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Religiosity and Quality of Life in Breast Cancer Patients

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A B S T R A C T

Our aim was to assess relations between the quality of life and religiosity in breast cancer patients. The participants were 115 consecutively admitted female in-patients with breast cancer in the radiotherapy unit in the course of six months. The measures used were Santa Clara Strength of Religious Faith Questionnaire (SCSORF), World Health Organisation Well-Being Index Five (WHO-WBI 5) and International Breast Cancer Study Group Quality of Life (IBCSG-QL) Questionnaire. The participants responded on three statements relating to religious coping with cancer. Moderate religiosity was associated with perception of worse physical health. The statement »the illness decreased my faith« was associated with worse quality of life (QOL) domains: less well-being, more pain, poor physical health, more effort to cope, worse fatigue and less general satisfaction. The statement »the faith helps me in illness« was associated with higher social support.

Key words: *religiosity, religious coping, quality of life, breast cancer*

Introduction

The concept of quality of life (QOL) refers to a multidimensional approach to health and disease including psychological, social, physical, but also spiritual aspects[1]. Although the belief system of an individual is still a relatively unexamined factor, religious faith may be important for the patient's quality of life and to QOL indicators as life satisfaction, happiness, self-esteem, hope, optimism and meaning in life[2]. Religiosity also influences clinical outcomes, illness prevention, coping, recovery, and the definition of a patient's illness experience[3].

There are a growing number of studies investigating role of the religiosity in the population of breast cancer patients[4]. If we are to better understand ties between faith and adjustment to cancer, there is a need for additional research to clarify the role that religiosity has on the way patients experience their illness through quality of life measures. It is important to focus on specific domains important to cancer patients, rather than addressing more general questions. Many studies mix together individuals with different sites or stages of disease and those at different phases of treatment, thus obscuring potentially important differences[5,6]. Different dimensions of religious or spiritual involvement might be differentially associated with adjustment to cancer. It is important to elucidate which facets of religiosity are potentially helpful. The strength of religious faith, as one of the dimensions of religiosity, has been associated with psychological adjustment among medically healthy adults, substance abusers, and with the quality of life in early-stage and advanced cancer[5,7,8]. Most of the work has so far concentrated on hospice patients[9].

It has been suggested that a distinction should be made between health-related quality of life (HRQOL), which reflects a patient's health status and can be measured by instruments that focus on physical health and overall functional ability, and quality of life, which takes into account other psychological factors[10,11]. So we decided to assess QOL using measures for well-being and for HRQOL in breast cancer patients.

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The study is part of a larger study of relationship between religiosity, depression and quality of life in patients with cancer and its aim was to assess relations of quality of life domains with strength of religious faith using explorative approach in cross-sectional study with female patients suffering from breast cancer.

Methods

Sample

The subjects were female in-patients with breast cancer, recruited from the radiotherapy unit over the course of six months. The patients originated from different parts of Croatia and their treatment was performed in a large specialized teaching hospital. The participants gave an informed consent to participate in the study after the purpose and procedures of the study had been fully explained. Out of 138 patients surveyed, 115 (83.33%) agreed to participate in the psychological assessment. Four patients refused to participate, 19 failed to complete the evaluation for various reasons (poor physical state, dementia, early discharge from hospital). All patients were female Caucasians, mean age 61.8 years, SD 11.21 median 63, and were currently treated with radiation therapy although they differed as to how much previous treatment they had already received. Fifty-six-point-five percent previously received chemotherapy or were on chemotherapy at the time of assessment. Sociodemographic characteristics are described in Table 1.

There was no significant age difference, or tumor stage difference between participants and non-participants. The interviews took place within the first week of their admission to the hospital.

