

Religious Coping and Use of Intensive Life-Prolonging Care Near Death in Patients With Advanced Cancer

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IN A RECENT MULTICENTER STUDY, 88% of patients with advanced cancer reported religion and spirituality to be personally important in adjusting to their illness.¹ Similarly high rates of daily prayer, meditation, and religious study underscore the importance of religion in coping with cancer.¹⁻³ According to theorists, religious coping can offer patients a sense of meaning, comfort, control, and personal growth while facing life-threatening illness.³

Distinct from more general measures of religiousness, religious coping refers to how a patient makes use of his or her religious beliefs to understand and adapt to stress. Patients who use religion to cope with their illness most often rely on positive religious coping, which is characterized by a constructive reliance on faith to promote healthy adaptation (eg, through “seeking God’s love and care”).¹⁻³ Positive

Context Patients frequently rely on religious faith to cope with cancer, but little is known about the associations between religious coping and the use of intensive life-prolonging care at the end of life.

Objective To determine the way religious coping relates to the use of intensive life-prolonging end-of-life care among patients with advanced cancer.

Design, Setting, and Participants A US multisite, prospective, longitudinal cohort of 345 patients with advanced cancer, who were enrolled between January 1, 2003, and August 31, 2007. The Brief RCOPE assessed positive religious coping. Baseline interviews assessed psychosocial and religious/spiritual measures, advance care planning, and end-of-life treatment preferences. Patients were followed up until death, a median of 122 days after baseline assessment.

Main Outcome Measures Intensive life-prolonging care, defined as receipt of mechanical ventilation or resuscitation in the last week of life. Analyses were adjusted for demographic factors significantly associated with positive religious coping and any end-of-life outcome at $P < .05$ (ie, age and race/ethnicity). The main outcome was further adjusted for potential psychosocial confounders (eg, other coping styles, terminal illness acknowledgment, spiritual support, preference for heroics, and advance care planning).

Results A high level of positive religious coping at baseline was significantly associated with receipt of mechanical ventilation compared with patients with a low level (11.3% vs 3.6%; adjusted odds ratio [AOR], 2.81 [95% confidence interval {CI}], 1.03-7.69; $P = .04$) and intensive life-prolonging care during the last week of life (13.6% vs 4.2%; AOR, 2.90 [95% CI, 1.14-7.35]; $P = .03$) after adjusting for age and race. In the model that further adjusted for other coping styles, terminal illness acknowledgment, support of spiritual needs, preference for heroics, and advance care planning (do-not-resuscitate order, living will, and health care proxy/durable power of attorney), positive religious coping remained a significant predictor of receiving intensive life-prolonging care near death (AOR, 2.90 [95% CI, 1.07-7.89]; $P = .04$).

Conclusions Positive religious coping in patients with advanced cancer is associated with receipt of intensive life-prolonging medical care near death. Further research is needed to determine the mechanisms for this association.

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religious coping has been widely associated with improved psychological adjustment to stressors including serious illness.⁴ Negative religious coping is uncommon, tends to view illness as a divine punishment, and can herald existential crisis.⁴⁻⁷

Beyond the role of religious faith in coping and adjusting to illness, religion may influence patients’ medical de-

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cisions. In a recent study of patients with lung cancer, faith was cited as the second most important factor influencing treatment decisions after oncologist recommendations.⁸ Research also indicates that religious factors affect medical decisions at the end of life. In a survey of 1006 members of the general public, 68.3% of individuals stated that their religious beliefs would guide their medical decisions if critically injured, and 57.4% believed that God could heal a patient even if physicians had pronounced further medical efforts to be futile.⁹ Religiousness and religious coping have been associated with increased preference for cardiopulmonary resuscitation, mechanical ventilation, hospitalization near death,¹⁰ and heroic end-of-life measures.¹ It has been suggested that lower rates of advance care planning among minority patients may arise partly from spiritual appraisals of illness and healing (eg, belief that only God knows one's time to die).¹¹⁻¹³

Despite evidence that religiousness is associated with preference for aggressive end-of-life care, it is unknown if religious factors influence the actual intensity of care received near death. We hypothesized that patients who rely heavily upon their religious faith to cope with advanced cancer would be more likely to receive intensive medical care near death (eg, mechanical ventilation and/or cardiopulmonary resuscitation). Data from the Coping With Cancer Study, a federally funded, multisite, prospective cohort of patients with advanced cancer, were used to examine the relationship between patients' use of positive religious coping at baseline and the receipt of intensive medical care during the last week of life.

