

Spiritual well-being and quality of life in Iranian women with breast cancer undergoing radiation therapy

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Abstract

Purpose Psychological distress and morbidity are common consequences of diagnosis and treatment of breast cancer and associated with poor quality of life (QOL). Spiritual well-being is an important aspect of QOL, but little is known about the spiritual well-being and its relationship with QOL in patients of different cultures such as Iranian Muslim patients. The aim of this study was to investigate the association of QOL and spirituality among patients with breast cancer undergoing radiation therapy.

Methods This was a cross-sectional study which was conducted in the Breast Cancer Research Center of St. S. Al-Shohada Hospital, Isfahan, Iran. Spiritual well-being was measured using the Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale (FACIT-Sp12). The European Organisation for Research and Treatment of Cancer Quality of Life (EORTC QLQ-C30) and its supplementary breast cancer questionnaire (QLQ-BR23) were used to assess the quality of life of patients. Descriptive

analysis, Pearson's correlation, and multiple regression analysis were performed for statistical assessment.

Results In all, 68 patients fulfilled the study's inclusion criteria and were interviewed. The mean global QOL was 41.42 (SD=18.02), and the mean spiritual well-being was 28.41 (SD=6.95). There was a significant positive correlation between general QOL and total spiritual well-being scores. Also, spiritual well-being, social functioning, pain, and arm symptoms were significant predictors of global QOL.

Discussion The results of this study provide evidence that breast cancer survivors in Iran experience a poor quality of life across a broad spectrum of health domains, particularly social, emotional, and spiritual, indicating that psychosocial-spiritual support should be considered in caring for patients with breast cancer.

Keywords Breast cancer · Quality of life · Spiritual well-being · Radiation therapy

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Introduction

Diagnosis of breast cancer is a devastating event for a woman. In addition to distress from physical changes due to the breast cancer, patients also report a variety of intense psychological problems including fear, anxiety, and depression [1]. Also, treatments such as radiotherapy may cause psychosocial distress and morbidity in these patients. Several studies showed that patients who had completed radiotherapy had significantly more psychological symptoms and social dysfunction than those not so treated [2, 3].

Despite the positive trend in management and treatment of patients, breast cancer continues to affect quality of life (QOL) at diagnosis, during treatment, and after recovery [4].

QOL is a broad, multifaceted concept [5]. It incorporates the cognitive, social, emotional, physical, and spiritual domains of an individual's life [6]. It reflects the extent to which an individual's well-being in these areas is affected by an illness or related treatment [7].

Among several components of QOL, spirituality receives more attention in recent years. Spirituality has been defined as an individual's sense of peace, purpose, and connection to others, and beliefs about the meaning of life. Spiritual dimensions are likely to be embedded in issues such as meaning [8], control [9], identity [10], and relationships [11]. Specific characteristics of strong spiritual beliefs, including hope, optimism, freedom from regret, and life satisfaction, have also been associated with better adjustment to cancer [12], reducing anxiety and depression [13] and improving quality of life [14].

Even though research has documented the significance of spirituality on the quality of life of patients with cancer, there is minimal information in the literature documenting the spirituality of patients of different cultures such as Iranian Muslim patients. According to the latest report of the Institute of Cancer of Iran, breast cancer constitutes 25 % of all cancers among Iranian women, with the highest rate in those aged between 35 and 44 years [15].

In qualitative studies in Iran, the role of spiritual beliefs in coping with breast cancer is indicated and facing the disease using a spiritual approach is considered as the major coping strategy to respond to cancer [16–18], but there is still lack of evidence with regard to measuring the spirituality and assessing its association with QOL using a standard tool. Furthermore, some evidences indicate that different cultural groups may emphasize different aspects of their QOL [19]; this obviates the need to assess the local perspectives by international instruments so that the data can be used for cross-cultural comparisons and also selecting the best interventions based on the needs of sufferers.

The aims of this study were to describe the QOL and spirituality of women with breast cancer, to determine the association between QOL and spirituality, and finally to investigate the predictive role of spirituality on quality of life of women with breast cancer undergoing radiation therapy.

Methods

This was a cross-sectional study that was undertaken in the Breast Cancer Research Center of St. S. Al-Shohada Hospital, Isfahan, Iran, which is the radiotherapy referral center in the city of Isfahan. The target population was newly diagnosed breast cancer patients under radiation therapy who consented to participate. Eligibility criteria included a diagnosis within the last 12 months and a treatment recommendation of radiation therapy of at least 2 weeks. Patients with concomitant chronic disease and major depression disorder were not

eligible to participate. With 95 % confidence interval (SD 8.3, $d=2.1$) [20], we considered 68 patients to examine.