Instruments

For the assessment of religiosity we used Santa Clara Strength of Religious Faith Question (SCSORF), a 10-item instrument that measures the strength of religious belief, regardless of religious affiliation or denomination, which has already been validated in cancer patients. The instrument was translated by bilingual clinician and back translated by native English speaker unaware of the original English version. The SCSORF has a high level of internal reliability with Cronbach alpha 0,98 which corresponds to the literature[12]. Unidimensional structure of the scale has been confirmed by Lewis et al.[13]. It is brief and easy to administer, being fairly independent of conceptually related constructs: purpose or meaning of life, optimism, social support, psychological adjustment and well-being[5,12]. The answers were based on four-point Likert scale (1-strongly disagree; 2-disagree; 3-agree; 4-strongly agree). An example of an item is »faith is my source of inspiration«. For the purpose of this research, in an attempt to examine group differences more clearly, the patients were categorized into three groups, based on SCSORF scores. The subjects that scored 10–20 answered the questions with »strongly disagree« or »disagree« and were considered as low religiosity group, 21–30 scored in between the two and were considered as moderate religiosity group and 31–40 who answered mostly with »strongly agree« and »agree« as high religiosity group.

TABLE 1
DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

Variable	$\overline{X}$ (SD)	N	%
Age (years)	61.3(11.1)		
Education (years)	7.6 (4.2)		
Employment status			
Employed		19	(16.5)
Unemployed/housewife		46	(40)
Retired		50	(43.5)
Marital status			
Married		61	(53)
Not married		54	(47)
Cancer stadium			
I		38	(33)
II		56	(48.7)
III/IV		21	(18.3)

Quality of life was assessed with World Health Organisation Well Being Index Five-item version (WHO WBI-5). This scale was found to be a reliable measure of subjective quality of life in general population[14,15] with Cronbach alfa 0.94. A sum score is calculated by adding up the figures of the five answers; it ranges from 0 to 25. A high sum score indicates a status of optimal well-being[15].

For assessment of quality of life we also used International Breast Cancer Study Group Quality of Life (IBCSG-QL) questionnaire that consists of linear analogue self-assessment (LASA) indicators to measure selected components of QOL, previously shown to be affected by breast cancer and radiotherapy treatment[16]. Each LASA indicator consisted of a 10-cm line anchored at both ends with words describing the minimal and maximal extremes of the dimension being measured; physical well-being (»good« to »lousy«), mood (»happy« to »miserable«) and coping/perceived adjustment (»How much effort does it cost you to cope with your illness?«, »no effort at all« to »a great deal of effort«) Tiredness was included as specific indicator of symptoms and side effects (with anchors »none« to »severe«), pain (»no pain« to »worst possible pain«), appetite (»good« to »no appetite«). Social support was marked by »very much« and »none at al« for support of close people. Satisfaction with current condition was marked by »perfect health« and »worst health«. The time frame was related to the preceding 2 weeks. The instruments were translated by bilingual clinician and back translanted by native English speaker unaware of the original English versions.

We assessed religiosity as a coping mechanism using three statements »illness increased my faith«, »illness decreased my faith« and »my faith helps me coping with illness«, inspired by previous research[17]. There were four

possibilities to answer these questions (1-strongly disagree; 2-disagree; 3-agree; 4-strongly agree).

Disease severity was determined by the cancer stage, a measure of tumor size and metastases. This index ranges from stage I, a small localised tumor, to stage IV, metastatic disease[18].

Our study did not reveal results for particular religious affiliations, as the research had been conducted in a highly predominant Roman Catholic population (87.98% of Croatian population are Roman Catholics)[19].

Statistics

A statistical analysis was performed using SPSS 16.0 statistical package. Standard descriptive statistics including means, standard deviations, frequency counts and percentages were used to calculate the sample demographic, clinical measures and questionnaire results. Because of item-non-response, exact number of complete responses is specified analysis-by-analysis in the result section. The Kolmogorov-Smirnov test was applied to test the normal distribution of continuous data. The coping statements variables were consequently recorded into a dichotomous variables to minimize the unevenness of the responses.

Analysis of variance was then used to assess the relationship of independent variables with dependent measures. Dependent measures included measures of well-being and HRQOL variables. Univariate analysis of variance was performed to test for interactions between religiosity groups and dichotomised answers on coping statements on dependent variables. All p-values were two-tailed, and were estimated at the significance level of 0.05.

