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The Religiosity/Spirituality of Latina Breast Cancer Survivors and Influence on Health-Related Quality of Life

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Abstract

Objective—The study evaluated the association of religiosity/spirituality (R/S) and health-related quality of life (HRQOL) among Latina breast cancer survivors (BCS) in order to determine whether R/S would be positively correlated with HRQOL and whether R/S would significantly influence HRQOL.

Methods—The cross-sectional study utilized self-report data from 117 Latina BCS survivors. R/S was measured with the Systems of Belief Inventory - 15 Revised (SBI-15R) and HRQOL was measured with the Functional Assessment of Cancer Therapy – General (FACT-G). Analyses included calculation of descriptive statistics, t-tests, bivariate correlations, and multivariate analyses.

Results—Latina BCS had very high levels of R/S and generally good HRQOL. The SBI-15R total score was positively correlated with FACT-G social well-being ($r=0.266, p=0.005$), relationship with doctor ($r=0.219, p=0.020$), and functional well-being ($r=0.216, p=0.022$). Multivariate analyses revealed that SBI-15R was a significant predictor of FACT-G functional well-being ($p=0.041$) and satisfaction with the relationship with the doctor ($p=0.050$), where higher levels of R/S predicted higher levels of well-being.

Conclusions—Latina BCS had very high levels of R/S, which were significantly, positively correlated with dimensions of HRQOL (social well-being, functional well-being, relationship with doctor). Further, these high levels of R/S predicted better functional well-being and satisfaction with the patient-doctor relationship while controlling for potentially confounding variables. Implications are discussed.

Keywords

Latina; Breast Cancer; Oncology; Religiosity/Spirituality; Health-Related Quality of Life

Introduction

The National Cancer Institute (NCI) has recently estimated the number of cancer survivors living in the United States (U.S.) to be close to 12 million [1]. As treatment advances have been made and the number of cancer survivors has increased, so has the focus on the health-related quality of life (HRQOL) of cancer survivors [2]. HRQOL has been defined as a subjective, multidimensional concept that encompasses physical, social, functional, and psychological/emotional well-being factors related to the health of an individual [3-4]. HRQOL is the extent to which an individual's usual or expected well-being in these areas is affected by an illness or related treatment [5]. Research into HRQOL improves understanding of the ways that chronic illness affects well-being, and thus guides the development of interventions to improve the individual's experience.

While there is a large body of research addressing HRQOL in general, there is less information available concerning ethnic minority women surviving breast cancer, specifically Latinas. The leading cause of cancer death among Latinas is breast cancer, which is also the most common malignancy in women in the United States (U.S.) [6]. Investigators of multiethnic studies have observed that Latinas present with later-stage cancer, receive differential treatment less than the standard of care, have biologic factors that indicate a poorer prognosis, and have a higher risk of breast cancer mortality and worse survival, compared with non-Latino White populations [7-10].

In a multi-ethnic study, Latina breast cancer survivors (BCS) reported the lowest levels of HRQOL (physical, social/family, emotional, functional, and breast cancer-specific well-being), and doctor-patient relationship quality [11]. Ethnic differences in ratings of doctor-patient relationship quality may be due to culture-related factors; for instance, doctor-patient relationship is not a significant predictor of HRQOL for African Americans [11]. In qualitative interviews, Latina BCS cited many issues affecting survivorship including but not limited to family well-being, emotional well-being, and sexual health [12]. Latina BCS have reported more emotional distress and related concerns than Black and non-Hispanic White women [13]. While the majority of research has shown poorer HRQOL and higher distress among Latinas when compared to other groups, one study reported that Latinas did not differ by level of distress in comparison to White women [14]. Physical issues such as nausea and pain also had a major impact on the HRQOL of Latina BCS [15].

Many empirical studies link religiosity/spirituality (R/S) to physical and mental health, although the mechanisms remain varied and unclear [16-17]. R/S has been identified as a predictor of HRQOL among cancer survivors and has become increasingly important in cancer coping research [18]. In general, research has supported a positive relationship between R/S and QOL [19]. The term religiosity/spirituality is used in this article to encompass all aspects of objective religious activity and spirituality as a subjective experience. R/S is a broad term with many definitions for the conceptually overlapped but different constructs of religion and spirituality. There seems to be agreement that both terms deal with an "ultimate reality" and that which is "transcendent, sacred, and non-material" [20]. Religiosity refers to participation in beliefs, activities, and rituals of traditional religion (e.g. church attendance, reading scripture) and is a "nurturer and channel of expression" for spirituality [21], while spirituality has to do with the individual, subjective path of religious experience [16,20-21]. While an extensive review of these constructs is beyond the scope of this manuscript, it is important to note that some researchers express concern over the extent to which the constructs overlap with other core HRQOL domains such as the emotional domain, and others find that spirituality provides a unique contribution to HRQOL measurement [19].