Instruments

The quality of life in these patients was assessed using the European Organisation for Research and Treatment of Cancer Quality of Life (EORTC QLQ-C30) [21, 22]. It incorporates nine multi-item scales: five functional scales (physical, role, cognitive, emotional, and social), three symptom scales (fatigue, pain, and nausea and vomiting), and a global health and quality-of-life scale. Several single-item symptom measures are also included [21]. The specific form of this questionnaire is also developed for breast cancer.

The EORTC QLQ-BR23 is a 23-item breast cancer-specific questionnaire measuring the quality of life in breast cancer patients. It consists of two functional scales (body image and sexual functioning) and three symptom scales (arm symptoms, breast symptoms, and systematic therapy side effects). The remaining items assess sexual enjoyment and emotional shock due to hair loss [23]. The range of scores is from 0 to 100 with a higher score representing a higher (“better”) level of functioning for the functional domain and a higher (“worse”) level of symptoms for the symptom domains [24]. This questionnaire is translated and validated in Persian by Montazeri et al. in 2000, and they found that the Iranian version of the EORTC QLQ-BR23 is a reliable and valid measure of health-related quality of life among women with breast cancer [25].

To assess the spirituality of participants, we used the 12-item Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being (FACIT-Sp12) questionnaire. This is a valid and reliable instrument to provide an inclusive measure of spirituality in research and clinical practice [20, 26]. This questionnaire contains 12 spirituality items and three subdomains of spiritual well-being: peace, meaning, and faith (scale range 0–48, higher scores signifying greater spiritual well-being) [27]. All three scales have high internal consistency (Cronbach's alpha for total scale 0.87, for meaning/peace subscale 0.81, for faith subscale 0.88) [20]. The psychometric properties of the Persian version of FACIT-Sp12 questionnaire are well documented [28].

The quality of life and spirituality questionnaires and demographic data were administered by the researchers in face-to-face interviews. Sociodemographic data, which included demographic information (age, marital status, education, occupation, religion) and concurrent chronic disease, were collected through a questionnaire. Clinical data including pathological disease stage were extracted from medical records.

Analysis

The scale scores of the QLQ-C30 and QLQ-BR23 and spirituality were computed as recommended in the scoring

manuals [27, 29]. All descriptive statistics are presented as means and standard deviations for quantitative variables and as relative frequencies and percentages for categorical variables. EORTC QLQ and spirituality scores are presented as means with their 95 % confidence intervals.

Pearson's correlation coefficient was used to measure the strength of the relationship between EORTC QLQ and spirituality subscales and general health status/QOL. Predictor variables achieving bivariate significance were placed into a linear regression model. Multiple regression (stepwise) analysis was applied to assess the predictors of the general health status/QOL scale of the QLQ-C30.

Considering the general health status/QOL as the dependent variable, the independent (predictor) variables were entered in blocks, starting from the background sociodemographic and clinical variables and followed by the QLQ-C30 and QLQ-BR23 scales. In the case of the general QOL, the subscales of the spiritual well-being were also entered as independent variables. The level of significance was set at $P < 0.05$, and all tests were two-tailed.

Collinearity diagnostics were performed by means of the variance inflation factor (VIF) for each independent variable entered in the regression equations. A $VIF > 10$ was considered as positive multicollinearity [30]. The analysis of data was performed by the predictive analytic software (SPSS version 18) for Windows.

Results

Sixty-eight patients fulfilled the study's inclusion criteria and were interviewed. The mean age of all participants was 48 (SD 10.3) years with a range of 24 to 70 years. Most of the patients were married (95.6 %) and housewives (88.2 %). Seventy-five percent of them were educated below high school diploma. All patients identified themselves as Muslim.

EORTC QLQ-C30 and QLQ-BR23 and spirituality scores

The mean score of global health status/QOL was 41.42 (SD=18.06). In the symptom scale, the higher levels of symptoms were fatigue (56.54), insomnia (46.57), and pain (45.59). The mean spiritual well-being (FACIT-Sp12) score was 28.41 out of 48 (SD=6.96) with the highest mean score in the faith subscale (mean=11.33, SD=2.98) in comparison to the other subscales. In one-way ANOVA, there was no statistically significant difference in QOL and spiritual well-being scales with regard to demographic status ($P > 0.05$). Table 1 shows breast cancer patients' functioning and global quality of life as well as spiritual well-being scores.

