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of

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by

Ann Marie Hernandez

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This is dedicated to my family who sacrificed large and small.
I love you all.

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ABSTRACT

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Hispanics are more likely to die from breast cancer compared to non - Hispanic whites matched on stage and age at diagnosis. Higher mortality rates among Hispanics are attributed to cancer - related disparities across the cancer continuum including later - stage detection. While research has shown that socioeconomic factors play a significant role in the development and maintenance of cancer - related disparities, differences persist when these factors are controlled. Thus far, research on cultural factors and cognitions surrounding cancer is limited. The current study investigated illness representations of cancer and their determinants among Hispanic men and women ($N = 120$) using a cross - sectional survey approach. The study sample was comprised of predominantly first generation, employed Hispanic women in their early - thirties from Mexico. Most had not resided in the U.S. for more than 5 - 9 years. Half of the sample reported an annual income of \$20,001 - \$30,000 and completing at least a middle school education. While the majority indicated that they did not have health insurance, most indicated that they did have a regular source of health care. Additionally, while most had not been diagnosed with cancer, nearly half of the sample knew of someone diagnosed with cancer. Descriptive data regarding illness identity, illness coherence, timeline, causes, consequences, and controllability are provided. Results suggest that demographic factors (i.e. acculturation, education, and income), cultural constructs (i.e. fatalism and familism), intrapersonal factors (state and trait anxiety), and previous experience with cancer were associated with illness representations of breast cancer. The study adds to the

literature by systematically investigate illness representations of breast cancer and their determinants among a diverse sample of Hispanic men and women. This is a significant first step that can be used to guide and develop effective and culturally appropriate interventions that ultimately reduce disparities across the cancer continuum.

INTRODUCTION

Hispanics are 20% - 50% more likely to die from cancer compared to non - Hispanic whites despite similar age and stage at diagnosis (American Cancer Society [ACS], 2006). Higher mortality rates among Hispanics have been attributed to cancer - related disparities evident across the cancer continuum from later - stage detection to greater morbidity and mortality (ACS, 2006). The National Cancer Institute defines cancer - related disparities as the differences between groups based on gender, race, ethnicity, or socioeconomic status in the incidence, prevalence, mortality, and burden of cancer (National Institute of Health [NIH], 2000). Significant resources have been put forth by federal, state, and private health organizations in an attempt to understand and eventually eliminate these gaps through advocacy, research, education, and service (ACS, 2006; Institute of Medicine, 2003; Ward, Jemal, Cokkinides, Singh, Cardinez, Ghafoor, & Thun, 2004). In fact, 25% of the \$51.5 million dollars of research funding provided by the American Cancer Society (ACS, 2006) was dedicated to researching cancer - related disparities as part of the ACS overarching goal to eliminate cancer disparities by 2015 (ACS, 2006). While research has shown that socioeconomic factors such as poverty, lower levels of education, and lack of health insurance play a significant role in the development and maintenance of cancer - related disparities, differences persist when these factors are controlled (Ward et al., 2004; Watlington, Byers, Mouchawar, Sauaia, & Ellis, 2007). Researchers surmise that the unexplained variance is due to the cultural differences between Hispanics and non - Hispanic whites where differing cultural cognitions and practices will lead to different and oftentimes competing cognitive models of cancer (Angel & Thoits, 1987; Bauman, 2003; Kleinman, 2004; Kleinman, Eisenberg, & Good, 1978) However, little is known of the potential role that cultural factors and illness representations (i.e. illness cognitions, illness schemata, illness perceptions) have on cancer - related disparities (Baumann, 2003).

This study aims to investigate illness representations of cancer and their determinants among a diverse sample of Hispanic men and women. This is a significant first step in determining whether cultural factors contribute to the disparities found across the cancer continuum (e.g. screening, diagnosis, morbidity, and mortality) among Hispanics compared to non - Hispanic whites.

Background and Significance

The health psychology literature assumes that social, economic, and cultural factors contribute to the development and maintenance of cancer - related disparities; however, research largely focuses on socioeconomic factors with minimal attention given to cultural cognitions and practices related to illness which oftentimes is in opposition with the biomedical view of illness or disease (Angel & Thoits, 1987; Bauman, 2003; Kleinman, 2004). This is problematic for two main reasons. First, research illustrates that individual perceptions of illness (e.g. perceived susceptibility to cancer) better predict adjustment and behavioral and emotional responses to disease than do more objective measures of illness (Lobban, Barrowclough, & Jones, 2003; Sensky, 1990) and may better explain discrepancies in cancer screening practices, treatment adherence, and ultimately the increased morbidity and mortality evident among Hispanics compared to non - Hispanic whites. Secondly, cancer - related disparities (e.g. lower cancer screening rates, increased morbidity and mortality) between Hispanics and non - Hispanic whites are still present when controlling for socioeconomic factors such as income level, education, access to care, and health insurance status (Ward et al., 2004; Watlington, et al., 2007).

The need to assess for illness representations of cancer among Hispanics is further supported by preliminary qualitative research suggesting that while misconceptions of cancer are common across ethnic/racial groups, illness representations found to hinder cancer - related behaviors such as cancer screening are more prominent among Hispanics (Borrayo, Buki, & Feigal, 2005; Borrayo & Guarnaccia, 2000; Borrayo, Guarnaccia, Mahoney, 2000; Chavez, Hubbell, McMullin, Martinez & Mishra, 1995; Dettenborn, DuHamel, Butts, Thompson, & Jandorf, 2004). Research has only begun to identify and

address cognitions and misgiving about cancer among the Hispanic population as a whole, much less individual subgroups (Valdez, Banerjee, Ackerson, Fernandez, Otero - Sabogal, & Somkin, 2001). Furthermore, interventions designed to address these discrepancies are largely ineffective, especially among Hispanics (Guidry & Walker, 1999; Sabogal, Otero - Sabogal, Pasick, Jenkins, & Perez - Stable, 1996). The lack of efficacy may be attributed to a poor understanding of those factors that hinder or promote cancer - related behaviors such as cancer screening practices or adherence to treatment among Hispanics (Borrayo, Guarnaccia, & Mahoney, 2000; Roche, Stovall, Suarez, Goldman, Wright, Mendez, et al., 1998).

A significant first step in improving understanding consists of the assessment of perceptions of cancer and evaluating the role of cultural, personality, and demographic factors in their development. The conceptualization of illness representations as defined by Leventhal's Common Sense Model (1970) provides a unique method for assessing and describing cognitive models of cancer among diverse groups. The main objective of this dissertation was to gather information about the cognitive models of cancer among Hispanics and determine the influence of cultural, personality, and demographic factors on the development of these cognitive models of cancer. Ultimately, information gained from this research will lead to targeted interventions that reduce disparities across the cancer continuum among Hispanics.

Statement of the Problem

Hispanics account for 14% (42 million) of the U.S. population (U.S. Census Bureau, 2000) and are defined as individuals of Mexican, Puerto Rican, Cuban, South American, or other Hispanic descent (U.S. Census Bureau, 2000). Mexicans are the largest Hispanic subgroup (58.5 percent) followed by other Hispanics including all South Americans, Central Americans, and Dominicans combined (28.4), Puerto Ricans (9.6 percent), and Cubans (3.5 percent). The Hispanic population continues to grow at a rate four times greater than that of the general U.S. population (57.9 percent and 13.2 percent, respectively).

Approximately 1 in 2 Hispanic men and 1 in 3 Hispanic women will be diagnosed with cancer in their lifetime (ACS, 2006). While the prevalence of all cancers combined is lower among Hispanics, Hispanics are more likely to die from cancer compared to non - Hispanic whites (ACS, 2006). Specifically, statistics show that Hispanics are 20% - 50% more likely to die from most cancers (ex. breast, cervical, prostate, lung, stomach) compared to non - Hispanic whites matched on stage of disease and age (ACS, 2006).

Disparities between Hispanics and whites are found across the cancer continuum from prevention to survivorship (Bickell, Wang, Oluwole, Schrag, Godfrey, Hiotis, et al., 2006; Fiscella, Franks, Doescher, & Saver, 2002; Ganesan, Teklehaimanot, Akhtar, Wijegunartne, Thadepalli, & Gansen, 2003; Glanz, Croyle, Choliette, & Pinn, 2003; Green, Anderson, Baker, Campbell, Decker, Fillingim, et al., 2003; Hedeem & White, 2001; Hoffman, Gilliland, Eley, Harlan, Stephenson, Stanford, et al., 2001; Holt, Franks, Meldrum, & Fiscella, 2006; Lannin, Mathews, Mitchell, Swanson, Swanson, & Edwards, 1998; Li, 2005; Meyerowitz, Richardson, Hudson, & Leedham, 1998; Shavers, Harlan, & Stevens, 2003; Watlington, Byers, Mouchawar, Sauaia, & Ellis, 2007). Hispanics are less likely to screen for breast, cervical, colon, or prostate cancer compared to non - Hispanic whites (ACS, 2008). Research suggests that delays in screening contribute to the later - stage presentation of cancer among this group (Stage III or IV) even when health insurance and socioeconomic status are controlled (ACS, 2008; Watlington, et al., 2007). Also contributing to more deaths are disparities in treatment, where Hispanics are less likely to obtain necessary adjuvant treatments or adequate pain management compared to non - Hispanic whites (Bickell, et al., 2006). Adjuvant treatment consists of treatment given after surgery that has demonstrated improved disease - free and overall survival in large randomized trials.

Studies and interventions developed to understand and eliminate cancer disparities among Hispanics across the cancer continuum (i.e. prevention, detection, diagnosis, treatment, and survivorship; ACS, 2008) primarily target socioeconomic factors (e.g. income, health insurance, and/or access to health care) with surprisingly minimal attention given to cultural attitudes and cognitions (Borrayo, Buki, & Feigal, 2005; Buki, Graces, Hinestrosa, Kogan, Carrilo, & French, 2008; Pescosolido, 1992). Not surprisingly,

differences persist when health insurance status, access to care, and income are controlled (Puschel, Thompson, Coronado, Lopez, & Kimball, 2001; Watlington, et al., 2007). Clearly a limited approach will not lead to solutions to these disparities.

Freeman (1989) proposed a more holistic model, suggesting that differences across ethnic/racial groups are influenced by social, economic, and cultural variables both independently and in conjunction with one another. Based on Freeman's model, most current research would be placed within the economic realm whereas cultural practices and cognitions would fit within cultural and social realms. As a result, researchers consistently call for further examination of the cultural cognitions and practices of Hispanics in relation to cancer and cancer - related behaviors in an attempt to better understand the source of these disparities and potential areas for intervention.

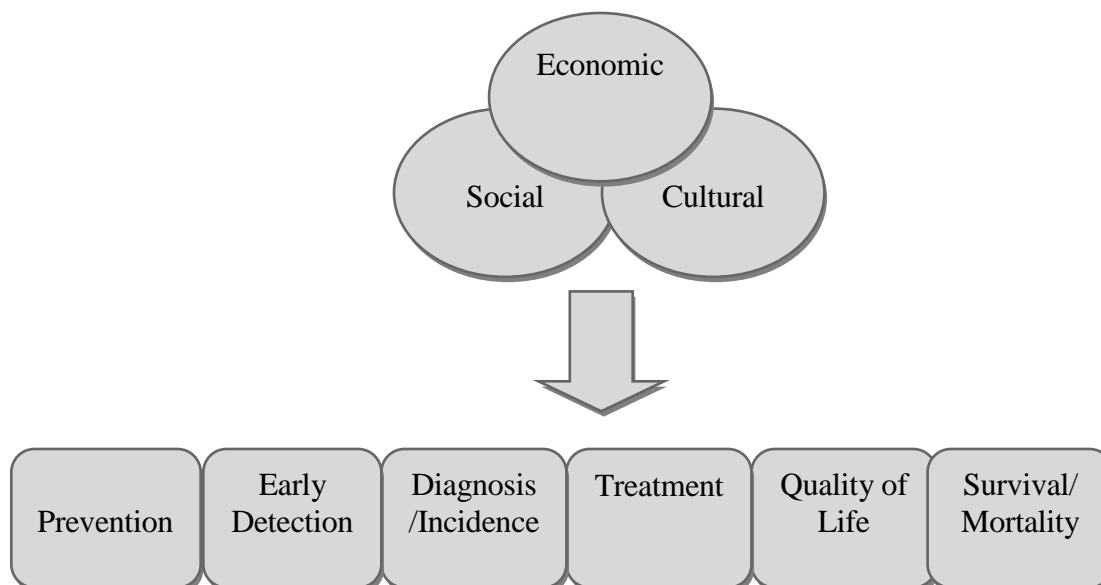


Figure 1. Predictors of Disparities across Cancer Continuum (Freeman, 1989)

Thus far, research on cultural factors and cognitions and practices surrounding cancer is based on small focus groups or consists of atheoretical studies plagued by inconsistent terminology and measures (Borrayo, Buki, & Feigal, 2005; Borrayo & Guarnaccia, 2000; Borrayo, Guarnaccia, Mahoney, 2000; Chavez, Hubbell, McMullin, Martinez, & Mishra, 1995; Dettenborn, DuHamel, Butts, Thompson, & Jandorf, 2004). The

result is a lack of understanding of cultural factors and the potential influence these factors have on cognitions and behaviors surrounding cancer. Ultimately, additional descriptive work of cultural factors and illness representation among Hispanics will provide guidance to develop effective and culturally appropriate interventions that reduce the disparities across the cancer continuum. The growing Hispanic population coupled with the unequal burden of cancer and less effective interventions make this group an important population of interest

Purpose of the Study

The purpose of this study is to increase our knowledge of illness representations of cancer among Hispanics and to determine the influence of cultural, personality, and demographic factors on illness representations of cancer.

Objectives

1. To identify illness representation of breast cancer among a diverse sample of Hispanics.
2. To determine the relationship between cultural, personality, and demographic factors on illness representations of breast cancer.

Literature Review

One theory especially lends itself to understanding cognitive models surrounding cancer among Hispanics. Leventhal's Common Sense Model of Self - Regulation (CSM) (1970) is composed of two parallel processing frameworks, cognitive and emotional, which are activated by external/internal stimuli such as a doctor's recommendation to get a mammogram or the presence of a symptom (i.e. breast lump; Leventhal, 1970). This model postulates that health threats generate both emotional representations of fear and distress as well a cognitive representation of the threat and a corresponding need for procedures (e.g. coping behaviors) for managing the threat (Leventhal, Leventhal, & Cameron, 2001). The

coping behaviors or action plans that are undertaken represent the cognitive representation of illness held by the individual, or to reduce fear and anxiety. Individuals then actively appraise the efficacy of these action plans and incorporate this information into their representation (Cameron & Leventhal, 2003).

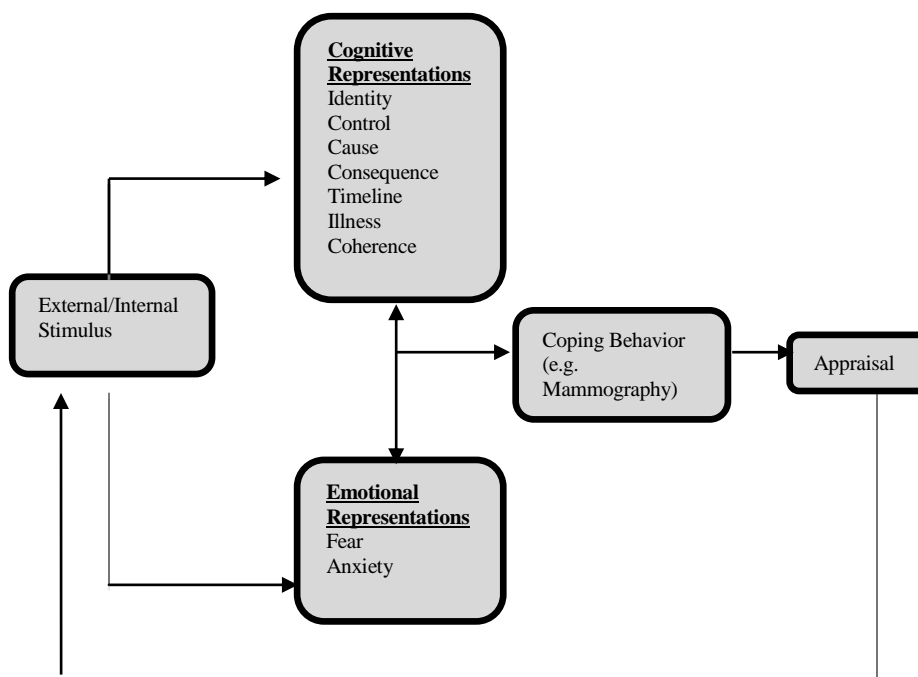


Figure 2. Leventhal's Common Sense Model (1970)

Cognitive and Emotional Illness Representations

The cognitive arm of the model identifies illness representations which consist of five dimensions including identity (the name the individual gives to the illness or symptoms they are experiencing), timeline (individual's belief regarding the chronicity of the illness or symptoms), consequences of the illness (seriousness of the expected outcomes or sequela of the illness), cause (the individual's cognitions regarding etiology of illness or symptoms), and control (the individual's perception of a cure or way to manage illness) (See Table 1; Lau & Hartmann, 1983; Leventhal, Leventhal, & Cameron, 2001). These dimensions are based on previous studies, which found that across methodology and terminology, studies of the schemata or structure of illness are consistent for these five

dimensions (Bauman, Cameron, Zimmerman, & Leventhal, 1998; Bishop, 1991; Lau & Hartmen, 1983; Leventhal, Meyer, & Nerenz, 1980). A sixth dimension, namely illness coherence, has been added to the most commonly used measures of illness representation, the Illness Perception Questionnaire, which assesses the degree to which individuals feel they have a coherent understanding of an illness or disease (Weinman & Petrie, 1986).