Results

Sample characteristics

The mean religiosity score on SCSORF was 30.5, median 36, SD 10.4 (range 10 to 40). By categorizing patients into three religiosity levels, we found 27 (23.4%) to be in low religiosity group, 16 (13.9%) in moderate and 72 (62.6%) in high religiosity group.

QOL and religious variables

The analysis of variance was used for testing the differences in means of QOL domains according to religiosity groups. Results are shown in Table 2. The group of moderately religious persons showed the worst perception of physical health ($F=3.105$; $df=-2.112$; $p=0.049$). Controlling for social and clinical variables did not show any significant difference.

Quality of life domains did not differ by mentioned social and clinical characteristics. Pain was influenced by the level of education. Less educated felt more pain ($F=3.216$; $df=2.112$; $p=0.044$).

Associations between the religious variables

We compared religiosity groups of patients with the scores on three coping statements. Higher religiosity was associated with higher mean scores on two statements: »Illness increased my faith« ($F=65.4$; $df=2.112$; $p=0.0001$), »Faith helps me coping with illness« ($F=15.022$; $df=2.112$; $p=0.0001$), and with lower mean scores on statement »Illness decreased my faith« ($F=199.747$; $df= 2.112$; $p=0.0001$). Bonfferoni *post hoc* analysis revealed differences between high and low, and high and moderate religiosity, but not between low and moderate religiosity.

Due to unevenness of the response we consequently recorded following variables into dichotomous variables: »the illness decreased my faith« into a dichotomous variable according to whether »strongly disagree« was selected (92 participants) or any other choice was selected (23 participants) to remedy or at least minimize the unevenness of the responses. The variable »illness increased my faith« was dichotomised depending on whether strongly agree and agree (78), or other choice (37) was selected. »Faith helps in illness« was dichotomised depending on whether strongly agree, agree (79) or other (36) was selected.

TABLE 2
RESULTS OF ANALYSIS OF VARIANCE. MEANS AND STANDARD DEVIATIONS OF QOL DOMAINS BASED ON LEVEL OF RELIGIOSITY, F VALUES AND STATISTICAL SIGNIFICANCE; N=115

QOL domain	Low relig.	Moderate relig.	High relig.	F	p
	$\overline{X}$ (SD)	$\overline{X}$ (SD)	$\overline{X}$ (SD)		
Well-being	13.5 (5.97)	12.8 (4.72)	15.6 (4.89)	2.783	0.066
Pain	20.1 (20.75)	35.7 (26.53)	23.4 (21.48)	2.689	0.072
Physical health	66.9 (24.84)	49.8 (24.01)	65.5 (23.74)	3.105	0.490
Appraisal of effort to cope	47.2 (35.92)	33.3 (28.44)	34.6 (31.17)	1.668	0.193
Social support	25.6 (31.40)	21.2 (30.05)	14.6 (24.46)	1.759	0.177
Mood	43.3 (25.20)	54.8 (24.60)	38.4 (26.61)	2.676	0.073
Fatigue	30.3 (26.14	45.5 (28.88)	31.5 (26.16)	2.032	0.136
Appetite	21.9 (18.51)	35.9 (23.44)	22.9 (21.02)	2.819	0.064
General life satisfaction	39.5 (23.42)	52.7 (25.19)	39.3 (20.69)	2.531	0.084

Religiosity was assessed with SCSORF

TABLE 3
RESULTS OF T-TEST AND STATISTICAL SIGNIFICANCE FOR QOL DOMAINS ACCORDING TO ATTITUDE TOWARDS STATEMENTS: »ILLNESS INCREASED MY FAITH«, »ILLNESS DECREASED MY FAITH« AND »FAITH HELPS IN ILLNESS«, N=115; N (WELL-BEING)=111

