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ORIGINAL ARTICLE

Religious coping and death depression in Iranian patients with cancer: relationships to disease stage

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Abstract

Purpose The study investigated relationships among the extent of disease, religious coping, and death depression in Iranian patients with cancer.

Method A descriptive cross-sectional study was conducted with a convenience sample of 482 Iranian cancer patients. Participants completed demographic and health, death depression, and religious coping surveys.

Results After controlling for demographic and health characteristics, positive and negative religious coping behaviors were significantly related to the experience of death depression. There was an interaction effect between negative religious coping and extent of disease with significant positive relationships to the experience of death depression.

Conclusions Negative religious coping was found to be more closely associated with death depression in patients with earlier stage disease than those with advanced stages of cancer in this sample of patients with cancer from Iran. Findings support assessing patients for use of religious coping strategies. Muslim patients who are religiously alienated and have existential anguish may be vulnerable and need heightened support following diagnosis and during treatment of early stage cancer.

Keywords Cancer · Culture · Death depression · Religious coping · Muslim

What's new? Research on the association between religious coping and death depression is abundant in the literature. However, studies investigating the mechanism behind this relationship are scarce. The results indicated that cancer stage moderates the relationship between religious coping and death depression so that for patients with more advanced cancer, negative religious coping is less associated with death depression.

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Introduction

A cancer diagnosis is recognized to evoke thoughts about death and dying [1]. In Iran, cancer is a significant public health problem as the third leading cause of mortality [2]. Further, mental health distress including problems with depression is assessed to be high in Iranian patients with cancer [3], a finding documented across cultures [4–7]. Such depressive symptoms may be associated with physical decline, loss of role performance, perceptions of lowered competence, and thoughts about loss, death, and dying [6, 8]. Given the importance of religion in the socio-cultural climate of Iran, examining relationships between depressive symptoms associated with thoughts about mortality in the context of religious coping is essential to better understand mental health issues and potential intervention strategies to reduce distress in Iranian patients with advanced cancer [9].

Psychological research that has examined the importance of death-related cognitive constructs in relation to adaptation to life-threatening illnesses such as cancer has primarily focused on death anxiety [1]. Given the recognition that depression is relatively common in patients with cancer, it is essential that more research needs to evaluate depressive thoughts about death as a potential contributor to mental health symptoms that reduce quality of life and motivation for living [10]. The construct of death depression refers to despairing cognitions about personal death or death of others that evoke sadness, dread, regrets, and grief about life finality [11]. Depressive symptoms associated with thoughts of death may accompany or be similar to other more general depression indicators such as changes in sleep patterns, ongoing sadness, and feelings of loss and grief [4].

A large body of literature has accumulated supporting the effective buffering role of religious coping behaviors in protection against psychiatric disturbances such as depression and anxiety [6, 7, 12–15]. Religious coping refers to adaptive behavioral and cognitive strategies arising from cultural religious and spiritual tenets that are used to manage stressors in the face of challenging circumstances [5–7, 16]. Religious coping is a means that may potentially empower individuals to benefit from their religious beliefs in order to bolster self-efficacy [6, 7, 15]. In accordance with attachment theory, people may use religious coping and a close relationship to a divine entity such as "God" to cope with stressful or crisis situations. By believing in and surrendering to God or a higher power who is perceived to provide protection, they sense they are not alone, have heightened security, lowered fears about death and potential afterlife, and thus experience less depressive affect and death depression [17]. Thus, religious coping may play an effective role in modifying perceptions of stress and depressive affect, while potentially contributing to positive mental health when facing a life-threatening stressor such as advanced cancer.

Research findings with regard to adaptive benefits of religious coping in cancer are mixed [15]. While religious adherence may also be associated with aversive coping, a lack of adaptive religious coping mechanisms have been associated with heightened depressive affect and other psychological disorders in individuals with chronic illness [18]. In general, findings identify that perceptions such as communication with God or a higher source, participation in religious activities, and spirituality as contributors to higher levels of optimism, comfort with perceived powerlessness, the ability to find meaning, adapting to life with cancer, and better perceived mental health [8, 19, 20].