Qualitative research with cancer survivors has indicated that even when not specifically asked about R/S, they cited it as important in dealing with cancer, and among BCS, R/S helped them cope with cancer, citing spiritual resources that included relationship with God, religious coping activities (e.g. prayer), social support, and meaning [22-25]. When interviewed, Latina/o cancer survivors said that R/S was an important component of HRQOL, and Latina BCS used religious practices in recovery, believing spirituality was key to coping [26,13,15].

Despite these findings, a recent review of the impact of R/S on HRQOL in cancer survivors showed that studies were surprisingly sparse, showed mixed results, and had a number of methodological limitations [27]. Some studies have shown that religious coping is used frequently and is positively related to outcomes such as HRQOL, depression, and self-esteem, and also effectively aids in adjustment to stressful events such as health threats [28-29]. Other studies have shown there may be a negative effect on health if the need to uphold religious beliefs while in crisis causes anxiety and/or causes one to delay or refuse medical treatment [30]. One study found that among Latinas with cervical cancer, spiritual, familial, and cultural factors promoted well-being and coping but may also delay seeking treatment [31].

Given the cultural uniqueness of Latina BCS and the sparse amount of literature available, the present study assessed R/S and HRQOL among Latina BCS and examined the relationship of the two [32]. Further, much of the important work that has been done is qualitative in nature; therefore, the current study utilizes a quantitative analysis. The authors predicted that levels of R/S would be high for Latinas overall, that R/S would be positively correlated with HRQOL, and that R/S would act as a unique predictor of HRQOL.

Methods

Participants and Procedures

Participants were part of a larger funded study that assessed the psychosocial needs of Latina families adjusting to breast cancer diagnosis. Inclusion criteria included: female gender; self-reported ethnicity of Hispanic, Hispanic-American, Latina, or some Hispanic origin; and, clinically diagnosed with breast cancer in any state of treatment or remission (defined as a cancer survivor). After Institutional Review Board (IRB) approval, Latinas diagnosed with breast cancer were recruited through collaboration with San Antonio, Texas, breast cancer clinics, organizations, and support groups that included the Susan G. Komen Breast Cancer Foundation San Antonio affiliate, Alamo Breast Cancer Foundation, and American Cancer Society. Once potential recruits were identified, they were contacted via a letter of introduction explaining the study's purpose, the interview process, and the use of the collected data. Interviews were scheduled with follow-up phone calls; 117 of 146 identified survivors and agreed to participate, for a response rate of 80%.

Survivors were interviewed by a bilingual interviewer who administered a 202-item questionnaire that contained items concerning psychosocial adjustment to breast cancer and knowledge and attitudes. Interviews were conducted in English or Spanish according to preference, at the participants' preferred location and time, and average duration was approximately one hour. The study followed all guidelines as set forth by The University of Texas Health Science Center at San Antonio IRB and the San Antonio Cancer Institute Protocol Review Committee.

Measures

The current study pertains only to questionnaire items related to the sociodemographics (including acculturation level), illness characteristics, R/S, and HRQOL of Latina BCS.

Sociodemographic and illness characteristic items were developed for this study, except for acculturation, and included: age, ethnic origin, marital status, insurance status, annual household income, educational level, employment status, religious affiliation, years since diagnosis, history of breast cancer surgery, and familial history of breast cancer. Standardized measures were used to measure acculturation level, R/S, and HRQOL.

Acculturation—Acculturation was measured by a slightly revised version of the Short Acculturation Scale [33]. The SAS is a five-item language use scale with good internal reliability and a 5-point scale: 1) only Spanish, 2) more Spanish than English, 3) both equally, 4) more English than Spanish, or 5) only English. Scores were classified as low acculturation (≤ 10) or moderate to high acculturation (≥ 11). The SAS has been validated in Latina/o populations and correlates with other measures of acculturation.

Religiosity/Spirituality—R/S was assessed with the Systems of Belief Inventory – 15 Revised (SBI-15R), which taps into both religious and spiritual aspects of belief systems to measure religious and spiritual factors in coping with a life-threatening illness and its impact on HRQOL [34]. The SBI-15R encompasses both constructs by assessing beliefs and practices of faith systems (10 items, Subscale I) and social support from the religious and/or spiritual community (5 items, Subscale II), and applies equally to atheists, agnostics, those with no religious affiliation, and those with a moderate or strong religious or spiritual orientation [34]. Items were scored on a Likert scale from “strongly disagree” (0) to “strongly agree” (3) or from “None of the time” (0) to “All of the time” (3). The total score range was 0 to 45, with higher scores indicating more R/S. Initial instrument validation with religious and lay persons showed the SBI-15R to have sound psychometric properties via tests of reliability and validity. A Spanish version of the SBI-15R has been used with patients and healthy persons at a Mexico City hospital, where 98% of participants were Mexican [35].