QOL domain	Illness increased my faith				Illness decreased my faith				Faith helps in illness			
	$\overline{X}$ (SD)		t	p	$\overline{X}$ (SD)		t	p	$\overline{X}$ (SD)		t	p
	yes	no			yes	no			yes	no		
Well-being	14.0 (6.06)	15.0 (4.77)	0.49	0.345	11.1 (4.40)	15.6 (5.03)	3.967	0.001	13.6 (5.70)	15.2 (4.90)	1.459	0.147
Pain	23.9 (23.03)	24.6 (22.22)	0.158	0.875	34.5 (25.87)	21.8 (20.81)	–2.489	0.014	24.8 (23.92)	24.1 (21.81)	0.148	0.882
Physical health	67.1 (24.83)	62.0 (24.29)	1.054	0.294	50.0 (26.31)	67.1 (22.89)	3.112	0.002	62.3 (26.24)	64.3 (23.78)	0.401	0.689
Appraisal of effort to cope	45.0 (34.73)	33.8 (30.48)	1.754	0.082	58.9 (18.90)	37.5 (26.37)	–2.921	0.004	44.6 (35.13)	34.1 (30.41)	1.641	0.104
Social support	41.5 (26.85)	42.0 (26.38)	1.434	0.154	48.5 (30.27)	29.3 (24.54)	–1.944	0.054	45.0 (24.44)	40.4 (27.30)	2.148	0.034
Mood	32.8 (27.59)	33.3 (26.56)	0.087	0.931	57.4 (22.38)	37.2 (20.45)	–3.654	0.001	33.1 (27.94)	33.2 (26.41)	0.869	0.387
Fatigue	39.4 (22.51)	42.1 (22.28)	0.094	0.925	28.6 (19.93)	23.5 (21.41)	–3.197	0.002	40.8 (24.19)	41.4 (21.52)	0.004	0.997
Appetite	22.9 (19.31)	25.2 (22.03)	0.947	0.346	29.1 (32.35)	15.3 (25.18)	–0.194	0.847	24.9 (21.95)	24.3 (20.90)	0.185	0.854
General life satisfaction	22.1 (28.65)	16.2 (26.43)	0.598	0.551	54.4 (30.26)	33.2 (31.38)	–4.169	0.001	23.8 (31.52)	15.4 (24.73)	0.141	0.888

TABLE 4
SPEARMAN'S CORRELATIONS BETWEEN COPING STATEMENT BEFORE DIHOTOMISATION. SCSORF AND QOL VARIABLES; RHO COEFFITIENTS

	Illness increased my faith	Illness decreased my faith	Faith helps in illness	SCSORF	Well--being	Pain	Physical health	Effort to cope	Social support	Mood	Fatigue	Appetite	General satisfaction
Illness increased my faith													
Illness decreased my faith	–0.416(**)												
Faith helps in illnes	0.744(**)	–0.368(**)											
SCSORF	0.745(**)	–0.364(**)	0.849(**)										
Well-being	0.085	–0.388(**)	0.161	0.241(*)									
Pain	0.033	0.177	–0.078	–0.040	–0.304(**)								
Physical health	–0.057	–0.245(**)	0.086	0.126	0.529(**)	–0.484(**)							
Effort to cope	–0.163	0.289(**)	–0.126	–0.109	–0.401(**)	0.277(**)	–0.348(**)						
Social support	–0.149	0.203(*)	–0.126	–0.147	–0.448(**)	0.327(**)	–0.257(**)	0.382(**)					
Mood	–0.028	0.323(**)	–0.089	–0.197(*)	–0.694(**)	0.332(**)	–0.718(**)	0.401(**)	0.407(**)				
Fatigue	–0.095	0.271(**)	–0.050	–0.069	–0.549(**)	0.332(**)	–0.560(**)	0.434(**)	0.405(**)	0.622(**)			
Appetite	–0.056	0.120	–0.082	–0.181	–0.502(**)	0.310(**)	–0.454(**)	0.312(**)	0.328(**)	0.507(**)	0.470(**)		
General satisfaction	–0.032	0.334(**)	–0.056	–0.132	–0.585(**)	0.442(**)	–0.458(**)	0.340(**)	0.362(**)	0.533(**)	0.504(**)	0.505(**)	

* Correlation significant at the 0.05 level
** Correlation significant at the 0.01 level

We tested the differences in QOL domains according to the level of agreement with these statements. The conviction that the faith helps in coping with cancer was associated with higher social support as shown in Table 2. The statement that the illness decreased their faith was associated with, lower well-being, worse physical health, lower mood, higher fatigue and less general health. Statement »illness increased my faith« was not associated with any of QOL domains (Table 2). We also show Sperman correlations between QOL domains and three coping variables before dihotomisation in Table 3. The results for the statement »illness increased my faith« and »faith helps in illness« did not show any association and variable »illness decreased my faith« was correlated with lower well-being, worse physical heath, less social support, lower mood, higher fatigue and less general health.