Researchers have distinguished between positive and negative religious coping strategies [6, 21]. Positive religious coping reflects using one's religious beliefs to constructively support and optimize adaptive confrontation with life difficulties [21]. Religious behaviors such as prayer, meditation, asking for guidance from religious leaders and clergy, and seeking solace from God are possible examples of positive religious coping strategies [22]. Positive religious coping are associated with perceived security, positive life meaning, and spiritual connectedness with life relationships. In contrast, negative religious coping reflect alienation, a pessimistic world view, and tension with religious perspectives on life's significance and meaning. Religious discontent, perceptions of a punishing God, and interpersonal cultural conflicts with religiously adherent individuals may reflect examples of negative religious coping [6, 21].

Empirical findings support the significant impact of negative and positive religious coping on patients' mental health [7]. A large study conducted with patients with advanced cancer showed significant relationships between negative religious coping and increased risk for suicidal ideation [10]. Other research has found positive religious coping to be related to heightened quality of life of patients with advanced cancer [19]. In general, studies on cancer patients have found negative religious coping behaviors to predict higher distress and lower quality of life, whereas positive religious coping behaviors are associated with improved psychological well-being and quality of life [15, 19, 21, 23]. Studies have primarily involved participants from western perspectives such as from the USA emphasizing the need for cross-cultural research in this area [7].

Relationships between religious coping and perceived well-being may vary across cultural subgroups [7, 15]. For example, research has shown that religious behaviors may be more strongly related to well-being as a function of ethnicity, age, education, and religious socio-cultural conditioning [23–25] as well as a solace towards managing serious life stressors [25]. Researchers call for more studies on the moderating factors that may explain the mechanism behind the relationship between religion and psychological well-being [15, 24, 26, 27].

To summarize, research has shown that people may use a close relationship to God as a coping strategy to deal with difficult life situations [7, 10, 18]. In Iranian culture, where religion is part of the institutional fabric, religious coping behaviors as attempts to alleviate an existing or expected stressor [28] may play an even more important role in the health of patients [9]. For patients with cancer who may perceive heightened proximity to death, positive religious coping may be effective for assuaging depressive mortality-related thoughts. However, religiously adherent patients who believe that all the events are pre-determined by God may perceive a diagnosis of cancer as divine punishment. Such patients who use negative religious coping may perceive a cancer diagnosis as evidence of abandonment and punishment from God. In addition, Iranian patients with cancer who deny having religious beliefs and refrain from associated religious coping behaviors as part of the socio-religious cultural paradigm may potentially be more prone to depressive thoughts and negative effect about death [29]. For Muslims who believe in life after death, such negative perceptions may increase aversive effect and provoke depressive cognitions about death [2, 25].

Patients with advanced cancer may face more reminders of death than patients with earlier stage disease that is amenable to cure. For example, perceived declines in physical function may provoke involuntary cognitions about death for patients with advancing disease. While patients may question whether religious coping behaviors are helpful towards reducing fear of death [25], patients with advanced cancer may grow to accept the reality of death and may become less likely to associate their illness with God's plan or to blame God for negative life events [25]. Therefore, relationships between religious coping behaviors and death depression hypothetically would be less strong in patients with advanced cancer [30]. Investigation of important factors such as religious coping and depressive cognitions and affect relative to death and dying may lead to targeted assessment and interventions that can help vulnerable Iranian patients who are facing diagnosis and treatment for cancer. Therefore, the purpose of the study was to examine the relationships between religious coping and death depression in Iranian cancer patients, and to determine whether cancer stage moderates such relationships.

The following three hypotheses (H) were tested:

H1. There is a negative relationship between positive religious coping and death depression in Iranian patients with cancer.

H2. There is a positive relationship between negative religious coping and death depression in Iranian patients with cancer.

H3. The hypothesized relationships between positive and negative religious coping and death depression are moderated by cancer stage.

Methodology

Design

A descriptive cross-sectional design was incorporated to evaluate demographic factors, health characteristics, religious coping, and death depression among Iranian patients with cancer. The potential moderating effects of the extent of disease (stage of cancer) on the relationships between religious coping and death depression were evaluated.