METHODS

Study Sample

Patients included in the study were recruited between January 1, 2003, and August 31, 2007, as part of the Coping With Cancer Study, a multi-institutional investigation of patients with advanced cancer and their informal caregivers; the

study was funded by the National Cancer Institute and the National Institute of Mental Health. The Coping With Cancer Study was designed to examine the relationships between psychosocial factors, with a focus on religion/spirituality, and end-of-life outcomes such as use of aggressive medical care and quality of death. Participating sites included Yale Cancer Center (New Haven, Connecticut), Veterans Affairs Connecticut Healthcare System Comprehensive Cancer Clinics (West Haven, Connecticut), Simmons Comprehensive Cancer Care Center (Dallas, Texas), Parkland Hospital Palliative Care Service (Dallas, Texas), Massachusetts General Hospital (Boston), Dana-Farber Cancer Institute (Boston, Massachusetts), and the New Hampshire Oncology-Hematology Center (Hookset).

Eligibility criteria were (1) diagnosis of an advanced cancer with metastases, (2) disease progression following first-line chemotherapy, (3) age of at least 20 years, (4) presence of an informal caregiver (eg, spouse), (5) adequate stamina to complete the 45-minute interview, and (6) ability to speak English or Spanish. Patient-caregiver dyads in which either party was significantly cognitively impaired (by neurobehavioral cognitive status examination with >5 errors) were excluded.¹⁴ Both patients and caregivers underwent written, informed consent in accordance with protocols approved by the institutional review board of each participating site.

Each week, outpatient clinic lists were reviewed by research and clinical staff to identify eligible participants. To avoid selection bias, religion/spirituality was not mentioned as a focus of the study.

Protocol and Measures

Patients and caregivers participated in separate baseline interviews (\$25 compensation for each interview) in English or Spanish, conducted by assistants trained by Yale University staff. Outpatient charts were reviewed to confirm clinical information and disease characteristics. Within 2 to 3 weeks of

each patient's death, the formal or informal caregiver most involved in the patient's last week of life was contacted to provide information regarding the patient's care and quality of death. Further information on health care received in the last week of life was obtained from the patient's medical chart.

Sociodemographic characteristics were recorded as reported by the patient. Patients were asked, "What race or ethnicity do you consider yourself to be?" with available responses being white, black, Asian (American, Pacific Islander, or Indian), Hispanic, or other. Race/ethnicity was considered important because of known racial/ethnic differences in religiousness, treatment preferences, advance care planning, and health care use at the end of life.^{12,15,16} Disease information was obtained from the medical chart. Performance status was determined by the trained interviewer using the Karnofsky Performance Scale Index¹⁷ (scale of 0-100, in which 0=dead and 100=asymptomatic). The McGill Quality of Life Questionnaire assessed patient quality of life at baseline (scale of 0-10, in which 0=desirable and 10=undesirable).^{18,19}

Patients completed the Brief RCOPE,³ a previously validated 14-item questionnaire that assesses religious coping. The extent to which patients engage in 7 types of positive religious coping (eg, "seeking God's love and care") and 7 types of negative religious coping (eg, "wondering whether God has abandoned me") were rated on a 4-point Likert scale from 0 (not at all) to 3 (a great deal). It should be noted that positive and negative religious coping are not mutually exclusive. Both positive and negative religious coping scales had high degrees of internal consistency (Cronbach α level of .90 and .81, respectively) in the study sample. Overall, 92% of patients endorsed at least 1 positive religious coping scale item, with a median score of 12 of a possible 21 (mean [SD] score, 11.1 [6.4]). Patients who scored at or above the median were designated as having a high (51.6%) level of positive religious coping and patients who scored below the median

were designated as having a low (48.4%) level of positive religious coping. Only 43% of patients endorsed any negative religious coping scale item (mean [SD] score, 2.0 [3.5]). Negative religious coping was dichotomized as any use (score >0) vs none (score of 0). Other research has demonstrated that negative religious coping is uncommon in medical samples^{5,7,20,21} and is a strong indicator of psychopathology.^{4,7,20,21} For these reasons, and the intention to study normative religious coping, a patient's positive RCOPE score was chosen as the primary religious coping variable.

