverse populations (i.e., racial/ethnic minorities, individuals of diverse religious affiliations, men). Despite the many psychosocial interventions that we identified in the cancer literature as a whole, more work is necessary to understand how to design these interventions to optimally benefit different populations for the purposes of improving religious or spiritual quality of life.

Learning points

Interventions used in studies that assessed spiritual or religious outcomes were diverse, ranging from simple educational interventions, to interventions focusing on religious or spiritual issues, to mind/body practices such as yoga.

Psychosocial interventions for cancer patients influenced religious and spiritual quality of life, with their effects being small but significant.

Yoga, meaning-centered therapy, and life review therapy may be particularly useful interventions for cancer patients for improving outcomes in these important domains.

Competing interests and conflict of interests

The authors declare that there are no competing interests.

Authors' contributions

MG performed literature searches, study coding, analysis, and prepared the manuscript;

AM conceived and directed the study, performed study coding, and edited the manuscript;

SS performed literature searches and study coding, and edited the manuscript;

SSohl performed literature searches and study coding, and edited the manuscript;

SK performed literature searches and study coding.

Authors read and approved the final manuscript for submission.

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