What separates the CSM from other models of behavior is not only the focus on cognitive models of illness, but the inclusion of the emotional process that is elicited along with the cognitive representations (Leventhal, Leventhal, & Cameron, 2001). The affective arm addresses the emotions that the illness cognition elicits. Theoretically, the emotional representation is related to the illness representations. However, it is not strictly a part of the illness representation and instead operates in parallel to the illness representation. The emotional representation is the perceived emotional state the individual associated with an illness such as fear or depression in response to cancer (See Table 1).

According to the CSM (Leventhal, 1970), these illness and emotional representations directly influence coping strategies and illness outcomes (Leventhal, Leventhal, & Cameron, 2001). For example, if an individual finds a breast lump, the illness cognition of cancer, as a threat to health, elicits an emotional representation of fear.

The individual will then engage in a coping strategy to modify the negative emotion, such as obtaining a cancer - screening test, or alternatively avoiding the situation completely (Leventhal, Leventhal, & Cameron, 2001). Which strategy is used is to a great extent influenced by the illness cognition the individual experienced.

Table 1

Definition of Cognitive and Emotional Representation Dimensions

Dimension	Definition
Illness Identity	The label and severity of a disease or illness based on the number of symptoms associated with it
Controllability	An individual's ideas about what they themselves or medical providers can do to bring out recovery or to exert influence on the course of the illness
Cause	Ideas about the cause of the illness
Consequences	The perceived short - term and long - term physical, social, economic, and emotional consequences of the disease
Timeline	Expectations about the duration of the illness and its characteristic course (i.e. acute, chronic, or episodic/cyclical)
Illness Coherence	Captures the individual's ability to think about an illness or threat in a coherent manner
Emotional Representation	Negative emotion elicited by the illness representation (i.e. fear and anxiety)

Research on Illness Representations

The illness representation framework has primarily been used in the chronic illness literature to investigate cognitive models of asthma (Horne & Weinman, 2002), chronic obstructive pulmonary disease (Scharloo, Kaptein, Weinman, Willems, & Rooijmans, 2000), and cardiovascular disease (Cooper, Lloyd, Weinman, & Jackson, 1999). Research supports the utility of these dimensions as they have been shown to predict coping (Nerenz, Leventhal, & Love, 1982; Williams & Keefe, 1991), entry into (Jensen & Karoly, 1992) and use of medical treatment (Hampson, Glasgow, & Zeiss, 1994) in various populations. Beyond coping strategies, specific illness representation dimensions such as identity, timeline, and consequence have been found to predict physical and mental health outcomes

and general well - being in cardiac rehabilitation participants (Horne & Weinman, 2002; Scharloo et al., 2000). Specifically, endorsement of greater illness identity, conceptualized as illness severity, greater perceived chronicity, more severe consequences, and less illness coherence are associated with poorer outcomes even when disease severity is controlled (Aalto, Aro, Weinman, Heijmans, Manderbacka, & Elovainio, 2006; Jopson & Moss - morris, 2003). These findings suggest that illness representations may provide insight into the relationship between the cognitive models of illness, health behaviors, outcomes, and participation in health promotion programs.

Illness Representations of Cancer

Research on the cognitive models of cancer is limited and is largely based on information gathered using qualitative methods (Borrayo, Buki, & Feigal, 2005; Borrayo & Jenkins, 2001a; Borrayo & Jenkins, 2001b; Chavez, Hubell, McMullin, Martinez, & Mishra, 1995). Each of these studies focused on one or two illness representation dimensions and explored their associations with health behaviors or pain intensity. Research that utilizes the standardized measures of illness representations such as the Illness Perception Questionnaires (Moss - Morris, Weinman, Petrie, Horne, Cameron, & Buick, 2002) has been carried out on cancer - patients (Anagnostopoulos & Spanea, 2005). This research is limited in that a formal assessment of all representation constructs was not assessed and may not reflect illness representations held by the lay population, which may differ from those held by individuals who have personal experience with cancer.

It is important to look at illness representation of individuals who are not cancer patients as their representations are more likely to reflect cultural, social, and personal factors that are free of the influence of specialized cancer care providers (Anagnostopoulos & Spanea, 2005). Furthermore, focus on individuals who are not experiencing the disease provides an opportunity to intervene during more preventative stages if illness and their determinants can be understood in a population not yet involved with the medical establishment (Godoy - Izquierdo, Lopez - Chicheri, Lopez - Torrecillas, Vex, & Godoy, 2007).

One such study addressed these limitations and found significant differences in illness representations of cancer among laypersons, medical professionals, and breast cancer patients undergoing chemotherapy or radiation (Buick, Petrie, Booth, & Probert, 2000). In terms of controllability, medical professionals and breast cancer patients showed significantly higher levels of controllability than laywomen. Furthermore, laywomen indicated significantly more severe consequences than those who had personal or vicarious experience with cancer. These differences persisted across the timeline dimension as well where laywomen were more likely to view cancer as chronic illness instead of an acute illness where death occurred rapidly after diagnosis. Although the Buick et al. (2000) study showed that illness representations differed among various groups, no validated measure has been used to assess illness representations among minority populations. The use of such an instrument would allow for the examination of potential relationships between illness representation dimensions and would permit a quantitative examination of factors that may explain these representations, paving the way for interventions that may change those that are problematic to cancer prevention and care seeking behavior.

Illness Representations of Cancer among Hispanics

While the illness representation framework has proven to be useful for the general population, it has not been used to understand cognitive models of cancer among minority populations. Past research has identified cultural cognitions regarding cancer specific to the Hispanic population without the use of a theoretical framework (Hunt, 1998, Perez - Stable, 1987). These findings could easily be fit into the CSM, however, as they relate to some of the dimensions mentioned above.

Specifically, research has focused on the cognitions among Hispanics regarding the causes of cancer and its prognosis. Research suggests that Hispanics are more likely to attribute cancer to supernatural forces or as a consequence of immoral or sinful behavior (Hunt, 1998). Furthermore, Hispanic women are more likely to attribute breast cancer to trauma to the breast, including the pain, pinching, and radiation experienced during a mammogram (Chavez, Hubbell, McMullin, Martinez, & Mishra, 1995). Additionally,

Hispanics are more likely to have fatalistic attitudes towards cancer where it is viewed as a death sentence with little chance of control or treatment than non - Hispanic whites (Nelson, Geiger, & Mangione, 2002). Still, atheoretical research is limited as it fails to assess a coherent set of variables. In this case, the other significant dimensions of illness representations such as consequences of the illness and illness identity have not been systematically studied and hence we do not have a good understanding of the representation of cancer that Hispanics as a group hold. An understanding of these cognitions is essential as illness representations have the potential to promote behaviors which are beneficial or detrimental to one's health (Bauman, 2003). Still, research on cancer representations is limited and has been described as "diversity challenged" in that research has focused on non - Hispanic whites who are well - educated and of moderate to high socioeconomic status.

Determinants of Illness Representations

It is not enough to determine whether illness representations differ between Hispanics and non - Hispanic whites; it is imperative to understand the determinants of cognitive and emotional representations to evaluate the reason for these discrepancies if they exist, and to guide interventions regardless (Deifenbach & Leventhal, 1996). The literature suggests that illness representations are influenced through three primary avenues: 1) socio - cultural influences, 2) personality factors, and 3) previous experience with illness (Leventhal, Leventhal, Cameron, 2001). Differences in illness representations of cancer across Hispanic and non - Hispanic groups are often attributed to cultural factors; however these assumptions have not been tested empirically (Horne, Graupner, Frost, Weinman, Wright, & Hankins, 2004; Leventhal, Leventhal, Cameron, 2001).

Demographic Determinants

The influence of demographic factors such as age, gender, and educational level have been shown to have small to moderate effects on the development of illness representations (Angermeyer & Matschinger, 1999; Godoy - Izquierdo, et al., 2007; Heijmans & de Ridder, 1999; Lauber, Falcato, Nordt, & Rossler, 2003; Turk, Rudy, & Salovey 1986). In general, higher levels of income and education are associated with less fatalistic perceptions of cancer (Godoy - Izquierdo, et al., 2007; Heijmans & de Ridder, 1999; Lauber, Falcato, Nordt, & Rossler, 2003) Gender differences have also been found where women are more likely to view illnesses such as AIDS, the common cold, or diabetes as more severe in terms of consequences and attribute these illnesses to sinful behavior (Klonoff & Landrine, 1994). However, previous studies have focused on non - Hispanic whites from moderate to high levels of socioeconomic status and educational backgrounds. Therefore, it is unknown whether lower levels of income or education influence illness representations above and beyond the influence of other cultural factors. When research on illness representations does include individuals from cultural backgrounds other than non - Hispanic whites, socioeconomic status is not included among the variables, making it difficult to understand the independent or synergistic effect of culture and socioeconomic status on illness representations (Eisner & Kopel, 1997).

This is particularly important among Hispanics as they are largely overrepresented at lower levels of socioeconomic status (U.S. Census Bureau, 2007). However, the role that lower socioeconomic status has on the development of illness representations is unclear. Furthermore, Hispanic ethnicity, cultural cognitions, and socioeconomic status are confounded in that ethnicity is associated with cultural factors described above as well as lower socioeconomic status (LaVeist, 2005). It is unclear whether differences in illness representations between Hispanics and non - Hispanic whites are due to lower socioeconomic status or cultural factors or both.

The health disparity literature has recognized that it is important to take level of acculturation into consideration when investigating differences between Hispanics and non - Hispanic whites (Hunt, Schneider, & Comer, 2004). Acculturation is defined by Rogler, Cortes, and Malgady (1991) as, “the process whereby immigrants change their behavior

and attitudes toward those of the host society” (p. 585). Researchers suggests that acculturation may provide an explanation for the cancer - related health disparities apparent between Hispanics and non - Hispanic whites where more acculturated Hispanics will exhibit cancer - related behaviors and outcomes similar to non - Hispanic Whites. This is based on the assumption that culturally - based knowledge, attitudes, and beliefs towards cancer are a function of acculturation (Hunt, Schneider, & Comer, 2004). This suggests that Hispanics who are more acculturated may exhibit knowledge, attitudes, and beliefs towards cancer that are similar to non - Hispanic whites and will therefore engage in behaviors (ex. screening) at rates similar to their non - Hispanic white counterparts (Dressler, 1993). Recent research lends support to this theory and suggests that lower acculturation among Hispanics is associated with the endorsement of supernatural forces as the cause of illness and lower cancer screening rates (Antshel, 2002; Lopez, 2005). It is unclear whether other illness representation dimensions among Hispanics are influenced by level of acculturation.

Cultural Determinants

Culture is defined as “the beliefs, values, and behaviors that are shared within a group, such as a religious group or a nation” (National Cancer Institute, 2008, p. 1). Differing cultural cognitions and practices between Hispanics and non - Hispanic whites and their influence on the development and maintenance of cognitive models of cancer may provide insight into discrepant illness representations of cancer across groups. This is supported by the anthropological literature, which claims that cultural factors influence the cognitive representation of illness, including beliefs regarding illness etiology, and mechanisms of acceptable treatments for the group (Angel & Thoits, 1987; Bauman, 2003; Kleinman, Eisenberg, & Good, 1978; Landrine & Klonoff, 1994). For instance, cultures that endorse beliefs in supernatural forces often attribute the cause of an illness to bewitchment or punishment by an unknown force (Koss - Chioino & Canive, 1993; Landrine & Klonoff, 1994). Cultural attitudes and cognitions unique to the Hispanic population may influence the development of illness representations (Koss - Chioino & Canive, 1993).

Hispanic Cultural Factors

Research has identified several cultural factors shared across Hispanic subgroups including familism, fatalism, folk cognitions, and religiosity which should be taken into consideration as they may influence cognitive models of cancer and ultimately health behaviors (Caudle, 1993; Marin & Marin, 1991; Zea, Quezada & Belgrave, 1994).

Fatalism

Researchers have attributed differences in illness cognitions surrounding cancer largely to fatalism. Fatalism is the belief that one cannot exert control over certain events because they are predetermined or are part of God's will (Rothman, Gant, & Hnat, 1985). Research suggests that the concept of fatalism is a hallmark of the Hispanic culture where Hispanics are more likely than non - Hispanic whites to perceive illness as determined by God and must therefore be accepted and endured (Dettenborn, DuHamel, Butts, Thompson, & Jandorf, 2004). Research has shown that Hispanics consistently have greater fatalistic attitudes toward cancer than do non - Hispanic whites (Chavez et al., 1995; Perez - Stable, Sabogal, Otero - Sabogal, Hiatt, & McPhee, 1992; Schettino, Hernandez - Valero, Moguel, Hajek, & Jones, 2006). However, the influence of this cultural construct on the development of illness representations remains unclear and has not been tested empirically. Greater fatalistic cognitions may negatively impact illness representations where cancer is viewed as less controllable and has more severe consequences thereby negatively impacting health behaviors.

Familism

Previous literature characterizes the Hispanic family as large and mutually supportive where a sense of obligation to members of the group and interdependence between generations is valued (Galanti, 2003). This sense of interdependence is evident in more collectivist cultures where the self is seen as part of a group and emphasis is placed on goals, needs, and views of the group over those of the individual (Gudykunst,

Matsumoto, Ting - Toomey, Nishida, Kin, & Heyman, 1996). The ideal of interdependence between generations is in opposition to the U.S. ideal of self - reliance where individuals are encouraged to be economically and socially independent (Galanti, 2003). Social scientists tend to agree that Hispanic groups are generally collectivistic and emphasize loyalty to the family, and solidarity and attachment among members (Triandis, 1995) more so than the more individualistic society of the United States (Marin & Marin, 1991). Individualism is defined as the emotional independence from a group where there is lack of consideration of the views of others and a tendency towards competition (Triandis, 1995).

Adherence to familistic/collectivistic ideologies may affect the rate at which one acculturates and may at least in part play a role in the development or maintenance of illness representations as family members serve as the primary source of cancer - related information and experience (Luquis & Villanueva - Cruz, 2004). More often than not, the information shared in social contexts such as these is inaccurate and outdated and leads to inappropriate delays in treatment - seeking behaviors (Luquis & Villanueva - Cruz, 2004). Qualitative research found that Hispanic women who endorsed greater familism also endorsed more severe consequences of cancer where their greatest fear was in regards to how the diagnosis would disrupt the well - being of the family (Luquis & Villanueva - Cruz, 2004). While researchers regularly attribute differences in cancer cognitions among Hispanics to cultural cognitions and practices such familism or collectivism, no research to date has tested this relationship empirically.

Religious Beliefs/Spirituality

Religion and spiritual beliefs are core values in the Hispanic culture. In fact, Hispanic ethnic status has been related to greater religiosity and spirituality than non - Hispanic white status (Mickley & Soeken, 1993). Among Hispanics, religious and spiritual beliefs are interwoven within their daily lives and serve as a source of strength when coping with life's struggles. While most Latin Americans are Roman Catholics, their perceptions about the causes and meaning of cancer may be influenced not only by

Catholicism, but also by the belief in other supernatural forces, vestigial beliefs from before colonial periods (Cuellar, Arnold, & Gonzalez, 1995). For instance, causal attributions of cancer among Hispanics have been associated with religious beliefs in the sense that cancer is perceived as punishment where penance and prayers are offered in order to cure cancer (Hunt, 1998; Landrine & Klonoff, 1994). In this sense, the controllability and consequence dimensions of illness representations are also influenced because it is perceived that cancer is determined by God and therefore cannot be controlled. It must be accepted and endured as a *castigo divino* (punishment) for personal sin or sins of family members and will have dire consequences (Baquet & Hunter, 1995; Falicov, 1996). Still, the associations between religious and spiritual beliefs endorsed by Hispanics and illness representation of cancer have not been tested empirically.

Personality Factors

Some attention has been given to the potential role that interpersonal and demographic factors have on illness representations in illnesses other than cancer. First, there is some support that personality factors, specifically optimism/pessimism and trait anxiety/neuroticism, influence various dimensions of illness representations.

Optimism and Pessimism

Optimism is described as the extent to which an individual has favorable expectations regarding life outcomes; whereas pessimism is the extent to which an individual expects negative life outcomes (Scheier & Carver, 1985). Heijmans and de Ridder (1999) assessed levels of optimism and pessimism in patients with Addison's Disease or Chronic Fatigue Syndrome using the Life Orientation Test (LOT; Scheier & Carver, 1985). Results suggest that greater optimism is associated with a greater illness identity, less chronic timeline, and greater controllability for both illnesses. On the other hand, greater pessimism was associated with more severe consequences as a result of the illness. This is significant as illness representation at least partly depends on the degree of optimism or pessimism endorsed by the individual.

State and Trait Anxiety

State and trait anxiety have been distinguished from each other in previous research (Spielberger, 1972, 1983). State anxiety is defined as an unpleasant emotional arousal in face of threatening demands or dangers. On the other hand, trait anxiety, or neuroticism, is defined as the enduring tendency to experience negative emotional states. Individuals high in trait anxiety are more likely to interpret situations as threatening. Investigations of the relationship between anxiety and illness representations suggest that increased anxiety is associated with more threatening illness representations among patients with Type 1 diabetes (Cameron, Leventhal, & Love, 1998; Paschalides, Wearden, Dunkerley, Bundy, Davies, & Dickens, 2004). Both state and trait anxiety have been found to correlate with various illness representation dimensions including greater illness identity and more severe consequences (Skinner et al., 2002), and lower level of controllability (Blotcky, Cohen, Conaster, & Klopovich, 1985; Paschalides, 2004). These results suggest that greater anxiety is associated with perceptions of illness that are more negative compared to individuals reporting lower levels of anxiety. However, the relationship between anxiety and illness representations of cancer has yet to be determined. Both state and trait anxiety were examined in the present study.