Participants

A convenience sample of 482 patients with a confirmed diagnosis of cancer was recruited from inpatient oncology units of Imam Khomeini hospital (Sari, Iran) and the Oncology Center of Kerman (Iran). During a 4-month period (May–October, 2016), about 900 patients were admitted to these two hospitals that are recognized as major tertiary Iranian oncology centers. In order for a participant to be included in this study, he/she was required to meet the following criteria: (i) eligible to receive medical treatment, (ii) capable of reading and writing in Persian, (iii) and have no major neuro-psychiatric illness (e.g., schizophrenia, post-traumatic stress disorder, dementia, major depressive disorder) or advanced physical condition other than the cancer diagnosis that would curtail meaningful participation in the study. Psychiatric problems were assessed based on both self-report and medical record review. Some patients were also excluded secondary to hospital discharge to home or transfer to another facility.

Instruments

A demographic and health questionnaire, the Death Depression Scale-Revised (DDS-R) and Pargament Standard Religious Coping (R-COPE) questionnaires were used for data collection. Demographic information included age, sex, marital status, education level, and socio-economic status. Health characteristics included type of cancer, stage, and history of cancer.

A Persian version of the DDS-R was used for assessing death depression [31]. Initially, written permission was obtained from Templer and associates, the developers of the scale, Templer et al. [32], for translation and use of the DDS-R. The DDS-R includes 21 items which are quantified on a 5-point Likert scale from one (completely disagree) to five (completely agree) with a composite score ranging from 21 to 105. Lower scores indicate less depressive cognitions and affect about death [32].

A Persian translated version of the Brief R-COPE questionnaire was used to evaluate religious coping [33]. The abbreviated instrument consists of 14 items (2 subscales) with the first seven items assessing positive religious coping and the second seven items assessing negative views. Each item is scored on a

4-point Likert scale with options ranging from "never" to "always." Positive religious coping includes items such as seeking the help of God to deal with negative events, whereas negative religious coping includes items such as perceptions of insecurity about the presence of a deity's support [34].

Agreement and responsiveness

We found only two studies that addressed responsiveness of the R-COPE instrument over time [21, 35]. Therefore, a two-way mixed intraclass correlation coefficients (ICC) for absolute agreement with an interval of 2 weeks was computed to assess the test–retest reliability of the R-COPE in this sample. A value greater than 0.8 is interpreted as almost perfect. Next, standard error of measurement (SEM) and the smallest detectable change (SDC) were calculated as responsiveness. Minimal important change (MIC) was used to measure the smallest change in the R-COPE that patients perceive as important. The MIC greater than SDC shows that the "real" difference is likely above the measurement error.

Statistical analysis

The Statistical Package for Social Sciences (SPSS) v. 20 and PROCESS v. 2.04 were used for data analysis. For demographic evaluation, means with standard deviations or frequencies were calculated as appropriate for continuous or categorical variables.

Maximum likelihood exploratory factor analysis (EFA) followed by a promax rotation was performed to evaluate construct validity. Cronbach's alpha, composite reliability, average variance extracted (AVE), average shared square variance (ASV), and maximum shared square variance (MSV) were computed to assess construct reliability, convergent validity, and discriminant validity of the constructs. Cronbach's alpha and composite reliability greater than 0.7 indicates internal consistency and good construct reliability [36].

AVE greater than 0.5 and less than composite reliability fulfill the requirements of convergent validity. To establish discriminant validity, AVE should be greater than ASV and MSV [37]. Next, the factor score of the constructs was computed using regression method and conditional process analysis using the approach suggested by Hayes [38] was conducted to test the research hypotheses. Statistical significance was set at $p < .05$ for all procedures.

Results

Participants' profile

Table 1 shows the participant's profile. The sample consisted of 252 male (52.3%) and 230 female (47.7%) patients with cancer. The mean of the participants' age was 47.38 (SD = 15.23) and most were married ($n = 342$, 71.0%). Most of the patients (46.9%) had stage III disease (see Table 1).

