# Relationships between Death Anxiety and Quality of Life in Iranian Patients with Cancer

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## A B S T R A C T

**Objective:** The purpose of the study was to examine relationships between death anxiety and quality of life (QOL) parameters of patients with cancer in the Iranian sociocultural context. **Methods:** A descriptive, correlational methodology was used. The sample included 330 patients. Demographics, health information, religious behaviors, death anxiety, and QOL data were collected. **Results:** Overall death anxiety levels were moderate with satisfactory overall QOL. Death anxiety was predictive of lowered QOL. Female patients had lower QOL and higher death anxiety compared to men **Conclusions:** Findings support that higher death anxiety negatively impacts QOL in an Iranian sample with cancer. Alleviation of existential concerns in vulnerable patients may palliate mental health distress associated with facing cancer and its challenging treatments.

**Key words:** Cancer, death anxiety, quality of life, religiosity

## Introduction

Although survival rates for many cancers are improving globally as a result of improved diagnostic and treatment options, a cancer diagnosis continues to be perceived as a serious threat to life.[1] Living with a perilous stressor such as cancer is recognized to activate cognitive schemas relative to personal death and dying[2,3] that may be impacted by

disease stage and treatment and assuaged by religiosity.[4] Death anxiety, a normative experience for humans given awareness of personal mortality, is described as aversive emotional reactions incited by death anticipation that has both negative and positive potential ramifications.[5,6] Concerns about death may potentiate negative affect, distort perceptions about recovery, and distance patients from their care providers.[6,7] The purpose of this study was to examine relationships between death anxiety and quality of life (QOL) in Iranian cancer patients.

## Background and significance

The diagnosis and treatment of cancer is a documented stressor on many fronts.[8,9] Following diagnosis, anxiety and depressive symptoms, sleep problems, and heightened perceptions of uncertainty about the future may compound distress and lower QOL.[10-12] During and following medical and/or surgical interventions, patients may also experience physical symptoms that impair function and QOL in multiple domains that persist over time.[11-14] As symptoms increase and perceived function decreases, patients are shown to have increases in their anxiety and distress.[10] Heightened psychological distress is a main predictor of lowered QOL in both patients and their partners.[13] While health care professionals, particularly in acute care environments may primarily focus on prescribed treatment regimens and supportive management of symptoms,[15] patients may have existential concerns accompanied by death anxiety that can be distressing.[2,16,17] Although humans build adaptive strategies for managing death anxiety, health stressors may increase vulnerability to death concerns that may underlie other negative psychological conditions.[18] For patients with advanced cancers, interactions among physical symptoms, concerns about family, age, and lowered self-esteem all contribute to the death anxiety experience.[2]

Beliefs and attitudes framing perceptions about death stem from life experiences and the sociocultural context, with sex, age, and developmental stage contributing to individualized presentations.[19] Anxiety about death can reflect low levels of awareness to severe neurotic fears about losing self, and may be accompanied by perceptions of helplessness, loss of control, and loss of meaning.[20] On the other hand, coping positively with the reality of personal mortality has also been associated with enhanced life meaningfulness and leading lives reflecting genuine personal goals and values.[21]

Terror management theory, a leading theoretical framework that is backed by substantive experimental research and articulates mechanisms of how people manage mortality awareness identifies that culture, interpersonal relationships, and the individual's level of self-esteem provide buffers against debilitating death anxiety.[22] Studies have examined aging, religious and spiritual influences, and gender on death anxiety.[23,24] Studies that have examined aging and death anxiety suggest that only a minority of individuals have increased death anxiety with age, many individuals have lower death anxiety compared to younger people, and age is not *per se* a significant correlate of death anxiety.[19] Research has found religiosity to be associated with both lowered and higher death anxiety depending on factors such as intrinsic versus extrinsic religiosity, belief certainty, religious meaning in life, and religious commitment.[24] The sociocultural context may be highly influential in impacting gender differences, how death experiences are perceived, and palliating death anxiety among patients with a life-threatening illness who are reminded of personal mortality.[19,23]

QOL is multidimensional, encompassing the impact of illness on daily life, on physical, psychological and social function, and spiritual health domains.[7,25] There has been growing attention to the importance of QOL for patients with cancer beyond extending survival. Research has shown that as decrements in QOL progress, patients experience more distress with interruptions in one QOL health domain impacting other domains.[25] Further, declining QOL may be a contributing factor associated with anticancer treatment disruption.[26] Patients may also experience financial stressors associated with the cancer diagnosis that negatively affect QOL and heighten distress.[27] Longer term prostate cancer survivors with low socioeconomic status have been shown to have worse mental health QOL as compared to patients with adequate financial resources.[28] Another study found that women who were economically disadvantaged long-term survivors of cervical cancer reported lower QOL in multiple domains including physical and social functioning and perceptions of general health.[29]