Previous History of Illness

Experience with Cancer

Some of the variability found in the conceptualization of illness representations has been attributed to differences in the individuals' previous history with the illness. Research suggests more sophisticated conceptualization of illness will develop as a result of previous experience with that particular illness (Paterson, Moss - Morris, & Butler, 1999). For instance, one study found that children who had previous experience with asthma had more accurate conceptualization of asthma in terms of identity, cause, timeline, and controllability (Paterson, Moss - Morris, & Butler, 1999). This suggests that illness representations of cancer can be influenced by previous experience with cancer either

personally or through a loved one. It is unclear how previous experience with an illness such as cancer influences the development of illness representations. Moreover, it is unclear how previous experience with cancer in a population which generally experiences greater morbidity and mortality than the general population will influence illness representations (Li et al., 2003, Ward et al., 2004). While research suggests that previous experience with a particular illness is associated with more sophisticated and accurate perceptions of illness (Paterson, Moss - Morris, & Butler, 1999), less is known about the influence of previous experience with illness in populations that generally experience greater morbidity and mortality. This is particularly significant among Hispanics who generally experience greater mortality and morbidity in the context of cancer (Li et al., 2003, Ward et al., 2004). Therefore, it is unclear whether Hispanic individuals' previous experience with cancer, unique in that it may be a more traumatic experience than non - Hispanic whites', influence illness representations negatively (Hunt, 1998). For example, because of the greater morbidity and mortality they may encounter among people like themselves, Hispanics who have experience with cancer may perceive cancer to have more severe consequences and/or less controllability. Furthermore, discerning this may help with the understanding of the discrepant cognitions of cancer found between Hispanics and non - Hispanic whites where cancer is viewed as less controllable, deadly, and acute where death occurs rapidly, as it reflects their true experience with cancer (Hunt, 1998). Therefore, it is imperative to fully understand the influence of previous experience with cancer on illness representations among Hispanics as the literature suggests that the cancer experience of Hispanics largely differs from the experience of non - Hispanic whites.

Folk Healing Practices

Also important are the experiences and perceptions of health and treatment of disease, particularly among Hispanics as they are more likely to view health and disease or illness (*enfermedad*) as holistic, including spiritual, moral, somatic, physiological, psychological, social, and metaphysical dimensions (Landrine & Klonoff, 1994; Pachter, 1994). As such, Hispanics oftentimes resort to home remedies or the use of *curanderas* (i.e.

folk healers) for the care and understanding of their illnesses (Landrine & Klonoff, 1994; Pachter, 1994). *Curanderismo*, or folk healing, is closely related to religious practice. Curanderas often resort to the use of herbs and other natural remedies to cure illnesses. However, the primary method of healing depends on religious rituals, prayer, and ceremonial cleansing. This is based on the belief that many illnesses are caused by malevolent spirits, punishment from God, or a curse (Cuellar, Arnold, Gonzalez, 1995). *Curanderas* may be the preferred method of treatment because the cost of their services is minimal and they speak the linguistic and cultural language. Furthermore, the lay referral network may promote the use of *curanderas*; those less acculturated and those of lower socioeconomic status may not know how to seek medical attention outside of this realm (Cuellar, Arnold, Gonzalez, 1995; Pachter, 1994). These practices may impact perceptions of cancer as they too are a part of the individual's previous experience with illness. In fact, *curanderas* may promote incorrect illness representations and seeking their care may delay seeking treatment or preventative care (Cuellar, Arnold, Gonzalez, 1995; Pachter, 1994). The review of determinants of illness representations suggests the following model, which was used to guide the present study.

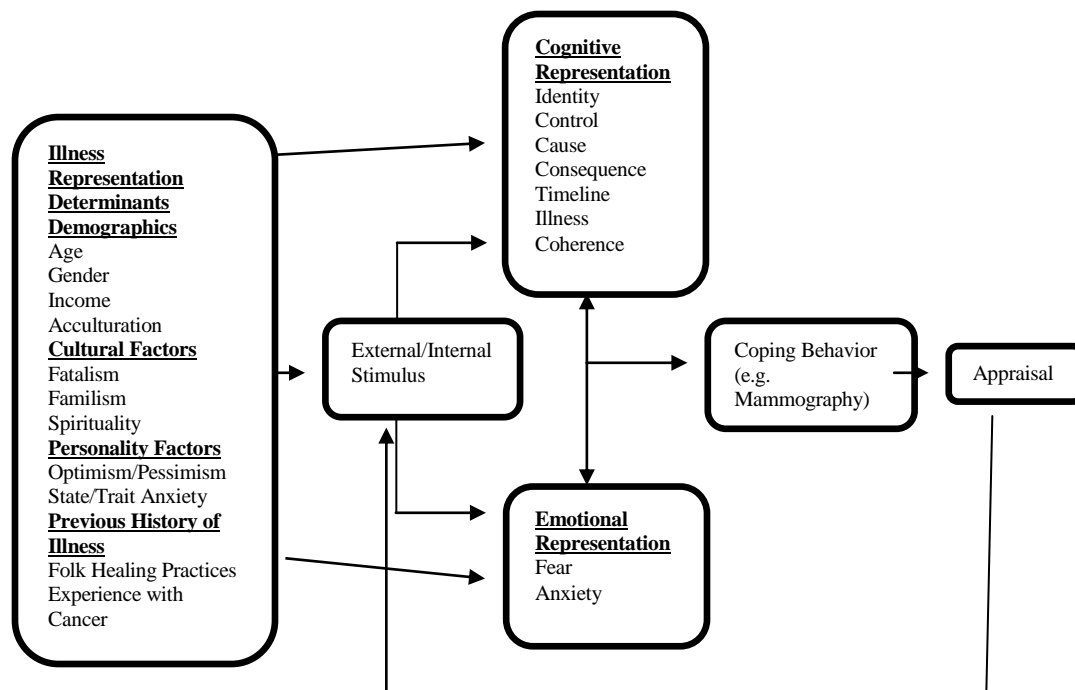


Figure 3. Conceptual Model of Illness Representation Determinants

Research Questions and Hypotheses

Figure 3 shows the conceptual model suggested by the literature review. This model served as a guide for the following research questions and hypotheses.

(R1) Will a diverse sample of Hispanic men and women endorse the illness representations of cancer found in the CSM (identity, control, cause, consequence, timeline, illness coherence, and emotional representations)?

(H1) Hispanics will report varying degrees of cancer identity, control, causes, consequences, timeline, illness coherence, and fear.

(R2) Do Hispanic cultural constructs (religiosity/spirituality, fatalism, familism), personality variables (optimism/pessimism, state/trait anxiety), previous experiences with cancer or folk healing practices, and/or demographics factors (socioeconomic status, education, gender, age) predict illness representations (identity, control, cause, consequence, timeline, illness coherence, and emotional representations)?

(H1) Greater fatalism, greater spirituality/religiosity, and greater familism (cultural constructs), greater pessimism, lower optimism, lower state/trait anxiety (personality variables), greater experience with folk healing practices and less experience with cancer (previous illness experience) and lower socioeconomic status, lower level of acculturation, lower level of education, and female gender (demographic factors) will predict greater illness identity.

(H2) Greater fatalism, greater spirituality/religiosity, and greater familism (cultural constructs), greater pessimism, lower optimism, lower state/trait anxiety (personality variables), greater experience with folk healing practices and less experience with cancer (previous illness experience) and lower socioeconomic status, lower level of acculturation, lower level of education, and female gender (demographic factors) will predict less controllability.

(H3) Greater fatalism, greater spirituality/religiosity, and greater familism (cultural constructs), greater pessimism, lower optimism, lower state/trait anxiety (personality variables), greater experience with folk healing practices and less experience with cancer (previous illness experience) and lower socioeconomic status, lower level of acculturation, lower level of education, and female gender (demographic factors) will predict greater external causal attributions.

(H4) Greater fatalism, greater spirituality/religiosity, and greater familism (cultural constructs), greater pessimism, lower optimism, lower state/trait anxiety (personality variables), greater experience with folk healing practices and less experience with cancer (previous illness experience) and lower socioeconomic status, lower level of acculturation, lower level of education, and female gender (demographic factors) will predict lower internal causal attributions.

(H5) Greater fatalism, greater spirituality/religiosity, and greater familism (cultural constructs), greater pessimism, lower optimism, lower state/trait anxiety (personality variables), greater experience with folk healing practices and less experience with cancer (previous illness experience) and lower socioeconomic status, lower level of acculturation, lower level of education, and female gender (demographic factors) will predict perceptions of more severe consequences.

(H6) Greater fatalism, greater spirituality/religiosity, and greater familism (cultural constructs), greater pessimism, lower optimism, lower state/trait anxiety (personality variables), greater experience with folk healing practices and less experience with cancer (previous illness experience) and lower socioeconomic status, lower level of acculturation, lower level of education, and female gender (demographic factors) will predict more acute timeline.

(H7) Greater fatalism, greater spirituality/religiosity, and greater familism (cultural constructs), greater pessimism, lower optimism, lower state/trait anxiety (personality variables), greater experience with folk healing practices and less experience with cancer (previous illness experience) and lower socioeconomic status, lower level of acculturation, lower level of education, and female gender (demographic factors) will predict lower illness coherence.

(H8) Greater fatalism, greater spirituality/religiosity, and greater familism (cultural constructs), greater pessimism, lower optimism, lower state/trait anxiety (personality variables), greater experience with folk healing practices and less experience with cancer (previous illness experience) and lower socioeconomic status, lower level of acculturation, lower level of education, and female gender (demographic factors) will predict greater cancer - related fear.

METHOD

Power Analysis

The Sample Power statistical program (Sample Power, 2000) was used to determine the sample size required for each regression analysis. The power analysis focused on the increment in variance explained (R^2) in the dependent variable by the predictor variables of interests. Previous literature using regression analysis to predict illness representation dimensions using demographics and personality variables suggests R^2 changes range from .18 (identity) to .32 (controllability). The smallest R^2 was used to calculate sample size. Based on previous literature, and under the assumption that all 13 predictor variables correlate at the bivariate level, a sample size of 94 was required for a power of $\beta = 0.80$ with alpha at .05. A more conservative estimate was used based on the recommendations of Tabachnick and Fidell (2001) which suggest a minimum sample size $n = 104$ plus an additional subject for each predictor variable expected to enter the regress equation. Based on this calculation, the present study required $n = 117$ participants should all 13 predictor variables correlate with the dependent variable. Data were collected from 120 participants.

Procedures

Participants for the present study were recruited during events organized by the The Binational/ Cross - Cultural Health Enhancement Center (BiCHECC). BiCHECC is a research center that is part of the Indiana University - Purdue University (IUPUI) signature center initiative which houses multidisciplinary research teams. BiCHECC offers community programs in the areas of health, education, social services, legal services, financial services as well as other cultural activities both at the Mexican consulate in

Indianapolis and during various events held throughout the city of Indianapolis (Ventanillas de Salud, Fiesta, Mayor's Latino Festival, Binational Health Week, etc.). Study participants were recruited during Ventanillas de Salud at the School of Dentistry on the IUPUI campus and at the Mexican consulate. During the Ventanillas de Salud event, the School of Dentistry provided free dental services to low - income Hispanics residing in Indianapolis, Indiana. At the Mexican consulate, Mexican immigrants spent 2 - 3 hours filing and processing paperwork for passports and visas. Participants were approached by bilingual research assistants at both locations and informed of the purpose, requirements, and benefits of participation. Previous work by BiCCHEC researchers found that monetary compensation was necessary in order for individuals to agree to participate. Therefore, in the present study each subject received \$20 dollars for participation. Individuals who agreed to participate had the option to complete measures in English ($n = 5$, 4.16%) or Spanish ($n = 115$; 95.84%) on their own ($n = 118$; 98.33%) or in interview format ($n = 2$; 1.77%). Each of these administration modes and locations were coded so we knew for each participant how and where the data was collected. The majority of the surveys were collected at the Mexican consulate ($n = 100$; 83.33%). Only 20 surveys (16.67%) were collected at *the Ventanillas de Salud event*.

Measures

Demographic Survey (Appendix A)

Basic demographic information was collected from each participant including age, gender, annual household income, marital status, years of education, employment status, number of years living in the United States, country of origin and generational status.

Illness Perception Questionnaire - Revised (IPQ - Revised; Appendix B)

The Illness Perception Questionnaire - Revised (IPQ - R; Moss - Morris, et al., 2002) represents an advancement in theory and measurement of the constructs represented in Leventhal's Common Sense Model over the original Illness Perception Questionnaire with the addition of an illness coherence and emotional representation subscale. The IPQ - R has become the most widely used measure of the illness representation dimensions of Leventhal's Common Sense Model including identity, control, cause, consequences, timeline, with the addition of a both illness coherence and emotional representation subscales. The measure is divided into three sections. The first section consists of the Identity scale that lists twelve commonly known symptoms of illness (e.g. fatigue, dizziness, etc.). In order to tailor the scale to assess the identity of breast cancer, eight of the most common symptoms of breast cancer (e.g. breast lump, nipple discharge) were added (ACS, 2008). The subject is asked to determine if each symptom is present in people with cancer. Summing the number of items endorsed as "yes" scores this scale. This provides a simple measure of the number of symptoms perceived to be associated with the illness. Greater illness identity is also conceptualized as greater illness symptomatology where the illness, in this case breast cancer, is conceptualized as more symptomatic. In the following section, control (ex. "The course of breast cancer depends on the individual"), consequences (ex. "Breast cancer has serious financial consequences"), timeline (ex. "I expect that breast cancer last for the rest of one's life), illness coherence (ex. "Breast cancer is a mystery to me"), and emotional representation (ex. "When I think about breast cancer, I get upset") of the IPQ - R are rated along the original 5 - point Likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree." In this version, the IPQ - R items were adapted to assess for illness representation of breast cancer among healthy individuals where "My illness is a serious condition" in the original version becomes "Breast cancer is a serious condition" in the adapted version. After reverse scoring appropriate items, scores for each scale were summed providing five subscale scores. The causal subscale items were presented in a separate section that used the same Likert scale format. The causal subscale represented external and internal causal attributions. Scores for each item were summed in order to provide a score for internal causal attribution and

external causal attributions. This is based on previous factor analytic research that found that the causal subscale was assessing two distinct causal attributions (Figures & Alves, 2007). The IPQ - R dimensions have shown evidence of good test - retest reliability ranging from .46 to .88 over short (3 weeks) and longer terms (6 months) with a relatively high degree of internal validity ($\alpha = .75$ to $.94$; Moss - Morris et al., 2002). The factor structure and reliability of the Spanish version of the IPQ - R was tested among 117 patients with hypertension (age 27 - 75 years) and was consistent with the English version of the IPQ - R. All subscales yielded internal consistencies ranging from .86 (illness coherence) to .96 (controllability). However, a Spanish version of IPQ - R that could be used among healthy population with an emphasis on cancer had not been developed. All items were first developed in English and then translated into Spanish by a translation expert based on previously established translation methods (Lugo, Steidel, Ikhlas, Lopez, Rahman, & Teichman, 2002). The items were back translated *into* English by a bilingual professional. Back - translated items were found to be linguistically equivalent to the original items. With data from the present study, Cronbach's alpha ranged from $\alpha = .42$ for timeline to $\alpha = .85$ for identity.

Short Acculturation Scale for Hispanics (SASH) (Appendix C)

The Short Acculturation Scale for Hispanics (SASH) is a 12 - item measure used to identify Hispanics who are low or high in acculturation (Marin, Sabogal, Marin, Otero - Sabogal, & Perez - Stable, 1987). The scale includes twelve items measuring acculturation across three factors: (1) language use, (2) media, and (3) ethnic social relations. Responses provided by each respondent (1 = "only Spanish" to 4 = "only English" or 1 = "all Latinos" to 4 = "all Americans") were summed to provide a continuous measure of acculturation where higher values indicate higher levels of acculturation. The translated version scale has been used with respondents from a variety of Hispanic subgroups including Mexican Americans, Cuban Americans, Puerto Ricans, Dominicans, and Central and South Americans. The Spanish - translated version of the scale has a reliability of .92 (Marin, et al., 1987). With data from the present study, Cronbach's alpha was $\alpha = .91$

State - Trait Anxiety Inventory (STAI) (Appendix D)

The State - Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1974) consists of two separate 20 - item self - report scales, each using a four point Likert scale 1 = “almost never” to 4 = “almost always” measuring state and trait anxiety. This questionnaire assesses anxiety and evaluates the extent to which the respondents experience a variety of feelings such as happiness, self - confidence, tension, and disappointment (e.g., “I feel content,” and “I worry too much over something that really doesn't matter”). The scale has been used extensively in prior psychosocial research and its psychometric properties have been well documented (Watson & Clark, 1984). Test - retest reliability falls in the .16 to .33 range and the .76 to .86 range for state anxiety and trait anxiety, respectively, over 20 days. Construct and discriminative validity have been demonstrated for this measure across gender and ethnic groups (Novy, Nelson, Goodwin, & Rowsee, 1993). The psychometric properties of the English and Spanish versions of the STAI were compared in separate samples of Hispanic Spanish and English speakers. Comparisons yielded nonsignificant differences in mean scores and internal consistency estimates between English and Spanish versions of the STAI supporting the psychometric strength of the English and Spanish language versions of the STAI (Novy, Nelson, Smith, Rogers, & Rowzee, 1995). For the present study, Cronbach's estimate suggested poor internal consistency for the state anxiety subscale ($\alpha = .65$) and adequate internal consistency for the trait anxiety subscale ($\alpha = .89$).

Life Orientation Test - Revised (Appendix E)

The Revised Life Orientation Test (R - LOT; Scheier & Carver, 1985) is a questionnaire that consists of ten items, four of which are filler items. The R - LOT assesses the extent to which an individual possesses favorable expectations regarding life outcomes with three items reflecting optimism ($\alpha = .78$) and three reflecting pessimism ($\alpha = .69$). Respondents are asked to indicate the extent of their agreement with each of the items, using the following response format: 0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, and 4 = strongly agree. The R - LOT has been used as a one - dimensional

measurement of optimism and pessimism where low scores equal pessimism and high scores equal optimism. However, factor analysis of R - LOT scores in previous studies found that optimism and pessimism are independent of one another (Hummer et al., 1992; Marshall and Lang, 1990). In fact, Scheier and Carver's (1985) own original factor analysis incorporated two factors, which correspond to the positive and negative items on the R - LOT. For the present study, optimism and pessimism were calculated separately by summing their respective items. Greater values indicated greater optimism or pessimism. The R - LOT items were translated into Spanish the authors based on previously established translation methods. However, published normative data was unavailable. For the present study, Cronbach's estimate suggested poor internal consistency for the pessimism subscale ($\alpha = .32$) and adequate internal consistency for the optimism subscale ($\alpha = .62$).