The Brief COPE survey^{22,23} assesses 14 methods of coping. Response options are on a 4-point Likert scale from 0 (not at all) to 3 (a great deal). Three coping techniques with demonstrated predictive validity and relevance for cancer and other seriously ill samples were examined²⁴⁻²⁷: active coping, emotional support-based coping, and behavioral disengagement. Scores for active coping and emotional support-based coping were split into high or low use of that coping style. Because of its infrequent endorsement, behavioral disengagement was dichotomized as some (score >0) vs none (score of 0). Patients were asked, "How would you describe your current health status?" and were given 4 possible responses. Patients who responded "seriously and terminally ill" or "relatively healthy and terminally ill" were considered to acknowledge terminal illness.^{28,29} Patients were asked "to what extent are your religious/spiritual needs being supported by the medical system (eg, physicians, nurses, chaplain)?" and were given 5 response options ranging from not at all to completely supported. Patients who responded "to a large extent" or "completely supported" were coded as having support of spiritual needs.

The well-validated Structured Clinical Interview for the *Diagnostic and Statistical Manual of Mental Disorders* (Fourth Edition) Axis I Modules was used to assess if patients met diagnostic criteria for panic disorder, major depressive disorder, generalized anxiety disorder, or posttraumatic stress disorder.

Care Preferences and Advance Care Planning

Patients were asked, "If you could chose, would you prefer (1) a course of treatment that focused on extending life as much as possible, even if it meant more pain and discomfort, or (2) on a plan of care that focused on relieving pain and discomfort as much as possible, even if that meant not living as long?" Preference for heroics was assessed by asking the patient "Would you want the doctors here to do everything possible to keep you alive even if you were going to die in a few days anyway?" Patients were asked if they had completed a do-not-resuscitate order, living will, or a health care proxy/durable power of attorney.

The primary outcome was intensive life-prolonging care, defined as receipt of ventilation or resuscitation during the last week of life. Secondary outcomes assessed included hospice enrollment and death in an intensive care unit.

Statistical Power

For the sample size in this study (N=345), and for nearly equal proportions of those classified as scoring high (51.6%) and scoring low (48.4%) on positive religious coping, the present study had adequate ($\geq 80\%$) statistical power to detect odds ratios (ORs) of 3.0 or more for associations between positive religious coping and infrequent end-of-life care outcomes such as intensive life-prolonging care (at an overall rate of 9.0% in the present sample) and death in an intensive care unit (at an overall rate of 7.5% in the present sample) at a significance level of $P < .05$.

Statistical Analysis

Associations between positive religious coping (high vs low) and patient characteristics were assessed using χ^2 and t tests when appropriate. Associations between positive religious coping and end-of-life care outcomes were assessed using multivariable logistic regression analyses, adjusting for significant sociodemographic confounders. Confounding factors were considered to be patient sociodemographic char-

acteristics associated with both positive religious coping at $P < .05$, and associated with any end-of-life care outcome at $P < .05$. Patient age and race/ethnicity (white vs nonwhite) met these criteria and were included in multivariable models relating positive religious coping to end-of-life care.

To identify psychosocial factors that might confound or mediate the relationship between positive religious coping and the primary outcome, logistic regression analyses assessed the relationships between positive religious coping and the following psychosocial measures assessed at baseline: other coping methods (negative religious coping, active coping, emotional support-based coping, behavioral disengagement), terminal-illness acknowledgment, support of spiritual needs, mental disorders diagnosed using the Structured Clinical Interview for the *Diagnostic and Statistical Manual of Mental Disorders* (Fourth Edition), care preferences, and advance directive completion. Psychosocial factors significantly associated with positive religious coping were then included along with demographic confounders in multivariable logistic regression models relating positive religious coping to intensive life-prolonging care.

Statistical analyses were conducted using SAS statistical software version 9.1 (SAS Institute Inc, Cary, North Carolina). Statistical inferences were based on 2-sided tests with $P < .05$ considered to be statistically significant.

RESULTS

Patient Characteristics

Of the 941 eligible patients, 664 participated (70.6%). The most common reasons for nonparticipation were not interested (n=106), caregiver refused (n=32), and too upset (n=21). Participants and nonparticipants did not differ significantly by age, sex, race/ethnicity, or years of education.