Limited research has examined relationships between death anxiety and QOL among patients with cancer. In Iran, despite a population that lives a religious daily lifestyle and places strong faith in the concept of an afterlife, there is inadequate research that has examined these relationships. According to Islamic beliefs, life is sacred and belongs to God, the supreme deity.[30] While all living forms experience death, death for humans is viewed as a transition from an earthly journey to an existence in divine paradise or to perdition depending on how devoutly the individual lived their corporeal existence.[30] Extent of religiosity may be one factor that is associated with the degree of death anxiety and QOL in cancer, given research that has found relationships among the concepts of religiosity, perceived

life quality, death anxiety, and/or death acceptance.[24,31,32] Many of these studies have shown that intrinsic religiosity is negatively related to death anxiety.[33-35] However, there is research that has identified no relationships, and studies that have found positive relationships between religiosity and death anxiety.[32]

Although extensive research has substantiated that patients with cancer report lowered QOL and high psychological distress,[2,3] there has only been limited research that has examined relationships between death anxiety and QOL among cancer groups.[2] Further, although factors such as age,[36] sex,[37] socioeconomic status,[27-29] and health[23] have been demonstrated to impact QOL and the experience of distress, little is known about relationships of these factors to death anxiety in cancer. Even less in known about factors associated with death anxiety among Iranian patients with cancer who are a part of a culture dominated by Islamic religious and social practices. The purpose of the exploratory study was to examine the relationships between death anxiety and QOL among Iranian patients who are receiving or preparing for anticancer treatment. Further, the study examined religiosity and death anxiety, concepts that are highly relevant to cancer adaptation but with a limited inquiry as a combination in one study. We hypothesized that higher death anxiety would be related to lowered overall QOL in patients with cancer. In addition, we examined if sociodemographic factors (age, sex, marital status, education, and socioeconomic status), health factors (cancer stage, type of anticancer treatment received, and time lapse since diagnosis), and religiosity (beliefs and behaviors) were associated with death anxiety and QOL in this sample of Iranian cancer patients.

## Methods

A descriptive, correlational design was used to examine relationships between death anxiety and QOL in patients with cancer. The study population consisted of patients referred to a major tertiary Iranian cancer institute to receive anticancer treatments (surgical resection, radiation, and/or chemotherapy) over a 3-month period. The inclusion criteria included:

1. Patient age 21 years or older;
2. Definitive diagnosis of cancer within the past year;
3. Eligible to receive surgery, radiation, and/or chemotherapy; and
4. No physical and/or psychiatric condition (schizophrenia, posttraumatic stress disorder, dementia, and major depressive disorder that would impede ability to participate.

### Procedure

During the above-mentioned time period, 525 patients were referred to the study. Of these patients, 358 patients fulfilled inclusion criteria, and a convenience sample of 330 patients was recruited with an overall survey response rate of 92%. For statistical analysis purposes, *post hoc* power analysis demonstrated that the sample size had sufficient power (>0.80) to detect a medium-size difference using correlations and general linear regression models with an alpha value set at 0.05.[38]

The associated university's Medical Sciences Ethics Committee approved the study. Patients were informed about study aims and procedures that participation was voluntary and would not affect medical care before signing an informed consent document. Patient confidentiality was assured by completing all study procedures in a quiet treatment area. There were up to 10 cases where a participant did not have a family member available and had difficulties with reading survey content. To ensure that a broad cross-section of patients was allowed to participate in the study, a trained research assistant who was a part of the study team provided support as needed. All personal data were de-identified by assigning codes to the participants.

### Sample and measures

A sociodemographic survey was used to elicit information about the patients' age, sex, marital status, education level, socioeconomic status, stage of disease, type of cancer and treatment, and religious behaviors.

The perceived level of religiosity was measured with three survey items that were developed by nursing researchers and scientists with proficiencies in cancer nursing. The use of an abbreviated measure was developed for the study in consideration of the need to avert potential subject burden with the use of numerous survey items. These three items asked the patient to evaluate their amount of engagement in religious activities from 1 to 5 (1 = no engagement and 5 = maximal engagement); degree of general religious belief from 1 to 5 (1 = not religious and 5 = maximal religious beliefs); and frequency of daily prayer behavior from 1 to 5 (1 = no prayer at all to 5 = several times daily in mosque) on a Likert-type scale. The three items were combined to create a three-item survey with a range of 3-15. Cronbach's Alpha for the three-item survey was 0.84 indicating satisfactory internal consistency.