Familism (Appendix F)

Steidel and Contreras (2003) developed an 18 - item familism scale used to measure familism among Hispanic populations. The scale measured the four main components of familism as identified by previous research: the family comes before the individual, familial interconnectedness, familial reciprocity in times of need, and familial honor. The scale was scored on a 5 - point Likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree." All items were summed to provide a single continuous measure of familism with greater scores indicating greater familism. All items were first developed in English and then translated into Spanish by a translation expert based on previously established translation methods (Lugo, Steidel, Ikhlas, Lopez, Rahman, & Teichman, 2002). The items were back translated into English by a bilingual professional. Back - translated items were found to be linguistically equivalent to the original items. Internal consistency for the scale was found to be adequate ($\alpha = .83$) in a previous study (Steidel & Contreras, 2003). With data from the present study, Cronbach's alpha was $\alpha = .81$.

Fatalism (Appendix G)

A 20 - item measure developed by Shen, Condit, and Wright (2008) was used to measure fatalistic beliefs. Fatalism was conceptualized as a set of health cognitions that encompass the dimensions of predetermination, luck, and pessimism. The scale was scored on a 5 - point Likert scale ranging from 1 = “strongly disagree” to 5 = “strongly agree.” All items were summed to provide a single continuous measure of fatalism with greater scores indicating greater fatalism. Confirmatory factor analysis concluded that a second - order factor, namely fatalism, provided a good fit for the 20 items. Overall internal consistency of the scale in a large sample ($N = 1218$) was $\alpha = 0.88$. A Spanish - translated version of the scale was not available. As with other scales that were not available in Spanish, the items were translated into Spanish by a translation expert based on previously established translation methods, then back translated into English by a bilingual professional (Lugo, Steidel, Ikhlas, Lopez, Rahman, & Teichman, 2002). Back - translated items were found to be linguistically equivalent to the original items. With data from the present study, Cronbach’s alpha was $\alpha = .92$.

Latino Spiritual Perspective Scale (LSPS) (Appendix H)

The LSPS is a 23 - item, 6 - point Likert - type scale (1 = “disagree strongly” to 6 = “agree strongly”) that focuses on one's relationship with the divine and how spirituality manifests itself in one's daily life. High scores indicate a strong spiritual perspective. The back - translation method described above was used to translate the measure as the Spanish version of the scale was not available. Data from the present study indicated that Cronbach’s alpha was $\alpha = .92$.

Folk Healing Practices (Appendix I)

Folk healing cognitions and practices were measured using a subscale from the Multiphasic Assessment of Cultural Constructs - Short Form (MACC - SF). This measure was designed for the purpose of assessing cultural cognitions, ideas, and attitudes among

Mexican - Americans that have been hypothesized to influence the experience of illness and/or help - seeking behaviors (MACC - SF; Cuellar, Arnold, & Gonzalez, 1999). The scale assesses five cultural constructs including, *familism*, *fatalism*, *personalismo*, *machismo*, and folk healing practices. However, only the folk healing practices subscale exhibited adequate internal consistency ($\alpha = .75$) and construct validity. The subscale consists of 10 items that assess the extent to which individuals attribute health problems to supernatural forces or endorse the use of folk remedies. Each item is measured using a 5 - point Likert scale ranging from 1 = “strongly disagree” to 5 = “strongly agree” with greater values indicating greater folk healing cognitions and practices. Previous research has found that folk healing cognitions and practices are negatively correlated with level of acculturation where more acculturated Mexican - Americans reported decreased folk healing cognitions or practices (Cuellar, Arnold, & Gonzalez, 1999). As a translated version of the scale was not available, the scale was translated to Spanish using the same methods described above. Data from the present study indicated that Cronbach’s alpha was $\alpha = .79$.

Previous experience with cancer (Appendix J)

Previous experience with cancer was assessed using four items. Participants were asked whether they have previously been diagnosed with cancer in addition to the type of cancer and outcome. Additionally, participants were asked if someone they knew personally had been diagnosed with cancer, the outcome of the diagnosis, and their relationship to that person. Individuals with previous experience with cancer either personally or through a family or friend, were coded as a 1. Individuals without cancer experience were coded as a 0. All items were first developed in English and then translated into Spanish by a translation expert based on previously established translation methods (Lugo, Steidel, Ikhlas, Lopez, Rahman, & Teichman, 2002). The items were back translated into English by a bilingual professional. Back - translated items were found to be linguistically equivalent to the original items

Data Cleaning

Surveys were checked prior to data entry for missing items as each was submitted. Subjects were re - approached and asked to reply to missing items. Surveys with missing data were still entered into the database. During the initial data analysis phase, the data were checked for coding errors and missing data by running descriptive statistics. First, total or mean scores were calculated for each survey. Then, descriptive and frequency statistics were used to examine overall patterns of missing values for the new total/mean scores. The second step was to examine individual missed items. This was completed through frequencies and case summaries by the subject identification number. There were a total of 3 missing data points on the IPQ - R. Missing data were randomly distributed by subject and item. Missing data were replaced with the IPQ - R subscale mean in order to maintain as many subjects as possible. There were no other issues with missing data. Prior to testing the hypothesis, data were analyzed for outliers, distribution, univariate and multivariate assumptions, and internal consistency of measures.

Outliers

Outliers can distort the results of a statistical test by increasing the deviation from the mean. Statistical tests are sensitive to outliers and a single outlier can cause a statistical test to be significant when it is not and can cause a statistical test to be nonsignificant when in fact it is significant (Mertler & Vannatta, 2010). Univariate outliers were defined as scores on variables greater than 3.5 standard deviations from the mean in either direction (Mertler & Vannatta, 2005). No univariate outliers were identified using this method. Multivariate outliers were examined using Mahalanobis Distance and no outliers were uncovered in the present sample.

Normality

Normality is assessed in order to determine if the observations of a particular sample are normally distributed because results may be biased if the distribution is not normal (Mertler & Vannatta, 2005). Data were examined for univariate and multivariate normality of distributions. We examined skewness, or the degree of symmetry of the distribution and kurtosis, or degree of peakness of the distribution. Mertler and Vannatta (2005) propose that skewness and kurtosis ranging from - 1 to +1 suggest normal distributions. No variables violated univariate and multivariate normality.

Multicollinearity

Multicollinearity is assessed to determine the degree to which predictor variables are correlated with each other. If two predictor variables are highly correlated, then they may be measuring the same construct and confound the individual contributions of each variable (Mertler & Vannatta, 2005). Multicollinearity was assessed using Pearson's r (Table 2). All correlations were below the $r = .85$ (Table 2) cutoff suggesting multicollinearity (Mertler & Vannatta, 2005). Examination of the residual scatterplots indicated assumptions of linearity, normality, and homoscedasticity were met as residuals were clustered around zero.

Table 2

Means, Standard Deviations, and Correlations between Predictor Variables ($N = 120$)

Predictors	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Fatalism	46.01	13.69	-	.34**	.08	.39*	-.21*	.43**	.47*	.24**	-.04	-.06	-.36**	-.34**	-.05
2 Spirituality	130.73	26.99		-	.35**	.20*	-.04	.17	.11	.07	-.07	.02	-.38**	-.26**	.02
3 Familism	69.53	9.71			-	.09	.14	-.14	-.09	-.16	-.19*	-.15	-.28**	-.25**	.08
4 Pessimism	4.65	2.50				-	-.10	.21*	.25**	.21*	.17	-.03	-.07	-.12	.03
5 Optimism	8.20	2.88					-	-.08	-.12	-.02	.07	.04	.09	.15	.24**
6 State Anxiety	35.93	11.40						-	.74**	.22*	-.12	.04	-.18*	-.15	.08
7 Trait Anxiety	37.91	9.27							-	.36**	-.13	.02	-.19*	-.12	.02
8 Folk Practices	2.26	2.36								-	.15	-.04	-.10	.07	-.01
9 Cancer Experience	0.50	0.55									-	.04	.29**	.23	.11
10 Income	3.41	1.65										-	.39**	.20	-.11
11 Acculturation	22.28	8.78											-	.53**	-.03
12 Education	10.07	3.77												-	.01
13 Gender	.25	.45													-

* $p < .05$. ** $p < .01$ Note. Income scores are on a Likert scale, with 1 = Less than 5,000; 7 = 50,000 or more. Gender is a dichotomous variables where 0 = Female; 1 = Male

Internal Consistency Reliability

The final step in data preparation was to examine the internal consistency of each survey using Cronbach's alpha coefficient for continuous variable scales and Kuder - Richardson Formula - 20 for dichotomous variable scales (DeVellis, 2003). Internal consistency reliability is a measure of the homogeneity of items within a scale. As described by Nunnally and Bernstein (1994) scale items should be selected from a pool of items representing the same domain and thus be equivalent. Internal consistency reliability assessed this equivalence. Single item variables such as previous experience with cancer were not included in the analysis. For questionnaires that produce a total score (i.e. fatalism, familism), the individual items were entered (Nunnally & Bernstein, 1994). For questionnaires that produced subscales (IPQ - R), the subscales rather than the items were entered into the analysis. The rationale for this method is that the subscales that include items designed to measure the same construct provide a more accurate measure of internal consistency (Nunnally & Berstein, 1994). Internal consistency reliability was considered minimally acceptable at .65 - .70, respectable at .71 - .80, very good at .81 - .90, and above .90 bordering on redundancy (DeVellis, 2003). Table 4 summarizes internal consistency coefficients for all scales. Results showed an acceptable range of alpha coefficient establishing adequate internal consistency reliability of measures except for timeline, emotional representation, consequences, and pessimism subscales. Previous published reliability estimates of timeline ($\alpha = .95$), emotional representation ($\alpha = .91$), and consequences ($\alpha = .87$) among individuals with hypertension suggest adequate internal consistency. However, 98% of the current sample chose to complete the assessments in Spanish. Therefore, these indices of reliability may not be perfectly comparable to published reliability estimates as these are published in English or are based on a measure designed to assess another condition among an unhealthy population.

Table 3
 Estimates of Internal Consistency Using Cronbach's Alpha Coefficients

Measure	Items	Alpha Coefficient
*Illness Perception Questionnaire		
Identity	20	.85
Control	11	.68
Internal Cause	9	.74
External Cause	14	.76
Consequences	6	.54
Timeline	10	.42
Illness coherence	5	.61
Emotional representation	6	.54
Short Acculturation Scale for Hispanics	12	.91
State - Trait Anxiety Inventory		
State	20	.65
Trait	20	.89
Life Orientation Test - Revised		
Optimism	3	.63
Pessimism	3	.32
*Familism	18	.81
*Fatalism	20	.92
*Latino Spirituality Perspective Scale	32	.92
*Folk Healing Practices	10	.79

* Translated for current study

Data Analysis

All analyses were run using Predictive Analysis Software (PASW) 17.0. The first research question was addressed by running descriptive statistics to determine the content of illness representations among the present sample. The second research question was tested using linear multiple regression. All predictor variables that correlated with the outcome variable at the bivariate level were entered at once in order to determine relationships among variables and how they impact the outcome variable of interest (Tabachnick & Fidell, 2001). Each illness representation dimension was regressed on demographic, personality, and cultural variables. The squared multiple correlation is the proportion of variation in the outcome variable that is predicted from the best linear combination of predictor variables (Tabachnick & Fidell, 2007). A summary of regression coefficients is presented in Table 11. The standardized regression coefficient (β) provides information about the change in terms of standard deviations in the outcome variable as a result of one standard deviation change of the predictor variable (Tabachnick & Fidell, 2007). The mean value for each predictor and demographic variable was compared to normative data gathered from studies investigating Hispanics, when available, using t - tests. Relationships were considered significant for all comparisons if $p < 0.05$.

RESULTS

Participants

The majority of the 120 participants were female ($n = 90$; 75%), with a mean age of 32.05 ($SD = 8.88$). Most were born in Mexico ($n = 112$; 93.3%). The sample reported living in the United States a mean of 9.84 ($SD = 6.99$) years and completing a mean of 10.07 ($SD = 3.77$) school years. The majority of the sample (80%) indicated a yearly income of \$20,001 - \$30,000 or less. See Tables 4 for further demographic details.

Table 4
Demographic Characteristics of Participants ($N = 120$)

Characteristic	<i>n</i>	%
Sex		
Male	30	25.0
Female	90	75.0
Age		
18 - 19	9	7.5
20 - 29	39	32.5
30 - 39	47	39.2
40 - 49	21	17.5
50 - 59	4	3.3
Annual Household Income		
Less than 5,000	17	14.2

(Table 4 Continues)

(Table 4 Continued)

Characteristic	<i>n</i>	%
Annual Household Income		
5,001 - 10,000	19	15.8
10,001 - 20,000	30	25.0
20,001 - 30,000	30	25.0
30,001 - 40,000	6	5.0
40,001 - 50,000	12	10.0
50,000 or more	6	5.0
Marital Status		
Single	26	21.7
Married	63	52.5
Separated	8	6.7
Widowed	1	0.8
Living with Someone	22	18.3
Employment Status		
Full - time Employment	48	40.0
Part - time Employment	25	20.8
Unemployed	42	35.0
Retired	1	0.8
Student	4	3.3
Highest educational level completed		
Elementary	22	18.3
Middle School	46	38.3
High school	36	30.0
University/College	16	13.

(Table 4 Continues)

(Table 4 Continued)

Education Years Complete		
1 - 5 years	11	9.2
6 - 8 years	21	17.5
9 - 10 years	38	31.7
12 years	29	24.2
13 - 16 years	14	11.6
17 - 21 years	8	5.8
Country of Birth		
Mexico	112	93.3
United States	5	4.2
Puerto Rico	1	0.8
Honduras	1	0.8
Bolivia	1	0.8
Number of Years Living in the U.S.		
1 - 4 years	35	29.2
5 - 9 years	39	32.5
10 - 19 years	32	26.7
20 or more years	14	11.6
Generation		
First	115	95.8
Second	4	3.3
Fifth	1	0.8
Health Insurance		
Yes	46	38.3
No	74	61.7

(Table 4 Continues)

(Table 4 Continued)

Regular Place for Health Care		
Yes	97	80.8
No	23	19.2
Dagnosed with Cancer		
Yes	6	5.0
No	114	95.0
Know Anyone Diagnosed		
Yes	54	45.0
No	66	55.0

The study sample was comprised of predominantly first generation, employed Hispanic women in their early - thirties from Mexico. Most have not resided in the U.S. for more than 5 - 9 years. Half of the sample reported an annual income of \$ 20,001 - \$ 30,000 and completing at least a middle school education. While the majority indicated that they did not have health insurance, most indicated that they did have a regular source of health care. Additionally, while most had not been diagnosed with cancer, nearly half of the sample knew of someone diagnosed with cancer. Illness representations did not differ between groups with or without previous experience with cancer. When compared to the most recent census data on the Hispanic population in the United States, the current sample is older (32 years of age vs. 26 years of age) and better represents the general U.S. population ($m = 35$ years) (U.S. Census, 2000). The present sample is consistent with the Hispanic census data in that the majority of the sample was of Mexican descent, female, and reported an income between \$ 20,000 - \$ 25,000 or less. The present sample differed from census data which focused on Mexican - Americans in that the current sample reported living in the U.S. for ten years whereas the general Mexican - American population indicated living in the U.S. since 1990 or later (U.S. Census, 2000). While the vast majority of the present study sample indicated that they were foreign - born, only

40% of the Hispanics living in the United States are foreign born (U.S. Census Bureau, 2000; 2007). The sample was similar with respect to level of education where they reported lower levels of education than the general U.S. population (U.S. Census Bureau, 2000; 2007).

Performance on Predictor Variables

Prior to reporting the results of the hypothesis testing, it is important to consider the performance of the sample on the predictor variables. With regard to fatalism ($M = 46.01$, $SD = 13.69$), the present sample performed similarly to a large random sample of Hispanics ($n = 289$, $M = 50.20$, $SD = 1.4$, $t(407) = 4.9$, $p = .08$), non - Hispanic Whites ($n = 607$, $M = 51.6$, $SD = .40$, $t(725) = 10.07$, $p = .06$), and African Americans ($n = 272$, $M = 50.2$, $SD = 1.2$, $t(390) = 5.01$; $p = .08$) who were part of the study used to validate the scale (Shen, Condit, & Wright, 2008). The current sample reported greater spirituality than that reported in a previous study of highly educated, high income Hispanic women ($M = 105.8$ vs. $M = 130.73$, $t(725) = 10.07$, $p < .01$; Campesino & Schwartz, 2006). In the case of folk healing beliefs and practices, a previous study of 379 Mexican - Americans representing five generations reported greater ($M = 4.60$, $SD = 3.15$, $t(725) = 10.07$, $p < .01$) use of folk healing practices than the current sample (Cuellar, Arnold, & Gonzalez, 1997). The present sample reported lower levels of state anxiety among women ($n = 10$, $M = 50.25$, $SD = 11.20$, $t(128) = 3.82$, $p < .01$) and men ($n = 14$, $M = 44.73$, $SD = 13.89$, $t(132) = 2.67$, $p < .01$) and equivalent levels of trait anxiety among women ($M = 41.40$, $SD = 10.01$, $t(128) = 1.13$, $p > .05$) and men ($M = 39.77$, $SD = 17.62$, $t(132) = 0.63$, $p > .05$) compared to a study that focused on Spanish - speaking Mexican Americans (Novy, Nelson, Smith, Rogers, & Rowzee, 1995). With regard to level of acculturation, the original study assessed acculturation among first generation Mexican Americans and found a level of acculturation that was similar to the score of the current sample ($M = 28.44$; Marin et al., 1987). Normative data on Hispanics for the familism, optimism, and pessimism scales were unavailable.