Factors associated with QOL scale scores

Using Pearson's correlation analysis, the correlation of general health status/QOL with scale scores of the EORTC QLQ was average to high. The correlation of general health status/QOL was highest with social functioning ($r=0.59$, $P < 0.001$), pain ($r=-0.58$, $P < 0.001$), and systemic therapy side effects ($r=-0.56$, $P < 0.001$). There was a statistically significant positive correlation between meaning, peace, and total spirituality scores with general health status/QOL. The correlation of GHS/QOL with subscale scores is summarized in Table 1.

Predictors of global QOL and functional scale scores

In multiple stepwise regression analyses, after evaluating the correlations among the independent variables, no multicollinearity problem was detected. Total spiritual well-being score, social functioning, pain, and arm symptoms were significant predictors ($P < 0.05$) of global QOL. The final model explained 61 % of the variance of the general health status/QOL. Stage of disease and other demographic factors were not found to be significant predictors of general quality of life in these patients. Predictors of functional health status and global quality of life are presented in Table 2.

Discussion

The aim of this study was to measure the spirituality and quality of life and their association in women with breast cancer undergoing radiation therapy. The mean score of global health status/QOL was 41.42 which indicated that the studied population has poor quality of life in comparison to those of international studies such as in Germany (65.5), the UK (66.8), Korea (66.5), and Kuwait (48.3) [31–34]. The mean scores for the QLQ-C30 and QLQ-BR23 indicated that the patients had poor to average functioning and moderate symptom experience.

Furthermore, the mean spirituality (FACIT-Sp12) score was 28.41 which is lower than the reported mean score of 38.5 in English-speaking [20] and 32.4 in South American patients with cancer [35]. We found that being a Muslim is related to high scores on the faith factor of the spiritual well-being subscales. The "faith" component of spirituality is most often associated with religion and religious belief [36], and the results of this study suggest that the Islamic faith and beliefs of our participants contributed to their overall spiritual well-being. This finding coheres with the results of another study on Jordanian Muslim patients [37].

On the other hand, our participants reported lower level of meaning and peace. Meaning has been assessed in terms of the sense of purpose in life, productivity, and having

Table 1 EORTC QLQ-C30, QLQ-BR23, and FACIT-Sp12 scale scores and their correlation with global health status/QOL

Variable	Number of items	Mean	SD	Correlation value	<i>P</i> value
QLQ-C30 functional scales ^a					
Global QOL/general health status	2	41.42	18.02	1	<0.001
Physical functioning	5	63.14	20.62	0.511	<0.001
Role functioning	2	63.93	25.72	0.372	0.002
Emotional functioning	4	43.38	21.86	0.423	<0.001
Cognitive functioning	2	54.41	25.04	0.309	0.010
Social functioning	2	47.55	25.70	0.598	<0.001
QLQ-C30 symptom scales/items ^b					
Fatigue	3	56.54	22.03	-0.481	<0.001
Nausea and vomiting	2	26.23	25.96	-0.392	0.001
Pain	2	45.59	22.60	-0.585	<0.001
Dyspnea	1	24.02	30.93	-0.294	0.041
Sleep disturbance	1	46.57	33.15	-0.340	0.005
Appetite loss	1	35.78	27.80	-0.262	0.031
Constipation	1	28.92	34.50	-0.413	<0.001
Diarrhea	1	15.69	24.75	-0.389	0.001
Financial impact	1	66.67	31.54	-0.189	0.123
QLQ-BR23 functional scales ^a					
Body image	4	43.63	26.47	-0.317	0.008
Sexual functioning	2	14.46	15.74	0.100	0.418
Sexual enjoyment	1	14.71	32.26	0.113	0.360
Future perspective	1	57.84	35.32	-0.146	0.234
QLQ-BR23 symptom scales/items ^b					
Systemic therapy side effects	7	46.01	22.78	-0.566	<0.001
Breast symptoms	4	27.57	20.62	-0.404	0.001
Arm symptoms	3	41.18	26.11	-0.470	<0.001
Upset by hair loss	1	60.29	33.70	-0.478	<0.001
FACIT-Sp12 scales ^c					
Meaning	4	9.84	3.05	0.576	<0.001
Peace	4	7.23	2.86	0.497	<0.001
Faith	4	11.33	2.98	0.226	0.070
Total	12	28.41	6.95	0.554	<0.001

^aScores range from 0 to 100, with a higher score representing a higher level of functioning

^bScores range from 0 to 100, with a higher score representing a greater degree of symptoms

^cScores range from 0 to 48, with a higher score representing a higher level of spiritual well-being

reason for living [27]. Brady et al. [26] found that cancer patients with a higher degree of meaning/peace in their lives were able to tolerate severe physical symptoms and enjoy their lives. Our findings highlight spirituality dimensions especially with focus on meaning and peace in psychosocial interventions.

