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by

Adrianne Anderson

December 2012

SPIRITUALITY, OPTIMISM AND PESSIMISM AS PREDICTORS OF
FEAR OF CANCER RECURRENCE
AND QUALITY OF LIFE IN BREAST CANCER SURVIVORS

A Dissertation Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Philosophy

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Abstract

Breast cancer survivors experience a number of challenges when adjusting to life after cancer treatment, such as fear of a recurrence of the cancer and a reduction in quality of life. The endorsement of optimism or pessimism in breast cancer survivors has been shown to predict adjustment and quality of life (Carver, 2005). In addition, many breast cancer survivors have reported using spirituality to cope with and adjust in an adaptive manner to the challenges of a breast cancer diagnosis (Romero et al., 2006). Research findings suggest that spirituality may enhance the positive relation of optimism and decrease the negative relation of pessimism to well-being and adjustment among breast cancer survivors (Samsi, 2008). Therefore, the main objective of the present study was to test whether spirituality moderates the relation of optimism and pessimism to the well-being and adjustment of breast cancer survivors, assessed in terms of quality of life and fear of cancer recurrence.

The present study utilized an archival data set of one hundred and eighty-three African American and Caucasian breast cancer survivors. Optimism and pessimism was measured with the Life Orientation Test (Scheier & Carver, 1985) and fear of recurrence was assessed by the Concerns about Recurrence Scale (Vickberg, 2003). The Functional Assessment of Chronic Illness Therapy-Spiritual Well Being (Peterman, et al. 2002) was used to measure spirituality and quality of life was assessed with the Functional Assessment of Chronic Illness-Breast Cancer (Brady, et al. 1997). Four hierarchical

regression analyses were conducted to examine if spirituality moderated the association of optimism and pessimism to the quality of life and fear of recurrence in breast cancer survivors. It was hypothesized that women who reported high levels of spirituality would show a stronger positive relationship between optimism and quality of life and a stronger negative relation between optimism and fear of cancer recurrence than women who reported low levels of spirituality. It was also hypothesized that women who reported high levels of spirituality would show a weaker negative relation between pessimism and quality of life and a weaker positive relation between pessimism and fear of cancer recurrence than women who reported low levels of spirituality.

Results of Pearson product moment correlation analyses indicated that time since diagnosis was negatively associated with fear of cancer recurrence and was positively correlated with spirituality. Pessimism and optimism were negatively correlated with each other while spirituality was associated with greater quality of life and less fear of cancer recurrence. Regression analysis indicated that, when controlling for race, and years since diagnosis, spirituality negatively predicted fear of cancer recurrence and positively predicted quality of life. Results also indicated that spirituality did not moderate the relation of optimism and pessimism to quality of life or to fear of cancer recurrence. Non-significant findings in the relationship between optimism or pessimism and quality of life or fear of cancer recurrence challenge the findings of established literature on the influence of dispositional cognitions and well-being outcomes in breast cancer survivors. Implications of these findings for future research and psychotherapy are discussed.

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Chapter I

Introduction

Breast Cancer accounts for 27% of invasive cancer diagnoses in women (American Cancer Society, 2009). Once considered a cancer with dire prognoses, the five-year survival rate of women diagnosed with breast cancer can now be as high as 91%. However, a breast cancer diagnosis has long-term implications for the physiological and emotional health of survivors. Breast cancer survivors experience chronic health issues such as lymphedema and fatigue as well as muscle and joint pain (American Cancer Society, 2009). They also grapple with changes in their social status, report social isolation and suffer strains in their marriage and intimacy with partners (Samlo, 2002).

The growing number of breast cancer survivors, approximately 2.5 million, has spurred the medical community to expand the focus of research from survival to issues of well-being (American Cancer Society, 2009). Researchers often conceptualize well-being as “quality of life” (Jenney & Campbell, 1997). Quality of life measures are often multidimensional, including a variety of aspects such as physiological and psychological functioning and symptomatology as well as the quality of personal relationships. Bowling emphasized the importance of conceptualizing quality of life among individuals diagnosed with serious or chronic medical illnesses as how a perceived health state impacts a person’s ability to live a fulfilling life (1999, p.6). Quality of life is often assessed in breast cancer research as an indicator of overall functioning and well-being. Among breast cancer survivors, a high endorsement of quality of life has been positively associated to self-care self-efficacy, marital satisfaction, perceived social support and

collaborative decision- making between patient and doctor (Anderson, et al., 2009; Ganz, et al., 1998; Lev et al., 2001 & Lewis, et al., 2001).

Fear of cancer recurrence is a leading concern for all breast cancer survivors, regardless of stage of cancer at diagnosis and time since diagnosis (Vickberg, 2000). High levels of fear of recurrence that interfere with everyday living may be an indicator of maladaptive adjustment and distress experienced by breast cancer survivors (Stanton, Danoff-Burg and Huggins, 2002). Typically, fear of recurrence is expressed in terms of both cognitions and emotions (Lee Jones, Humphris, Dixon & Hatcher, 1997). Cognitions may include excessive worrying about a return of the cancer and doubts about being in remission. Emotions related to fear of recurrence include anxiety about re-experiencing the symptoms and treatment effects of breast cancer and remorse about the treatment selected. In Vickburg's Concerns about Recurrence Scale (CARS), fear of breast cancer recurrence is assessed in terms of four dimensions: (a) health worries, (b) womanhood worries, (c) role worries and (d) death worries.

Dispositional traits, such as optimism and pessimism, also seem to predict health and psychological outcomes among breast cancer survivors. Optimism is defined as "the generalized expectation of positive versus negative outcomes in the future of important life domains" (Scheier and Carver, 1985, p. 219). Optimists tend to have improved health outcomes, more social support and better adjustment than non-optimists (Carver et al., 2005). Conversely, Pessimism is defined as "the generalized expectation of negative versus positive outcomes in the future of important life domains" (Carver et al., 2005). Although usually assessed as a unidimensional construct, there is evidence to suggest that

pessimism and optimism predict distinct outcomes when assessed as separate dimensions (Marshall et al., 1992).

Spirituality has also been associated with the well-being and positive adjustment of breast cancer survivors. Endorsing spiritual beliefs and practices has been positively associated with higher levels of social support, emotional well being, and adaptive adjustment among breast cancer survivors (Romero et al., 2006). The literature supports the classification of spirituality into two broad dimensions: beliefs and behaviors (Holtz, Clark & Klem, 2007). Some argue that beliefs related to spirituality, such as finding meaning and peace, are responsible for the positive outcomes associated with spirituality. However, others argue that the social behaviors related to spiritual activities (such as church attendance) are responsible for the positive adjustment and social support associated with spirituality (Edmondson, et al., 2008).