The 15-item Templer Death Anxiety Scale (TDAS) was used to measure the level of death anxiety. The TDAS, developed by Templer in 1970, has been translated

into several languages and is the most commonly used death anxiety instrument internationally.[39] The study incorporated the use of a Likert scale translated version of the TDAS consisting of 15 items scored from 1 (completely disagree) to 5 (completely agree), with a range 15-75.[40] On this scale, lower scores indicate lower levels of death anxiety. In Iran, the TDAS has been used and normalized with strong demonstrated validity and reliability in unity with the cultural and social context.[40-44] Cronbach's alpha for the 15-item death anxiety scale was 0.81 indicating satisfactory internal consistency.

The McGill QOL (MQOL) Questionnaire a 17-item multidimensional measure that captures QOL in people with life-threatening illness was used to measure the patients' QOL.[45] The MQOL has been translated into a Persian version with documented validity and reliability in order to assess QOL in Iranian patients with cancer.[46] The MQOL consists of three subscales that include: General QOL (1 question); physical symptoms (4 questions); and the psychological component (12 questions). The MQOL items are scored on a 0-10 scale with higher scores reflecting higher levels of QOL (total range: 0-170). The MQOL is evaluated with both individual subscale scores and an overall composite score. The validity and the reliability of MQOL have been well established.[47] In our study, Cronbach's alpha for the overall QOL scale was 0.86 indicating good internal consistency.

### *Statistical analysis*

The Statistical Package for Social Sciences, version 20.0 (SPSS Inc., Chicago, IL, USA) was utilized for data analysis. Descriptive statistics for continuous variables were shown as means with standard deviation and *n* (%) for the categorical variables. Single dummy variables were created for sex, marital status (single/widowed reference vs. married), current employment status (employed vs. unemployed reference), education (guidance school or less vs. high school or college graduate), socioeconomic status (lower income reference vs. middle or upper income level), family history of cancer (positive vs. negative history), history of death experiences (yes vs. no), and stage of disease (early: Stage I to II vs. advanced: Stage III or IV). Pearson's correlations, independent samples *t*-tests, and general linear regression models were used to quantify relationships among death anxiety, QOL, health, and sociodemographic variables. Statistical significance was set at *P* < 0.05 for all the analysis procedures.

**Table 1: Demographic and health characteristics of the study participants**

| Demographic & health characteristics | *n* (%) |
|---|---|
| Age, mean (SD) | 52.9 (15.3) |
| Sex, *n* (%) | |
| Male | 124 (37.6) |
| Female | 206 (63.4) |
| Marital status, *n* (%) | |
| Single | 33 (10) |
| Married | 285 (86.4) |
| Widowed/divorced | 12 (3.6) |
| Employment, *n* (%) | |
| Yes | 54 (16.4) |
| No | 276 (83.6) |
| Educational status, *n* (%) | |
| No formal education | 93 (28.2) |
| Primary | 92 (27.9) |
| Guidance | 56 (17) |
| High school | 55 (16.7) |
| College graduate | 34 (10.3) |
| Economic status, *n* (%) | |
| Lower income level | 133 (40.3) |
| Middle-income level | 181 (54.8) |
| Upper-income level | 16 (4.8) |
| Stage of disease, *n* (%) | |
| I | 116 (35.1) |
| II | 91 (27.6) |
| III | 55 (16.7) |
| IV | 68 (20.6) |
| Type of cancer, *n* (%) | |
| Gastrointestinal tract | 112 (34) |
| Breast | 75 (23) |
| Head/neck | 29 (9) |
| Other (nine types) | 114 (35) |
| Type of treatment, *n* (%) | |
| Treatment undecided | 102 (30.9) |
| Chemotherapy | 130 (39.4) |
| Radiation therapy | 25 (7.6) |
| Combination | 58 (17.6) |
| Surgery | 15 (4.5) |

SD: Standard deviation

## Results

Table 1 shows the descriptive personal and health characteristics of the study participants including sex, marital status, education, economic status, stage of disease, and type of treatment. The study patients were primarily female (63%) and ranged in age from 30 to 86 years. The patients' health information including disease stage and type of treatment is provided in Table 1. The study patients had heterogeneous types of cancers with the most prevalent being gastrointestinal cancers (112 cases; 33.9%) and breast cancer (75 cases; 22.7%), respectively. Other types of cancers included head/neck (29 cases, 8.8%), lymphoma (24 cases, 7.3%), genitourinary (18 cases, 5.5%), myeloma

(16 cases, 4.8%), lung (12 cases, 3.6%), renal ($n = 11$, 3.3%), unknown primary ($n = 11$, 3.3%), skin ($n = 10$, 3%), parathyroid ($n = 6$, 1.8%), and central nervous system tumor ($n = 6$, 1.8%). The median of length of illness was 7 months (interquartile range = 15). About 63% had early stage (Stage I or II disease), and 37% of the sample had advanced cancer (Stage III-IV disease).