With regard to the pattern of functional scale scores of the QLQ-C30, the lowest score was noted for emotional functioning. This finding is similar to that of another study in Iran [38] and indicates the importance of emotional and psychological support for these patients.

There was a significant relationship between global health status/QOL and functioning and symptom scales of the QLQ-C30. Our results from the multiple regression analysis indicate that social functioning, pain, and arm

symptoms were more important in predicting the general quality of life. The radiotherapy treatment is associated with arm pain and edema that have strong association with QOL. The UK Standardisation of Breast Radiotherapy Trial showed that there is strong association between arm symptoms and long-term quality of life in patients undergoing radiation therapy [34]. These findings could warrant early clinical attention and pain management in these patients.

Furthermore, our results showed that social functioning is an important predictor of global QOL. This is in line with a Canadian report which indicated that social functioning was strongly correlated with global QOL [39]. Also, breast cancer patients may still achieve quality-of-life benefits via receiving empathic understanding and support from similar others and their families [40].

Table 2 Significant predictors of functional health status and global quality of life

Model	Standardized beta	<i>P</i> value	Standard error of the estimate	<i>R</i> square
Model 1				
Social functioning	0.63	<0.001	14.41	0.40
Model 2				
Social functioning	0.45	<0.001	13.13	0.51
Systemic therapy side effects	−0.38	<0.001		
Model 3				
Social functioning	0.39	<0.001	12.70	0.55
Systemic therapy side effects	−0.29	0.007		
Spiritual well-being	0.24	0.025		
Model 4				
Social functioning	0.38	<0.001		
Systemic therapy side effects	−0.16	0.147	12.11	0.60
Spiritual well-being	0.26	0.01		
Arm symptoms	0.25	0.01		
Model 5				
Social functioning	0.34	0.001		
Pain	−0.22	0.035	11.87	0.61
Arm symptoms	−0.24	0.009		
Spiritual well-being	0.30	0.002		

Dependent variable: global QOL/general health status

An important aspect of the current study refers to the inclusion of spiritual well-being as a potentially influencing factor on patients' QOL. We found spiritual well-being to be an important determinant of patients' assessments of overall QOL. Similar studies assessed the association of QOL and spiritual well-being using FACIT-Sp12. A study on 154 Caucasian women with breast cancer showed a positive correlation between spiritual well-being and QOL ($r=0.48$), even when controlling for psychological adjustment [41]. The results of another study on Spanish-speaking cancer patients in South America suggested that spiritual well-being was an important determinant of participants' assessments of overall QOL [35]. Krupski et al. found that lower spiritual well-being in men with early-stage prostate cancer was associated with lower QOL [42]. Similar results are reported for other studies on colorectal cancer survivors [43] and metastatic prostate cancer patients [44].

In our study, meaning and peace scales of spiritual well-being were positively correlated with general health status/QOL. This result is in line with a large Australian study on 449 cancer patients which indicated that spiritual well-being has a positive association with health-related QOL domains, the meaning/peace component being more highly related to QOL than the faith component [45].

Similarly, in two longitudinal studies, Yanez et al. hypothesized that sense of meaning and peace would be more strongly linked than faith to improvements in adjustment following cancer. The results of these studies indicated that meaning and

peace act as a positive resource for cancer survivors, but faith may serve to facilitate or even hinder positive adjustment [46].

Our study, while having much strength, involved some limitations that should be considered. Our findings cannot be generalized to the general population of women with breast cancer because of the small sample size of patients. Participants were from a referral clinic population, and there is no general population reference data to compare. Also, the cross-sectional design of this study limits its generalizability. More research, particularly longitudinal, is warranted to direct the causation between spiritual well-being and QOL. Despite these limitations, the current study appears to be unique in that it used a standardized measure to quantitatively evaluate the spirituality and QOL and its association among Iranian breast cancer patients.

Conclusion

In conclusion, our study provides evidence that breast cancer survivors in Iran experience a poor quality of life across a broad spectrum of health domains, particularly social, emotional, and spiritual. Considering the association of spiritual well-being and QOL, more psycho-spiritual interventions are needed to comply with the needs of women with breast cancer. Results of this study provide additional support to the bio-psycho-social-spiritual model for caring of patients with breast cancer.

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Conflict of interest The authors have no conflict of interests.

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