Reliability and validity

The results of performing an EFA are reported in Table 2. Two items (item 11, and 14 of the Brief R-COPE scale) were excluded from the negative religious coping due to low factor loadings. The Kaiser-Meyer-Olkin (KMO) was 0.937 and the Bartlett's test of sphericity was significant ($\chi^2 = 10{,}897.339$, $df = 528$, $p < .001$) indicating that the sampling was adequate. The overall cumulative variance explained by the three factors was 54.208%. The eigenvalue of death depression, positive and negative religious coping, was 11.961, 4.791, and 3.145 respectively. The details of the measurement properties of the construct are reported in Table 3. The Cronbach's alpha and composite reliability of all constructs were greater than 0.7 indicating good internal consistency and construct reliability. While the AVE value of death depression and positive religious coping was greater than 0.5, the AVE of negative religious coping was less than 0.5. However, AVE is a strict measure of convergent validity. According to Malhotra, Dash [39]

Table 1 Participants' profile

Variables	Frequency (%)
Sex	
Male	252 (52.3%)
Female	230 (47.7%)
Marital status	
Single	140 (29.0%)
Married	342 (71.0%)
Education level	
No formal education	139 (28.8%)
Bachelor of sciences (BSc)	207 (42.9%)
Master of sciences (MSc)	113 (23.4%)
PhD	23 (4.8%)
Socio-economic status	
Low income	91 (18.9%)
Low-middle income	285 (59.1%)
Middle income	76 (15.8%)
High income	30 (6.2%)
Stage of disease	
Stage I	46 (9.5%)
Stage II	146 (30.3%)
Stage III	226 (46.9%)
Stage IV	64 (13.3%)
	Mean (SD)
Age	47.38 (15.23)

Table 2 The results of maximum likelihood exploratory factor analysis

Constructs/items	Communalities	Factor loading	% of variance	Rotated eigenvalues
Death depression			36.665%	11.961
Death depression 1	0.465	0.599		
Death depression 2	0.682	0.751		
Death depression 3	0.695	0.758		
Death depression 4	0.581	0.695		
Death depression 5	0.655	0.758		
Death depression 6	0.694	0.804		
Death depression 7	0.618	0.754		
Death depression 8	0.696	0.801		
Death depression 9	0.699	0.790		
Death depression 10	0.715	0.790		
Death depression 11	0.741	0.828		
Death depression 12	0.714	0.801		
Death depression 13	0.703	0.797		
Death depression 14	0.690	0.789		
Death depression 15	0.681	0.759		
Death depression 16	0.576	0.672		
Death depression 17	0.705	0.805		
Death depression 18	0.616	0.700		
Death depression 19	0.582	0.670		
Death depression 20	0.653	0.729		
Death depression 21	0.515	0.537		
Positive religious coping			12.464%	4.791
Religious coping 1	0.697	0.784		
Religious coping 2	0.712	0.813		
Religious coping 3	0.525	0.614		
Religious coping 4	0.589	0.802		
Religious coping 5	0.632	0.767		
Religious coping 6	0.472	0.675		
Religious coping 7	0.399	0.553		
Negative religious coping			5.089%	3.145
Religious coping 8	0.495	0.519		
Religious coping 9	0.602	0.848		
Religious coping 10	0.577	0.859		
Religious coping 12	0.401	0.429		
Religious coping 13	0.384	0.504		

"AVE is a more conservative measure than CR [composite reliability]. On the basis of CR alone, the researcher may conclude that the convergent validity of the construct is adequate, even though more than 50% of the variance is due to error" (p. 702). Moreover, AVE of each construct was less than its composite reliability value and all factor loadings were significant at 0.05 which fulfilled the requirements of convergent validity. Moreover, as AVE of

Table 3 Construct validity and reliability results

	α	θ	Ω	CR	AVE	ASV	MSV
Death depression	0.962	0.982	0.848	0.963	0.556	0.036	0.052
Positive religious coping	0.879	0.923	0.882	0.882	0.521	0.095	0.138
Negative religious coping	0.790	0.852	0.830	0.779	0.433	0.079	0.138

α Cronbach's alpha coefficients, θ theta coefficient, Ω McDonald's omega coefficient, *CR* construct reliability, *AVE* average variance extracted, *MSV* maximum shared squared variance, *ASV* average shared squared variance

all constructs was greater than their respective ASV and MSV, discriminant validity was established.

The ICC was .96 with a 95% confidence interval from .87 to .98 (F (14) = 13.27, $p < .001$). The mean (SD) time period between T1 and T2 was 18.76 (.5). SEM, SDC, and MIC were 0.08, 0.21, and 0.25 respectively. The results suggest that actual change and change caused by measurement error are differentiated.