The sample for the present study was restricted to deceased individuals with postmortem data and complete baseline assessments of coping. At the time of the analysis, 385 participants had died (58.1%). Postmortem data were

available for 369 deceased patients (95.8%), and complete coping assessments were present for 345 of these (93.5%). The cohort consisted of 345 patients with terminally ill cancer who died a median of 122 days after baseline assessment. Baseline characteristics of the cohort are presented in TABLE 1.

Religious Coping

Separately from the brief RCOPE, patients were asked about how much they rely on religion to cope with illness. A

total of 272 patients (78.8%) reported that religion helps them cope “to a moderate extent” or more and 109 (31.6%) endorsed the statement that “it is the most important thing that keeps you going.” Most patients (n= 193; 55.9%) endorsed engaging in times of prayer, meditation, or religious study at least daily. Positive religious coping was significantly associated with being black or Hispanic ($P < .001$). Patients with a high level of positive religious coping were younger, less educated, less likely to be insured, less likely to be mar-

ried, and more likely to be recruited from the Texas sites (all $P < .001$) than those with a low level of positive religious coping.

Religious Coping and End-of-Life Outcomes

In analyses adjusted for demographic confounders, a high level of positive religious coping at baseline was significantly associated with receipt of mechanical ventilation compared with patients with a low level (11.3% vs 3.6%; adjusted OR [AOR], 2.81 [95%

Table 1. Patient Characteristics by Level of Positive Religious Coping

Characteristic	Level of Positive Religious Coping				t Test	df	P Value
	High		Low				
	No. of Patients	Mean (SD)	No. of Patients	Mean (SD)			
Age, y	178	56.0 (12.7)	167	60.9 (12.1)	3.69	343	<.001
Education, y	178	11.1 (4.3)	167	13.5 (3.5)	5.59	337	<.001
Karnofsky Performance Scale Index ^a	175	63.7 (14.2)	161	62.8 (17.4)	0.49	310	.62
McGill Quality of Life Questionnaire ^b	177	6.3 (0.9)	166	6.0 (1.0)	2.23	341	.03
		No. (%)		No. (%)			
Male sex	178	88 (49.4)	167	98 (58.7)	2.96	1	.09
Race/ethnicity							
White	178	76 (42.7)	167	139 (83.2)	63.00	3	<.001
Black	178	57 (32.0)	167	10 (6.0)			
Hispanic	178	42 (23.6)	167	16 (9.6)			
Other	178	3 (1.7)	167	2 (1.2)			
Married	175	79 (45.1)	167	108 (64.7)	13.15	1	<.001
Religion							
Catholic	178	54 (30.3)	167	76 (45.5)	40.31	4	<.001
Protestant	178	24 (13.5)	167	32 (19.2)			
Baptist	178	45 (25.3)	167	12 (7.2)			
Other	178	53 (29.8)	167	31 (18.6)			
None	178	2 (1.1)	167	16 (9.6)			
Health insurance	176	70 (39.8)	164	125 (76.2)	46.11	1	<.001
Recruitment site							
Yale Cancer Center	177	24 (13.6)	166	43 (25.9)	82.50	5	<.001
West Haven VA Cancer Center	177	3 (1.7)	166	10 (6.0)			
Simmons Comprehensive Cancer Center	177	23 (13.0)	166	12 (7.2)			
Parkland Hospital	177	115 (65.0)	166	40 (24.1)			
Partners Cancer Centers ^c	177	0	166	8 (4.8)			
New Hampshire Oncology-Hematology Center	177	12 (6.8)	166	53 (31.9)			
Type of cancer							
Lung	175	37 (21.1)	166	38 (22.9)	5.58	4	.23
Colon	175	31 (17.7)	166	17 (10.2)			
Breast	175	16 (9.1)	166	18 (10.8)			
Pancreatic	175	9 (5.1)	166	15 (9.0)			
Other	175	82 (46.9)	166	78 (47.0)			

Abbreviation: VA, Veterans Affairs.
^aOn a scale of 0 to 100, in which 0 indicates dead and 100 indicates asymptomatic.
^bOn a scale of 0 to 10, in which 0 indicates desirable and 10 indicates undesirable.
^cIndicates cancer centers at Massachusetts General Hospital and Dana-Farber Cancer Institute.