Inspecting interactions

The association between general satisfaction and conviction that illness decreased their faith was in interacted with the state of marriage ($F=3.525$, $df=3.107$; $p=0.017$), showing that decreasing of faith changes general satisfaction for all marriage states, but widows. The association between social support and conviction that faith helps in coping with cancer interacted with number of children ($F=4.305$ $df=4.105$; $p=0.003$). The perception that faith helps was associated with stronger support in those with more children, Association between social support and conviction that faith helps in coping with cancer also interacted with type of operation ($F=4.446$; $df=1.111$; $p=0.037$). In patients with mastectomy, the perception of social support changes depending on the belief that faith helps.

Univariate analysis of variance did not show any significant interaction between religiosity groups and agreement on particular statements according to QOL domains as dependent variables nor interaction between agreement on particular statements and social and clinical variables according to QOL domains as dependent variables.

Discussion

Levels of religiosity were not associated with quality of life measures, but the group of moderately religious persons showed worse perception of physical health. It was observed that moderately religious persons also had the worst perception of all other HRQOL domains, but these relations did not reach statistical significance. Similar results showed the study of Krause and Glenn who had examined relations of levels of religiosity with self-esteem and found lowest self-esteem in moderately religious persons[20,21]. According to assumption that strong convictions (whether religious or even atheistic) promote self-esteem, moderately religious might be those ambivalent, among other in respect to their religiosity, that disposed them to worse QOL measures. It is also possible that perception of worse physical health in moderately religious was connected to some other measure of clinical state besides stage of tumor (comorbidity etc.).

The patients' level of religiosity was associated with perception that their faith decreased or increased during the illness period. The other researchers have suggested that a life-threatening illness may challenge beliefs about existential meaning[22–24]. It has been argued that such a challenge may either decrease or enhance these assumptions.

High religiosity group of patients was convinced that faith helps them in healing, and agreement with this statement was positively associated with social support that religious involvement offers. It was not, however, associated with health related-quality of life domains. So, measures of HRQOL are different from perception that something (e.g. faith), helps. Further, those who state that the faith helps are highly religious. As faith promotes hope, it is understandable that highly religious persons believe that faith does help. It is expected and congruent with their belief system.

The other positive attitude towards religiosity »the illness increased my faith« was also associated with higher religiosity, but not with any of QOL domains. This statement may reflect some other aspects of health attitude, will to live, fear of death. The belief that the illness increased their faith was highly prevalent in our sample. Similar results were reported by Feher and Maly, where 50% of cancer patients reported a strengthening of religious faith[17]. Roberts et al. reported that, in 108 women with gynecologic cancers, 76% stated that religion had a strong place in their lives, and nearly half of those women (49%) felt that they had become even more religious since the diagnosis of cancer was made[25]. Sherman et al. reported preliminary results that »negative« religious coping (meaning questioning, challenging religious beliefs) in bone marrow transplant patients, was associated with diminished life satisfaction, personal well-being and social and family well-being. »Positive« religious coping, (defined as movement towards religion in response to cancer) was not strongly tied to any of these psychosocial of physical outcomes[26]. This could mean that those who are highly religious keep their hope and optimism although they are not feeling physically well, or that patients' adjustment to cancer is more associated with their attitude (especially a questioning, or turning away from religion) towards religiosity.

