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Screening for religious/spiritual struggle in blood and marrow transplant patients

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Abstract

Purpose—A growing body of research documents the harmful effects of religious/spiritual (R/S) struggle (e.g., feeling abandoned or punished by God) among patients with a wide variety of diagnoses. Documented effects include poorer quality of life, greater emotional distress, poorer recovery, and increased disability. This study reports the use of a screening protocol that identified patients who may have been experiencing R/S struggle. We also examined the prevalence and correlates of possible R/S struggle, its association with quality of life, pain, and depressive symptoms and compared the results from the screening protocol with social workers' assessments.

Methods—One hundred seventy-eight blood and marrow transplant patients completed the Electronic Self-Report Assessment—Cancer (ESRA-C) which included the Rush Religious Struggle Screening Protocol and other measures of quality of life, pain, and depressive symptoms prior to transplant therapy. All participants were assessed by a social worker, 90 % within 2 weeks of the ESRA-C assessment.

Results—Using the Rush Protocol, 18 % of the patients were identified as potentially experiencing R/S struggle. R/S struggle was not reported in any social work assessments. In a multivariable model, potential R/S struggle was more likely in patients who were more recently diagnosed, male, and Asian/Pacific Islanders. There were no significant associations between potential R/S struggle and quality of life, pain, or depressive symptoms.

Conclusions—Early identification of patients with R/S struggle will facilitate their referral for further assessment and appropriate intervention. Further research is needed to identify the best methods of screening patients for R/S struggle.

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Conflict of interest None of the authors have a conflict of interest to declare. We have full control of the primary data and agree to allow the journal to review the data if requested.

Keywords

Cancer; Oncology; Screening; Religious/spiritual struggle; Chaplain

Introduction

The diagnosis of cancer is often experienced as a life-altering, traumatic event. Harsh and disruptive treatments and uncertainty about survival create anxiety. For many with cancer, religion/spirituality (R/S) plays a very important role in navigating the illness experience. For example, among 230 patients with advanced cancer, 68 % indicated that R/S was “very important” and an additional 20 % endorsed R/S as “somewhat important” [1]. Similarly, in a study of 290 patients diagnosed with multiple myeloma, 90 % indicated R/S was “important” [2].

Evidence suggests that R/S is not only important to patients with cancer but also is associated with adjustment to and management of disease-related symptoms. For example, several dimensions of R/S have been found to be associated with general quality of life [3–5], self-esteem and optimism [6], positive appraisals [7], and life satisfaction [8]. R/S coping in patients with cancer has also been associated with lower levels of discomfort, reduced hostility, less social isolation [9], and decreased anxiety [10]. These positive effects on quality of life and adjustment have been observed not only in North American patients but also in studies among breast cancer patients in Croatia [11] and 309 patients with diverse cancers in Uruguay [12].

However, not all of the effects of R/S on health are positive. Over the past decade, evidence has accumulated, from diverse groups of medical patients, of the adverse physical and emotional effects of R/S struggle, which includes feeling abandoned by God, punished by God, and angry with God [13, 14]. For example, among 577 hospitalized, medically ill older patients, higher levels of R/S struggle were associated with poorer physical health, worse quality of life, and greater depressive symptoms [15]. In a 2-year follow-up of this sample, those people with chronic R/S struggle had poorer quality of life, greater depression, and increased disability [16]. R/S struggle was also a significant predictor of increased mortality among these patients, even after controlling for demographic, physical health, and mental health factors [17].

A number of studies have also reported the harmful effects of R/S struggle among patients with cancer. For example, in a study of 100 women who had breast cancer, R/S struggle was associated with poorer overall quality of life and lower life satisfaction [18]. Among 100 women recently diagnosed with gynecological cancer, in well-adjusted models, higher levels of R/S struggle were associated with more depression and anxiety [19]. Likewise, in a sample of 156 German women with breast cancer, R/S struggle was associated with increased depressive coping [20]. Additionally, among 170 patients with advanced cancer, R/S struggle was associated with poorer quality of life [5].