Table 2 provides descriptive statistics for the major study variables. In general, participants reported moderately high levels of religiosity. The mean score on the TDAS was $45.1 \pm 11.1$ indicating overall moderate levels of death anxiety in this sample of patients. The mean total score on the MQOL was $106 \pm 25.4$ indicating overall moderate levels of perceived QOL in general.

Female patients were significantly younger (mean age $51.37 \pm 13.85$) than the males ($55.41 \pm 42$), $T = -2.34$, $P < 0.05$). Female patients also reported lower overall QOL (mean score $103.25 \pm 25.86$) compared to males ($110.60 \pm 24.10$; $T = -2.61$, $P < 0.05$), and higher death anxiety ($47.61 \pm 10.66$ vs. $41.02 \pm 10.56$; $T = 5.47$, $P < 0.005$). Both female and male patients had similar scores on the religiosity scale (females, $11.19 \pm 1.87$ vs. males, $11.17 \pm 1.78$, $T = 0.14$, $P > 0.05$).

A correlational analysis was done to examine relationships among death anxiety, QOL, religiosity, and health and sociodemographic variables of interest [Table 3 for results]. Table 4 presents multiple linear regression models that were developed for predictors of QOL and death anxiety using significantly correlated variables as predictors. Variables that were predictive of overall QOL included death anxiety and socioeconomic status ($R = 0.46$; adjusted $R^2 = 0.20$, $F = 21.26$, $P < 0.005$). Variables that were predictive of death anxiety included sex, previous experiences with death, length of time since diagnosis, and the psychological component of QOL ($R = 0.54$; adjusted $R^2 = 0.28$, $F = 19.34$, $P < 0.005$).

## Discussion

Death anxiety may erupt under challenging circumstances that interfere with the quality of a person's life[5] and is increasingly recognized as an important transdiagnostic construct underlying problems with mental health and life adaptation.[18] In general, this study found moderate levels of death anxiety among this heterogeneous sample of cancer patients. Importantly, the study found significant inverse relationships between death anxiety and QOL in Iranian patients with cancer findings suggesting that death anxiety had a negative influence. In previous research,

### Table 2: Descriptive statistics of major study variables

| Measure | Mean (SD) | Range |
|---|---|---|
| Death anxiety | 45.1 (11.1) | 17-71 |
| QOL | | |
| Overall | 106.0 (25.4) | 7-191 |
| Well being | 6.6 (1.6) | 0-10 |
| Physical | 25.9 (10.5) | 0-81 |
| Psychological | 73.9 (18.9) | 10-116 |
| Religious behaviors | 11.18 (1.83) | 3-15 |

SD: Standard deviation, QOL: Quality of life

### Table 3: Correlations among major study variables

| Variable | Death anxiety | QOL | Religiosity |
|---|---|---|---|
| Age | −0.11 | 0.01 | 0.18** |
| Sex | 0.29** | −0.14* | 0.09 |
| Marital status | −0.06 | 0.07 | 0.07 |
| Employment status | 0.01 | 0.05 | −0.13* |
| Educational level | −0.01 | 0.10 | −0.25** |
| Stage of cancer | −0.09 | −0.04 | 0.01 |
| Socioeconomic status | 0.09 | 0.15** | −0.17** |
| Family history of cancer | 0.03 | −10 | −0.06 |
| Death experiences | −0.12* | 0.05 | 0.09 |
| Time since diagnosis | 0.15** | 0.08 | −0.003 |
| QOL | −0.41** | | 0.04 |
| Wellbeing | −0.19** | | 0.09 |
| Physical | −0.10 | | −0.03 |
| Psychological | −0.43** | | 0.02 |
| Religiosity | −0.18** | 0.04 | |
| Religious activities | −0.07 | 0.00 | |
| Beliefs | −0.07 | 0.01 | |
| Praying activities | −0.16** | 0.12* | |