Health Related Quality of Life—Cancer-specific HRQOL was assessed with the Functional Assessment of Cancer Therapy - General, Version 2 (FACT-G), supplemented with the FACT Breast Cancer Subscale (BC Subscale), which measured breast cancer concerns [4]. The FACT-G is a multidimensional measure and includes subscales to measure: physical well-being (PWB, 7 items); functional well-being (FWB, 7 items); social well-being (SWB, 7 items); and emotional well-being (EWB, 5 items). There is also a subscale assessing relationship with doctor (RWD, 2 items). In addition, the BC Subscale assessed concerns specific to breast cancer. Examples of items are as follows: “I have pain” and “I am bothered by side effects” (PWB); “I am able to work” and “I am sleeping well” (FWB); “I feel distant from my friends” and “My family has accepted my illness” (SWB); “I feel sad” and “I worry about dying” (EWB); “I have confidence in my doctor” and “My doctor is available to answer my questions” (RWD); and, “I have been bothered by hair loss” and “I am self-conscious about the way I dress” (BC Subscale). Items were rated on a 5-point Likert-type scale from “not at all” (0) to “very much” (4) with applicable items reverse-scored. Higher scores indicated higher HRQOL. Initial validation with mixed cancer patients showed the FACT-G has adequate to good reliability and validity. The validity of measuring HRQOL as separate dimensions was upheld via results that subscales were differentially responsive to groups known to differ on the dimensions. Spanish translations of the FACT-G and BC Subscale have been successfully used with cancer patients [36]. The scale is now in its 4th iteration. Version 4 has been administered to Latina BCS who had a mean FACT-G score of 80.1 (SD=17.4) [11].

Analyses

Descriptive statistics were calculated for sociodemographic, illness characteristic, SBI-15R, and FACT-G items. Analyses of the FACT-G and SBI-15R included calculation of means and standard deviations for scores, and reliability testing using Cronbach's alpha. Differences in mean scores between this study and scale development studies were calculated with independent samples student's t-test for equal variances and Welch's t-test for unequal variances. Bivariate analyses using Pearson product moment correlation coefficients tested associations between SBI-15R and FACT-G scales.

Multivariate analyses were used to assess the influence of R/S on the multidimensional aspects of HRQOL, while adjusting for confounding sociodemographic variables as covariates. The independent variable was the SBI-15R total scale and dependent variables were the FACT-G subscales that were significantly associated with the SBI-15R in correlational analyses at $p < 0.05$. Sociodemographic or illness characteristic variables were included as covariates if they were significantly associated ($p < 0.05$) in univariate analyses with the FACT-G scale being modeled (Brown-Forsythe F -ratio, "BF F ," is reported in cases where the assumption of homogeneity of variance was violated). A two-sided p -value < 0.05 was used to test for statistical significance. All analyses were conducted using SPSS 15.0 for Windows [37].

Results

Latina Breast Cancer Survivors

Descriptive statistics for Latina BCS are shown in Table 1. The mean age of survivors was 54.72 (SD=10.21). The majority were Mexican/Mexican American/Chicano, moderately to highly acculturated to the U.S., married, unemployed, Catholic, and were educated at the high school level or lower.

Most (78.6%) Latina BCS answered the questionnaire in English. Tests for differences in sociodemographic and illness variables among respondents in English vs. Spanish revealed three significant differences ($p < 0.05$): 64.1% of English respondents had a high school diploma/GED or less, while 92% of Spanish respondents had a high school diploma/GED or less ($\chi^2(2, N=117)=7.392, p=0.025$); 38% of English respondents had a family history of breast cancer, while 12% of Spanish respondents had a family history ($\chi^2(1, N=117)=6.080, p=0.014$); and, 92.1% of English respondents had moderate to high acculturation, while only 25.2% of Spanish respondents had moderate to high acculturation ($\chi^2(1, N=112)=47.35, p=0.000$) (data not shown).