Given the positive association of spirituality to the psychological well-being of breast cancer survivors, it is possible that spirituality may either attenuate the negative association of some dispositional traits, such as pessimism, to quality of life and fear of cancer recurrence, or enhance the positive association of other dispositional traits, such as optimism, to quality of life and adjustment. However, no research has examined spirituality as a moderator of the relation of optimism and pessimism to either quality of life or fear of cancer recurrence among breast cancer survivors. Therefore, the purpose of the present study is to examine in a sample of African American and Caucasian survivors of early stage breast cancer: (a) the relation of two dispositional traits, optimism and pessimism to quality of life and to fear of cancer recurrence and (b) to what extent

endorsement of spirituality moderates the relation of optimism and pessimism to quality of life and to fear of recurrence.

Chapter II

Literature Review

The purpose of this literature review is to define and describe the constructs of quality of life, fear of cancer recurrence, spirituality and optimism/pessimism. In this chapter the relationship among the aforementioned constructs, as informed by previous studies, will be examined. The information in this chapter is provided within the context of breast cancer diagnosis and survival among women.

Quality of Life

A growing body of literature has demonstrated that the construct of quality of life (QOL) provides important information related to the well-being of breast cancer patients and survivors. Research on the quality of life of those diagnosed with breast cancer was developed to provide a more complete picture of the experiences of these patients and survivors and to measure aspects of life that breast cancer patients found important (including health related areas such as physiological symptoms and daily functioning). The World Health Organization defines quality of life as an “individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment” (WHO, 1995, p. 1403).

Although the definition established by the World Health Organization is often cited, researchers use a variety of definitions for quality of life. In his review of the research literature, Taillefer (2003) concluded that the constructs of “well-being” and

“satisfaction” were used as the foundations of most definitions of quality of life. Some researchers have chosen to operationalize quality of life with a one-item measure of life satisfaction. However, many researchers have attempted to capture a multi-dimensional picture of a person’s well-being. In an early review of the literature, Jenney and Campbell (1997) concluded that almost all domains included in quality of life measures could be captured by four categories: (a) emotional well-being, (b) perceived health, (c) intimacy and (d) work and productivity. However, in a later review, Taillefer (2003) identified additional dimensions captured by quality of life measures. According to Taillefer, the domains used in assessing quality of life include: (a) needs satisfaction, (b) perceived health, (c) productivity, (d) functioning, (e) intimacy, (f) well-being and (g) goal attainment. Research has determined that there are two aspects to quality of life measurement: physical (perceived physical functioning) and psychological (satisfaction or well-being) indicators (Wrosch & Sheier, 2003).

Quality of life seems to have implications for the treatment of breast cancer because it appears to be linked to behaviors that improve health outcomes. For instance, Anderson et al. (2009) found that breast cancer patients in the active treatment phase who reported higher quality of life were more likely to collaborate with their clinicians and make personalized treatment decisions than patients with low self-reported quality of life. In addition, quality of life may be a factor when considering treatment options during palliative care (Payne, 1992). For instance, patients may decide to forgo painful or invasive treatments at the end of life to improve quality of life. Other studies have shown that breast cancer survivors with higher overall quality of life reported significantly higher self-care self efficacy (Lev et al., 2001), marital quality (Ganz, et al., 1998) and

greater perceived social support (Lewis et al., 2001) than their counterparts with lower levels of quality of life.

Fear of Cancer Recurrence

While quality of life is a valuable indicator of an individual's *current* well-being, researchers continue to search for variables that may predict women's *future* or long-term adjustment to the aftermath of a breast cancer diagnosis. In the last decade, an emerging body of literature has recognized the importance of fear of cancer recurrence as a possible contributor of maladaptive adjustment and distress among breast cancer survivors. Fear of cancer recurrence is defined as a collection of cognitions, beliefs and emotions related to the future possibility of the cancer returning. Cognitions related to fear of recurrence include worry about the return of the cancer, doubts about the complete eradication of the cancer in the body and concerns that the doctor is not checking carefully enough (Lee-Jones, Humphris, Dixon & Hatcher, 1997). A breast cancer survivor's beliefs about her own risk of recurrence are influenced by previous experiences with breast cancer and her knowledge about survival and recurrence rates. Emotions related to fear of recurrence include anxiety about the consequences and implications of re-experiencing the effects of breast cancer and its treatment. Breast cancer survivors may also feel remorse for not having elected the most aggressive treatment available to ensure a lower chance of recurrence.

In the course of developing an early measure of fear of cancer recurrence, Northouse (1981) identified the following dimensions: (a) anxiety related to uncertainty, (b) concerns about health status, (c) concerns about loved ones, (d) preoccupation with health, (e) worries about recurrence, (f) impairment of physical functioning due to

physical symptoms of cancer and (g) cues that trigger recurrence worries (such as reading articles about breast cancer or impending panic when nearing the date of a medical appointment). Vickberg (2003) conceptualized fear of recurrence among breast cancer survivors in terms of: (a) description of the fear (frequency, consistency and intensity) and (b) nature of the fear (reasons behind it). Based on information gathered in focus groups with breast cancer survivors and factor analyses Vickberg identified four domains of recurrence fears: (a) health worries, (b) womanhood worries, (c) role worries and (d) death worries.

It has been well documented that fear of recurrence is one of the leading concerns for all breast cancer survivors, regardless of stage of cancer at diagnosis and time since diagnosis (Pistrang & Barker, 1992; Cameron & Booth, et al., 2007). Significant negative associations have been found between fear of recurrence and psychological adjustment (Samsi, 2008; Vickburg, 2000). For instance, greater feelings of uncertainty regarding cancer recurrence significantly predict higher levels of anxiety and psychological distress (Bell, Ziner & Champion, 2009; Wonghongkul, 2006). There is also strong evidence to support that fear of recurrence plays a major role in the development and exacerbation of PTSD in breast cancer survivors (Leiderman-Cerniglia, 2002). Even among patients who are currently receiving treatment for breast cancer, fear of recurrence is listed as the greatest source of psychological distress, greater than the experience of being diagnosed with breast cancer or the effects of treatment (Antoni, Wimberly & Lechner, et al., 2006).

Optimism and Pessimism

Researchers dedicated to understanding the factors that influence well-being and adjustment in breast cancer survivors have consistently found that dispositional cognitive

approaches to life threatening events, such as optimism and pessimism, are valuable predictors of health and psychological outcomes (Carver, 2005). Optimism and pessimism are largely considered to be dispositional traits, which mean that people tend to maintain their optimism (or pessimism) across time and situations. Although some argue that a catastrophic event such as cancer would challenge a person's generally optimistic view of the future, a study conducted by Schou et al. (2005) provided evidence to support the stability of optimism. In a longitudinal study of cancer patients, Schou found no difference in pre-post rates of reported optimism.

Optimism is defined by Scheier and Carver (1985) as "the generalized expectation of positive versus negative outcomes in the future of important life domains" while pessimism is defined as "the generalized expectation of negative versus positive outcome in the future of important life domains" (p. 219). Optimism and pessimism have traditionally been conceptualized and assessed as polar ends of a unidimensional continuum. However, current research has shown that optimism and pessimism should be viewed as related but distinct constructs. Marshall et al. found that a two-factor model of the Life Orientation Test (a popular measure for optimism and pessimism) was a better predictor of outcomes for breast cancer survivors (1992). Carver argued that the two-factor model is more accurate because one may lack optimism without being pessimistic (2005).