A similar pattern of harmful effects of R/S struggle has been reported for multiple myeloma patients awaiting stem cell transplantation. Among 213 patients, higher levels of R/S

struggle at the time of initial work-up for autologous stem cell transplantation were associated with higher levels of general distress, depression, higher indices of pain and fatigue, and more difficulties with daily physical functioning [21]. A longitudinal study of 94 myeloma patients interviewed at the time of stem cell collection and 1 week post-transplant (average interval 3.4 months) found that higher levels of R/S struggle at baseline were associated with greater post-transplant anxiety, greater depressive symptoms, and poorer quality of life [22].

There is limited research about the prevalence of R/S struggle; however, evidence from several studies with cancer patients indicates that approximately half report some signs of R/S struggle [5, 23, 24]. Among older medical patients, 26 % had some signs of R/S struggle at baseline and 2 years later [16]. This growing body of evidence points to the need for early identification of patients who may be experiencing R/S struggle and, where indicated, making a referral for an in-depth spiritual assessment by a professional chaplain.

The characteristics of a good instrument for screening for potential R/S struggle include items that are not disturbing for patients in the context of an initial interview as well as brevity and simplicity to facilitate use by busy clinicians who may not have extensive training in addressing R/S issues. The measure most commonly used in research about R/S struggle, the Negative Religious Coping subscale of the Brief RCOPE [25], includes items that may not be appropriate in an initial interview with an unfamiliar health professional (e.g., feeling unloved, punished, or abandoned by God) and is longer than would be preferred for screening purposes. Other models for spiritual screening have been described [26, 27], but no evidence of their validity has been reported.

The Rush Religious Struggle Screening Protocol (Rush Protocol) was developed to facilitate screening and referral by non-chaplain health care professionals by asking fewer and more general questions [28]. Specifically, the Rush Protocol was designed to identify three groups of patients: (1) patients who might be experiencing R/S struggle and who should be referred to a chaplain for further assessment, (2) patients who do not appear to be experiencing R/S struggle but who wished to be seen by a chaplain, and (3) patients who do not appear to be experiencing R/S struggle and who do not wish to be seen by a chaplain. In a pilot study of the Rush Protocol with 173 medical rehabilitation patients, 12 (7 %) were identified as potentially having R/S struggle [28]. The chaplain's follow-up assessment confirmed R/S struggle in 11 of the 12 cases (92 %). An additional 61 % of patients requested a chaplain to visit.

The aims of this study were to describe the prevalence of potential R/S struggle in a sample of blood and marrow transplant (BMT) patients using the Rush Protocol and to compare those results to information obtained from social workers' psychosocial assessments. Further, we sought to describe the demographic, religious, and medical correlates of potential R/S struggle among these patients and the association between potential R/S struggle and quality of life and emotional well-being.

Methods

Sample and procedures

Data for this secondary analysis of clinical data came from 178 BMT patients who completed initial, pre-treatment screening assessments at the Seattle Cancer Care Alliance (SCCA) between September 1, 2009, and May 10, 2010. At the SCCA, during the first week after arrival, patients who are candidates for BMT undergo a thorough assessment that includes the Electronic Self-Report Assessment—Cancer (ESRA-C), a computer-based, patient self-report of symptoms and quality of life plus clinician summary that has been shown to improve patient–clinician communication about symptoms and quality of life (QOL) issues [29].

Measures

All study measures were taken from the ESRA-C assessment. The ESRA-C was deployed in the clinic on wireless, touchscreen tablet computers and included the revised version of the Rush Protocol to screen for R/S struggle. If no R/S struggle was indicated, the program queries the patient as to whether he or she would like to talk with a chaplain (Fig. 1) [28]. Quality of life was assessed with the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-C30 [30] which includes five subscales covering global QOL, physical, emotional, cognitive, social, and role function. Depressed mood data were assessed with the PHQ-9 [31], and pain was measured with a standard pain intensity numerical scale of 0–10. A clinician summary report was provided for the face-to-face clinic visit. The level of R/S struggle was illustrated using a bar graph, and if the patient requested a chaplain, the request was stated.