Analyses of SBI-15R and FACT-G

FACT-G and SBI-15R means and standard deviations for subscale and total scores were calculated (Table 2), as well as reliability testing using Cronbach's alpha. Latina BCS scored high on R/S as shown by their mean SBI-15R Subscale and total scores. Latinas had higher mean scores in this study than members of a religious order (e.g. rabbis, priests) in the SBI-15R developmental study on Subscale I, $t(88) = 7.187, p=0.000$, Subscale II, $t(170) = 2.556, p=0.012$, and Total scale, $t(115) = 6.022, p=0.000$ [34].

Latina BCS had adequate HRQOL, in general, as demonstrated by mean FACT-G scores (Table 2). Survivors had significantly higher mean scores (and thus better HRQOL) than those of cancer patients in the developmental study on the following scales: FWB, $t(211) = 10.69, p=0.000$; EWB, $t(581) = 5.386, p=0.000$; RWD, $t(581) = 2.185, p=0.029$; SWB, $t(581) = 3.891, p=0.000$; and FACT Total, $t(581) = 2.36, p=0.019$ [4]. There was no significant difference in mean scores on the PWB scale.

The authors conducted several additional tests to evaluate the relationship of R/S and/or HRQOL with time since diagnosis, acculturation level, and survey language. Levels of R/S did not vary by time since diagnosis. However, HRQOL did vary by time since diagnosis, as results showed it was significantly related to FWB, BF $F(3,30.27) = 5.92, p=0.003$, and total FACT-G, $F(3,109) = 3.27, p=0.024$. In tests of whether acculturation level was associated with R/S, no significant results were found (data not shown; acculturation was later tested for relationship with HRQOL for use as a covariate in multivariate analyses, see below). Finally, the survey language was not significantly related to R/S or HRQOL (data not shown).

Cronbach's alpha was 0.76 and above for the SBI-15R total scale and subscales; alpha in this study was lower than in the developmental study, but still above the accepted cut-off of alpha greater than or equal to 0.70 as adequate [34,38]. FACT-G had Cronbach's alpha above the alpha cut-off of 0.70 for the total scale and all subscales except RWD, which had an alpha of 0.68. When evaluating scale alphas for English and Spanish surveys independently, results suggested overall similarity. FACT-G total was 0.90 and 0.88 for English and Spanish surveys, respectively. SBI-15R total scale was 0.84 and 0.80 for English and Spanish surveys, respectively.

Correlational Analyses of SBI-15R and FACT-G

The SBI-15R total score was positively correlated with FACT SWB ($p=0.005$), RWD ($p=0.020$), and FWB ($p=0.022$). The SBI-15R Subscale I was positively correlated with FACT SWB ($p=0.037$) and FWB ($p=0.019$). The SBI-15R Subscale II was positively correlated with FACT SWB ($p=0.002$) and FWB ($p=0.038$). See Table 3 for correlation analyses.

Multivariate Analyses

Three FACT-G subscales showed significant relationships to the SBI-15R Total: SWB ($r=0.266, p=0.005$), RWD ($r=0.219, p=0.020$), and FWB ($r=0.216, p=0.022$). Thus, these three subscales were modeled in multivariate analyses to assess the influence of R/S on HRQOL dimensions. Sociodemographic variables and illness characteristic variables were chosen as covariates based on significant association ($p<0.05$) with FACT-G subscales. SWB was associated with employment status, BF $F(2,75.45) = 8.560, p=0.000$; educational level, $F(4,112) = 2.826, p=0.028$; income level, BF $F(3,81.17) = 5.170, p=0.003$; and ethnic background, $F(2,110) = 3.286, p=0.041$. FWB was associated with employment status, BF $F(2,77.75) = 22.564, p=0.000$; income level, BF $F(3,74.79) = 4.584, p=0.005$; and time since diagnosis, BF $F(3,30.27) = 5.915, p=0.003$. RWD was statistically associated with acculturation level, BF $F(1,78.43) = 5.867, p=0.018$.

Results showed that SBI-15R was a significant predictor of FACT-G subscales in two models: RWD ($p=0.050$) and FWB ($p=0.041$). SBI-15R was not a significant predictor of FACT-G SWB ($p=0.120$).

In the model of RWD as the outcome, SBI-15R was the only significant ($p=0.050$) predictor. SBI-15R accounted for approximately 4% of the variance in the outcome. The beta coefficient suggested that a higher score on SBI-15R corresponded with a higher score on RWD ($B=0.050$). The entire model accounted for 6% of the variance in RWD ($R^2=0.056$).