Most present studies have been conducted utilizing the unidimensional model of optimism and pessimism. These studies have found that in the general population, optimism has been associated with greater well-being, self-esteem and life satisfaction as well as less depressive symptoms (Scheier, et al., 1989). Optimism has also been

associated with greater self-reported quality of life, more perceived social support, less pain symptoms, less recurrences (or “flare-ups”), faster recovery from surgery and lower mortality rates. In breast cancer survivors, optimism predicted less depression and/or emotional distress, positive psychological adjustment within two to five - years of diagnosis, greater social support, better communication with doctors and less anxiety about cancer recurrence. (Carver, et al., 2005; Carver et al., 1993; Karvelis, et al., 2007; Mannix et al., 2009).

Optimism has numerous implications for breast cancer survivors. Researchers theorize that optimists tend to interpret life events as positive. For instance they may view a new aggressive treatment as an opportunity for a victory against the cancer, instead of focusing on the treatment’s negative side effects (Carver, et al., 2005). Optimists also tend to seek out more social support and make greater efforts to maintain fulfilling relationships, hence they benefit from greater social support than non-optimists (Carver, 1994). Lepore et al.’s (1999) findings suggested that among breast cancer survivors the reaction of others mediated the relation of optimism to emotional adjustment. Compared to those who were not optimistic, breast cancer survivors who were optimistic about their illness tended to receive fewer negative reactions from others regarding their illness, which in turn was associated with better emotional adjustment. Optimism is also associated with the choice of coping strategies to manage critical life situations. People who are optimistic and confident about their future tend to be consistent and tireless in their efforts against breast cancer and often endorse higher levels of adaptive coping strategies such as problem-focused coping and planning than their less optimistic counterparts (Carver, 2005).

Using the two-factor model, Bookwala et al (1996) found that pessimism significantly predicted mortality among young breast cancer patients (even when controlling for depression and stage of disease when diagnosed), while optimism was not a significant predictor. Pinquart et al (2007) similarly found that when optimism and pessimism are treated as unique constructs, each construct significantly predicts different outcomes; pessimism is the strongest predictor of psychological adjustment and perceived health status. Pinquart concluded that while *lacking* optimism is not hazardous to the health of breast cancer survivors, being pessimistic may have serious emotional and physical implications, such as severe psychological distress and perceived low physical functioning. Pinquart theorized that pessimism might be dangerous because a negative or defeatist expectation of the future may cause people to neglect doing things to improve their health situation, avoid seeking social support, or ignore the good things that happen to them. However, a recent study conducted by Colby and Shifren (2012) did not support Pinquart's conclusions. The authors found that while optimism significantly predicted a better perceived quality of life and a lower likelihood of depression in breast cancer patients, pessimism was not associated with quality of life. Thus, more research is needed to determine whether a consistent relationship between optimism and pessimism with well-being in individuals diagnosed with breast cancer.

Spirituality

Another important factor in the adjustment and quality of life of breast cancer survivors is spirituality. For instance, in an interview with breast cancer survivors, 100% of participants attributed their survival to their spirituality (Simon, Crowther and Higginson, 2007). Spirituality has been defined as, "One's transcendent relationship to

some form of higher power” (Holtz, Clarck and Klem, 2007, p.597). Until recently research related to spirituality did not make a clear distinction between spirituality and religiosity (Stewart & Koeske, 2006). In the past, general spirituality/religiosity measures were developed with little or no attempt to tease out possible differences between the two concepts (Richards, Smith, Schowalter, Richard, Berret & Hardman, 2005; Stewart & Koeske, 2006). This practice of combining the concepts of spirituality and religiosity has been criticized and has given way to the development of independent construct definitions and measures. Richards (2005) emphasized the collective nature of religiosity in contrast to the subjectivity and highly individual focus of spirituality. For example, the endorsement of spirituality was positively correlated with openness to experience while a high endorsement of religiosity was positively correlated with the traits of authoritarianism and traditionalism (Saucier and Skrzypinska, 2006). Wilkes, Burnet and Howell (1986) described religiosity as a multidimensional concept that encompasses church attendance, self-perceived religiousness as well as the importance of religious values in one’s life. These findings suggest the distinct nature of the two concepts of spirituality and religiosity.

Most of the literature supports the classification of spirituality into two broad dimensions: beliefs and behaviors. Spiritual beliefs include ideas about life after death, fate, the pre-ordainment of life events, a sense of purpose for personal existence, finding meaning in life events, and finding a spiritual force/presence to be a source of comfort and strength (Frey, Daaleman & Peyton, 2005; Hodge, 2005; Hodge, 2007; Holtz, Clarck & Klem, 2007). The importance of spiritual beliefs in a person’s life and the extent to which spiritual beliefs are endorsed should be considered when assessing perceived

spirituality. The assessment of behaviors related to spirituality typically includes questions about frequency of or engagement in rituals and practices such as prayer, meditation or yoga (Glendinning & Bruce, 2006; Neff, et al., 2006).

In the past decade, researchers have focused on dimensions of spiritual beliefs that are particularly salient to people living with chronic or life threatening illnesses (Cotton, et al. 1999; Brady, Peterman, Fitchett, Mo & Cella, 1999). The personal search for meaning or purpose in life and the feelings associated with a perceived connection to the transcendent are dimensions of spirituality considered relevant to health research (Zinnbauer, Pargament & Scott, 1999). Peterman et al. surveyed cancer patients and concluded that spirituality is comprised of two factors: (a) the factor of *meaning/peace* relates to a sense of meaning, peace and purpose in life and (b) the factor of *faith* refers to “several aspects of the relation between illness and one’s faith spiritual beliefs” (p.51, 2002). For instance, a sense of comfort and confidence about the future may be associated with the faith dimension of spirituality while a sense of purpose for personal existence and finding meaning in life events may be associated with the meaning/peace dimension of spirituality.

Spirituality appears to be associated with adjustment and well-being for breast cancer survivors. Higher reported levels of spirituality also predict lower incidences of mood disturbances during treatment (Romero et al., 2006). A sample of breast cancer patients listed spirituality as a source often employed as a facilitator to adjustment to treatment (Simon, Crowther & Higgerson, 2007). Romero et al. (2006) supports these results by presenting positive correlations between spirituality and psychological

adjustment in breast cancer survivors who had been diagnosed for approximately two years.

In addition, some studies provide strong evidence that spirituality is associated with positive physical health outcomes. Breast cancer survivors who endorsed spirituality reported less physical pain and more effective pain management than patients who did not endorse spirituality (Rippentrop, Chen, Found & Keffala, 2005). Furthermore, breast cancer patients who rated spirituality as very important in their lives appeared to have greater numbers of white blood cells and lymphocyte counts (which are beneficial to recovery) than those who did not consider spirituality important in their lives (Koopman, et al., 2001).