Within the first week of their arrival for their initial transplant work-up, all BMT patients receive an in-depth psychosocial assessment by a social worker. This semi-structured assessment includes questions about the importance of R/S, their R/S tradition, and their openness to a chaplain visit. The social workers' assessments, including this information about the patient's R/S, are recorded in the patient's medical record.

Demographic information, including religious preference, information about the patient's disease, date of diagnosis, and the social worker's assessment of the patient's R/S concerns were obtained from the patient's medical record. From the ESRA-C database, we obtained the results of the R/S struggle screening as well as summary reports of QOL, depressed mood, and pain. The institutional review boards of both the Fred Hutchinson Cancer Research Center and Rush University Medical Center reviewed and approved the analysis.

Analysis

Prior to knowledge of the results from the Rush Protocol, the first author (SDK) reviewed the social workers' assessments and coded each case to one of three categories: (1) evidence of R/S struggle, (2) requested or open to a chaplain visit, and (3) no interest in a chaplain visit. The first 30 cases were independently coded by a chaplain colleague who was also unaware of the Rush Protocol results and there was 100 % agreement between the raters.

Religious affiliation was recoded in major groups following standard methods [32]. Patients' diagnoses were recoded into five categories. Time since diagnosis was recoded into four categories. For the measures of quality of life, pain, and depressive symptoms where there were a small number of cases, adjacent categories were aggregated.

Descriptive statistics were used to examine the demographic and medical characteristics of the sample. To examine the bivariate associations of demographic, religious, and medical characteristics with possible R/S struggle, we used the chi-square test for categorical variables (e.g., gender, race) and the *t* test for continuous variables (e.g., age). We estimated a logistic regression model to examine the multivariable association of the demographic, religious, and medical characteristics with potential R/S struggle. We used the chi-square test to examine the association between possible R/S struggle and the measures of four QOL domains (global, physical, emotional, and social), pain, and depressive symptoms.

Results

The demographic and diagnostic characteristics of the sample, as well as their religious preferences, can be seen in Table 1. The sample had an average age of 51.7 years and was nearly evenly divided by gender. Most participants were white and approximately half reported a Christian religious affiliation. Thirty percent had no religious preference and 11 % identified as spiritual but not religious. Approximately two thirds of the patients were being considered for an allogeneic transplant. Among the sample, there was a wide range of time since diagnosis: 21 % had been diagnosed within the preceding 6 months and 26 % had been diagnosed for at least 2 years.

Overall, the Rush Protocol identified 18 % of the sample as potentially having R/S struggle (Table 2). In addition, based on the Protocol, 17 % of the sample, who appeared not to have R/S struggle, requested a chaplain to visit and 65 % indicated they did not wish to have a chaplain visit. There were notable differences in identification of potential R/S struggle between the Rush Protocol and the social work interview, in which none of the participants were identified as potentially experiencing R/S struggle. Additionally, compared to the Rush Protocol, the social work interviews identified a larger proportion of patients who were open to a chaplain visit (34 %).

For the multivariable analysis, the sample was reduced to 169 due to missing data; however, the proportion of those with possible R/S struggle in the reduced sample remained 18 %. In this analysis, gender, race, and time since diagnosis were significantly associated with positive screening for R/S struggle (see Table 3). Men were significantly more likely than women to have potential R/S struggle ($OR = 4.34, p < 0.05$) and compared to Whites, Asian/Pacific Islanders were more likely to have potential R/S struggle ($OR = 6.32, p < 0.01$). Those less than 6 months post diagnosis were significantly more likely to have potential R/S struggle than those more than 2 years post diagnosis ($OR = 17.32, p < 0.001$).