Model assessment

Table 4 provides the results of testing moderation effects of cancer stage on the relationship among religious coping dimensions and death depression after controlling for age, sex, and education level effects. The interaction of cancer stage and positive religious coping was insignificant and excluded from the model ($b = -0.081$, $p = .451$). The revised model demonstrated that the relationship between positive religious coping ($b = -0.211$, $p < .001$) and negative religious coping ($b = -0.350$, $p < .05$) with death depression was significant providing support for H1 and H2. There was also a negative association between cancer stage and death depression that was not significant ($b = -0.161$, $p = .076$). The results indicated that the interaction between negative religious coping and advancing cancer stage contributed to significant positive relationships with death depression ($b = -0.272$, $p < .01$) providing support for our moderation hypothesis (H3), F (7, 471) = 6.635, $p < .001$ with a small effect size ($d = 0.10$). The relationship between negative religious coping and death depression for early stage (I and II) and advanced (stage III and IV) cancer is shown in Fig. 1. As shown, for patients with advanced cancer, the relationship between negative religious coping and death depression is lessened. The final model explained 9% of the variance.

Table 4 The results of conducting conditional process analysis

Predictors	Unstandardized coefficients	p value	Lower bound	Upper bound
Positive religious coping	−0.211	.000	−0.310	−0.112
Negative religious coping	0.350	.027	0.039	0.661
Cancer stage	−0.161	.076	−0.339	0.017
Negative religious coping × cancer stage	−0.272	.004	−0.459	−0.085
Control variables				
Gender	0.064	.462	−0.107	0.236
Age	0.001	.957	−0.007	0.007
Education level	−0.089	.159	−0.212	0.035

Discussion

The study purpose was twofold: (i) to investigate the relationships between religious coping behaviors and death depression in Iranian patients with cancer and (ii) to examine any moderating effects of cancer stage on this relationship.

Findings demonstrated that while positive religious coping was negatively related to depressive cognitions, negative religious coping was positively associated with death depression and affect associated with death. Such findings are congruent with the theory of attachment. Positive religious coping may act as a buffer and encourage perceptions that God is constructively collaborating with the patient. Adaptive religious coping may also reflect a sense of inner security, heightened self-efficacy, and perceptions of positive mental health [5, 15]. A growing body of literature supports the importance of assessment of spiritual and religious coping for well-being and quality of life of patients [13, 14].

Participation in structured religious activities such as going to the mosque promotes social engagement with supportive others which may reduce isolation and associated rumination and depressive affect about death. Positive religious coping among individuals with chronic illnesses such as cancer has been shown to increase the ability to manage stressors, improve psychological well-being and serenity, and promote adaptation [40], even in the late stages of cancer [41]. Moreover, for Iranian Muslims, spiritual doubts and disconnections from God can be distressing and associated with death depression. The results lend support to previous studies which have found that while positive religious coping behaviors are related to better mental health and lesser depressive symptoms, negative religious coping behaviors and spiritual struggle carry potential adverse effects [15, 19, 21, 23].

Individuals who are Muslim may not perceive death as a separate and distinct state but rather as a bridge to an eternal

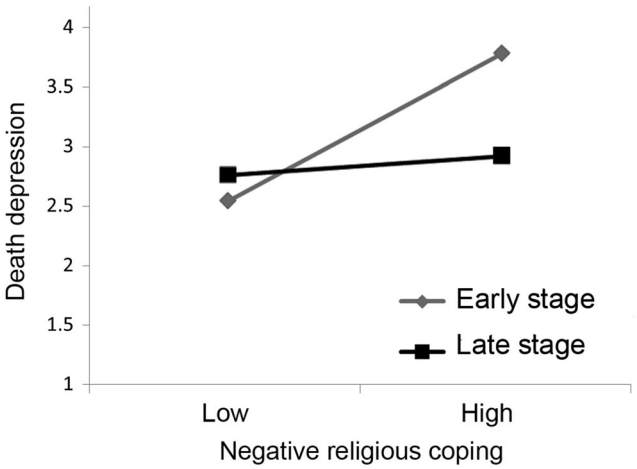

Fig. 1 The relationship between negative religious coping and death depression for early vs. late stage