When FWB was modeled as the outcome, SBI-15R was a significant predictor ($p=0.041$), as well as employment status ($p=0.003$), and the time elapsed since diagnosis ($p=0.029$). SBI-15R accounted for 6% of the variance in the outcome, while employment status and time since diagnosis accounted for 15% and 12%, respectively. Beta coefficients showed that higher SBI-15R scores corresponded with higher FWB scores ($B=0.166$). In addition,

those who were employed ($B=4.071$) or retired ($B=3.632$) scored higher on the FWB than those who were unemployed. Finally, survivors who were diagnosed in the preceding year scored lower on FWB than those who were diagnosed more than 10 years prior ($B=-0.872$); however, survivors who were diagnosed two to five ($B=2.973$) or six to 10 years ($B=1.231$) prior scored higher on FWB than those who had been diagnosed more than 10 years prior. The entire model accounted for 37% of the total variance in FWB ($R^2=0.373$).

In the model of SWB where SBI-15R failed to reach significance, none of the covariates were significant predictors. The entire model accounted for 32% of the variance in SWB ($R^2=0.316$). See Table 4 for results from multivariate analyses.

Discussion

A growing body of research has shown a relationship between Religiosity/Spirituality (R/S) and physical and mental well-being [16-17]. Studies have shown that R/S affects Health Related Quality of Life (HRQOL) among cancer survivors, aiding survivors in ways such as coping with life-threatening illness and dealing with pain and symptoms [19]. Latinas, in general, are part of a unique culture that may influence reported well-being, as many live their daily lives entrenched in the foundations of R/S [32]. Latinas have reported high levels of R/S as key to recovery and coping, more so than White women [13-14].

Given the sparse amount of literature addressing the HRQOL and R/S of Latina BCS that is largely qualitative in nature, the current study examined the influence of R/S on HRQOL by utilizing a quantitative analysis of cross-sectional data. The authors predicted that levels of R/S would be high for Latinas overall, that R/S would be positively correlated with HRQOL, and that R/S would act as a unique predictor of HRQOL after cancer diagnosis, while controlling for covariates.

Findings of this study indicated that the authors' prediction was upheld and Latina BCS had very high levels of R/S; surprisingly, their R/S levels surpassed that of religious affiliates (e.g. rabbis, ministers) in a developmental study [34]. This finding corroborates previous reports that Latinas are part of a culture that very much emphasizes R/S practices and beliefs [13-14,32].

Regarding well-being as measured by the FACT-G, Latina BCS showed significantly better overall HRQOL, as well as better emotional, social, and functional well-being, and more satisfaction with the patient-doctor relationship, than cancer patients in a previous scale development study [4]. Latinas' better emotional well-being and satisfaction with the patient-doctor relationship in this study are interesting when compared to previous reports that Latinas have reported lesser emotional well-being and doctor-patient relationship quality when compared to other ethnic groups [11]. One possible explanation is that these differences are due to acculturation level and language use; for instance, patients with Limited English Proficiency (LEP) report less satisfaction with the patient-doctor communication [39]. While information on acculturation level is not available for the previous study, 47% of those Latina participants chose to complete the study survey in Spanish. The current sample was moderately to highly acculturated with only 21% completing the survey in Spanish. Another possibility is that the sampling technique in the current study vs. the previous study led to selection of participants with a baseline of better emotional well-being and satisfaction with healthcare, because they were or had been involved in breast cancer organizations and support groups. The previous report sampled Latinas from state and hospital cancer registries. Lastly, one may postulate that the samples differed in levels of R/S, as patient-doctor relationship satisfaction is predicted by levels of R/S (described below).

In regards to the relationship of R/S with HRQOL, the hypothesis that R/S and HRQOL would be positively correlated was upheld for three of five core dimensions of HRQOL: social well-being, relationship with doctor, and functional well-being. This finding indicates that among this sample, higher levels of R/S corresponded to higher levels of well-being in the social and functional arenas, as well as satisfaction with the patient-doctor relationship. The finding that R/S significantly corresponds to functional well-being among BCS is corroborated by a previous study [40]. R/S may influence functional well-being in BCS by providing a sense of meaning in illness, giving one the ability to maintain well-being, accept cancer, and enjoy life “in the moment” (items on the FACT-G). R/S may influence social well-being among Latina BCS through social support mechanisms. R/S may be a coping mechanism that works through social resources (e.g. being a part of a congregation) as well as in other ways, such as providing meaning. Researchers have postulated that R/S may lead to positive health outcomes via provision of social networks by allowing an opportunity for fellowship, involvement in social programs, and companionship [41]. In regards to the finding that R/S was associated with satisfaction with the patient-doctor relationship, one may postulate that having faith and belief in a higher power or purpose extends to having faith and belief in other areas of life and the people involved, including one's physician. Having faith, in general, may work to increase faith and confidence in, and satisfaction, with healthcare.