As a whole, the sample reported at least mild problems for pain intensity and in each QOL domain and few reported moderate to severe depression (Table 4). There were no associations between potential R/S struggle and quality of life or pain. There was a trend for

those with moderate or severe depressive symptoms to be more likely to have potential R/S struggle compared to those with no depressive symptoms or mild depressive symptoms (36 vs. 16 %, respectively, $p = 0.07$). Due to missing data, the samples for these analyses were reduced by several cases.

Discussion

Among the 178 BMT patients in this study, responses to the Rush Protocol suggested that 32 (18 %) may be experiencing R/S struggle. The only prior report of prevalence of R/S struggle using the Rush Protocol comes from a study of 173 medical rehabilitation patients where 7 % were found to have possible R/S struggle, a proportion that would have been somewhat higher if the revised scoring had been employed [28].

Further research is needed to demonstrate more clearly the dimensions of R/S struggle which will also help refine how to measure it. This acknowledged, current thought articulates three dimensions of R/S struggle or negative R/S coping: transpersonal (e.g., relationship with God), interpersonal (e.g., relationship with R/S community or leadership), and intrapersonal (e.g., meaning, doubt). The current standard for measuring R/S struggle is the negative religious coping subscale of the Brief RCOPE [17, 18, 20, 22, 23, 25]. Other measures of negative religious coping from the full RCOPE [33] have also been employed. Using these measures, among 238 patients with diabetes, congestive heart failure, and cancer, 48 % had some evidence of R/S struggle and 15 % had moderate to high levels [23]. A study of 268 hospitalized older adults found that 26 % had evidence of R/S struggle at both baseline and 2-year follow-up [16]. A study of 170 patients with advanced cancer found that 44 % had some evidence of R/S struggle [5].

Another study among women with early stage breast cancer, conducted in the UK, a nation whose lower levels of formal religious involvement are similar to those of the Northwest region of the USA where the present study was conducted, found that 53 % reported some R/S struggle [24]. Other studies have reported anger with God [34] and spiritual concerns (e.g., wondering why God allowed their illness [35]) among those who describe themselves as atheists, results which suggest the low proportion of those with possible R/S struggle in the present study may not be due to the low levels of formal religious involvement that characterize the Northwest USA [36]. Nonetheless, the proportion of these BMT patients with possible R/S struggle (18 %) is lower than that reported in these other investigations. Further research is needed to understand why this might be the case.

Other studies have reported associations between demographic, religious, and medical factors and R/S struggle. This evidence points to inverse associations between R/S struggle and age, education and income [5, 20, 23, 37], higher levels of R/S struggle among non-Whites [37, 38], and no gender differences in R/S struggle [5, 23, 37]. In contrast, in our multivariable model, we found no association between possible R/S struggle and age and an increased likelihood of struggle among men and people with Asian or Pacific Island racial/ethnic background. Further investigation is needed to clarify whether these differences are due to the differences in how R/S struggle was measured or other factors.

Our finding of a higher likelihood of R/S struggle among those with 6 months or less since their diagnosis is consistent with some prior findings [23] but not all [18, 20, 37]. Further research is needed to clarify what factors impact the development and trajectory of R/S struggle.

Other studies, in cancer patients and other populations, have reported inverse associations between R/S struggle and quality of life [5, 16, 18, 21, 22], and positive associations with emotional distress [19, 21, 22] and depression [19–22]. In contrast, there were no significant associations between R/S struggle and quality of life, pain, or depression among the participants in the present study. The overall high quality of life and low depressive and pain symptoms of these patients may partially account for this result. Being limited to categorical measures of these factors may also have limited our ability to detect significant associations with R/S struggle, especially with depression. Each of these studies used RCOPE or a derivative modeled from it to measure R/S struggle. Quality of life was measured by different scales, for example, McGill Quality of Life Questionnaire [5], an observer rated five-item quality of life scale [16], FACT-B and FACIT-Sp [18], Beck Depression and State Anxiety Scale [19], SF12 [21], and FACT-BMT [22]. That the current study used a different measure (European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-C30) may have contributed to the difference in outcomes. Furthermore, in one of these studies, the association of R/S struggle and quality of life reached significance only in the follow-up part of the study ($p < 0.01$), not at baseline ($p < 0.10$) [16].