Table 5
Means and Standard Deviations for Predictor Variables and Outcome Variables

Variable	<i>M</i>	<i>SD</i>	Range
Fatalism	46.01	13.69	20 - 83
Religion/Spirituality	130.73	26.99	45 - 180
Familism	69.53	9.71	39 - 90
Pessimism	4.65	2.50	0 - 12
Optimism	8.20	2.88	0 - 12
State Anxiety	35.93	11.40	20 - 69
Trait Anxiety	37.91	9.27	23 - 71
Folk Belief Practices	2.26	2.36	0 - 10
Cancer Experience	0.50	0.55	0 - 2
Acculturation	22.28	8.78	11 - 48

Table 6
Correlations Between Predictor Variables and Outcome Variables

Predictors	Outcome Variables							
	1	2	3	4	5	6	7	8
Fatalism	-.04	-.12	.21*	.07	-.01	.10	-.18	.12
Spirituality	-.09	-.09	-.06	.15	-.00	.12	-.10	.10
Familism	.08	.07	.19*	.21*	-.13	.15	-.05	.13
Pessimism	.03	.02	.17	.13	-.04	.10	-.08	.02
Optimism	.12	.09	-.12	.04	-.06	.13	.04	-.08
State Anxiety	-.09	-.16	.07	-.03	.02	-.01	-.17	.22*
Trait Anxiety	-.01	-.22*	.02	-.04	-.06	.01	-.15	.23*
Folk	.10	-.01	.18*	.11	.05	.07	-.03	-.08
Experience	.03	.04	.11	.18	-.03	.10	.24**	-.12
Income	-.05	.09	-.25**	-.13	.00	.09	.13	-.07
Acculturation	.22*	.06	-.18	.02	.15	.16	.19*	-.07
Education	.04	.20*	-.05	.12	.14	.13	.26**	-.09
Gender	.01	.05	.06	.18	.02	-.08	-.01	.02

Note. Outcome variables are numbered the same as the hypothesis in which each appears. 1 = Illness Identity; 2 = Control; 3 = External Causal Attribution; 4 = Internal Causal Attribution; 5 = Consequences; 6 = Complete Timeline; 7 = Illness Coherence; 8 = Emotional Representation.

* $p < .05$. ** $p < .01$

Research Question 1

For the initial research question, “Will a diverse sample of Hispanic men and women endorse the illness representations of cancer found in the CSM (identity, control, cause, consequence, timeline, illness coherence, and emotional representations),” it was hypothesized that Hispanics would report varying degrees of cancer identity, control, causes, consequences, timeline, illness coherence, and fear. With regard to cancer identity, the sample reported an average of 7.28 ($SD = 4.59$) symptoms of cancer out of twenty. Participants endorsed an average of 3.54 ($SD = 3.02$) accurate symptoms out of seven (50.5%) and 4.51 ($SD = 2.41$) inaccurate symptoms out of thirteen (34.7%). Table 5 illustrates the frequency of endorsement for each symptom.

Table 7

Endorsements of Individual Symptoms ($N = 120$)

Symptom	<i>n</i>	%
*Breast Lump	93	77.5
*Breast Size Change	91	75.8
Chest Pain	88	73.3
Possible to Not Have Symptoms	84	70
*Pain	71	59.2
*Nipple Fluid	69	57.5
*Fatigue	52	43.3
Sleep Problems	55	45.8
Loss of Strength	50	41.7
Weight Loss	48	40

(Table 7 Continues)

(Table 7 Continued)

Symptom	<i>n</i>	%
*Fatigue	52	43.3
Sleep Problems	55	45.8
Loss of Strength	50	41.7
Weight Loss	48	40
Headache	45	37.5
Nausea	31	25.8
*Arm Swelling	29	24.2
Joint Pain	26	21.7
Breathing Difficulty	24	20
Dizzy	23	19.2
Bone Pain	21	17.5
Stomachache	20	16.7
Wheezing	18	15
Sore throat	14	11.7
Eye Pain	10	8.3

* Accurate symptoms of breast cancer

Given the exploratory nature of Hypothesis 1, the means and standard deviations for individual items are presented (Table 8) as well as for the subscales (control, causes, consequences, timeline, illness coherence, and fear; Table 9). As each IPQ - R subscale differed with respect to the number of items, a mean for each subscale is presented in Table 7. None of the illness representation subscales differed significantly among those who did have previous experience with cancer versus those without ($p > .05$).

Table 8

Question	<i>M</i>	<i>SD</i>
Timeline		
1. Breast cancer will last a short time	1.92	1.18
2. Breast cancer is likely to be permanent rather than temporary	2.93	1.45
3. Breast cancer will last for a long time	3.08	1.34
4. Breast cancer will pass quickly	2.13	1.13
5. I expect breast cancer to last the rest of one's life	2.42	1.40
6. The symptoms of breast cancer change a great deal from day to day	3.23	1.24
7. Breast cancer symptoms come and go in cycles	2.73	1.28
8. Breast cancer is very unpredictable	3.45	1.14
9. Breast cancer would go through cycles in which the illness gets better and worse	3.03	1.17
Consequences		
10. Breast cancer is a serious condition	4.33	0.96
11. Breast cancer has major consequences on one's life	4.05	1.29
12. Breast cancer does not have much effect on one's life	2.37	1.48
13. Breast cancer strongly affects the way others see the patient	3.44	1.37
14. Breast cancer has serious financial consequences	3.67	1.33
15. Breast cancer causes difficulties for those close to the patient	2.96	1.47
16. There is a lot which I can do to control breast cancer	3.52	1.25
17. What I do can determine whether breast cancer gets better or worse	3.87	1.20
18. The course of breast cancer depends on me	3.45	1.38
19. Nothing I do can affect the breast cancer	2.59	1.31
20. I have the power to influence the breast cancer	3.05	1.28
21. My actions will have no affect on the outcome of breast cancer	2.76	1.32

(Table 8 Continues)

(Table 8 Continued)

Question	<i>M</i>	<i>SD</i>
Controllability		
22. Breast cancer will improve over time	3.03	1.41
23. There is very little that can be done to improve breast cancer	2.26	1.31
24. Treatment will be effective in curing breast cancer	3.98	1.18
25. The negative effects of breast cancer can be prevented or avoided by treatment	4.03	1.06
26. Treatment can control breast cancer	4.12	0.98
27. There is nothing which can help breast cancer	1.96	1.21
Illness Coherence		
28. The symptoms of breast cancer are puzzling to me	3.08	1.24
29. Breast cancer is a mystery to me	2.49	1.31
30. I don't understand breast cancer	2.55	1.24
31. Breast cancer doesn't make any sense to me	2.09	1.13
32. I have a clear picture or understanding of breast cancer	3.58	1.17
Emotional Representation		
33. I get depressed when I think about breast cancer	3.41	1.23
34. When I think about breast cancer I get upset	3.84	1.01
35. Breast cancer makes me feel angry	3.02	1.23
36. Breast cancer does not worry me	2.19	1.31
37. Thinking about having breast cancer makes me feel anxious	2.76	1.22
38. Breast cancer makes me feel afraid	3.61	1.18

(Table 8 Continues)

(Table 8 Continued)

Question	<i>M</i>	<i>SD</i>
Supplemental Items		
39. Breast cancer is contagious	1.68	0.99
40. The symptoms of the breast cancer are similar to the common cold	2.03	1.02
41. Breast cancer goes away on its own	1.56	0.94
42. Breast cancer is cured by rest	1.45	0.75
43. Breast cancer is caused by germs or virus	1.91	1.14
44. A symptom of the disease is fever	2.49	1.26
45. The disease is caused by changes in weather	1.79	0.99

Note. Scores are on a Likert scale, with 1 = Strongly Disagree; 5 = Strongly Agree, before reverse scoring

Table 9

Item Means and Standard Deviations for IPQ - R Subscales (*N* = 120)

Variable	<i>M</i>	<i>SD</i>	Range
Illness Identity	7.28	4.59	1 - 20
Control	3.67	.53	1 - 5
External Causal Attribution	2.60	.72	1 - 5
Internal Causal Attribution	2.22	.63	1 - 5
Consequences	3.68	.69	1 - 5
Timeline	3.19	.47	1 - 5
Illness Coherence	3.47	.76	1 - 5
Emotional Representation	3.41	.66	1 - 5

Note: mean scores for each subscale were divided by the number of items in each subscale so that comparisons could be made among them, except for illness identity which is the mean of all items endorsed.

Subjects were given the opportunity to identify the three most - important causes of cancer using open - ended items. Open - ended responses regarding the cause of breast cancer were consolidated into categories as provided by the causes subscale or into a new category if the response was not previously represented in the subscale. Only those responses that were endorsed more than twice were consolidated. Responses were categorized as presented in Table 10.

Table 10

Short - answer Responses to Causes of Breast Cancer ($N = 120$)

Response	<u>n</u>	%
*Heredity	77	64.1
A blow to the breast	71	59.2
*Smoking	29	24.2
Inadequate medical care	27	22.5
Injury to mother during pregnancy	22	18.3
*Age	16	13.3
Bad immune system	10	8.3
Poor nutrition	8	6.7
Virus or germs	8	6.7
Stress	6	5.0
*Alcohol	6	5.0
Accidents	5	4.2
Environment/Pollution	3	2.5

* Accurate breast cancer risk factors (ACS, 2010)

Research Question 2

To address research question 2, “Do Hispanic cultural constructs (religiosity/spirituality, fatalism, familism), personality variables (optimism/pessimism, state/trait anxiety), previous experiences with cancer or folk healing practices, and/or demographics factors (socioeconomic status, gender, age) predict illness representations (identity, control, cause, consequence, timeline, illness coherence, and emotional representations)?” a linear regression was performed for each outcome variable. The first step of the analysis was to determine which predictor variables would be included in the regression equation by conducting a correlational analysis (Table 9).

Hypothesis 2.1 Cancer Identity

It was hypothesized that greater fatalism, greater spirituality/religiosity, and greater familism (cultural constructs), greater pessimism, lower optimism, lower state/trait anxiety (personality variables), greater experience with folk healing practices and less experience with cancer (previous illness experience) and lower socioeconomic status, lower level of acculturation, lower level of education, and female gender (demographic factors) would predict greater cancer identity. The hypothesis was partially supported as only level of acculturation was positively correlated with cancer identity ($r = .22, p = .02$). Linear regression was not performed as a bivariate correlation would provide the same estimate.

Hypothesis 2.2 Controllability

Hypothesis 2 stated that the same string of variables would predict greater controllability. In order to test hypothesis two, a regression was conducted to determine which variables predicted controllability using only trait anxiety ($r = -.22, p = .03$) and education ($r = .20, p = .02$) as these were the only variables that correlated with controllability (Table 11). The model significantly predicted controllability ($F(2, 119) = 5.14, p = .007$) and accounted for 6.5 % of the variance in controllability based on the squared multiple correlation.

Table 11
Regression Analysis Summary for Trait Anxiety and Education Predicting Control

Variable	<i>B</i>	<i>SEB</i>	β
Trait Anxiety	-.13	.06	-.20*
Education	1.13	.56	.18*

Note. $R^2 = .081$ ($N = 120$, $p < .01$).

* $p < .05$.

Hypothesis 2.3 External Causal Attributions

In hypothesis 3, the same string of variables were expected to predict greater external causal attributions, a linear regression was conducted. Income, folk practices, familism, and fatalism correlated with external causal attributions and were entered to test the direct effects of these variables on the model. The model significantly predicted external causal attribution ($F(4, 119) = 4.94$, $p = .001$) and accounted for 11.7 % of the variance, with income and familism entering the regression equation. A summary of regression coefficients is presented in Table 12.

Table 12
Regression Analysis Summary for Income, Folk Practices, Familism and Fatalism Predicting External Causal Attribution

Variable	<i>B</i>	<i>SEB</i>	β
Income	- 1.09	.46	-.21*
Folk Practices	.60	.33	.16
Familism	.16	.08	.18*
Fatalism	.09	.06	.14

Note. $R^2 = .12$ ($N = 120$, $p = .001$).

* $p < .05$.

Hypothesis 2.4 Internal Causal Attributions

Hypothesis 4 indicated that the same string of independent variables would predict lower internal causal attributions. Only familism significantly correlated with internal causal attribution ($r = .21, p = .02$) in the expected direction.

Hypotheses 2.5 Consequences & 2.6 Acute Timeline

It was hypothesized that the same combination of independent variables would predict more severe consequences and a more acute timeline. None of the predictor variables correlated with either outcome variable; therefore regression analyses were not conducted.

Hypothesis 2.7 Illness Coherence

Hypothesis 7 stated that the same independent variables would predict lower illness coherence. Education ($r = .26, p < .01$), cancer experience ($r = .24, p < .01$), and acculturation ($r = .19, p = .03$) correlated with illness coherence at the bivariate level and were entered to test the individual effects of the predictor variables. The model significantly predicted illness coherence ($F(3, 119) = 4.31, p = .01$) and accounted for 7.7% of the variance in illness coherence, with cancer experience as a statistically significant predictor. A summary of regression coefficients is presented in Table 13.

Table 13
Regression Analysis Summary for Education, Cancer Experience, and Acculturation
Predicting Illness Coherence

Variable	<i>B</i>	<i>SEB</i>	β
Education	.82	.43	.20
Cancer Experience	1.27	.64	.18*
Acculturation	.01	.05	.03

Note. $R^2 = .100$. ($N = 120$, $p < .01$).

* $p < .05$.

The results suggest that the present sample endorsed a sense of illness coherence ($M = 3.47$, $SD = .76$) that was greater than that endorsed in a previous study ($N = 1113$) using the same illness coherence items among other diseases including tuberculosis, skin cancer, and AIDS where the scale scores were $M = 3.0$ ($SD = .83$; $t(1231) = 5.9$, $p < .001$), $M = 3.1$ ($SD = .76$; $t(1232) = 5.07$), $p < .001$), and $M = 2.9$ ($SD = .96$; $t(1231) = 6.29$, $p < .001$), respectively (Figueiras & Alves, 2007)

Hypothesis 2.8

With regard to the emotional representation of cancer, it was hypothesized that the same predictor variables would be associated with greater cancer - related fear. In order to test hypothesis two, a regression was conducted to determine which variables predicted cancer - related fear. Only state and trait anxiety correlated with cancer - related fear at the bivariate level and were entered to test the direct effects of the variables from the model. The model significantly predicted cancer - related fear ($F(2, 119) = 3.61$, $p = .03$) and accounted for 4.2 % of the variance, although neither of the variables significantly predicted the outcome. A summary of regression coefficients is presented in Table 14.

Table 14
Regression Analysis Summary for Anxiety Variables Predicting Emotional Representation

Variable	<i>B</i>	<i>SEB</i>	β
State Anxiety	.04	.05	.10
Trait Anxiety	.07	.06	.16

Note. $R^2 = .058$. ($N = 120$, $p < .05$)

* $p < .05$.

Table 15

Summary of Findings: Illness Representation, Predictors, and Proportion of Variance Explained

Illness Representation Subscale	Predictors	R^2	p
Cancer Identity	Acculturation	.05	.02
Controlability	Trait Anxiety Education	.07	.007
External Causal Attribution	Income Folk healing practices Familism Fatalism	.12	.001
Internal Causal Attribution	Familism	.04	.01
Consequences	- -	- -	- -
Timeline	- -	- -	- -
Illness Coherence	Education Cancer Experience Acculturation	.08	.006
Emotional Representation	State Anxiety Trait Anxiety	.04	.03

DISCUSSION

The objectives of the present study were twofold: 1) to identify illness representations of breast cancer using Leventhal's Common Sense Model of Illness among a diverse sample of Hispanics and 2) determine the relationship between cultural, personality, and demographic factors on illness representations of breast cancer. This was accomplished through a survey of 120 Hispanic men and women who completed a series of questionnaires which assessed demographic characteristics, cultural constructs, personality factors, history with cancer, and illness representations. The first objective was largely exploratory and therefore was addressed primarily through descriptive statistics. The second objective was completed using a series of linear regression equations where the hypothesized demographic, interpersonal, and cultural predictors were regressed on each illness representation dimension.

Research Question 1

Our initial research question was exploratory in nature given the fact that illness representations of breast cancer among Hispanics had not been systematically assessed in the literature. We hypothesized that the men and women in the sample would endorse varying degrees of breast cancer identity, control, causes, consequences, timeline, illness coherence, and fear.

First, we investigated the frequencies with which the participants endorsed different symptoms. With regard to cancer identity, all the symptoms were endorsed by the participants, confirming the appropriateness of the range of symptoms included in the identity scale. As would be expected, the percentage of symptoms endorsed by the participants varied with this particular illness. For instance, symptoms commonly

associated with breast cancer were endorsed more frequently than vague nonspecific symptoms. The most serious symptoms endorsed by the participants are consistent with the known symptoms associated with breast cancer in particular. Whereas other symptoms such as headaches, nausea or dizziness were considered as associated with other or more general illnesses in general and were endorsed less frequently.

Unfortunately, illness identity with regards to breast cancer has not been assessed in previous research; therefore comparison to other samples is not possible. A number of studies have shown that negative illness perceptions, namely a large number of symptoms associated with a condition regardless of accuracy, predicts poorer health outcomes including increased future disability and slow recovery from illness independent of initial medical severity of condition (Frostholm, et al., 2005; Scharloo, et al., 2000). With regards to the accuracy of the symptoms endorsed, the present sample endorsed approximately half of the appropriate symptoms as identified by the National Cancer Institute. Accurate symptoms that were most often endorsed were breast lump, breast size change, nipple fluid, fatigue and pain. Inaccurate symptoms that were most often endorsed by the sample included chest pain, sleep problems, loss of strength, weight loss, and headache. While it is encouraging that the majority of the sample endorsed symptoms that are related to breast cancer, previous research suggests that Hispanic women are more likely than non - Hispanic white women to wait for these symptoms to be present before seeking a mammogram (Borrayo & Jenkins, 2001). This is concerning as breast cancer in its most treatable stages may not exhibit any symptoms (ACS, 2001). Importantly, the majority of the sample also indicated that it is possible for breast cancer to not have symptoms.