Spirituality and Quality of Life

Spirituality has been associated with quality of life in breast cancer survivors. Results of a meta-analysis conducted by Ratner, et al. (2005) revealed a moderate effect size regarding the relation between spirituality and quality of life. However, a more recent systematic review of the literature (Schreiber & Brockopp, 2012) reported mixed results among 18 studies on the relationship between spirituality and quality of life. A study by Romero et al. found that spirituality predicted levels of anxiety and depression in a sample of breast cancer survivors (2006). For women who were still receiving treatment for breast cancer, a greater endorsement of spirituality was positively associated with feelings of empowerment and control over their situation, less feelings of isolation and more effective communication with their social support network (Mackenzie, Carlson, Munoz & Speca, 2007). In a sample of patients diagnosed with advanced breast cancer the practice of positive spiritual coping predicted better overall

quality of life but had no predictive effects for perceived physical well-being (Cotton, Levine, Fitzpatrick, Dold & Targ, 1999).

There are several hypotheses that address the positive association of spirituality to quality of life. Because many people who endorse high levels of spirituality are also religious, some have argued that the strong social support provided by church congregations and religious communities explains the positive effect of spirituality on quality of life (Edmondson, et al. 2008). Perceived social support is a consistently strong predictor of quality of life in many studies (Koenig, 1997). However, Mrus et al. reported that even when controlling for perceived social support, spirituality still significantly predicted quality of life (2006). Researchers have also theorized that spirituality fulfills a sense of purpose for cancer survivors during a time of adjustment that may be characterized by existential doubts (O'Connell & Skevington, 2005). High endorsements of spiritual meaning have predicted low depression scores and better quality of life among cancer patients still receiving treatment which supports this theory (Jim, Purnell, Richardson, Golden-Kreutz & Andersen, 2006). More recently research has pointed to the possibility that endorsement of spirituality among cancer patients often entails a process of active acceptance of the diagnosis that is related to greater well-being (Rosequist, Wall, Corwin, Achterberg & Koopman, 2012; Lagman, Yoo, Levine, Donnell & Lim, 2012). Spirituality predicted 20% of the variance in the prediction of quality of life of breast cancer patients still receiving treatment. These findings suggest that spirituality might be used by survivors to cope with and accept their diagnosis and health status in order to continue living fulfilling lives.

Spirituality and fear of recurrence

There is little research on the direct association of spirituality and fear of cancer recurrence. However, given the documented impact of spirituality on outcomes for breast cancer survivors, it is possible that spirituality may also impact a breast cancer survivor's experience with fear of recurrence. Results from two studies support a promising link between the two concepts. Among prostate cancer survivors spirituality has negatively predicted fear of recurrence and level of distress related to these fears (Krupski et al., 2005). Samsi (2008) found that spirituality contributed significantly to the prediction of fear of recurrence in Caucasian and African American breast cancer survivors. In particular, a lack of spirituality predicted death worries, health worries and womanhood worries related to cancer recurrence. Samsi argued that it is especially important to examine the relationship between fear of recurrence and spirituality because fear of recurrence involves distressing existential issues such as death and changes in family role. Breast cancer survivors often use spiritual beliefs and practices to cope with these issues and the distress they cause. Thus, more research is needed to understand the nature of the relationship between spirituality and cancer recurrence worries.

Time since Diagnosis

Although the time elapsed since a breast cancer diagnosis has not been shown to be significantly related to physical health outcomes in breast cancer survivors (Bolin, 2007), several studies have shown that time since diagnosis is associated to psychological distress and well-being in breast cancer survivors (Cimprich & Ronis, 2011). For instance, a study of Korean breast cancer survivors found that even after controlling for marital status, education, income, age and type of treatment, participants

within one year of a breast cancer diagnosis reported significantly lower health related quality of life than those who had been diagnosed more than one year ago (Ran Chae & Seo, 2010). A study of Danish breast cancer survivors corroborated these significant associations between time since diagnosis and health related quality of life (Rottman, Dalton, Christensen, Frederiksen & Johansen, 2010). Time since diagnosis has been negatively related to both the need for psychological services and to levels of perceived self-efficacy in the management of the long-term medical consequences of the diagnosis. (Akechi, et al., 2010; Rottman, Dalton, Christensen, Frederiksen & Johansen, 2010).

Relationship between Race and Study Variables

Most of the research regarding predictors of quality of life among breast cancer survivors has focused on Caucasian women. Research conducted with men and women from diverse groups has shown differences across ethnic/racial groups in the endorsement of spirituality but not in optimism. The few studies that have examined racial differences in dispositional optimism found no significant differences among Hispanic, Caucasian and African Americans (Friedman, et al., 2006; Goodin, et al., 2012). Yet, the limited research on the relationship between race and spirituality has yielded significant findings. For instance, in a sample of Southern men diagnosed with prostate cancer, African Americans reported utilizing higher levels of religious coping strategies than Caucasians (Dilorio, et al., 2011). Furthermore, Murphy, et al. (2010) found that in a diverse sample of breast cancer survivors, different racial groups endorsed more highly different dimensions of spirituality (as measured by the FACIT-Sp). African Americans and Hispanics endorsed the “meaning and peace” items more than the faith items in the scale, when compared to Caucasians.

Research findings regarding the relation of race to quality of life are mixed. Although there is a body of literature that has found no significant differences in rates of self-reported quality of life in cancer survivors among racially diverse groups (Friedman, et al., 2006; Hacker, Masino, Doogair & Mickle, 2006; Ashing, Giwat & Lim, 2011), some studies have identified race as an important predictor of quality of life (Carver, Smith, Petronis & Antoni, 2006; Giwa & Li, 2010; Sammarco & Konecny, 2010). For instance, studies have shown that African American breast cancer survivors reported lower physical functioning than Caucasians (Giedzinka, Meyerowitz, Ganz & Rowland, 2004), while African American colon cancer survivors reported higher quality of life and better psychological well-being than Caucasians (Phipps, Braitman, Stites & Leighton, 2006). Regarding endorsement of fear of cancer recurrence, the limited research has consistently found no evidence of racial differences between African Americans and Caucasians (Gil et al., 2004; Cohen, et al., 2006; Llewellyn, Weinmen, McGurk & Humphris, 2008; Ashing, Giwat & Lim, 2011).

Currently, the literature on the present study variables with a diverse racial sample is extremely limited. However, the significant differences between African Americans and Caucasian participants in the aforementioned studies strongly suggest that race may be an important factor in the prediction of outcomes. This is particularly true for the predictor variable of spirituality and the outcome variable of quality of life. Thus, when conducting an analysis to determine the relationship between spirituality and another variable in a sample of African American and Caucasian cancer patients, race should be considered as a control variable so as not to interfere with the accurate determination of

spirituality's predictive influence on the outcome. In the analyses of the current study race will be included as a control variable.