The current study also indicated that levels of R/S were not significantly associated with physical, emotional, or overall well-being. These findings do not indicate that there was *no* relationship. In fact, R/S had a small inverse correlation with physical well-being. This suggests that as levels of R/S increased, physical health was poorer. Previous research has documented that religious beliefs may cause a delay in seeking treatment among Latinas [31]. This may occur if religious beliefs remove one's personal power and confidence that they can change and control their lives, resulting in an external locus of control (i.e. God is in control), and leading one to delay or refuse treatment. Indeed, 94% of Latina BCS in this study strongly agreed that life and death follow a plan from God, and 90% strongly agreed that God protects them from harm (SBI-15R items). Again, the relationship was not statistically significant, but is worth noting.

Finally, the authors hypothesized that R/S would be a unique predictor of HRQOL among Latina BCS, while controlling for covariates. This prediction was largely confirmed by the finding that R/S was a significant predictor of HRQOL for two out of three models: R/S influenced levels of functional well-being and satisfaction with the patient-doctor relationship. Thus, higher levels of R/S influenced HRQOL and predicted higher scores on the FACT-G subscales of FWB and RWD even while adjusting for covariates. Notable is that R/S was not a significant predictor of social well-being while covariates were controlled, nor were any of the included covariates in that model. This suggests that social well-being is influenced by other variables that were not included in the model.

In addition to evaluating the influence of R/S on HRQOL, evaluation of the influence of covariates on HRQOL revealed some interesting findings. R/S was the only significant predictor of the satisfaction with patient-doctor relationship; however, two covariates were significant predictors of functional well-being: employment status and time since diagnosis. Latina BCS who were employed or retired had better functional well-being than those who were unemployed, where employed Latinas had the highest level of functional well-being. In a previous study of BCS under age 50, being unemployed was related to lower FWB, PWB, EWB, and total FACT-G [42]. In addition, as one might assume, survivors who had been diagnosed with breast cancer in the preceding year had worse functional well-being than those living as a survivor for more than 10 years. However, survivors who had been diagnosed anywhere between two to 10 years prior had better functional well-being than

those who had been diagnosed more than 10 years prior. The findings showed that survivors who had been diagnosed between two to five years prior had the highest level of functional well-being, followed in rank-order by those diagnosed in the preceding six to 10 years, more than 10 years prior, and one year or less.

The current study has shown that Latina BCS have high levels of R/S, which are significantly and positively correlated with dimensions of HRQOL (social well-being, functional well-being, relationship with doctor). These high levels of R/S predicted better functional well-being and satisfaction with the patient-doctor relationship while controlling for confounding variables. Future research should be performed with this culturally unique population of cancer survivors in order to delineate the mechanisms by which these relationships do or do not exist (e.g., does R/S impact HRQOL among Latinas through use of active coping, levels of resilience, hope, and/or cultural healing methods such as familial support or use of a curandero or healer?). Specifically, further quantitative study should focus on the ways by which Latinas' unique cultural values influence their spiritual perspectives and thus adjustment to cancer and subsequent HRQOL. For instance, the following values form a basis for Latinas' R/S: collectivism (versus individualism) and a shared colonization background, familismo (enduring loyalty to immediate and extended family), personalismo (warm and empathic relationships), and simpatico (affectionate, close relationships) [32]. It is important to know how these values influence the role that R/S plays in HRQOL among Latina BCS. In addition, future research should evaluate the hypothesis that the relationship of R/S and HRQOL may be influenced or mediated by such constructs as social support, which may be particularly salient among Latinas given the emphasis on cultural values involving familial support and close, warm relationships.

In addition, studies should evaluate differences in the relationships of relevant variables between larger samples of BCS from different Latina subgroups. The BCS in the current study were predominately Mexican/Mexican American/Chicano, however, Latinas/os are a heterogeneous group, and the cultural contribution of each subgroup may differentially influence the relationships of R/S and HRQOL. Awareness of subgroup differences would be important for culturally tailoring future interventions. Given that the current study included a largely acculturated group of English speakers, future studies should also include evaluation of Latina BCS with lower acculturation levels, as well as those who are monolingual Spanish speakers. Latina BCS with low acculturation, who are Spanish speaking only, may differentially report levels of R/S and HRQOL. Of importance is that future work be quantitative in nature to add to the qualitative groundwork that has been done, in order to inform appropriate intervention designs.