The breast cancer controllability dimension using the subscale used here has not been assessed in previous research and therefore a direct comparison is not available. The item mean suggests participants were largely neutral to agreeable with statements assessing an individual's ideas about what they themselves or medical providers can do to bring about recovery or to exert influence on the course of breast cancer. This is significant as previous research suggests that Hispanics are more likely to endorse less controllability than non - Hispanic whites (Hubbell, Chavez, Mishra, & Valdez, 1996;

Nelson, Geiger, & Magione, 2002). However, previous studies have not utilized a structured assessment of beliefs regarding controllability of a specific disease and largely depend on single item measures (e.g. “My chances of surviving breast cancer are poor.”). Results from the current study suggest that overall this sample of Hispanics are ambivalent towards or in agreement with statements suggesting that breast cancer can be controlled through personal and/or medical means. This is significant as greater perceived controllability over cancer is associated with improved cancer screening rates and adherence to treatment (Perez - Stable, Sabogal, Otero - Sabogal, Hiatt, & McPhee, 1992).

Also, the literature characterizes Hispanic women as endorsing beliefs that little can be done to control or manage breast cancer (Balcazar, Castro, & Krull, 1995; Magai, Consedine, Neugut, & Hershman, 2007, & Perez - Stable, Sabogal, Otero - Sabogal, Hiatt, & McPhee, 1992). While the present study does not lend itself to comparison with other groups, it suggests that this sample may not match the general literature for controllability. This may be due to the fact that previous studies have focused on the perception of personal control factors with little attention given towards perceptions regarding the efficacy of medical interventions, which the current subscale does assess. Most importantly, this suggests that a better conceptualization and thorough assessment of controllability with respect to breast cancer is warranted.

The sample endorsed both external and internal causal attributions. The most commonly endorsed external causal attribution item was a blow to the breast. The most often endorsed internal causal attribution included heredity. These findings are consistent with previous research which identified a blow to the breast and heredity as the perceived primary causes or risk factors for breast cancer among Hispanic women (Chavez, Hubbell, McMullin, Martinez, & Mishra, 1995; McGarvey, et al., 2003; Perez - Stable, et al., 1992). This is important because individuals who have not had an injury to the breast or a family history of breast cancer may not see themselves as at risk for breast cancer and/or requiring screening. These beliefs are contrary to research that shows that most breast cancer cases occur in women without a known family history of breast cancer (ACS, 2009) and no research exists supporting a relationship between an injury to the

breast and the development of breast cancer. These beliefs may negatively impact coping behaviors and appraisals causing individuals to not engage in health behaviors such as mammography. In fact, research suggests that Hispanic women who view trauma to the breast as a cause for cancer delay mammography screenings (Chavez et al., 1995). Furthermore, women who attribute cancer to external causal influences are twice as likely to present with late - stage breast cancer (Lannin et al., 1998). This exemplifies the importance of understanding the causal attributions of populations where health disparities exist as these illness representations may contribute to the development and maintenance of these disparities.

With regard to the severity of consequences of breast cancer, the sample reported more severe consequences than endorsed in a previous study which used the same subscale among healthy, middle - class women regarding breast cancer (Anagnostopoulos & Spanea, 2007). This is consistent with previous research suggesting that Hispanic women were more likely to perceive breast cancer as a “death sentence” (Austin, Ahmad, McNally, & Stewart, 2002). This is significant as the perception of more severe illness consequences is associated with avoidance behaviors including poorer screening rates and lack of adherence to medical recommendations (Auston et al., 2002; McGarvey, et al., 2003; Petrie, Jago, & Devich, 2007). In fact, research has shown repeatedly that Hispanics are less likely to follow recommended cancer screening guidelines and cancer treatment recommendations (ACS, 2006; Li, 2005; McGarvey, et al., 2003). This is concerning as a delay of three months or more adversely affects survival between the time a woman first notices breast cancer symptoms and receives treatment (Bish, Ramirez, Burgess, & Hunter, 2005). This illustrates the potential role that illness representations of cancer such as consequences plays on cancer - related health behaviors and ultimately cancer - related disparities.

The breast cancer timeline was perceived as acute, cyclical, and unpredictable. While the timeline representation of breast cancer has not been assessed previously, research investigating the relationship between timeline and other illness has found that these perceptions are associated with increased anxiety and poor health behaviors. For instance, the perception that the timeline is acute implies that death occurs shortly after

diagnosis. This is associated with anxiety as would be expected. The perception that an illness is acute, cyclical, and unpredictable has been tied to poor adherence to medical recommendations in chronic conditions such as diabetes and cardiovascular disease (French, Cooper, & Weinman, 2006; Petrie, Jago, Devcich, 2007; Searle, Norman, Thompson, & Vedhara, 2007). If so, women who hold these perceptions and are diagnosed with breast cancer may avoid treatment because of the associated distress and the perception that the course of the illness is brief. Additionally, women may avoid screening due to these same beliefs. In fact, research has shown that Hispanic women are more likely to view cancer screening as “risky behavior” because of the threat of a positive screening (Borrayo, Buki, & Feigal, 2005).

The results suggest that the present sample endorsed a sense of illness coherence that was greater than that endorsed in previous studies of illness coherence among other diseases including tuberculosis, skin cancer, and AIDS (Figueiras & Alves, 2007). This suggests that the present sample had a greater ability to think about breast cancer in a coherent manner than reported by previous samples assessing similarly chronic and threatening illnesses. This is significant as greater illness coherence in general is associated with better health behaviors including improved adherence to doctor recommendations (French, Cooper, & Weinman, 2006; Petrie, Jago, Devcich, 2007; Searle, Norman, Thompson, & Vedhara, 2007). This greater understanding of breast cancer relative to tuberculosis, AIDS, and skin cancer may be explained by the exposure breast cancer receives in the media compared to these other diseases. Individuals may have a better conceptualization of breast cancer because it is more commonly addressed among the lay population due to the extensive resources that have been used to educate the public and raise awareness. This suggests that education and exposure may help with illness coherence.

Research Question 2

To address the second research question, “Do Hispanic cultural constructs (religiosity/spirituality, fatalism, familism), personality variables (optimism/pessimism, state/trait anxiety), previous experiences with cancer or folk healing practices, and/or demographics factors (socioeconomic status, gender, age) predict illness representations (identity, control, cause, consequence, timeline, illness coherence, and emotional representations)?” a linear regression was performed for each outcome variable.

Demographic Determinants

With regards to demographic determinants only acculturation, education, and income were associated with illness representations of breast cancer. It is important to note the interplay of acculturation, education, and income as each of these demographic determinants are confounded with one another (O’Malley, Kerner, Johnson, & Mandelblatt, 1999). For the current study, the variables shared small to moderate correlations. Counter to our hypothesis, greater acculturation was associated with greater cancer identity. Our hypothesis was based on research suggesting that illness identity assessed perceived level of symptomatology based on the number and severity of symptoms associated with the illness of interest (Lau & Hartmann, 1983; Leventhal, Leventhal, & Cameron, 2001) combined with research suggesting that lower acculturated Hispanics perceive breast cancer as highly symptomatic (Borrayo & Jenkins, 2001). However, the opposite relationship was found for this sample. The positive association between acculturation and illness identity may be due to assimilation with the dominant culture and increased receptiveness to and exposure to health information about breast cancer (Ruiz, Marks, & Richardson, 1992).

A similar positive relationship between acculturation, education, and illness coherence was identified. This may also be a reflection of exposure to information about breast cancer over time as an individual becomes more acculturated. This is supported by previous research which indicated that greater acculturation among Hispanics is associated with greater breast cancer knowledge (Borrayo & Jenkins, 2001; Brown,

Consedine, & Magai, 2006; Perez - Stable, Otero - Sabogal, Sabogal, McPhee, & Hiatt, 1994) and breast cancer screening (Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005). This suggests that illness representations such as illness identity are modifiable and may be impacted through acculturation with the dominant culture (Harmon, Castro, Campbell, Mayer, & Elder, 1994). Previous research has shown that acculturation has both positive and negative effects on the health of Hispanics where greater acculturation is positively associated with poor diet, obesity, and substance use, in addition to greater adherence to breast cancer screening guidelines (Lara, et al., 2005). Understanding the influence of acculturation on illness representations may provide some insight as to the complex relationship between acculturation and health outcomes.

These results also highlight the potential impact of education on an individual's understanding of breast cancer, where greater education contributes to one's understanding of breast cancer and therefore to better illness coherence (Elay et al., 1994). This is significant as greater illness coherence is associated with positive health behaviors as individuals with a greater sense of coherence about an illness are more likely to take an active role in their own health outcomes (Fok, 2005).

However, neither of these demographic factors independently contributed to illness coherence once previous experience with cancer was included in the analysis suggesting that experience provides a more comprehensive and clearer understanding of breast cancer (Paterson, Moss - Morris, & Butler, 1999). Personal experience with cancer may provide patients with a more realistic representation of the disease as the patient has had the opportunity to cope with the cancer experience and may have engaged in cognitive reassessment of the disease, thereby dispelling some of the myths and fears surrounding breast cancer (Berrenberg, 1989; Taylor, 1983)

Higher levels of education was associated with an increased sense of controllability over breast cancer and illness coherence, while lower income was associated with greater endorsement of external causal attributions. Level of education may positively influence perceptions regarding controllability over cancer through increased knowledge and understanding of breast cancer and available resources. Unfortunately, research suggests that Hispanic women are more likely to endorse lack of

control over cancer compared to other ethnic groups (Perez - Stable, et al., 1992). In fact, the perception that breast cancer is a death sentence and cannot be influenced by treatment is associated with poorer breast cancer screening rates (Perez - Stable, et al., 1992). Holding these beliefs may place an individual at greater risk of cancer because they are less likely to engage in various preventative behaviors including regular exercise, quitting smoking, and a healthy diet (Neirdeppe & Levey, 2007). Beliefs surrounding the controllability of an illness are associated with more active coping approaches and better health outcomes across a wide range of illness (Hagger & Orbell, 2003). The present study suggests that healthy women with lower levels of education and income may endorse stronger beliefs regarding the role of external or environmental factors in causing breast cancer, reflecting the need of healthy women to focus on causal factors that are changeable and controllable.

Cultural Determinants

Interestingly, familism was positively associated with both internal and external causal attributions. This is important as the majority of the literature suggests that Hispanic populations attribute health and illness to external factors such as supernatural forces due to their fatalistic beliefs with minimal attention paid to the role of familism (Nelson, Geiger, & Mangione, 2002; Otero - Sabogal, Stewart, Sabogal, Brown, & Perez - Stable, 2003). However, these findings suggest that familism may be related to more beliefs, internal and external, warranting further exploration of the role that familism plays on the development and maintenance of illness representations. The mechanism by which familism may impact these causal attributions is unclear. Qualitative research suggests perceptions of breast cancer are developed and shared within a cultural context where Hispanic women gather information regarding the disease from other female family members (Luqiz & Cruz, 2006). While the positive association between familism and external causal attributions supported our hypothesis, the positive relationship between familism internal causal attributions did not. Upon further examination of the items, we may have misconstrued internal and external attributions as laying on the

opposite ends of a continuum. A more appropriate conceptualization may be examining these as two separate constructs. For instance, individuals who endorse greater familism not only attributed cancer to external forces such as injury to the breast, but also appropriately cited internal causes such heredity and health behaviors such as smoking and diet as causes of breast cancer. These beliefs could come from having family as the primary source of information regarding health and disease and that family experiences of cancer may be varied.

Additionally, individuals who pursued folk healing practices also endorsed greater external attributions. Folk healing practices consist of activities which address the supernatural influences of illness such as bad luck or punishment from God. This positive association is congruent with beliefs endorsed by Hispanics in previous literature suggesting that breast cancer is caused by supernatural, external forces (Lopez, 2005; Pachter, 1994). Therefore, it is not surprising that those who hold these beliefs also endorse external causes to cancer specifically. The implications of such beliefs and practices are complex. Our data showed that 76% of the sample supported these practices. Even when they seek care from traditional medicine, Hispanics may also seek care from folk healers (Lopez, 2005). Research suggests that even highly acculturated Mexican - American women continue to utilize folk healing practices (Lopez, 2005). This suggests that a parallel health care system exists as a viable resource for Hispanics and should be viewed by clinicians and researchers as such when assessing health behaviors and beliefs surrounding cancer. It is up to the medical providers to understand this and incorporate it in the care provided to patients so that the two 'healers' are not working against each other in their attempts to help Hispanic patients. The formal medical establishment should recognize and emphasize the role that informal folk healing practices may serve, particularly among the underrepresented and underserved who are at greatest risk of poor health outcomes including poorer cancer screening adherence and cancer outcomes (Lopez, 2005).

Personality Determinants

Trait anxiety was associated with both controllability and emotional representation of breast cancer. State anxiety was associated with emotional representation of breast cancer. Specifically, higher anxiety was associated with the perception of lower control over breast cancer and greater emotionality when thinking about the breast cancer. These findings are not surprising and in fact may not be very informative to future research or clinical practice. This is because of the similarity among the two constructs, as emotional representations consist of fear and anxiety. The association with controllability is also not surprising, as controllability is associated with fear and anxiety about disease in many studies (Luszczynska, 2005). A surprising finding was that anxiety was not related to other representations as had been found in previous research (e.g. Skinner et al., 2002), and that optimism and pessimism were not related to any of the illness representations. We had hypothesized these relationships based on existing research, where optimism was associated with greater identity, less chronic timeline, and greater controllability; pessimism was associated with more severe consequences (Heijmans & de Ridder, 1999). This present study may have failed to replicate these findings given the poor performance of this measure in this sample. It is unclear from this study and from the available research as to the role of optimism and pessimism among Hispanics, which warrants further investigation given research supporting the salience of optimism and pessimism as health variables.

Previous History of Cancer Determinants

Previous experience with cancer was associated with greater illness coherence. Not surprisingly, individuals with more cancer experience reported a greater sense of illness coherence. As illness coherence assesses the extent to which the subject believes he or she has a clear idea of breast cancer, it is expected that individuals with experience with cancer would endorse a greater perceived understanding of breast cancer. Illness coherence is associated with better adherence to medical recommendations and therefore, it is an important representation to promote among Latinos (Aalto, et al., 2006;

Frostholm, et al., 2007). Other ways to increase coherence, given these findings, might be to create situations where people develop experience with cancer. These might be local advertisements where a member of the community speaks openly about her experience with breast cancer, or including such individuals in any training or workshop that is planned to increase screening or treatment behaviors.

Limitations

The major limitations of the study include the cross - sectional design and the use of a homogenous sample. Conclusions regarding the direction of the relationship between the proposed determinants and the illness representation dimensions cannot be made as data for each variable was collected at the same time. It is always possible that other factors, what we call ‘a third variable,’ not included in the proposed study, may account for any of the relationships found between determinants and illness representations. Although in the present study we focused on illness representations and the models that include this construct, other models with other constructs most definitely would have further informed our findings.

Furthermore, the homogenous sample limits the generalizability of this study. However, this may not necessarily be a limitation. Testing homogenous groups is important because investigations into specific subgroups provide insight into the needs of a particular group. Still, the main objective of this study was to focus on a medically underserved and understudied population that makes up a significant percentage of the population. Furthermore, the study suffered from limited statistical power. A larger sample may have produced more significant findings as some coefficients approached significance, such as gender ($p = .06$). In addition, the current study did not take into consideration other constructs considered core to the Hispanic culture, namely *simpatia*, *respeto*, and *machismo*. *Simpatia* is defined as “a permanent personal quality where an individual is perceived as likable, attractive, and easy going (Tiandis, Marin, Lisanksky, & Betancourt, 1984, pg. 1363).” *Respeto* refers to the personal quality of showing respect for others based on age, gender, and authority (Antshel, 2002). *Machismo* is reflected in

the male qualities of masculinity, male dominance, physical strength, and honor (Unger et al., 2002, pg. 260). This was mostly due to the fact that reliable and validated measures of these constructs have not been developed. It is unclear as to how these variables would impact illness representations among Hispanics, however given the fact that researchers refer to these “core Hispanic cultural constructs” as potential determinants of health behaviors, it is essential that appropriate measures be developed and applied to test the validity of this premise.

The constructs of familism, folk healing practices, and fatalism which were included in the present study, were associated with illness representation, but spirituality was not. Therefore, future studies should examine cultural variables missing here as our findings suggest some, but not all, may help us understand the illness representations of this group. More qualitative works needs to be completed in order to determine whether it might be an area of value to focus on for future research.

The results of the study are further limited by the marginal to poor internal consistency of several subscales including the control, consequences, timeline, illness coherence, emotional representation, state anxiety, and optimism, and pessimism subscales. The marginal and poor reliability of internal consistency may suggest that the subscale constructs are not homogenous or that the items are not appropriate measures of these constructs for Hispanics. Alternatively, as the scales were constructed based on Caucasians and translated, it may be cultural or language factors that are impacting internal consistency. It is likely that supplementing these subscales with additional items and eliminating poor items may improve the internal consistency of this questionnaire when used in both Spanish - and English - speaking Hispanics. Since further work is needed to establish the psychometric properties of the IPQ - R, particularly to provide normative data and internal consistency indices for different population, the present study conclusions should be treated with caution.