The Present Study

As the literature review demonstrates, spirituality, optimism and pessimism appear to be strong predictors of quality of life. Furthermore, there is evidence to suggest that spirituality, optimism and pessimism are also associated to fear of cancer recurrence. According to the existing literature, optimism and spirituality are positive predictors of quality of life and negatively predict fear of cancer recurrence. In contrast, pessimism tends to predict poor quality of life and greater fear of recurrence (Mannix, 2009). However, a lack of research limits our understanding of the interaction between spirituality and optimism/pessimism in the prediction of well-being among breast cancer survivors. For instance, it is not known to what extent spirituality may be associated to fear of recurrence in breast cancer survivors when controlling for their levels of optimism and pessimism. It is also possible that the positive relation of spirituality to perceived quality of life may be strengthened in breast cancer survivors who endorse high levels of optimism. Spirituality and pessimism tend to have an inverse relationship to well-being variables. That is, when spirituality has a positive predictive relationship with a variable, pessimism is likely to have a negative predictive relationship with the same variable. Thus, one may argue that women who report high levels of spirituality will show a weaker negative relation between pessimism and quality of life and a weaker positive relation between pessimism and fear of cancer recurrence than women who report low levels of spirituality.

Both spirituality and optimism are associated with a greater endorsement of hope, future orientation and social support, which are all indicators of a good quality of life. Thus, it is likely that spirituality magnifies the positive relationship between optimism and quality of life. Due to the similar associations to outcome variables, it is expected that women who report high levels of spirituality will show a stronger positive relationship between optimism and quality of life and a stronger negative relation between optimism and fear of cancer recurrence than women who report low levels of spirituality.

Since optimism and pessimism are considered fairly stable personality traits, it may be difficult for people to change these cognitive dispositions. However, spirituality is an approach to life that people are able to learn about or make the decision to adopt. Therefore, it may be useful to know to what extent spirituality moderates the relation of the relatively stable traits of optimism and pessimism to quality of life and to fear of cancer recurrence. If spirituality emerges as a moderator, then there may be reason to expose breast cancer survivors to experiences related to spirituality.

Hypotheses.

Hypothesis #1. Pessimism will negatively predict quality of life among breast cancer survivors when controlling for race and time since diagnosis.

Hypothesis #2. Optimism will positively predict quality of life among breast cancer survivors when controlling for race and time since diagnosis.

Hypothesis #3. Spirituality will positively predict quality of life among breast cancer survivors when controlling for race and time since diagnosis.

Hypothesis #4. Spirituality will strengthen the positive relationship between optimism and quality of life among breast cancer survivors.

Hypothesis #5. Spirituality will weaken the relationship between pessimism and quality of life among breast cancer survivors.

Hypothesis #6. Pessimism will positively predict fear of recurrence among breast cancer survivors when controlling for race and time since diagnosis.

Hypothesis #7. Optimism will negatively predict fear of recurrence among breast cancer survivors when controlling for race and time since diagnosis.

Hypothesis #8. Spirituality will negatively predict fear of recurrence among breast cancer survivors when controlling for race and time since diagnosis.

Hypothesis #9. Spirituality will strengthen the negative relationship between optimism and fear of recurrence among breast cancer survivors.

Hypothesis #10. Spirituality will weaken the positive relationship between pessimism and fear of recurrence among breast cancer survivors

Chapter III

Methods

Participants

This study utilized an archival data set. Participants were 183 female breast cancer survivors. All were age 34 or older, and English-speaking. Women with diagnoses of benign breast disease or advanced breast cancer were excluded. Ages of participants ranged from 34 to 81 ($M=54.38$, $SD=8.72$). Of the 183 participants 99 were Caucasian (54%) and 84 were African American. (45.9%). The average years since diagnosis was 5.5 years ($SD=4.9$). Disease stage at diagnosis was as follows: Precancer/DCIS ($n = 27$), Stage 1 ($n =67$), Stage 2 ($n =60$) and Stage 3 ($n =27$).

Procedures

Participants were recruited via four routes: 1) identified by lists provided by a local cancer group and sent a letter inviting them to participate, 2) recruited at presentations made at conventions for breast cancer organizations, 3) recruited at presentations made to local breast cancer support groups, and 4) referred by other participants who gave direct contact information for the research laboratory. All participants completed a questionnaire packet during a single assessment period. Total completion time was approximately 1.5 hours. Participants were contacted by telephone to complete a short demographic interview. After completion of the interview, consent forms and questionnaire packets were mailed to each participant. Participants returned the completed questionnaires in postage-paid envelopes.

In addition, to facilitate recruitment of minority participants, African American women were also invited to “Research Days” held monthly throughout the year where

they completed informed consent forms, demographic interviews, and questionnaire packets in person with the assistance of graduate and undergraduate research assistants. Participants attending these Research Days were compensated for their participation via gift bags or cash rewards valued at approximately \$15. This research was supported by a grant from the Department of Psychology at the University of Houston

Measures

The questionnaires included in the larger study evaluated eight constructs of quality of life and other psychological domains that were intended to evaluate various relevant aspects of perceived physical and emotional well-being. These domains and the constructs within them were selected to provide a broad overview of all aspects of quality of life for breast cancer survivors, with particular attention to constructs that have been studied before in similar populations (e.g. distress, spirituality, social support, coping, and control beliefs) and carefully selected constructs that have not been examined in the past (e.g. personality, positive aspects, body image and self-esteem). Most of the constructs were assessed with a number of specific questionnaires. The following measures were drawn from this questionnaire packet for the purpose of the current study.

Demographic Questionnaire. The demographic questionnaire was designed for the purpose of this study, and included items about general demographic information such as age, ethnicity, religious preference, and income, cancer status and treatment, as well as changes in relationship status and satisfaction throughout the cancer experience. Current health status was also assessed, with participants asked about breast cancer and general health.

Optimism and Pessimism. The Life Orientation Test (LOT) developed by Scheier and Carver (1985) was used to assess optimism and pessimism. The LOT is a ten item measure that contains two filler items, four items devoted to capturing pessimism and four items designed to capture optimistic tendencies. The four items that represented pessimism formed the scale for pessimism and the four items that represented optimism formed the scale for optimism. The items are presented in a 5-point likert scale; 1 being strongly agree and 5 strongly disagree. For both the optimism scale and the pessimism scale the total score for each scale was determined by summing the scores of the four items in the scale. A greater score on the scale indicated a greater endorsement of the construct. This was the procedure developed by Bookwala et al. (1996) and followed by Pinquart et al. (2007). The LOT has been used extensively with general populations as well as health-related populations, including breast cancer patients and survivors. The alpha coefficients for scores of the LOT items that assess pessimism (.77) and optimism (.72) as separate constructs appear to be acceptable as well (Scheier, Carver, & Bridges, 1994). The chronbach alpha for this study was as follows: optimism scale (.69) and pessimism scale (.72).