Table 2. Level of Positive Religious Coping and End-of-Life Care

	Level of Positive Religious Coping, No./Total (%)		OR (95% CI)	P Value	AOR (95% CI) ^a	P Value
	High	Low				
Ventilation	20/177 (11.3)	6/167 (3.6)	3.42 (1.34-8.74)	.01	2.81 (1.03-7.69)	.04
Resuscitation	13/176 (7.4)	3/167 (1.8)	4.36 (1.22-15.59)	.02	3.05 (0.79-11.78)	.11
Intensive life-prolonging care	24/176 (13.6)	7/167 (4.2)	3.61 (1.51-8.62)	.004	2.90 (1.14-7.35)	.03
Death in ICU	19/178 (10.7)	7/167 (4.2)	2.73 (1.12-6.68)	.03	1.80 (0.68-4.73)	.24
Hospice care enrollment	127/178 (71.3)	122/166 (73.5)	0.90 (0.56-1.44)	.66	0.97 (0.58-1.65)	.92

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval; ICU, intensive care unit.

^aAdjusted for age and race (white vs nonwhite).**Table 3.** Level of Positive Religious Coping and Other Coping Mechanisms

	Level of Positive Religious Coping, No./Total (%)		OR (95% CI)	P Value
	High	Low		
Coping mechanism				
Negative religious coping	103/178 (57.9)	46/167 (27.5)	3.61 (2.30-5.67)	<.001
Active coping	100/178 (56.2)	76/167 (45.5)	1.54 (1.00-2.35)	.05
Using emotional support	98/178 (55.1)	94/167 (56.3)	0.95 (0.62-1.46)	.82
Behavioral disengagement	48/178 (27.0)	33/167 (19.8)	1.50 (0.91-2.48)	.12
Psychospiritual variable				
Terminal-illness acknowledgment	88/174 (50.6)	60/160 (37.5)	1.71 (1.10-2.64)	.02
Support of spiritual needs	64/177 (36.2)	24/164 (14.6)	3.30 (1.94-5.62)	<.001
SCID diagnosis	21/173 (12.1)	11/159 (6.9)	1.86 (0.87-3.99)	.11
Care preference or directive				
Heroic measures	67/175 (38.3)	14/163 (8.6)	6.60 (3.53-12.36)	<.001
Life-extending care	48/177 (27.1)	39/165 (23.6)	1.20 (0.74-1.96)	.46
Do-not-resuscitate order	60/177 (33.9)	80/162 (49.4)	0.53 (0.34-0.81)	.004
Living will	50/170 (29.4)	113/166 (68.1)	0.20 (0.12-0.31)	<.001
Health care proxy/durable power of attorney	58/170 (34.1)	106/166 (63.9)	0.29 (0.19-0.46)	<.001

Abbreviations: CI, confidence interval; OR, odds ratio; SCID, Structured Clinical Interview for the *Diagnostic and Statistical Manual of Mental Disorders* (Fourth Edition).

confidence interval {CI}, 1.03-7.69]) and intensive life-prolonging care (13.6% vs 4.2%; AOR, 2.90 [95% CI, 1.14-7.35]) in the last week of life. The associations between positive religious coping and cardiopulmonary resuscitation (7.4% for a high level vs 1.8% for a low level; AOR, 3.05 [95% CI, 0.79-11.78]), death in the intensive care unit (10.7% vs 4.2%; AOR, 1.80 [95% CI, 0.68-4.73]), and hospice care enrollment (71.3% vs 73.5%; AOR, 0.97 [95% CI, 0.58-1.65]) were nonsignificant after adjusting for age and ethnicity (TABLE 2).

Religious Coping, Psychosocial Variables, and Advance Care Planning

To identify potential psychosocial variables that might confound or mediate the

relationship between positive religious coping and intensive life-prolonging care, univariate logistic regression analyses modeled the relationships between positive religious coping and several psychosocial variables (TABLE 3). A high level of positive religious coping was significantly associated with use of negative religious coping compared with patients with a low level (57.9% vs 27.5%; OR, 3.61 [95% CI, 2.30-5.67]) and active coping (56.2% vs 45.5%; OR, 1.54 [95% CI, 1.00-2.35]), a greater acknowledgment of terminal illness (50.6% vs 37.5%; OR, 1.71 [95% CI, 1.10-2.64]), and a greater support of spiritual needs (36.2% vs 14.6%; OR, 3.30 [95% CI, 1.94-5.62]). A high level of positive religious coping was significantly associated with preferring heroic measures compared with pa-

tients with a low level (38.3% vs 8.6%; OR, 6.60 [95% CI, 3.53-12.36]) and was associated with less advance care planning in all forms: do-not-resuscitate order (33.9% vs 49.4%; OR, 0.53 [95% CI, 0.34-0.81]), living will (29.4% vs 68.1%; OR, 0.20 [95% CI, 0.12-0.31]), and health care proxy/durable power of attorney (34.1% vs 63.9%; OR, 0.29 [95% CI, 0.19-0.46]).