*$P < 0.05$, **$P < 0.005$. QOL: Quality of life

### Table 4: Multiple linear regression models showing predictors of quality of life and death anxiety based on correlated variables

| Predictor Variable | B[a] | SE B[b] | β[c] | P |
|---|---|---|---|---|
| QOL — Dependent variable ($F=21.26$, $P<0.005$; $R=0.46$, adjusted $R^2=0.20$) | | | | |
| Death anxiety | −0.92 | 0.12 | −0.40 | <0.005 |
| Sex | −2.37 | 2.72 | −0.04 | NS |
| Socioeconomic status | 10.06 | 2.59 | 0.19 | <0.005 |
| Prayer | 2.93 | 2.04 | 0.07 | NS |
| Death anxiety — Dependent variable ($F=19.34$, $P<0.005$; $R=0.54$, adjusted $R^2=0.28$) | | | | |
| Sex | 5.06 | 1.08 | 0.22 | <0.005 |
| Death experiences | −7.64 | 3.60 | −0.10 | <0.05 |
| Time since diagnosis | −0.05 | 0.16 | 0.13 | <0.005 |
| Religiosity | −1.01 | 0.28 | −0.17 | <0.005 |
| Wellbeing QOL | −0.42 | 0.37 | 0.06 | NS |
| Physical QOL | 0.03 | 0.06 | 0.03 | NS |
| Psychological QOL | −0.21 | 0.03 | −0.38 | <0.005 |

[a]Estimated value of unstandardized regression coefficient, [b]Standard error of unstandardized regression coefficient, [c]Standardized regression coefficient. NS: Not significant, QOL: Quality of life, SE: Standard error

Sherman *et al*.[7] also identified that death anxiety may affect QOL of patients with life-threatening illness. A diagnosis of cancer places a heavy toll on the patient, negatively affecting life in physical, psychological, and social domains.[48]

Our study revealed that female cancer patients reported higher death anxiety and lower levels of overall QOL as compared to the male patients. Other studies have identified that gender is a factor that may influence QOL in cancer patients.[37,48] Further, there has been research reporting higher levels of psychological distress among female cancer patients.[8] Similar to this study, Pud[37] reported that female patients had significantly lowered psychological QOL than their male counterparts. It seems apparent that the female patients demonstrated higher vulnerability. Given there were no differences in religiosity between males and females, other factors in elucidating QOL of Iranian patients with cancer in terms of gender need consideration such as traditional roles and perceptions of support.

While an expanding body of international research has found positive relationships between religious adherence and positive psychological indices, these findings are mixed, and the results complex.[4,49,50] The current study identified that while the frequency of prayer activity was significantly, positively related to overall QOL, it was not a significant predictor. Further, religiosity as a construct was not related to overall QOL. Age was also positively related but not predictive of religiosity in this study. Patients who were older perhaps had developed more confidence in their religious beliefs and practices over time. Research suggests that prayer and other similar religious activities may contribute to heightened adaptation and perceptions of well-being.[49] Accordingly, in other research, intrinsic religiosity which is characterized by strong internal religious motivation has been associated with positive cancer adjustment, lower anxiety, and symptom management.[50]

The current study also found that higher levels of religiosity were associated with lower levels of death anxiety with prayer activity contributing to this relationship. While religiosity is not predictive of lower death anxiety, these findings are similar to Pakistani research findings that religiosity can be associated with lowered death fear.[51] However, other research has found conflicting reports with these associations.[52] Similar to our results, other studies indicated that persons who were involved in religious activities had lower death anxiety.[24] Religious beliefs may heighten perceptions of increased control and predictability, which may lessen the death anxiety.[32] However, while

the level of piety over the lifespan may lead to lowered death anxiety secondary to committed beliefs in a positive afterlife, research from other countries such as the United States has found positive associations between more death anxiety and extrinsic religiosity.[52] The identified study being exploratory did not examine perceived spirituality or behavioral indicators of religious observance in enough detail to discern intrinsic versus extrinsic religious impacts on death anxiety. However, the study did find that higher educational level, positive employment status, and higher socioeconomic level were inversely related to religiosity. Such findings may suggest that religiosity is more extrinsic to individuals with these attributes.

Other factors of importance in the study findings include the positive predictive relationships of socioeconomic status to overall QOL. These findings are similar to results from other studies that have linked these factors to higher perceptions of health and wellbeing.[27-29] The study also found that length of time since diagnosis was positively related to higher levels of death anxiety, but not to QOL or religiosity. Given this study included a heterogeneous sample of patients many of whom who had been diagnosed with cancer for several months, these findings suggest more contemplation or awareness of impending death. Along these lines, previous experiences with death were also predictive of higher death anxiety. Death anxiety would be expected as a normative ubiquitous experience to some degree for patients facing a constricted future, and such findings are not unexpected.

### Limitations

The study is limited by the convenience sample of cancer patients who were recruited from a comprehensive cancer center in a unique cultural context. While the findings are not generalizable, the cancer center provides regional care and thus serves a population of patients who are representative of the Iranian population at large. The study is also limited by its descriptive cross-sectional nature, given the sample was taken from a heterogeneous group of patients with different stages and treatments for cancer at varying points in the illness trajectory. Further, the average duration of illness among these patients was 7 months and most had early stage disease. Given there were patients in this study with the limited formal educational background, some of the participants received assistance with survey items from either family members or the research assistant. Given inherent limitations of self-report, there is always the potential that social desirability will contribute to how participants answer questions, especially if they are receiving guidance from others.