Spirituality. The Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being (FACIT-Sp), which was designed to provide an inclusive measure of spirituality that among people with chronic and /or life-threatening illnesses, was used to assess spirituality. The FACIT-Sp (Peterman et al., 2002) is a 12-item scale that was developed in collaboration with cancer patients, cancer survivors, psychotherapists, and religious/spiritual experts. Items are presented in five-point likert scale, ranging from 1 indicating “not at all” and 5 indicating “very much”, with higher scores reflecting a

higher level of spirituality. A factor analysis during the pilot phase of the FACIT-Sp revealed a two-factor structure: (a) sense of meaning in one's life, harmony and peacefulness, and (b) sense of strength and comfort from one's faith and beliefs. The meaning/peace subscale of the FACIT-Sp consists of eight items such as, "I have a reason for living" and "I feel peaceful." The faith subscale consists of four items such as "I find strength in my spiritual beliefs." Participants were asked to answer these questions specifically with regards to their breast cancer experience. The cronbach alpha for the total measure is approximately .87 and has good convergent validity with other spirituality measures. The reliability for the two subscales are .81 (meaning/peace subscale) and .88 (faith subscale), (Peterman et al., 2002). In this study, the total score for spirituality of each participant was calculated by combining the sum of all of the FACIT-Sp items to form one spirituality score. The cronbach alpha for the FACIT-Sp in this study was .87.

Fear of Recurrence. The Concerns about Recurrence Scale (CARS) was used to assess fear of cancer recurrence. The CARS is a 30-item measure designed to assess the extent and nature of women's fears about the possibility of breast cancer recurrence, (Vickberg, 2003). The measure has two subscales: a four-item scale that assesses overall fear of recurrence in terms of frequency, potential for upset, consistency, and intensity of fears. Response options for the four items are based on a 6-point Likert scale that ranges from 1= I don't think about it at all to 6= I think about it all the time. The second subscale includes 26 items that capture the nature of women's fears about recurrence. The internal reliability of the overall measure has been demonstrated with alpha coefficients of .87 (Vickberg, 2003). For the purposes of this study, the total for the

scores of the four-item “overall fear of recurrence” was calculated to establish a participant’s current fear of cancer recurrence. The chronbach alpha for the four-item CARS for this study was .91.

Quality of Life. Quality of life was assessed with the Functional Assessment of Cancer Therapy- Breast (FACIT-B) scale. The FACIT-B is a 44-item measure designed to assess the multidimensional quality of life in patients with breast cancer (Brady et al. 1997). The measure contains five subscales: Physical Well-Being, Social Well-Being, Emotional Well-Being, Functional Well-Being, and the Breast Cancer Subscale. Responses are based on a five-point Likert Scale ranging from 0= not at all to 4= very much. Average time for completion is five to ten minutes. The alpha coefficient for the total scale, based on a sample of 295 breast cancer survivors, was found to be high (alpha= .90), with subscale alpha coefficients ranging from 0.63 to 0.86. Evidence of convergent and divergent validity was also presented (Brady et al., 1997). To assess quality of life in the present study, a total score was obtained by summing the scores of the five subscales. The chronbach alpha for the FACIT-B for this study .75.

Chapter IV

Results

The data were analyzed using the Statistical Package for Social Sciences (SPSS 20.0). A significance level of $p < .05$ was used to test the 10 hypothesis proposed. Several preliminary analyses were conducted. Descriptive statistics were computed for all variables included in the study. Bivariate correlations were calculated to examine associations among optimism, pessimism, spirituality, fear of cancer recurrence, quality of life and years since diagnosis. Research regarding ethnic /racial differences in the variables of interest is very limited. However, findings regarding endorsement of spirituality among African American and Caucasian cancer survivors are mixed. Therefore, a MANOVA was conducted to examine differences in the endorsement of study variables (optimism, pessimism, spirituality, quality of life and fear of cancer recurrence) among African American and Caucasian participants. Because racial differences were found in some of the variables race was entered as a control variable in the analyses conducted to examine the study's research questions.

Four hierarchical regression analyses were conducted to examine (a) the relation of optimism, pessimism, and spirituality to quality of life and fear of cancer recurrence, and (b) if spirituality moderated the association of optimism and pessimism to the two dependent variables, quality of life and fear of cancer recurrence. In all regression analyses race and years since diagnosis were entered in the first step, to control for their effects. Optimism or pessimism was entered into the second step and spirituality was entered in the third step. In step 4 the interaction terms of either optimism by spirituality or pessimism by spirituality were added to the regression analysis to examine the

moderation effect. In each of the four regression analyses, the change in R^2 from step three to step four was evaluated for statistical significance to determine whether spirituality moderated the relation of optimism or pessimism to quality of life or to fear of cancer recurrence.

Preliminary Analyses

Table 1 presents the means and standard deviations for each of the measures by racial group. Table 2 presents a correlation matrix of all variables in the study. Results of Pearson product moment correlation analyses indicated that time since diagnosis was negatively associated with fear of cancer recurrence and was positively correlated with spirituality. The correlations of time since diagnosis with optimism and pessimism were not statistically significant. However, pessimism and optimism were negatively correlated with each other. As expected, spirituality was associated with greater quality of life and less fear of cancer recurrence. Contrary to expectations, the correlations of optimism and pessimism to quality of life and fear of cancer recurrence, respectively, were not statistically significant. Quality of life was associated with a lower fear of cancer recurrence.

Table 1

Measure Means and Standard Deviations

	Mean Caucasian	Mean AA	Mean Total	SD	Maximum Score
Optimism	14.8	14.6	14.72	3.2	20
Pessimism	5.7	7.1	6.3	2.5	15
Fear of Cancer Recurrence	10.7	10.4	10.5	4.6	23
Quality of Life	114.7	113.1	114	15.5	140
Spirituality	24.4	28.0	26	5.4	32
Possible range of scores: Optimism 7-20, Pessimism 2-15, Fear of Cancer Recurrence 4-23, Quality of Life 57-140, Spirituality 7-32					

A Multivariate Analysis of Variance (MANOVA) was conducted to determine whether differences in variables existed based on race. Results of the MANOVA showed that there was a significant difference in outcome variables by race ($F=9.80$; $p=.000$). A series of one-way analyses of variance (ANOVA) were used to examine the race differences by specific study variables. No significant differences for fear of cancer recurrence, quality of life and optimism between Caucasians and African Americans were observed. However, significant differences were observed between Caucasians and African Americans in pessimism ($F=11.8$; $p=.001$) and spirituality ($F=22.1$; $p=.000$).

Table 2

Correlation matrix

	2	3	4	5	6
	Spiri	Pess	Opt	QOL	CARS
1. Tm/Dx	.15*	.08	-.14	.03	-.18*
2. Spiri	-	.88	.03	.46**	-.21**
3. Pess		-	-.33**	-.03	.11
4. Opt			-	.03	-.08
5. QOL				-	-.35**
6. CARS					-

* $p < .05$, ** $p < .01$
Tm/Dx= Time Since Diagnosis, **Spiri**= Spirituality, **Pess**=Pessimism,
Opt=Optimism, **QOL**= Quality of Life, **CARS**= Fear of Cancer Recurrence

Main Analyses

Two hierarchical regression analyses were conducted to examine the relation of optimism to the dependent variables and if spirituality moderated the association of optimism to fear of cancer recurrence and to quality of life. Table 3 presents the results of the regressions. Results for fear of cancer recurrence indicated that the R^2 for the first step, where race and time since diagnosis were entered, was statistically significant; however, inspection of the Beta coefficients indicated that only time since diagnosis contributed unique variance to fear of cancer recurrence. Optimism, entered in step 2, was not associated to fear of cancer recurrence. The change of R^2 from step 2 to step 3 indicated that spirituality contributed a statistically significant but small proportion of additional variance to fear of cancer recurrence. However, the change in R^2 from step 3 to step 4, where the interaction term of optimism by spirituality was entered, was not

statistically significant, indicating that spirituality did not moderate the relation of optimism to fear of cancer recurrence. Inspection of the Beta coefficients in the third step indicated that of all the variables in the model, only spirituality and time since diagnosis significantly predicted fear of cancer recurrence.