Religious Coping and Intensive Life-Prolonging Care

The multivariable model of positive religious coping and intensive life-prolonging care was further adjusted for psychosocial variables significantly related to positive religious coping. The relationship between positive religious coping and intensive life-prolonging care remained significant after controlling for other coping methods (AOR, 3.21; 95% CI, 1.24-8.30), terminal illness acknowledgment and support of spiritual needs (AOR, 2.94; 95% CI, 1.13-7.63), and preference for heroics and completion of advance directives (AOR, 2.65; 95% CI, 1.00-7.00). Positive religious coping remained a significant predictor of intensive life-prolonging care after simultaneously adjusting for each of these psychosocial variables (AOR, 2.90; 95% CI, 1.07-7.89) (TABLE 4).

COMMENT

This study demonstrates that most patients with advanced cancer rely on religion to cope with their illness and that greater use of positive religious coping is associated with the receipt of intensive life-prolonging medical care near death. This association was not attributable to other predictors of aggressive

end-of-life care established in the literature,^{15,30,31} and remained after controlling for advance care planning and other potential psychosocial confounders. These results suggest that relying upon religion to cope with terminal cancer may contribute to receiving aggressive medical care near death.

To our knowledge, this is the first study to examine the influence of any religious factor on medical care received near death, and it is novel in demonstrating that positive religious coping is associated with receipt of aggressive end-of-life care. Positive religious coping was commonly endorsed within our sample, consistent with other studies that demonstrate it to be the normative mode of religious coping within predominantly Christian patient samples.^{3,4,21} Adjusting for negative religious coping did not alter the association of positive religious coping with intensive life-prolonging care, suggesting that these findings might not be attributable to religious struggle at the end of life.

In the absence of outcome data, previous studies support an association of several religious measures and preference for medically aggressive end-of-life care.^{1,10,32,33} In a study of 68 ethnically diverse patients with advanced cancer, belief in miracles, seeking guidance from God, and spiritual coping were associated with a preference for resuscitation, ventilation, and hospitalization in near-death scenarios.¹⁰ In a study from the trauma literature, more than half of the respondents believed that God could heal a critically injured patient even when the physician stated that medical futility had been reached.⁹ Religious copers may choose aggressive therapies because they believe that God could use the therapy to provide divine healing, or they hope for a miraculous cure while intensive medical care prolongs life.

Sullivan et al³² found that religious patients with cancer were less likely to understand the definition of a do-not-resuscitate order and were more likely to think a do-not-resuscitate order was morally wrong. Positive religious copers in the Coping With Cancer sample

Table 4. Positive Religious Coping and Intensive Life-Prolonging Care

	No. of Patients	AOR (95% CI) ^a	P Value
Age and race (white vs nonwhite) (base model)	343	2.90 (1.14-7.35)	.03
Plus negative religious coping	343	3.31 (1.29-8.50)	.01
Plus active coping	343	2.79 (1.09-7.11)	.03
Plus negative religious coping plus active coping	343	3.21 (1.24-8.30)	.02
Plus terminal-illness acknowledgment	332	2.68 (1.05-6.87)	.04
Plus support of spiritual needs	339	3.26 (1.27-8.39)	.01
Plus terminal-illness acknowledgment plus support of spiritual needs	329	2.94 (1.13-7.63)	.03
Plus heroic measures	336	3.11 (1.21-8.00)	.02
Plus do-not-resuscitate order	337	2.65 (1.05-6.71)	.04
Plus living will	334	2.37 (0.91-6.17)	.08
Plus health care proxy/durable power of attorney	334	2.74 (1.07-7.02)	.04
Plus heroic measures plus do-not-resuscitate order plus living will plus health care proxy/durable power of attorney	323	2.65 (1.00-7.00)	.05
Plus all of the above	311	2.90 (1.07-7.89)	.04

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval.