Using an abbreviated measure of religiosity is also a study limitation. In future research, it would be important to use a robust scale to measure this important construct in the cancer population. It is plausible that utilization of an alternative measure that more comprehensively tapped this construct may have yielded different or stronger results. For example, the study was not able to identify if there were physical function barriers that may have precluded patients' ability to travel to the mosque for prayer activities.

### Research implications

Importantly, this exploratory study provides useful data that can be applied in consideration of future studies. Future studies are recommended that incorporate longitudinal designs, death anxiety and QOL of cancer caregivers and family members, and evaluation of these constructs in specific disease and treatment populations, and points on the survivorship trajectory. Inquiry that examines distress over spiritual concerns as a factor influencing QOL among cancer patients is also recommended. Further, studies aimed at better understanding intervention strategies that would support adjustment in vulnerable patient subgroups are essential. Little is known about the role of death anxiety relative to patients' adherence to medical treatment. Given the potential impact on QOL including physical function parameters such inquiry is essential.

### Practice implications

Communicating with patients related to death concerns can be challenging, especially for nurses who are concerned that such discussion could exacerbate mental distress. Further, while nurses themselves may not be comfortable discussing death-related concerns, research suggests that education about death and dying issues can improve openness to this type of dialogue.[53]

Because death anxiety presentation may vary among individuals at different developmental stages in life and circumstance, assessment is essential.[4] Existential concerns at the time of diagnosis as compared to how they are experienced over the survivorship trajectory and at the end of life are varied. Importantly, psychiatric symptoms such as depression and fearfulness may have death anxiety as underpinnings. Patients who have death anxiety may try to avoid painful and intrusive thoughts related to death, a situation that can perpetuate feelings of alienation.[4] Patients may be concerned that voicing these issues will bring additional stress to family members, or they may want to appear strong.[54] It is imperative that nurses act in an advocacy role to address death-related concerns that contribute to poorer QOL. Utilizing age and culturally

appropriate patient education materials including advance directives, resource information for managing finances, and on-line resources may offer support for patients dealing with the end of life concerns. Recognizing vulnerable patients and providing resources such as support groups and advocacy organizations may provide instrumental support. Hospitalized patients may need access to a religious counselor or services. Further, integrative medicine options to promote QOL and reduce psychological distress may be helpful. For example, mind-body practices, such as meditation are tools that can help patients learn self-regulation skills to manage negative internal states.[55]

## Conclusion

Some degree of death anxiety is likely normative when confronted with reminders of personal mortality such as facing treatment for cancer.[7] Complex sociocultural and psychosocial factors may interact with the illness experience to ultimately impact the patients' psychological responses to cancer.[4,49] Findings from this study support that higher death anxiety negatively impacts QOL in an Iranian sample with cancer, particularly among participants with the lower observation of religious practices. It is essential that health professionals who provide care for the patients with life-threatening illnesses such as cancer maintain a comprehensive, holistic appraisal of the person as a bio-psycho-social-spiritual being. Importantly, the alleviation of existential concerns may palliate part of the mental health distress associated with facing cancer and its challenging treatments.[7,50] Thus, open discussion of death concerns is essential. Further, provision of referrals for individual and/or group counseling may be needed to facilitate effective coping with cancer. Given the prominence of religious participation to Islamic patients who are a part of the global community, the presence of quiet areas in health care settings for prayer, and the availability of Islamic religious counselors may be of importance.

### Conflicts of interest

There are no conflicts of interest.

## References

1. American Society of Clinical Oncology. The state of cancer care in America, 2014: A report by the American Society of Clinical Oncology. J Oncol Pract 2014;10:119-42.
2. Neel C, Lo C, Rydall A, Hales S, Rodin G. Determinants of death anxiety in patients with advanced cancer. BMJ Support Palliat Care 2015;5:373-80.

3. Yalom ID. Staring at the Sun: Overcoming the Terror of Death. San Francisco, California: Jossey-Bass; 2008.

4. Neimeyer RA, Currier JM, Coleman R, Tomer A, Samuel E. Confronting suffering and death at the end of life: The impact of religiosity, psychosocial factors, and life regret among hospice patients. Death Stud 2011;35:777-800.