Future Directions

The present study recorded illness representations of breast cancer among a sample of Mexican - Americans living in the Midwest, and showed that culture - specific constructs were related to some of these representations. This finding suggests that future research should continue to examine homogenous ethnic groups in order to determine how each group interprets and experiences breast cancer differently. Only with this knowledge can effective interventions be developed. For example, interventions aimed at decreasing disparities across the breast cancer continuum among Hispanics may be served well by understanding illness representations that may be specific to this group. The belief that a blow to the breast causes breast cancer, or that familiarity with cancer increases coherence suggests interventions that may lead to screening or seeking treatment (Fernández, et al., 2009; Navaro, 1998). Additionally, the use of larger samples would allow for more sophisticated analysis including structural equation modeling and the ability to detect less robust associations between cultural constructs, illness representations, and ultimately health behaviors. The study also illustrates the need to make assessments in Spanish available. Most of the measures translated for the current study are used widely; however several were only available in English. Validating these measures in Spanish - speaking populations would facilitate research into this largely underserved and under - researched population. Furthermore, the ability to interpret the results of this study is limited by the lack of normative data for the IPQ - R. Additional work is needed to establish the psychometric properties of the IPQ - R, particularly to provide normative data and internal consistency indices for different populations. Therefore, the present conclusions should be treated with caution. The data obtained thus far suggests that the internal consistency of the separate scales are encouraging, except for the timeline subscale.

Future research would benefit from comparing illness representation across groups. These may differ and the manner in which they differ may guide intervention work. It is also important for future studies to utilize a criterion measure with which to test the effects of illness representations on health behaviors such as cancer screening and/or adherence to medical recommendations, also across groups. It is possible that in some groups these representations may have a stronger effect on behavior than in others. None of this is known, and yet it would provide fertile ground for intervention work (Cameron, Leventhal, & Leventhal, 1993).

The present study had two major objectives: 1) to identify illness representation of breast cancer among a diverse sample of Hispanics and 2) to determine the relationship between cultural, personality, and demographic factors on illness representations of breast cancer. The study addressed these objectives by assessing demographic, cultural, personality, and experience with cancer variables among a group of Mexican - American men and women. The findings suggest that specific demographic, cultural constructs, personality, and previous experience with cancer are associated with breast cancer illness representations. This is significant as emerging research has illustrated the salience of illness representations with regard to health behaviors and illness outcomes across a wide variety of disease. The overarching goal of the study was to investigate beliefs about breast cancer in an underserved and underrepresented group of Hispanics as a significant first step in investigating an understudied potential determinant of breast cancer disparities and to ultimately inform interventions. Investigating determinants of breast cancer disparities among this group is essential not only because of the inequalities they embody, but because of their persistence, suggesting that more work needs to be done. The discrepancy between biomedical definitions of disease and the lay population's experiences and understanding of the same disease will continue to exist. However, our goal as clinicians and researchers to provide culturally sensitive health care requires that we identify, acknowledge, and respect these differences in beliefs, even as we try to modify them for the benefit of the patient. Cultural beliefs and attitudes may contribute to the survival disadvantage among patients belonging to ethnic minority and medically underserved groups (Lanin et al. 1998). Careful attention to core cultural constructs can help identify those factors which contribute to health promoting or defeating behaviors and ultimately cancer - related disparities.

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APPENDICES

Appendix A: Demographic Questionnaire

Directions: Please read each question carefully. Please select one answer for each question.

1. How old are you? ____ years 2. Are you male or female? ____ Male ____ Female

3. Approximately, what was the total income of all the members of your household during the last 12 months?

- | | |
|---|--|
| <input type="checkbox"/> \$ Less than 5,000 | <input type="checkbox"/> \$30,001 - 40,000 |
| <input type="checkbox"/> \$5,001 - 10,000 | <input type="checkbox"/> \$40,001 - 50,000 |
| <input type="checkbox"/> \$10,000 - 20,000 | <input type="checkbox"/> \$50,001 or more |
| <input type="checkbox"/> \$20,001 - 30,000 | |

4. What is your marital status?

- | | |
|---|--|
| <input type="checkbox"/> Single/Never married | <input type="checkbox"/> Widowed |
| <input type="checkbox"/> Married | <input type="checkbox"/> Living with someone |
| <input type="checkbox"/> Separated/Divorced | |

5. What is your employment status?

- Full - time
- Part time
- Not employed nor do I receive a salary
- Retired/disabled
- Student

6. What is the highest level of education you completed in school?

- 1 Elementary
- 2 Junior High
- 3 High School
- 4 College/University

7. How many years
were you in school?

_____ years

8. In what country were you born? _____
9. In what year did you move to the U.S.? _____
10. How many years have you been in the U.S. _____ years
11. Which generation best describes you?

√ Generation

- ___ 1st You were born in Mexico or other country outside of the United States
- ___ 2nd You were born in USA; either parent born in Mexico or other country
- ___ 3rd You were born in USA, both parents born in USA and all grandparents born in Mexico or other country
- ___ 4th You and you parents born in USA and at least one grandparent born in Mexico or other country
- ___ 5th You, your parents, and grandparents were all born in the USA

12. Do you have health insurance? _____ Yes _____ No
13. Is there one particular clinic, health center, or doctor's office where you usually go for health care?
- 0 No 1 Yes

Instrucciones: Por Favor, lea atentamente cada pregunta y marque una respuesta para cada pregunta.

1. ¿Cuántos años tiene usted ahora? _____ 2. ¿Es usted hombre o mujer? _____
3. Aproximadamente, ¿cuál fue el ingreso total de todos los miembros de su casa durante el año pasado?

- | | |
|--|--|
| <input type="checkbox"/> Menos de \$ 5,000 | <input type="checkbox"/> \$40,001 - 50,000 |
| <input type="checkbox"/> \$5,001 - 10,000 | <input type="checkbox"/> \$50,001 y mas |
| <input type="checkbox"/> \$10,000 - 20,000 | |
| <input type="checkbox"/> \$20,001 - 30,000 | |
| <input type="checkbox"/> \$30,001 - 40,000 | |

4. Cuál es su estado civil?

- 1 Soltero/a, nunca casado/a
- 2 Casado/a
- 3 Separado/a, divorciado/a
- 4 Viudo/a
- 5 Convive con alguien

5. ¿Está usted empleado?

- 1 Tiempo completo
- 2 Tiempo parcial
- 3 Desempleado, ni recibo salario
- 4 Retirado, deshabilitado
- 5 Estudiante

6. ¿Hasta qué grado fue usted a la escuela?

- 1 Primaria
- 2 Secundaria
- 3 Preparatoria
- 4 Universidad

7. ¿Cuántos años tiene usted de escuela completó? _____ años

8. ¿En qué país nació usted? _____

9. ¿En qué año usted se muda a los Estados Unidos? _____

10. ¿Cuántos años ha vivido en los Estados Unidos usted? _____ años

11. ¿Que mejor describe la generación de usted?

<u>√</u>	<u>Generación</u>
___	1ra - Usted nació en México u otro país
___	2da - Usted nació en los Estados Unidos; cualquiera de los dos padres nació en México u otro país
___	3ra - Usted nació en Estados Unidos, ambos padres nacieron en Estados Unidos, y todos sus abuelos nacieron en México u otro país
___	4ta - Usted y sus padres nacieron en Estados Unidos y por lo menos un abuelo nació en México u otro país
___	5ta - Usted, sus padres, y abuelos todos nacieron en los Estados Unidos.

12. ¿Tiene seguro de salud? Si ___ No___

13. ¿ Hay una clínica, centro de salud, u oficina de médico donde usted va para atenderse?

0 No 1 Sí

Appendix B: Illness Perception Questionnaire - Revised (IPQ - R)

Directions: We are interested in your views about breast cancer. Listed below are a number of symptoms that may or may not be experienced by individuals with breast cancer. Please indicate by circling *Yes* or *No*, whether you believe the symptom is related to breast cancer.

Item	Symptom	This symptom is related to Breast Cancer
1	Pain	Yes ___ No ___
2	Sore Throat	Yes ___ No ___
3	Nausea	Yes ___ No ___
4	Breathlessness	Yes ___ No ___
5	Breast Lump	Yes ___ No ___
6	Weight Loss	Yes ___ No ___
7	Fatigue	Yes ___ No ___
8	Stiff Joints	Yes ___ No ___
9	Sore Eyes	Yes ___ No ___
10	Swelling of one arm	Yes ___ No ___
11	Change in the size, shape, or feel of the breast or nipple	Yes ___ No ___
12	Headaches	Yes ___ No ___
13	Upset Stomach	Yes ___ No ___
14	Sleep Difficulties	Yes ___ No ___
15	Dizziness	Yes ___ No ___
16	Loss of Strength	Yes ___ No ___
17	Fluid coming from the nipple	Yes ___ No ___
18	Wheeziness	Yes ___ No ___
19	Bone pain	Yes ___ No ___
20	Breast pain or discomfort	Yes ___ No ___
21	Individuals with Breast Cancer may not show any symptoms	Yes ___ No ___

We are interested in your own personal views of how you view cancer. Please indicate how much you agree or disagree with the following statements about cancer by checking the appropriate box.

Question	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
Breast cancer will last a short time					
Breast cancer is likely to be permanent rather than temporary					
Breast cancer will last for a long time					
Breast cancer will pass quickly					
I expect breast cancer to last the rest of one's life					
Breast cancer is a serious condition					
Breast cancer has major consequences on one's life					
Breast cancer does not have much effect on one's life					
Breast cancer strongly affects the way others see the patient					
Breast cancer has serious financial consequences					
Breast cancer causes difficulties for those close to the patient					
There is a lot which I can do to control breast cancer					
What I do can determine whether breast cancer gets better or worse					
The course of breast cancer depends on me					
Nothing I do can affect the breast cancer					
I have the power to influence the breast cancer					
My Actions will have no affect on the outcome of breast cancer					
Breast cancer will improve over time					
There is very little that can be done to improve breast cancer					
Treatment will be effective in curing breast cancer					

The negative effects of breast cancer can be prevented or avoided by treatment					
Treatment can control breast cancer					
There is nothing which can help breast cancer					
The symptoms of breast cancer are puzzling to me					
Breast cancer is a mystery to me					
I don't understand breast cancer					
Breast cancer doesn't make any sense to me					
I have a clear picture or understanding of breast cancer					
The symptoms of breast cancer change a great deal from day to day					
Breast cancer symptoms come and go in cycles					
Breast cancer is very unpredictable					
Breast cancer would go through cycles in which the illness gets better and worse.					
I get depressed when I think about breast cancer					
When I think about breast cancer I get upset					
Breast cancer makes me feel angry					
Breast cancer does not worry me					
Thinking about having breast cancer makes me feel anxious					
Breast cancer makes me feel afraid					
Breast Cancer is contagious					
The symptoms of the breast cancer are similar to the common cold					
Breast cancer goes away on its own					
Breast cancer is cured by rest					
Breast cancer is caused by germs or virus					
A symptom of the disease is fever					
The disease is caused by changes in weather					

We are interested in what you consider may cause various cancers. As people are very different, there is no correct answer for this question. We are most interested in your own views about the factors that cause different types of cancer rather than what others including doctors or family may have suggested. Below is a list of possible causes of cancers. Please indicate how much you agree or disagree that they are causes by ticking the appropriate box.

Item	Cause	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
I1	Stress or worry					
I2	Hereditary - It runs in the family					
E3	A germ or virus					
I4	Diet or eating habits					
E5	Being hit in the breast					
E6	Chance or bad luck					
E7	Poor medical care in the past					
E8	Pollution in the environment					
I9	My own behavior					
I10	My mental attitude e.g. thinking about life negatively					
E11	Fondling/playing with breast					
E12	Family problems or worries caused this illness					
E13	Overwork					
I14	My emotional state e.g. feeling down, lonely, anxious, empty					
E15	Injury to breast					
E16	Ageing					
E17	Alcohol					
E18	Smoking					
E19	Accident or injury					
I20	My personality					
I21	Altered immunity					
E22	Punishment from God					
I23	Immoral/sinful behavior					

("I" – internal attributions; "E" – external attributions)

In the table below, please list in rank - order the three most important factors that you believe cause cancer. You may use any of the items from the box above, or you may have additional ideas of your own.

The most important causes for me:

1. _____

2. _____

3. _____

Instrucciones: Estamos interesados en su opinión sobre el cáncer de mama (seno). A continuación aparece un listado de síntomas que pueden o no sentir las personas con el cáncer de mama. Por favor, indique *Sí* o *No*, si usted cree que el síntoma está relacionado con el cáncer de mama.

	Síntoma	Este síntoma está relacionado con el cáncer de mama
1	Dolor	Sí ___ No ___
2	Garganta dolorida	Sí ___ No ___
3	Náuseas y vómitos	Sí ___ No ___
4	Dificultad para respirar	Sí ___ No ___
5	Un bulto o engrosamiento en el seno	Sí ___ No ___
6	Pérdida de peso sin razón conocida	Sí ___ No ___
7	Fatiga	Sí ___ No ___
8	Dolor de las articulaciones	Sí ___ No ___
9	Dolor o enrojecimiento en el ojo.	Sí ___ No ___
10	Hinchazón de un brazo	Sí ___ No ___
11	Cambio en el tamaño o la sensación del pecho o del pezón	Sí ___ No ___
12	Dolores de cabeza	Sí ___ No ___
13	Dolor de estómago	Sí ___ No ___
14	Dificultad para dormir	Sí ___ No ___
15	Vértigos	Sí ___ No ___
16	Pérdida de fuerza	Sí ___ No ___
17	<i>Secreción del pezón (fluido)</i>	Sí ___ No ___
18	Silbido, ronquera o falta de aire	Sí ___ No ___
19	Dolor óseo	Sí ___ No ___
20	Dolor o molestia del pecho	Sí ___ No ___
21	Es posible que una persona con cáncer de mama no tenga síntomas	Sí ___ No ___

Instrucciones: Por favor, indique qué tan de acuerdo o desacuerdo esta con las siguientes afirmaciones acerca el cáncer de mama, hacienda un marque en el sitio que corresponde con su respuesta correspondiente.

	Totamente de acuerdo	De acuerdo	Indiferente	En desacuerdo	Totamente en desacuerdo
El cáncer de mama durará poco tiempo					
Es más probable que el cáncer de mama sea permanente que temporal					
El cáncer de mama durara mucho tiempo					
El cáncer de mama pasara rápidamente					
Tendré el cáncer de mama el resto de la vida					
El cáncer de mama es una circunstancia seria					
El cáncer de mama tiene consecuencias importantes en la vida					
El cáncer de mama no afecta mucho a la vida					
El cáncer de mama afecta fuertemente la manera en que otras le ven					
El cáncer de mama tiene serias consecuencias económicas					
El cáncer de mama causa dificultades a aquellos que están cerca del enfermo					
Puedo hacer mucho para controlar los síntomas					
Do lo que yo haga depende que el cáncer de mama vaya mejor o peor					
El curso del cáncer de mama depende de mi					
Nada de lo que yo haga afectara el cáncer de mama					
Puedo influir el cáncer de mama					
Mis acciones no tendrán efecto en las consecuencias del cáncer de mama					
El cáncer de mama se mejorará con el tiempo					
Hay poco que se puede hacer para mejorar el cáncer de mama					

El tratamiento puede controlar el cáncer de mama					
Los efectos negativos del cáncer de mama pueden prevenirse (evitarse) con el tratamiento					
El tratamiento puede controlar el cáncer de mama					
No hay nada que puede ayudar a el cáncer de mama					
Para mí, los síntomas de el cáncer de mama son difíciles de entender					
El cáncer de mama es un misterio para mi					
No entiendo el cáncer de mama					
El cáncer de mama no tiene ningún sentido para mi					
Comprendo o tengo una idea clara de el cáncer de mama					
Los síntomas de el cáncer de mama cambian mucho de un día para otro					
Los síntomas van y vienen por rachas (ciclos)					
El cáncer de mama es muy impredecible					
El cáncer de mama va mejor o peor por temporadas					
Me deprimó cuando pienso en el cáncer de mama					
Cuando pienso en el cáncer de mama me preocupo					
El cáncer de mama hace que me sienta disgustado/a					
El cáncer de mama no me preocupa					
Tener el cáncer de pecho hace que me sienta ansiosa/a					
El cáncer hace que me sienta asustado/a					
El cáncer de mama es contagioso					
Los síntomas del cáncer de mama son similares a los de la gripa					
El cáncer de mama desaparece por su propia cuenta					
El cáncer de mama se cura con el descanso					
El cáncer de mama es causado por gérmenes o					

virus					
Un síntoma de la enfermedad es la fiebre					
La enfermedad es causada por cambios en el clima					

	Causas	Totalmente en desacuerdo	En desacuerdo	Indiferente	De acuerdo	Totalmente de acuerdo
1	Estrés o preocupaciones					
2	Herencia					
3	Un germen o virus					
4	La alimentación o los hábitos de comida					
5	un golpe en el pecho					
6	El azar o la mala suerte					
7	El poco cuidado médico en el pasado					
8	Contaminación en el medio ambiente					
9	El propio comportamiento					
10	La actitud mental					
11	Las caricias de mama					
12	Problemas familiares o preocupaciones					
13	El exceso de trabajo					
14	El estado emocional					
15	Lesión de mama					
16	El envejecimiento					
17	El alcohol					
18	El fumar					
19	Accidentes o lesiones					
20	La personalidad					
21	Mal sistema inmunitario					
22	Castigo de Dios					
23	Inmoral o pecaminoso comportamiento					

En la lista inferior, por favor, indica por orden de importancia los tres factores más importantes que usted cree que causan el cáncer de mama.