^aAdjusted for psychosocial variables.

were less likely than nonreligious copers to have a do-not-resuscitate order or other forms of advance care planning; however, these differences were largely a function of the effect of race/ethnicity (analysis not presented). Indeed, lower rates of advance care planning did not mediate the relationship between positive religious coping and intensive life-prolonging care. The increased rate of intensive life-prolonging care among religious copers was also not mediated by baseline preference for aggressive care, suggesting a more complex relationship between religious coping and end-of-life care outcomes. Religious coping may influence medical decision making rather than directly affecting treatment preferences or orientation toward care. Religious copers may decide to undergo therapies with high risks and uncertain benefits because they trust that God could heal them through the proposed treatment.

Intrinsic to positive religious coping is the idea of collaborating with God to overcome illness and positive transformation through suffering. Sensing a religious purpose to suffering may enable patients to endure more invasive and painful therapy at the end of life.^{11,12} Alternatively, religious copers might feel they are abandoning a spiritual calling as they transition from fighting cancer

to accepting the limitations of medicine and preparing for death. Religious patients might thus equate palliative care to “giving up on God [before he has] given up on them.”³⁴ Qualitative studies commonly report spiritual reasons for preferring life-sustaining treatments, including a belief that only God knows a patient’s time to die.^{11,35,36} Finally, high rates of intensive end-of-life care among religious copers may be attributable to religiously informed moral positions that place high value on prolonging life.

Taken together, these results highlight the need for clinicians to recognize and be sensitive to the influence of religious coping on medical decisions and goals of care at the end of life. When appropriate, clinicians might include chaplains or other trained professionals (eg, liaison psychiatrists³⁷) to inquire about religious coping during family meetings while the patient is in an intensive care unit and end-of-life discussions occurring earlier in the disease course.³⁸ Because aggressive end-of-life cancer care has been associated with poor quality of death and caregiver bereavement adjustment,³⁸ intensive end-of-life care might represent a negative outcome for religious copers. These findings merit further discussion within religious communities, and consideration from those providing pas-

toral counsel to terminally ill patients with cancer.

Clear associations are often elusive in religiousness/spirituality research because of the complex interactions between religious and other psychosocial factors.³⁹ Because the Coping With Cancer Study included comprehensive assessments of psychosocial measures, we were able to control for demographic confounders as well as more subtle potential explanatory effects. The effects of religious coping may have been confounded by other coping mechanisms; however, controlling for other coping styles did not alter its relationship with end-of-life care. Patients with cancer with unrealistically optimistic expectations of survival prefer and receive more aggressive end-of-life care.^{27,31} We attempted to account for this by controlling for acknowledgment of terminal illness, which did not alter the relationship between religious coping and the primary outcome. Failure to address the spiritual needs of patients with terminal cancer could conceivably contribute to spiritual crisis at the end of life, thereby leading to more aggressive care. Similarly, adjusting for support of spiritual needs did not alter the main findings. Research is needed to determine the mechanisms by which religious coping might influence end-of-life care preferences, decision making, and ultimate care outcomes.

Strengths of this study include ethnic and socioeconomic diversity among participants, use of validated surveys, and its prospective design. The brief RCOPE is a well-validated research tool that enabled empirical observations about a complex psychosocial construct. Nevertheless, clinicians should appreciate that the effects of religious coping are likely to be moderated by the environment and belief system from which they arise. Our findings should not be misinterpreted as denying the experience of many patients who find peaceful acceptance of death and pursue comfort-centered care because of their religious faith. Although religious coping is a theoretically appealing measure of functional religiousness, we can-

not say that positive religious coping rather than other religious factors (eg, religiously based morals) completely accounts for the associations observed. Given the observational nature of this study, other hidden confounders are possible. Because our study sample was predominantly Christian, the applicability of our findings to non-Christian populations is uncertain. Religious coping is common among patients with a variety of illnesses,² but attitudes toward end-of-life care vary substantially across diagnoses with intensive end-of-life care being much more prevalent among noncancer populations.^{2,15} Future studies are needed to determine the extent to which these findings apply to patients with other terminal illnesses.

Despite these limitations, this study demonstrates that positive religious coping is associated with receipt of more intensive life-prolonging medical care at the end of life. These results suggest that clinicians should be attentive to religious methods of coping as they discuss prognosis and treatment options with terminally ill patients.

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