afterlife and a journey towards resurrection and communion with God [42]. Study findings suggested that Iranian patients with advanced cancer may experience less death depression as compared to patients with earlier stage disease. Patients with advanced cancer, many who have lived longer following diagnosis and treatment, may have had time to come to terms with the life-threatening nature of their illness and become more accepting of mortality. Socio-cultural factors and contextual differences also play an important role in how individuals respond to terminal cancer [7]. It is plausible that Iranian patients with advanced cancer may have surrendered to death as a reality which potentially would be associated with fewer depressive cognitions and less negative affect about the prospect of imminent death [43].

Conditional process analysis findings indicated that cancer stage moderated the relationship between negative religious coping and death depression. In this study, negative religious coping behaviors were positively related to depressive cognitions and affect about mortality for patients with earlier stage disease compared to patients with advanced cancer. Thus, for patients with more advanced (stage III and IV) cancer, negative religious coping was even less associated with death depression. While few studies have looked at such relationships, one study did not find cancer stage to moderate relationships between religious coping and patient well-being [21].

Muslim patients with cancer who believe that catastrophic life events are from God may interpret being diagnosed with cancer as divine punishment and/or abandonment [9]. Patients with earlier stage cancer with associated negative religious coping relative to such cultural perspectives may develop heightened death depression [2, 44]. Patients with advanced cancer may accept the reality of their state and may be less likely to attribute and/or blame God for their illness. Thus, patients with advanced cancer may have adjusted to the cancer experience which could potentially loosen any relationships between negative religious coping and death depression. While more research is needed, positive religious coping may be related to positive post-traumatic growth as patients may achieve a sense of acceptance, peace, and equanimity in the face of profound stress [5].

The results of the current study have implications for professional health providers. The findings suggest the importance for assessing patient's existential perceptions about the meaning of their illness in the socio-cultural context. For many patients, and in particular for patients with advanced cancer, positive religious coping may be associated with psychological well-being. In a wider cultural context, acknowledgment of the impact of religious coping behaviors for Muslim cancer patients is of strong importance. The discussion regarding the role of religious behaviors in patients' medical decision making may guide understanding of care options that are consistent with their religious and spiritual beliefs [45]. Moreover, providing spiritual support and facilitating religious practices in the hospitals can be beneficial. Balboni et al. [45] found significant improvements in the quality of life of patients with advanced cancer when they received spiritual support and access to counseling services.

Limitations

While the study provides new information relative to cancer adjustment on a unique population group, the study is descriptive and exploratory relying on self-report data. The convenience sample of patients with cancer from two urban hospitals in Iran limits the generalizability of the study findings. Further, this study included a broad sample of patients with varying types of malignancy and duration of time since diagnosis. There is always potential that other confounding factors contribute to the study findings. In addition, reliance on *p*-values limits the evaluation of impact of the study findings. The study's cross-sectional design is another limitation. Future studies using longitudinal samples able to track changes over time incorporating broader sampling strategies are recommended.

Conclusion

A life-threatening diagnosis of cancer may evoke existential distress associated with confronting personal mortality. Therefore, understanding connections between religious coping and psychological responses are of strong importance, especially in patients with strong religiosity. The study adds to what is known about the role of religious coping demonstrating that positive religious coping behaviors are associated with lowered depressive cognitions and negative affect about death in Iranian cancer patients. Further, negative religious coping, on the other hand, was more so associated with aversive effect and depressive thoughts about death in patients with earlier stage illness. Findings support assessing patients for use of religious coping strategies. Patients who feel alienated and existential anguish may be vulnerable and need heightened support following diagnosis and during treatment of cancer.

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Compliance with ethical standards

All study procedures were approved by the Ethics Committee (Ethical Code: IR.MAZUMS.REC.1396.10189) of Mazandaran University of Medical Sciences, Sari, Iran. Prior to obtaining written informed consent, patients were apprised relative to the study purpose, what the

investigation entailed, and voluntary nature. The confidentiality of patients' information was ensured with no identifiers used in any surveys and all data were collected in private locations.

Conflict of interest The authors declare that they have no competing interests.

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