5. Furer P, Walker JR. Death anxiety: A cognitive-behavioral approach. J Cogn Psychother 2008;22:167-82.

6. Gonen G, Kaymak SU, Cankurtaran ES, Karslioglu EH, Ozalp E, Soygur H. The factors contributing to death anxiety in cancer patients. J Psychosoc Oncol 2012;30:347-58.

7. Sherman DW, Norman R, McSherry CB. A comparison of death anxiety and quality of life of patients with advanced cancer or AIDS and their family caregivers. J Assoc Nurses AIDS Care 2010;21:99-112.

8. Osborn RL, Demoncada AC, Feuerstein M. Psychosocial interventions for depression, anxiety, and quality of life in cancer survivors: Meta-analyses. Int J Psychiatry Med 2006;36:13-34.

9. Surbone A, Baider L, Weitzman TS, Brames MJ, Rittenberg CN, Johnson J; MASCC Psychosocial Study Group. Psychosocial care for patients and their families is integral to supportive care in cancer: MASCC position statement. Support Care Cancer 2010;18:255-63.

10. Buchanan D, Milroy R, Baker L, Thompson AM, Levack PA. Perceptions of anxiety in lung cancer patients and their support network. Support Care Cancer 2010;18:29-36.

11. Carlson LE, Waller A, Groff SL, Giese-Davis J, Bultz BD. What goes up does not always come down: Patterns of distress, physical and psychosocial morbidity in people with cancer over a one year period. Psychooncology 2013;22:168-76.

12. Kurita K, Garon EB, Stanton AL, Meyerowitz BE. Uncertainty and psychological adjustment in patients with lung cancer. Psychooncology 2013;22:1396-401.

13. Graça Pereira M, Figueiredo AP, Fincham FD. Anxiety, depression, traumatic stress and quality of life in colorectal cancer after different treatments: A study with Portuguese patients and their partners. Eur J Oncol Nurs 2012;16:227-32.

14. Wu HS, Harden JK. Symptom burden and quality of life in survivorship: A review of the literature. Cancer Nurs 2015;38:E29-54.

15. Lehto RH. The challenge of existential issues in acute care: Nursing considerations for the patient with a new diagnosis of lung cancer. Clin J Oncol Nurs 2012;16:E4-11.

16. Henoch I, Danielson E. Existential concerns among patients with cancer and interventions to meet them: An integrative literature review. Psychooncology 2009;18:225-36.

17. Westman B, Bergenmar M, Andersson L. Life, illness and death — Existential reflections of a Swedish sample of patients who have undergone curative treatment for breast or prostatic cancer. Eur J Oncol Nurs 2006;10:169-76.

18. Iverach L, Menzies RG, Menzies RE. Death anxiety and its role in psychopathology: Reviewing the status of a transdiagnostic construct. Clin Psychol Rev 2014;34:580-93.

19. Neimeyer RA, Wittkowski J, Moser RP. Psychological research on death attitudes: An overview and evaluation. Death Stud 2004;28:309-40.

20. Singh RS. Death anxiety among aged Manipuris, India. Zenith International Journal of Multidisciplinary Research 2013;3:209-16.

21. Vance LM. Death anxiety and the relational. J Humanist Psychol 2014;54:414-33.

22. Lewis AM. Terror management theory applied clinically: Implications for existential-integrative psychotherapy. Death Stud 2014;38:412-7.

23. Hoelterhoff M, Chung MC. Death anxiety and well-being: Coping with life-threatening events. Traumatology 2013;19:280-91.

24. Krause N, Hayward RD. Religious involvement and death anxiety. Omega (Westport) 2014;69:59-78.

25. Sawatzky R, Ratner PA, Chiu L. A meta-analysis of the relationship between spirituality and quality of life. Soc Indic Res 2005;72:153-88.

26. Rolke HB, Bakke PS, Gallefoss F. Health related quality of life, mood disorders and coping abilities in an unselected sample of patients with primary lung cancer. Respir Med 2008;102:1460-7.

27. Sharp L, Carsin AE, Timmons A. Associations between cancer-related financial stress and strain and psychological well-being among individuals living with cancer. Psychooncology 2013;22:745-55.

28. Aarts MJ, Mols F, Thong MS, Louwman MW, Coebergh JW, van de Poll-Franse LV. Long-term prostate cancer survivors with low socioeconomic status reported worse mental health-related quality of life in a population-based study. Urology 2010;76:1224-30.

29. Greenwald HP, McCorkle R, Baumgartner K, Gotay C, Neale AV. Quality of life and disparities among long-term cervical cancer survivors. J Cancer Surviv 2014;8:419-26.

30. Sarhill N, LeGrand S, Islambouli R, Davis MP, Walsh D. The terminally ill Muslim: Death and dying from the Muslim perspective. Am J Hosp Palliat Care 2001;18:251-5.