Further studies would inform researchers about the utility of including religious and spiritual communities in culturally appropriate education and intervention strategies to promote the well-being of Latina BCS. These studies would prepare mental health, spiritual counseling, and long-term healthcare providers to address the needs of Latina BCS. Of particular importance is exploring the use of churches and other faith-based organizations for the dissemination of health promotion programs to increase well-being among Latina BCS, as these locales are a trusted and safe source of information for many individuals. Churches and other faith-based groups offer social support, counseling, and education opportunities for ethnic minorities. Research has shown that church-based health promotion (CBHP) programs are effective avenues for reaching varying populations who may not be able to access traditional medical facilities, including Latinas, and for reducing health disparities [43]. Culturally sensitive CBHP programs have focused on increasing cancer screening and other educational activities among Latinas [44-45]. The use of promotoras would be effective in CBHP programs aimed at Latina BCS. Promotoras are peer community health workers who are familiar with and relate to the community, and who deliver programs in a

culturally sensitive manner. The use of promotoras in CBHP programs has been useful with African Americans and Latinos (including the poor and uninsured). Evaluation of CBPH programs is in early stages, thus formative assessment is a critical step in collecting feedback and evaluating culturally appropriate CBPH program techniques for promoting the well-being of Latina BCS.

The current study has several limitations to consider when interpreting the findings. First, given the cross-sectional nature of the data, it is not possible to make causal inferences. There is also the potential for respondent bias given that data are based on self-report from Latina BCS. There is always the potential that Latina survivors responded in a socially desirable manner, reporting higher levels of HRQOL than in actuality. It is also possible that results could have been skewed by participant fatigue given that the questionnaire was lengthy. Finally, the relatively small sample size affects the generalizability of the findings. Despite these limitations, the current study appears to be unique in that it quantitatively evaluated the influence of R/S on HRQOL among Latina BCS, using standardized measures. In addition, it included Latinas from several different ethnic origins, stages of survivorship, socioeconomic strata, and religious affiliations.

Conclusions

Latina BCS had very high levels of R/S, which were significantly and positively correlated with dimensions of HRQOL (social well-being, functional well-being, and relationship with doctor). Further, these high levels of R/S predicted better functional well-being and satisfaction with the patient-doctor relationship while controlling for confounding variables. Future quantitative research should be performed with this culturally unique population of cancer survivors in order to delineate the mechanisms by which these relationships exist and should include larger samples and subgroups from the Latina culture. Such research would help to inform culturally appropriate education and interventions for Latina BCS, potentially guided by religious and/or spiritual communities, in order to increase their well-being and overall cancer survivorship experience.

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Table 1
Sociodemographics and Illness Characteristics of Latina Breast Cancer Survivors

		Mean (SD) or Percentage
Subject Age (Valid N=117)		54.72 (10.21)
Ethnic Origin (Valid N=113)	Mexican, Mex. American, Chicano	64.1%
	Central American	1.7%
	Puerto Rican	0.9%
	Cuban	0.9%
	South American	2.6%
	Other Latino/Hispanic	26.5%
	Other	1.7%
	Don't Know / Not sure	1.7%
Marital status (Valid N=117)	Married	50.4%
	Living w/significant other	2.6%
	Separated	9.4%
	Divorced	17.1%
	Widowed	15.4%
	Never married	5.1%
Insurance status: Have health care plan (Valid N=117)	Yes	96.6%
	No	3.4%
Annual Household Income (Valid N=93)	<= \$10K	23.7%
	\$10,001 - 25,000	34.4%
	\$25,001 - 50,000	24.7%
	>=\$50,001	17.2%
Educational Level (Valid N=117)	Less than HS diploma	35.0%
	HS diploma/GED	35.0%
	Some college or technical school, or tech degree	20.5%
	College diploma	6.0%
	Advanced degree	3.4%
Employment Status (Valid N=113)	Employed	37.2%
	Retired	10.6%
	Unemployed	52.2%
Survey Language (Valid N=117)	English	78.6%
	Spanish	21.4%
Religious Affiliation (Valid N=115)	Catholic	70.9%
	Protestant	9.4%
	Other religion	17.9%
	None	1.7%
Acculturation Level (Valid N=112)	Low	21.4%
	Moderate to High	78.6%

		Mean (SD) or Percentage
Years since Diagnosis (Valid N=113)	One or less	55.8%
	Two to five years	23.0%
	Six to 10 years	13.3%
	More than 10 years	8.0%
Had breast surgery for cancer (Valid N=117)	Yes	99.1%
	No	0.9%
Anyone in family had Breast Cancer (Valid N=117)	Yes	32.5%
	<i>My mother</i>	6.0%
	<i>My sister(s)</i>	7.7%
	<i>My grandmother(s)</i>	2.6%
	<i>Other</i>	15.4%
	No	67.5%