The two methods of inquiry about R/S needs and preferences that were employed in this study yielded very different results. In contrast to the 18 % of patients with possible R/S struggle obtained with the Rush Protocol, the notes from the social workers' interviews yielded no indications of R/S struggle in any patients. This may be due to the fact that the social workers' interviews included a general inquiry about R/S but no specific probe for R/S struggle or no language to name it. Patients may also be uncomfortable disclosing R/S struggle in interviews but less inhibited when answering questions about it on a computer [39]. Researchers have found such preferences for computerized assessment, particularly when the questionnaire items address culturally sensitive topics, such as substance abuse [40] or sexual practices [41].

The social work interviews also yielded twice the number of participants who were interested in a chaplain visit than the Rush Protocol (34 vs. 17 %, respectively). One possible explanation for this is that the social workers asked all their interviewees about a chaplain visit while in the Rush Protocol only participants who were not identified as having potential religious struggle ($n = 146$) were asked about a chaplain visit. Differences in the concreteness of the request (social workers "open to a visit" vs. Protocol "request a visit") may have contributed to this difference. Participants may also have been more reluctant to decline the opportunity to visit with a chaplain when asked face-to-face.

The results from the present study should be interpreted in light of its limitations. First, the present project was not designed as a definitive test of the Rush Protocol where Protocol results are compared to a gold standard determination of R/S struggle such as an assessment by a professional chaplain or scores on the Brief RCOPE [25]. In addition, only having

categorical data from the ESRA-C vs. continuous measures of quality of life, depression, and pain placed limits on the analyses we were able to conduct.

In addition to more rigorous testing of the Rush Protocol, there is a need for research that will provide us with a better understanding of R/S struggle. For most people, diagnosis with a serious illness is very stressful. For some people, this crisis evokes a time of transient R/S struggle followed by a return to well-being or even spiritual growth [14, 42]. However, for other people, diagnosis with a serious illness initiates a time of pervasive and harmful R/S struggle. Further research is needed about the demographic, medical, or R/S factors that influence susceptibility to R/S struggle, especially to persistent R/S struggle.

Another important issue for investigation is whether people who identify themselves as spiritual but not religious, or as religiously non-affiliated, are more or less susceptible to R/S struggle and its impact on their coping with serious illness. Belief in God is not uncommon among people who describe themselves in these ways [43], and thus, they may be vulnerable to some forms of R/S struggle such as feeling abandoned by God [24]. There is also evidence that people who describe themselves as spiritual but not religious, or religiously non-affiliated, have experienced interpersonal R/S struggle, for example, experiences of conflict with, disappointment in, or abuse from important religious figures [13, 15, 44, 45].

Further research about R/S struggle is essential for developing interventions to address it. Specifically, as we understand more about the factors that may contribute to R/S struggle and factors that may protect against it or help resolve it, we will be in a better position to develop interventions that can aid people who may be experiencing persistent, painful R/S struggle.

Evidence continues to accumulate of the harmful effects of R/S struggle among adult and adolescent patients with diverse conditions [46–50] and among their caregivers [38]. In light of this, it is important for clinicians to inquire about whether their patients are experiencing R/S struggle [48, 49] and, if so, to make referrals for further assessment and possible spiritual care from a professional chaplain or other professional trained to address those concerns [51]. While further research is needed, the Rush Protocol appears to be a useful tool for screening for R/S struggle. The questions in the Rush Protocol are simple and it can be quickly and easily administered by non-chaplain health care professionals in the context of other screening or admission procedures. As reported here, the Rush Protocol also can be incorporated into computer-based patient self-report procedures. Recent evidence suggests that patients' unmet spiritual needs are associated with lower satisfaction with care [52, 53] and with increased depression and poorer spiritual well-being [54]. The Rush Protocol also provides an efficient method to identify patients who value spiritual care and who would appreciate a chaplain visit.