31. Henrie J, Patrick JH. Religiousness, religious doubt, and death anxiety. Int J Aging Hum Dev 2014;78:203-27.

32. Wen Y. Religiosity and death anxiety. J Hum Resour Adult Learn 2010;6:31-8.

33. Harding SR, Flannelly KJ, Weaver AJ, Costa KG. The influence of religion on death anxiety and death acceptance. Ment Health Relig Cult 2005;8:253-61.

34. Hui VK, Coleman PG. Afterlife beliefs and ego integrity as two mediators of the relationship between intrinsic religiosity and personal death anxiety among older adult British Christians. Res Aging 2012;35:144-62.

35. Shukla P, Rishi P. A correlational study of psychosocial and spiritual well-being and death anxiety among advanced stage cancer patients. Am J Appl Psychol 2014;2:59-65.

36. Applebaum AJ, Stein EM, Lord-Bessen J, Pessin H, Rosenfeld B, Breitbart W. Optimism, social support, and mental health outcomes in patients with advanced cancer. Psychooncology 2014;23:299-306.

37. Pud D. Gender differences in predicting quality of life in cancer patients with pain. Eur J Oncol Nurs 2011;15:486-91.

38. Cohen J. Statistical Power Analysis for the Behavioral Sciences. 2nd Revised Edition. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.; 1988.

39. Templer DI. The construction and validation of a Death Anxiety Scale. J Gen Psychol 1970;82:165-77.

40. McMordie WR. Improving measurement of death anxiety. Psychol Rep 1979;44(3 Pt 1):975-80.

41. Aghajani M, Valiee S, Tol A. "Death anxiety" amongst nurses in critical care and general wards. Iran J Nurs 2011;23:59-67.

42. Ghorbanalipoor M, Borjali A, Sohrabi F, Falsafinejad MR. The effect of death anxiety and age on health promoting behaviors. Urmia Med J 2010;2:286-92.

43. Masoudzadeh A, Setareh J, Mohammadpour RA, Modanlookordi M. A survey of death anxiety among personnel of a hospital in Sari. J Mazandaran Univ Med Sci 2008;18:84-90.

44. Tavakoli MA, Ahmadzadeh B. Investigation of validity and reliability of templer Death Anxiety Scale. Thought Behav Clin Psychol 2011;6:72-80.

45. Cohen SR, Mount BM, Strobel MG, Bui F. The McGill quality of life questionnaire: A measure of quality of life appropriate for people with advanced disease. A preliminary study of validity and acceptability. Palliat Med 1995;9:207-19.

46. Shahidi J, Khodabakhshi R, Gohari MR, Yahyazadeh H, Shahidi N. McGill quality of life questionnaire: Reliability and validity of the Persian version in Iranian patients with advanced cancer. J Palliat Med 2008;11:621-6.

47. von Gruenigen VE, Huang HQ, Gil KM, Gibbons HE, Monk BJ, Rose PG, *et al.* A comparison of quality-of-life domains and clinical factors in ovarian cancer patients: A Gynecologic Oncology Group study. J Pain Symptom Manage 2010;39:839-46.

48. Giesinger J, Kemmler G, Mueller V, Zabernigg A, Mayrbaeurl B, Thaler J, *et al.* Are gender-associated differences in quality of life in colorectal cancer patients disease-specific? Qual Life Res 2009;18:547-55.

49. Biegler K, Cohen L, Scott S, Hitzhusen K, Parker P, Gilts CD, *et al.* The role of religion and spirituality in psychological distress prior to surgery for urologic cancer. Integr Cancer Ther 2012;11:212-20.

50. Peteet JR, Balboni MJ. Spirituality and religion in oncology. CA Cancer J Clin 2013;63:280-9.

51. Suhail K, Akram S. Correlates of death anxiety in Pakistan. Death Stud 2002;26:39-50.

52. Cohen AB, Pierce JD, Chambers J, Meade R, Gorvine BJ, Koenig HG. Intrinsic and extrinsic religiosity, belief in the afterlife, death anxiety, and life satisfaction in young Catholics and Protestants. J Res Pers 2005;39:307-24.

53. Peters L, Cant R, Payne S, O'Connor M, McDermott F, Hood K, *et al.* How death anxiety impacts nurses' caring for patients at the end of life: A review of literature. Open Nurs J 2013;7:14-21.

54. Lehto R, Therrien B. Death concerns among individuals newly diagnosed with lung cancer. Death Stud 2010;34:931-46.

55. Ledesma D, Kumano H. Mindfulness-based stress reduction and cancer: A meta-analysis. Psychooncology 2009;18:571-9.