High religiosity was also negatively associated with the belief that their faith decreased during illness, although it was a rare choice of the subjects. This belief was negatively associated with almost all measured HRQOL domains. Although belief that faith helps is not associated with HRQOL (except social support), loosing faith is highly associated with worsening of HRQOL domains. In stress-buffering model of religiosity, religiosity is increased as the result of stress and protects from consequences of stress. Although it protects from stress and promotes well-being, it may be that religiosity and stress could have reciprocal relationships e.g. that stress in some individuals, or circumstances, may decrease religi-

osity. The strength of faith might be modulated by a whole range of factors. If religiosity is decreased as a result of illness or something else, its protective abilities are lost and it is shown on QOL measures.

Retrospective research with cancer patients does support the theory that a life-threatening illness can challenge existential beliefs. In several such studies cancer patients reported both positive and negative changes in their existential beliefs[22,27,28].

Changes in spiritual or existential perspectives following personal crises are a core aspect of many theoretical models from Kierkegaard through Frankl, Janoff-Bulman, and Tedeschi[23,24,29,30]. For example, Janoff-Bulman[23] has suggested that it is the »assumption-shattering« nature of traumatic events that often leads to subsequent psychological distress. That is, the inability to maintain one's religious or spiritual beliefs contributes to psychological distress after a stressful event[22]. Adjustment to a threatening event is dependent upon the ability to maintain beliefs of meaning and self-worth[31]. If one cannot maintain these beliefs, it will result in psychological distress. When faced with a crisis, people who used to adhere to religious principles might feel injustice and spiritual doubts. In either case, it can result in a loss of faith and in a sense of existential isolation[32].

Our study did not assess religious beliefs prior to the illness. Thus, we cannot determine if the beliefs of these individuals really changed as a result of the disease.

The limitations of the study

The study has some obvious methodological limitations. Its cross-sectional design prevented any causal statement to be made. Comorbid medical conditions were not compared and adjusted for between groups. Also, the presence of potentially depressogenic effects of the therapy may influence results of the QOL measures. The size of the sample is modest.

The generalizability of our results is limited by the aforementioned study limitations and characteristics of the study sample (e.g. mostly Catholic, low education, unemployed). Data from the literature suggest differences in psychological well-being among different religious affiliations[33]. Collectivistic religions such as Catholicism recognize social motivations and religious practices to be as normative as private, emotional motivations for religion[34], opposite to Protestant religions, where private and emotional religious motivations are standard, although SCSORF properties in our population correspond to the results in other studies with cancer patients[5,7].

Conclusion

This study shows the importance of religiosity for coping and adjustment to cancer experience.

Our results are consistent with the wider concept of QOL, which is more a reflection of the patient's health status, besides just health-related QOL[10,35]. Further prospective research is needed to resolve the main direction of the cause and effect. Considering the previously mentioned limitations, the results reported here suggest the necessity of further investigations in order to elucidate the clinical utility of incorporating religious beliefs and practice into therapeutic approach in oncologic departments. Given the prevalence and importance of religiosity in the population, a regular inclusion of religiosity and spirituality measures in health research studies is needed in order to understand the integration of mind, body and spirit and possibly, to move toward a biopsychospiritual model of QOL[6,36].

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RELIGIOZNOST I KVALITETA ŽIVOTA KOD OBOLJELIH OD RAKA DOJKE

S A Ž E T A K

Naš je cilj bio ispitati odnose između kvalitete života i religioznosti u bolesnica s karcinomom dojke. U istraživanju je konsekutivno tijekom šest mjeseci uključeno 115 bolesnica odjela za radioterapiju. Korištene mjere su Upitnik snage religijskog vjerovanja Santa Clara, Indeks kvalitete života Svjetske zdravstvene organizacije verzija pet i Upitnik kvalitete života međunarodne istraživačke grupe za karcinom dojke. Učesnice su odgovorile i na tri pitanja vezana uz religijsko sučeljavanje s karcinomom. Umjerena religioznost povezana je s lošijom percepcijom tjelesnog zdravlja. Tvrdnja »bolest je smanjila moju vjeru« povezana je s lošijim dimenzijama kvalitete života: manje dobrobiti, više boli, lošijim tjelesnim zdravljem, više uloženog napora u sučeljavanju s bolesti, više umora i manje općeg zadovoljstva. Tvrdnja »vjera mi pomaže u bolesti« povezana je s višom društvenom podrškom.