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Fig. 1.
Rush Religious/Spiritual Struggle Screening Protocol

Table 1

Sample characteristics and correlates of potential religious/spiritual struggle

Variable	Values	Total (n = 178)	No struggle (n = 146, 82 %)	Potential struggle (n = 32, 18 %)	Difference
Age (years)	Mean (SD)	51.7 (12.2)	52.0 (11.9)	50.3 (13.4)	t = 0.73
	Range	20–72	20–71	23–72	
Gender	Male	94 (53 %)	73 (78 %)	21 (22 %)	$\chi^2 = 2.57$
	Female	84 (47 %)	73 (87 %)	11 (13 %)	
Race	White	147 (83 %)	124 (84 %)	23 (16 %)	$\chi^2 = 5.13$
	Asian/Pacific Islander	14 (8 %)	9 (64 %)	5 (36 %)	
	Other	8 (4 %)	7 (88 %)	1 (12 %)	
	Unknown	9 (5 %)	6 (67 %)	3 (33 %)	
Religious affiliation	Evangelical Protestant	36 (22 %)	31 (86 %)	5 (14 %)	$\chi^2 = 2.43$
	Mainline Protestant	29 (16 %)	23 (79 %)	6 (21 %)	
	Catholic	29 (16 %)	25 (86 %)	4 (14 %)	
	Other religion ^a	11 (6 %)	10 (91 %)	1 (9 %)	
	Spiritual not religious	20 (11 %)	15 (75 %)	5 (25 %)	
	No affiliation ^b	53 (30 %)	42 (79 %)	11 (21 %)	
Diagnosis	Leukemia	71 (40 %)	58 (82 %)	13 (18 %)	$\chi^2 = 2.73$
	Lymphoma	42 (24 %)	36 (86 %)	6 (14 %)	
	MDS	26 (15 %)	20 (77 %)	6 (23 %)	
	Multiple myeloma	30 (17 %)	26 (87 %)	4 (13 %)	
	Other	9 (5 %)	6 (67 %)	3 (33 %)	
BMT type	Allogenic	111 (62 %)	92 (83 %)	19 (17 %)	$\chi^2 = 1.02$
	Autologous	61 (34 %)	50 (82 %)	11 (18 %)	
	Other	6 (3 %)	4 (67 %)	2 (33 %)	
Time since diagnosis (n = 169)	Less than 6 months	36 (21 %)	22 (61 %)	14 (39 %)	$\chi^2 = 15.00^*$
	6 to 12 months	59 (35 %)	51 (86 %)	8 (14 %)	
	12 to 24 months	30 (18 %)	24 (80 %)	6 (20 %)	
	More than 2 years	44 (26 %)	41 (93 %)	3 (7 %)	

BMT blood and marrow transplant, MDS myelodysplastic syndrome

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10
p<0.01
*

Other religion = one Buddhist; two Jewish; five Latter Days Saints; one Native American; one Unitarian Universalist; one Unitarian Universalist/Latter Day Saint
No affiliation = two Agnostics; 51 none, no preference

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Table 2

Comparison of Rush Screening Protocol and social work assessment

Social work assessment					
Rush Screening Protocol	Interest in chaplain visit	Religious struggle	Interest in chaplain visit		Total
			Yes	No	
	Yes	Religious struggle	0 (0 %)	11 (34 %)	32 (18 %)
		Yes	0 (0 %)	22 (73 %)	30 (17 %)
	No	No	0 (0 %)	29 (25 %)	116 (65 %)
		Total	0 (0 %)	62 (34 %)	178