Table 2
SBI-15R and FACT-G Subscale and Total Score Statistics

	N	Mean	Standard Deviation
SBI-15R Subscale I	112	28.54	2.657
SBI-15R Subscale II	115	11.84	3.951
SBI-15R Total	112	40.50	5.789
FACT-G Total	117	85.94	16.036
FACT-G PWB	117	21.35	6.785
FACT-G SWB	117	23.86	4.902
FACT-G EWB	117	16.97	3.783
FACT-G FWB	117	23.76	5.015
FACT-G RWD	117	7.19	1.438
FACT-G BC Subscale	117	18.83	7.401

Table 3
Correlation coefficients between SBI-15R and FACT-G subscales and total scale scores

	SBI-15R Subscale I	SBI-15R Subscale II	SBI-15R Total	FACT-G PWB	FACT-G SWB	FACT-G RWD	FACT-G EWB	FACT-G FWB	FACT-G BC Subscale	FACT-G Total
SBI-15R Subscale I	--	.579**	.842**	-.103	.197*	.179	.084	.221*	-.027	.106
SBI-15R Subscale II		--	.927**	-.169	.280**	.180	.074	.194*	-.066	.094
SBI-15R Total			--	-.159	.266**	.219*	.078	.216*	-.052	.100
FACT-G PWB				--	.248**	.087	.577**	.483**	.646**	.786**
FACT-G SWB					--	.109	.523**	.539**	.237*	.702**
FACT-G RWD						--	.076	.199*	.149	.150
FACT-G EWB							--	.599**	.523**	.828**
FACT-G FWB								--	.369**	.823**
FACT-G BC Subscale									--	.584**
FACT-G Total										--

* $P < 0.05$,
** $P < 0.01$ (two-tailed).

Table 4
Results of Multivariate Analyses of the Influence of Religiosity/Spirituality on HRQOL

Model	Independent Variable (IV) and Covariates	B Coefficient	SE	t-value	p-value	Partial Eta-Squared
Model 1 FACT-G SWB						
	SBI-15R Total	0.133	0.085	1.574	0.120	0.033
	Employment Status					
	Employed	1.708	1.237	1.380	0.172	0.026
	Retired	2.220	1.778	1.249	0.216	0.021
	Unemployed	.	.	.	.	.
	Educational Level					
	Less than HS Diploma	2.113	3.107	0.680	0.499	0.006
	HS Diploma/GED	1.064	3.008	0.354	0.724	0.002
	Some College/Tech School, or Tech Degree	3.634	2.714	1.339	0.185	0.024
	College Diploma	2.655	3.036	0.874	0.385	0.011
	Advanced Degree	.	.	.	.	.
	Income Level					
	<= \$10K	-3.191	2.197	-1.452	0.151	0.028
	\$10,001 to \$25K	-3.556	1.973	-1.802	0.076	0.043
	\$25,001 to \$50K	-2.433	1.993	-1.221	0.226	0.020
	>=\$50,001	.	.	.	.	.
	Ethnic Background					
	Mex., Mex. Amer, or Chicano	-1.459	1.297	-1.125	0.264	0.017
	Central Am., Puerto Rican, Cuban, or S. Amer.	-3.868	2.082	-1.858	0.067	0.046
	Other Latino	.	.	.	.	.
Model 2 FACT-G RWD						
	SBI-15R Total	0.050	0.025	1.981	0.050	0.036
	Acculturation Level					
	Low	0.391	0.359	1.089	0.279	0.011
	Moderate to High	.	.	.	.	.
Model 3, FACT-G FWB						
	SBI-15R Total	0.166	0.080	2.077	0.041	0.056

Model	Independent Variable (IV) and Covariates	B Coefficient	SE	t-value	p-value	Partial Eta-Squared
	Employment Status					
	Employed	4.071	1.193	3.411	0.001	0.137
	Retired	3.632	1.733	2.096	0.040	0.057
	Unemployed	.	.	.	.	.
	Income Level					
	<= \$10K	-1.205	1.699	-0.709	0.480	0.007
	\$10,001 to \$25K	-2.562	1.542	-1.662	0.101	0.036
	\$25,001 to \$50K	-1.895	1.635	-1.159	0.250	0.018
	>=\$50,001	.	.	.	.	.
	Time Since Diagnosis					
	<=One Year	-0.872	1.939	-0.450	0.654	0.003
	Two to Five Years	2.973	2.143	1.387	0.170	0.026
	Six to 10 Years	1.231	2.081	0.591	0.556	0.005
	> 10 Years	.	.	.	.	.

Note: Cells with a “.” indicate the reference categories