Results of the regression analysis for quality of life showed that race, time since diagnosis and optimism did not significantly predict quality of life. However, the change of R^2 from step 2 to step 3 indicated that spirituality contributed a relatively large proportion of variance to quality of life. The change in R^2 from step 3 to step 4, where the interaction term of optimism by spirituality was entered, was not statistically significant, indicating that spirituality did not moderate the relation of optimism to quality of life. Inspection of the Beta coefficients in the third step indicated that of all the variables in the model, only spirituality significantly predicted quality of life.

Two hierarchical regression analyses were conducted to examine the relation of optimism to the dependent variables and if spirituality moderated the association of pessimism to fear of cancer recurrence and to quality of life. Table 4 presents the results of the regressions. Results for the first step of both regressions are similar to the results reported for the first two regression reported above: race was not associated to any of the two dependent variables and time since diagnosis was associated only to fear of cancer recurrence. Results for fear of cancer recurrence showed that Pessimism, entered in step 2, was not associated to the dependent variable.

Table 3

Hierarchical Regression Analysis Summary for Optimism Predicting Fear of Cancer Recurrence (CARS) and Quality of Life (QOL)

	Fear of Cancer Recurrence			Quality of Life		
Step/Predictor measures	β	R^2	ΔR^2	β	R^2	ΔR^2
Step 1		.03	.03		.01	.01
Race	-.01			-.03		
Time Since Diagnosis	-.16*			.07		
Step 2		.04	.01		-.01	.00
Race	-.01			-.03		
Time Since Diagnosis	-.18*			.08		
Optimism	-.11			.02		
Step 3		.08**	.04**		.25***	.24***
Race	.06			-.19**		
Time since Diagnosis	-.15*			.01		
Optimism	-.11			.02		
Spirituality	-.19**			.52***		

*p<.05, **p<.01, ***p<.001. The fourth step that included the interactions of optimism and spirituality was not statistically significant for fear of cancer recurrence or quality of life.

The change of R^2 from step 2 to step 3 indicated that spirituality contributed a statistically significant but small proportion of additional variance to fear of cancer recurrence.

However, the change in R^2 from step 3 to step 4, where the interaction term of pessimism by spirituality was entered, was not statistically significant, indicating that spirituality did not moderate the relation of pessimism to fear of cancer recurrence. Inspection of the Beta coefficients in the third step indicated that of all the variables in the model only spirituality and time since diagnosis significantly predicted fear of cancer recurrence.

Results of the regression analysis for quality of life showed that pessimism, entered in Step 2, did not significantly predict quality of life. However the change of R^2 from step 3 to step 4 indicated that spirituality contributed a relatively large proportion of variance to quality of life. The change in R^2 from step 3 to step 4, where the interaction term of pessimism by spirituality was entered, was not statistically significant, indicating that spirituality did not moderate the relation of pessimism to quality of life. Inspection of the Beta coefficients in the third step indicated that of all the variables in the model, only spirituality significantly predicted quality of life.

Table 4

Hierarchical Regression Analysis Summary for Pessimism Predicting Fear of Cancer Recurrence (CARS) and Quality of Life (QOL)

Step/Predictor measures	Fear of Cancer Recurrence			Quality of Life		
	β	R^2	ΔR^2	β	R^2	ΔR^2
Step 1		.03	.03		.01	.01
Race	-.01			-.03		
Time Since Diagnosis	-.17*			.07		
Step 2		.05	.02		-.01	.00
Race	-.04			-.03		
Time Since Diagnosis	-.18*			.07		
Pessimism	.13			.01		
Step 3		.08*	.03*		.25***	.24***
Race	.02			-.20**		
Time Since Diagnosis	-.15*			.00		
Pessimism	.13			.01		
Spirituality	-.20**			.52***		

*p<.05, **p<.01, ***p<.001. The fourth step that included the interactions of pessimism and spirituality was not statistically significant for fear of cancer recurrence or quality of life.

Chapter V

Discussion

The purpose of this study was to examine the relationship between spirituality, optimism and pessimism to the well-being and adjustment of breast cancer survivors, assessed in terms of quality of life and fear of cancer recurrence, when controlling for race and time since diagnosis. Results indicated that while spirituality was uniquely associated to quality of life and fear of cancer recurrence, the relation of optimism and pessimism to quality of life and fear of recurrence among breast cancers survivors were not statistically significant. Furthermore, time since diagnosis (measured in years) was significantly associated with fear of cancer recurrence.

Consistent with previous findings (Ratner, et al., 2005), spirituality positively predicted overall quality of life among women survivors of breast cancer. This finding suggests that the *beliefs* (e.g. finding a divine purpose for their illness) and *behaviors* (e.g. church involvement and prayer) that typically define spirituality foment a greater perceived quality of life (Hodge, 2007). Furthermore, findings indicated that those who reported greater spirituality were also less likely to experience fear of cancer recurrence (Samsi, 2008). These findings are consistent with previous studies that have shown a positive relation of spirituality to a variety of indicators of psychological well-being in breast cancer survivors (Romero et al., 2006). The fact that spirituality is consistently associated with better outcomes, in the current study as well as in previous studies, demonstrates the potential of spiritual beliefs and behaviors to contribute to a greater quality of life and adjustment for breast cancer survivors.

A second purpose of the study was to test whether spirituality moderates the relation of optimism and pessimism to quality of life and fear of cancer recurrence (if such relationship did exist). Findings revealed that spirituality did not moderate the relation of either pessimism or optimism to any of the two outcome variables. Furthermore, the lack of significant relationships in the present study among optimism and pessimism to the outcome variables (fear of cancer recurrence and quality of life) is not consistent with the existing studies that have examined the relationship between dispositional nature and psychological outcomes in breast cancer survivors (Carver, et al., 2005; Lepore et al., 1999). The significant role of dispositional traits in health and psychological outcomes has been well-established in previous research (Carver, et al., 2005; Carver et al., 1993; Karvelis, et al., 2007; Mannix et al., 2009). Thus, the current findings present a challenge to the previously assumed importance of optimism and pessimism in shaping the perceived psychological well-being of breast cancer survivors.