Table 3Multivariable logistic regression for potential religious struggle ($n = 169$)

Variables	Values	OR	95 % CI
Constant		0.02**	
Age		1.00	(0.96, 1.04)
Gender	Male	4.34**	(1.44, 13.12)
Race	White (ref)	1.00	
	Asian/Pacific Islander	6.32*	(1.45, 27.53)
	Other	0.64	(0.06, 6.92)
	Unknown	1.40	(0.21, 9.21)
Religious affiliation	Mainline Protestant (ref)	1.00	
	Evangelical Protestant	0.36	(0.07, 2.02)
	Catholic	0.35	(0.06, 2.07)
	Other religion	0.18	(0.01, 2.40)
	No affiliation	0.87	(0.21, 3.55)
	Spiritual not religious	1.98	(0.35, 11.30)
Diagnosis	Leukemia (ref)	1.00	
	Lymphoma	0.29	(0.02, 4.01)
	MDS	1.99	(0.51, 7.68)
	Multiple myeloma	0.10	(0.01, 1.78)
	Other	5.31	(0.35, 79.94)
BMT type	Allogenic (ref)	1.00	
	Autologous	5.90	(0.48, 71.88)
	Other	20.82	(0.87, 498.93)
Years since diagnosis	More than 2 years (ref)	1.00	
	12 to 24 months	3.46	(0.60, 19.92)
	6 to 12 months	3.88	(0.81, 18.66)
	Less than 6 months	17.72***	(3.54, 88.58)

OR odds ratio, CI confidence interval, *ref* reference group, *MDS* myelodysplastic syndrome, *BMT* blood and marrow transplant

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$

Table 4

Potential religious/spiritual struggle and quality of life, depression, and pain

Variable	Values ^a	No struggle	Potential struggle	Chi-square statistic
QOL—physical function ^b (<i>n</i> = 178)	No problem	33 (83 %)	7 (18 %)	$\chi^2 = 0.01$
	Mild/moderate/severe problem	113 (82 %)	25 (18 %)	
QOL—emotional function ^b (<i>n</i> = 177)	No problem	11 (79 %)	3 (21 %)	$\chi^2 = 0.12$
	Mild/moderate/severe problem	134 (82 %)	29 (18 %)	
QOL—social function ^b (<i>n</i> = 175)	No problem	22 (85 %)	4 (15 %)	$\chi^2 = 4.31$
	Mild problem	91 (87 %)	14 (13 %)	
	Moderate/severe problem	32 (73 %)	12 (27 %)	
Global QOL ^b (<i>n</i> = 174)	No or mild problem	73 (83 %)	15 (17 %)	$\chi^2 = 0.07$
	Moderate/severe problem	70 (81 %)	16 (19 %)	
Depression ^c (<i>n</i> = 178)	None or mild	137 (84 %)	27 (16 %)	$\chi^2 = 3.24^*$
	Moderate/severe problem	9 (64 %)	5 (36 %)	
Pain ^d (<i>n</i> = 177)	No problem	54 (81 %)	13 (19 %)	$\chi^2 = 0.60$
	Mild problem	70 (81 %)	16 (19 %)	
	Moderate/severe problem	21 (88 %)	3 (13 %)	

*
 $p = 0.07$

^aFor QOL, depressive symptoms, and pain, where there were a small number of cases, adjacent categories of severity were aggregated

^bQOL = quality of life; assessed with the Organization for Research and Treatment of Cancer Quality of Life Questionnaire-C30 [27]. For global QOL, no to mild problem >66.7; for all other subscales, no problem = 100, mild problem = 51–99, moderate to severe problem <50

^cDepressed mood data were assessed with the PHQ-9 [28]. None or mild = 0–9; moderate to severe = 10–27

^dPain (numerical scale of 0–10). No problem = 0, mild problem = 1–4, severe problem = 5–10