There are a number of possible explanations for the discrepancy between the current study's findings and the established thinking related to optimism and pessimism. Very few studies have attempted to study optimism and pessimism as separate constructs. Although Pinquart (1999) and Bookwala et al. (2004) both had significant findings for pessimism as related to psychological outcomes in breast cancer survivors, Bookwala only found a marginal relationship between optimism and well-being (2004). This finding hinted that the optimism may not be as strong of a predictor of well-being as previously assumed. Bookwala (2004) suggested that when studied as separate constructs, participants are not merely positioned on one extreme of a spectrum, ie. optimist or pessimist, as previously done. Thus, participants may endorse items that reflect optimism

as well as items that reflect pessimism, making it more likely to reflect moderate dispositional tendencies (both moderately pessimistic and moderately optimistic). Some may argue that this tendency to arrive at moderate scores on the scales is a more realistic representation of people's dispositional tendencies since most people do not fit into the extreme labels of "optimist" or "pessimist" but somewhere in the middle (Carver, 2005) . However, the tendency to score moderately tends to statistically yield less significant results.

Pargament (2007) noted that when studies couple the construct of spirituality with other subjective predictor variables in the area of health research, spirituality often overshadows the influence of the other predictor variables. He argued that dispositional and attitudinal factors, such as pessimism and optimism, are not as important as constructs that are based on collective tendencies (such as the social characteristics of belonging to a spiritual organization, ie. rituals, social support and shared beliefs) and involve behavior patterns that are meaningful to the individual. Pargament argued that factors such as pessimism and optimism have been established as influential predictors in health outcomes partly because individual cognitive dispositions have been the subject of intense focus in the literature. However, when researchers widen their scope (as they are beginning to do) they find that spirituality may have more to contribute towards the well-being of individuals coping with a serious medical condition.

Clinical Implications

The present findings point to clinical implications that practitioners should adopt to benefit the well-being of breast cancer survivors and enhance therapeutic progress. These findings, which are consistent with the established research, highlight patients'

views that spirituality is a powerful and positive influence in their current and future well-being (Simon, Crowther & Higgerson, 2007). To better serve the emotional and psychological needs of breast cancer patients and survivors, practitioners need to recognize that spirituality may play an important role in the maintenance of healthy psycho-socio-emotional functioning for many of these women as well as in the adjustment to stressors related to the diagnosis and treatment of breast cancer. Yet, due to a current lack of clear definitions related to the concept of spirituality and a dearth of operationalization of spiritual practices (as related to psychological practice), most mental health professionals lack knowledge and guidance in the integration of spiritual issues in therapy (Pargament, 2007). Medical and mental health professionals need to be trained to adequately address spirituality as a possible factor in the psychological well-being of patients. To this end, it would be helpful to develop and provide a program geared towards educating these professionals to recognize patients' possible spiritual needs as part of quality mental health services. For instance, a two-day seminar could be developed based on leading research and presented during a conference. Such a program could include topics such as the definition of spirituality, the possible benefits of endorsing spirituality for patients diagnosed with a chronic or life-threatening illness and how it is applied by patients to cope with medical conditions. Professionals could also be taught how to be sensitive to spiritual beliefs and behaviors of patients and how to appropriately address these when presented to the professional. The seminar could conclude with an opportunity for professionals to role-play with each other and trainers in order to practice their newly acquired skills and become comfortable applying newfound knowledge about the role of spirituality in the well-being of many patients.

Furthermore, an intervention manual that addresses the topic of spirituality, assists practitioners and includes activities related to spiritual coping would be an invaluable contribution to the field. For instance, Dr. Melinda Stanley of the Houston Health Services Research and Development Center of Excellence has integrated two sessions focused on spiritual coping in her evidence-based cognitive behavioral treatment for anxiety in older adults (2010). The manual for these sessions includes teaching patients to develop a spiritual mantra to meditate on and identifying objects with spiritual representation to focus on during times of acute anxiety to inspire a sense of peace and comfort. She is currently testing the efficacy of the spiritually-focused sessions in a community sample. It would be ideal to expand on efforts of researchers such as Dr. Stanley and create a therapeutic manual that maps out a pre-determined number of sessions with agendas in order to provide the therapist unfamiliar with spiritual coping.

Implications for Future Research

These findings have several implications for future research. Although this study adds to the growing literature that identifies spirituality as an important contributor to greater well-being in breast cancer survivors (Simon, Crowther & Higginson, 2007), future research should further investigate *how* and *why* spirituality might lead to an improved quality of life and a decreased fear of cancer recurrence in survivors. Some leading researchers in the area of spirituality and health psychology (Pargament, 2007; Carver et al., 2005) argue that there are a number of separate components to the phenomena of spirituality that provide unique contributions to an individual's experience, particularly when coping with a health condition. For instance, for those who conceptualize spirituality as being composed of two factors (Brady et al., 1997); faith and

meaning, many theorize that it is the ability to find meaning and purpose in a stressful life experience (such as a cancer diagnosis) that enhances the quality of life of cancer patients and survivors and contributes to a decreased fear of recurrence (Samsi, 2008). Thus, it is likely important to parcel out the different hypothesized “factors” of spirituality, in order to understand how it is related to improved psychological outcomes in survivors. For instance, in a future study, the two subscales reflecting the proposed spirituality components of meaning and faith in the FACIT-Sp could be studied separately to explore each factor’s relationship to Quality of Life of breast cancer survivors.

Limitations

The present study had several limitations impacting the interpretability of the findings. One cannot infer casual relationships between the constructs due to the correlational design of study. Future studies confirming the present study’s findings with other independent samples of breast cancer survivors, as well as longitudinal studies assessing the variables over time, would enable one to make more definitive statements regarding the causal relationships between variables. Longitudinal studies would facilitate understanding of how spirituality contributes to breast cancer survivors’ well-being and long-term adjustment.

In regard to generalizability, the present sample consisted of middle-aged, Caucasian and African American female breast cancer survivors from a single metropolitan location. Results may be representative of characteristics unique to this particular sample. For instance, participants were drawn from lists of members of community organizations and support groups. The possibility exists that these participants represent a subgroup of breast cancer survivors who are coping more

effectively with their condition and those with poorer outcomes may have been unintentionally excluded. Thus survivors who were experiencing significantly elevated levels of recurrence fears and a diminished quality of life may not have been adequately represented in the present sample. In addition, the present study relied on self-report questionnaire to assess participants, making the study vulnerable to the influence of self-report bias. Additional research accounting for the limitations will be helpful in providing a better overall picture of these processes.

A limitation that is specific to the present study is the innovative analysis of optimism and pessimism as separate constructs. While experts in the field (Carver, 2005) have expressed their support for this method of measuring optimism and pessimism; it may also present a limitation due to the small number of items for each scale. A post-hoc analysis revealed that if this study had been conducted utilizing the Life Orientation Test in its original form, optimism would have significantly contributed 3 percent of the variance for fear of cancer recurrence. Although not a significant predictor of quality of life and no moderation effects were observed, the significant results is a reminder that the unique treatment of optimism and pessimism in the current study may pose as a barrier to revealing possible contributions, albeit small, to well-being outcomes in breast cancer survivors.

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