Las causas más importantes para mí:

1. _____
2. _____
3. _____

Appendix C: Short Acculturation Scale for Hispanics

1. In general, what language(s) do you read and speak?

- a) Only Spanish
- b) Spanish better than English
- c) Both Equally
- d) English better than Spanish
- e) Only English

2. What was the language(s) you used as a child?

- a) Only Spanish
- b) More Spanish than English
- c) Both Equally
- d) More English than Spanish
- e) Only English

3. What language(s) do you usually speak at home?

- a) Only Spanish
- b) More Spanish than English
- c) Both Equally
- d) More English than Spanish
- e) Only English

4. In which language(s) do you usually think?

- a) Only Spanish
- b) More Spanish than English
- c) Both Equally
- d) More English than Spanish
- e) Only English

5. What language(s) do you usually speak with your friends?

- a) Only Spanish
- b) More Spanish than English
- c) Both Equally
- d) More English than Spanish
- e) Only English

6. In what language(s) are the TV programs you usually watch?

- a) Only Spanish
- b) More Spanish than English
- c) Both Equally
- d) More English than Spanish
- e) Only English

7. In what language(s) are the radio programs you usually listen to?

- a) Only Spanish
- b) More Spanish than English
- c) Both Equally
- d) More English than Spanish
- e) Only English

8. In general, in what language(s) are the movies, TV, and radio programs you prefer to watch and listen to?

- a) Only Spanish
- b) More Spanish than English
- c) Both Equally
- d) More English than Spanish
- e) Only English

9. Your close friends are:

- a) All Latinos/Hispanics
- b) More Latinos than Americans
- c) About Half and Half
- d) More Americans than Latinos
- e) All Americans

10. You prefer going to social gatherings/parties at which the people are:

- a) All Latinos/Hispanics
- b) More Latinos than Americans
- c) About Half and Half
- d) More Americans than Latinos
- e) All Americans

11. The persons you visit or who visit you are:

- a) All Latinos/Hispanics
- b) More Latinos than Americans
- c) About Half and Half
- d) More Americans than Latinos
- e) All Americans

12. If you could choose your children's friends, you would want them to be:

- a) All Latinos/Hispanics
- b) More Latinos than Americans
- c) About Half and Half
- d) More Americans than Latinos
- e) All Americans

Appendix D: State - Trait Anxiety Inventory

Directions. A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel right now, that is, at this moment. There is no right or wrong answer. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

Items	Not at all	Somewhat	Moderately So	Very Much So
1. I feel calm				
2. I feel secure				
3. I am tense				
4. I feel strained				
5. I feel at ease				

Instrucciones: A continuación se presentan varias afirmaciones que la gente ha utilizado para describirse. Lea cada afirmación y a continuación marque la casilla a la derecha de la afirmación que indique cómo se siente en general. No hay respuestas correctas o incorrectas. No se detenga demasiado tiempo en una afirmación, sino que dé la respuesta que le parezca que describe mejor cómo se siente en general.

	Casi nunca	A veces	A menudo	Casi siempre
1. Me siento tranquilo/a.				
2. Me siento sereno/a.				
3. Estoy tenso/a.				
4. Me siento estresado/a.				
5. Me siento a gusto.				

Appendix E: Life Orientation Test - Revised

The following items concern how you see life in general. For each item indicate whether you agree or disagree. There are no "correct" or "incorrect" answers; we only want to know your opinion.

	1 Disagree a lot	I Disagree	I neither agree nor disagree	I agree a little	I agree a lot
1. In uncertain times, I usually expect the best.	0	1	2	3	4
2. It's easy for me to relax.	0	1	2	3	4
3. If something can go wrong for me, it will.	0	1	2	3	4
4. I am always optimistic about my future.	0	1	2	3	4
5. I enjoy my friends a lot.	0	1	2	3	4
6. It's important for me to keep busy.	0	1	2	3	4
7. I hardly ever expect things to go my way	0	1	2	3	4
8. I don't get upset too easily.	0	1	2	3	4
9. I rarely count on good things happening to me.	0	1	2	3	4
10. Overall, I expect more good things to happen to me than bad.	0	1	2	3	4

Appendix F: Familism Scale

Directions: Please indicate how strongly you agree or disagree with each of the following statements by circling the number that corresponds with your answer.

1. Children should always help their parents with the support of younger brothers and sisters, for example, help them with homework, help the parents take care of the children, and so forth.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

2. The family should control the behavior of children younger than 18.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

3. A person should cherish the time spent with his or her relatives.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

4. A person should live near his or her parents and spend time with them on a regular basis.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

5. A person should always support members of the extended family, for example, aunts, uncles, and in-laws, if they are in need even if it is a big sacrifice.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

6. A person should rely on his or her family if the need arises.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

7. A person should feel ashamed if something he or she dishonors the family name.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

8. Children should help out around the house without expecting an allowance.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

9. Parents and grandparents should be treated with great respect regardless of their differences in views.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

10. A person should often do activities with his or her immediate and extended families, for example, eat meals, play games, or go somewhere together.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

11. Aging parents should live with their relatives.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

12. A person should always be expected to defend his/her family's honor no matter what the cost.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

13. Children younger than 18 should give almost all their earnings to their parents.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

14. Children should live with their parents until they get married.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

15. Children should obey their parents without question even if they believe they are wrong.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

16. A person should help his or her elderly parents in times of need, for example, helping financially or sharing a house.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

17. A person should be a good person for the sake of his or her family.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

18. A person should respect his or her older brothers and sisters regardless of their differences in views.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

Instrucciones: Por favor, indique en qué grado está Usted de acuerdo o desacuerdo con las siguientes afirmaciones. Circule el número que corresponde con su respuesta.

1. Los hijos siempre deben ayudar a sus padres con el sostén de sus hermanos menores, por ejemplo, ayudar con las tareas escolares, ayudar a cuidarlos, etc.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

2. La familia debe controlar el comportamiento de los miembros de la familia menores de 18 años.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

3. Una persona debe apreciar el tiempo que pasa con sus familiares.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

4. Una persona debe vivir cerca de donde sus padres vivan y debe pasar tiempo con ellos regularmente.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

5. En caso de necesidad una persona siempre debe apoyar a otros miembros de su familia, (por ejemplo, tías, tíos y familiares políticos) aunque sea un gran sacrificio.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

6. Una persona debe contar con su familia en casos de necesidad.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

7. Una persona debe sentirse avergonzada si deshonra a su familia.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

8. Los hijos deben ayudar en las labores de la casa sin esperar pago.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

9. Los padres y los abuelos deben ser tratados con gran respeto a pesar de sus diferencias de opiniones.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

10. Una persona debe hacer actividades frecuentemente con su familia, por ejemplo comer, jugar y salir juntos.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

11. Los padres de edad avanzada deben vivir con sus parientes.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

12. Una persona siempre debe defender el honor de la familia sin importar el costo.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

13. Los hijos menores de 18 años deben dar gran parte de sus ingresos económicos a sus padres.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

14. Los hijos deben vivir con sus padres hasta que se casen.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

15. Los hijos deben obedecer a sus padres aún cuando piensen que sus padres están equivocados.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

16. Una persona deben ayudar a sus padres de edad avanzada cuando están en necesidad, por ejemplo, ayudarlos económicamente o compartir una casa.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

17. Una persona debe ser buena por consideración a su familia.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

18. Una persona debe respetar a sus hermanos mayores sin importar las diferencias de opiniones.

Estoy completamente en desacuerdo	Estoy parcialmente en desacuerdo	No estoy ni de acuerdo ni en desacuerdo	Estoy de acuerdo parcialmente	Estoy de acuerdo completamente
1	2	3	4	5

Appendix G: Fatalism Scale

Directions: Please indicate how strongly you agree or disagree with the following statements.

1. If someone is meant to get a serious disease, it does not matter what kinds of food they eat, they will get that disease anyway.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

2. If someone is meant to get a serious disease, they will get it no matter what they do.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

3. If someone gets a serious disease, that's the way they were meant to die.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

4. If someone is meant to have a serious illness, they will get that disease.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

5. If someone has a serious disease and gets treatment for it, they will probably still die from it.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

6. If someone was meant to have a serious disease, it doesn't matter what doctors and nurses tell them to do, they will get the disease anyway

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

7. How long I live is predetermined.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

8. I will die when I am fated to die.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

9. My health is determined by fate.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

10. My health is determined by something greater than myself.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

11. I will get diseases if I am unlucky.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

12. My health is a matter of luck.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

13. How long I live is a matter of luck.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

14. I will stay healthy if I am lucky.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

15. Everything that can go wrong for me does.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

16. I will have a lot of pain from illness

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

17. I will suffer a lot from bad health

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

18. I often feel helpless in dealing with the problems of life.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

19. Sometimes I feel that I'm being pushed around in life.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

20. There is really no way I can solve some of the problems I have.

Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
1	2	3	4	5

Instrucciones: En las siguientes preguntas, por favor, indique en qué grado está de acuerdo o desacuerdo con las siguientes afirmaciones. Marque con un círculo el número que mejor representa su opinión

1. Si alguien está destinado a agarrarse una enfermedad seria, no importa que clases de comida coman, van a agarrarse esa enfermedad de cualquier manera.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

2. Si alguien está destinado a agarrarse una enfermedad seria, se la van a agarrar no importa que hagan.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

3. Si alguien se agarra una enfermedad seria, esa es la manera que estaban destinados a morir.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

4. Si alguien está destinado a tener una dolencia seria, van a agarrarse esa enfermedad.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

5. Si alguien tiene una enfermedad seria y recibe tratamiento para la enfermedad, probablemente igual van a morir de la enfermedad.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

6. Si alguien está destinado a tener una enfermedad seria, no importa que le digan los médicos and las enfermeras que tiene que hacer, van a agarrarse la enfermedad de cualquier manera,

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

7. Cuanto tiempo vivo está predeterminado.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

8. Voy a morir cuando estoy destinado a morir.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

9. Mi salud está determinada por el destino.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

10. Mi salud es determinada por algo mas grande que yo mismo.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

11. Voy a agarrar enfermedades si tengo mala suerte.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

12. Mi salud es cuestión de suerte.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

13. Cuanto tiempo vivo es cuestión de suerte.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

14. Quedare saludable si tengo suerte.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

15. Todo lo que puede ir mal para mí lo va.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

16. Tendré mucho dolor por enfermedad.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

17. Sufriré mucho por mala salud.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

18. Muchas veces me siento desamparado al tratar con los problemas de la vida.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

19. A veces siento que estoy siendo atropellado en la vida.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

20. Realmente no hay forma que yo puedo solucionar algunos de los problemas que tengo.

Fuertemente en desacuerdo	En desacuerdo	Ni de acuerdo ni en desacuerdo	De acuerdo	Fuertemente en acuerdo
1	2	3	4	5

Appendix H: Latino Spiritual Perspective Scale

Directions: The following questions are designed to gain an understanding of your spiritual beliefs and practices. Please circle the answer that best describes how much you agree or disagree. There is no right or wrong answers.

1. I often think about the meaning of my life.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

2. I believe God (or a Higher Power) is loving and kind.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

3. I feel grateful for the gifts in my life.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

4. I feel close to God or my Higher Power.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

5. Talking every day with God or my Higher Power is important to me.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

6. When bad things happen to me, it means God or my Higher Power is teaching me an important lesson.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

7. I feel close to the Virgin Mary.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

8. Talking everyday with the Virgin Mary is important to me.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

9. My religion or spirituality guides me to do what is right.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

10. I feel close to my saints.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

11. Talking everyday with my saints is important to me.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

12. I depend on God or my Higher Power to help me with my problems.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

13. At least once a month I work to help my church or community.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

14. When loved ones die, I feel my relationship with them continues.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

15. I feel close to Our Lady of Guadalupe.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

16. Talking everyday with Our Lady of Guadalupe is important to me.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

17. I depend on Jesus to help me with my problems.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

18. Doing something about injustice in the world is an important part of my religion or spirituality.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

19. When something terrible happens I feel angry with God/Higher Power.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

20. I depend on the Virgin Mary to help me with my problems.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

21. Helping my family is an important part of my religion or spirituality.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6\

22. I feel close to Jesus.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

23. Talking every day with Jesus is important to me.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

24. I believe God/Higher Power punishes me when I do something wrong.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

25. I depend on Our Lady of Guadalupe to help me with my problems.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

26. My well - being is in God's/Higher Power's hands.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

27. It's pointless to try to figure out the purpose of life.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

28. I depend on my saints to help me with my problems.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

29. I still feel close to loved ones who are deceased.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

30. My spirituality helps me get through bad times.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

31. It is up to me to solve my own problems.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

32. My religion or spirituality helps me understand why there is suffering in life.

Disagree strongly	Disagree	Disagree a little	Agree a Little	Agree	Agree Strongly
1	2	3	4	5	6

What is your religious affiliation/preference?

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ESCALA DE LA PERSPECTIVA ESPIRITUAL LATINO

Direcciones: Las siguientes preguntas han sido preparadas para entender sus creencias y prácticas espirituales. Por favor, marque las respuesta que Ud. Piensa mas refleja su opinión. No hay respuesta que sea correcta o incorrecta.

1. Muchas veces yo pienso en el significado de mi vida.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

2. Creo en Dios (o un Poder Superior) que es amable y cariñoso.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

3. Agradezco los regalos en mi vida.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

4. Me siento cerca a Dios o mi Poder Superior.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

5. Para mí es importante hablar con Dios o mi Poder Superior todos los días.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

6. Creo que cuando me pasan cosas malas, Dios o mi Poder Superior me está enseñando una lección importante.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

7. Me siento cerca a la Virgen María.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

8. Para mí es importante hablar con la Virgen María todos los días.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

9. Mi religión o espiritualidad me guía a hacer lo que es correcto.

- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
10. Me siento cerca a mis santos.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
11. Para mí es importante hablar con mis santos todos los días.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
12. Yo dependo de Dios o mi Poder Superior para ayudarme con mis problemas.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
13. Trabajo para ayudar a mi iglesia o comunidad por lo menos una vez por mes.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
14. Cuando mueren queridos, siento que mi relación con ellos continua.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
15. Me siento cerca a Nuestra Señora de Guadalupe.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
16. Para mí es importante hablar con Nuestra Sra.de Guadalupe todos los días.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|

- | | | | | | |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
17. Yo dependo en Jesús para ayudarme con mis problemas.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
18. Una parte importante de mi religión o espiritualidad es hacer algo sobre la injusticia del mundo.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
19. Cuando algo terrible pasa siento coraje con Dios o mi Poder Superior.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
20. Yo dependo de la Virgen María para ayudarme con mis problemas.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
21. Una parte importante de mi religión o espiritualidad es ayudar a mi familia.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
22. Me siento cerca a Jesús.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |
23. Para mí es importante hablar con Jesús todos los días.
- | | | | | | |
|------------------------------------|------------------------|--------------------------------|-----------------------------|---------------------|-------------------------|
| Estoy fuertemente
En desacuerdo | Estoy en
desacuerdo | Estoy un poco
en desacuerdo | Estoy un poco
de acuerdo | Estoy de
acuerdo | Estoy muy
de acuerdo |
| 1 | 2 | 3 | 4 | 5 | 6 |

24. Creo que Dios/Poder Superior me castiga cuando hago algo mal.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

25. Yo dependo de Nuestra Señora de Guadalupe para ayudarme con mis problemas.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

26. Mi bienestar está en las manos de Dios/Poder Superior.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

27. Es inútil tratar de determinar el propósito de la vida.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

28. Yo dependo de mis santos para ayudarme con mis problemas.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

29. Todavía me siento cerca a queridos que han fallecido.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

30. Mi espiritualidad me ayuda durante tiempos malos.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

31. Cuento con yo mismo para resolver mis problemas.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

32. Mi religión o espiritualidad me ayuda a comprender porque hay sufrimiento en la vida.

Estoy fuertemente En desacuerdo	Estoy en desacuerdo	Estoy un poco en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy muy de acuerdo
1	2	3	4	5	6

¿Cuál es su afiliación religiosa/denominación?

Appendix I: Folk Healing Practices

Directions: Please indicate yes or no for the following statements

	Yes	No
1. It is possible to bewitch someone.		
2. I've been bewitched in the past.		
3. Disease cannot be caused by witchcraft or evil spirits..		
4. I've been treated for <i>empacho</i> .		
5. My family and I have used the services of folk healers/ <i>curanderos</i> in the past.		
6. I've been treated by a folk healer/ <i>curandero</i> more than once.		
7. I'd like to take my child to a folk healer/ <i>curandero</i> if necessary.		
8. When I was young, I was treated for <i>susto</i> .		
9. When I was young, I was treated for evil eye.		
10. For some diseases, a folk healer/ <i>curandero</i> is better than a doctor.		

Instrucciones: Por favor, indique *Sí* o *No*, si usted está de acuerdo o desacuerdo con las siguientes afirmaciones

	Si	No
1. Es posible embrujar a alguien.		
2. He estado embrujado en el pasado.		
3. La enfermedad no puede ser causado por la brujería o los malos espíritus.		
4. Me han tratado de empacho.		
5. Mi familia y yo hemos utilizado a los servicios de curanderos en el pasado.		
6. He sido tratado por un curandero más de una vez.		
7. Me gustaría llevar a mi hijo a un curandero, si es necesario.		
8. Cuando yo era joven, fui tratado de susto.		
9. Cuando yo era joven, fui tratada de mal de ojo.		
10. Para algunas enfermedades, un curandero es mejor que un médico.		

Appendix J: Previous Experience with Cancer - English

1. Have you ever been diagnosed with cancer?

0 No 1 Yes

2. If yes, what type?

<input type="checkbox"/> 1 Breast	<input type="checkbox"/> 5 Uterine
<input type="checkbox"/> 2 Cervical	<input type="checkbox"/> 6 Bladder
<input type="checkbox"/> 3 Lung	<input type="checkbox"/> 7 Lymphoma
<input type="checkbox"/> 4 Colorectal	<input type="checkbox"/> 8 Other (specify)_____

3. Please described the outcome of the cancer diagnosis. _____

4. Do you personally know anyone who has been diagnosed as having cancer?

0 No 1 Yes

5. If “yes”, who?

1 Father, mother, sister, brother, son/daughter
 2 Husband]
 3 Uncle, aunt, grandfather, grandmother, brother/sister - in - law
 4 Friend

6. What happened to this person? _____

1. Ha sido usted alguna vez diagnosticada con cáncer?

0 No 1 Sí

2. Si, ¿Qué tipo?

<input type="checkbox"/> 1 Pecho	<input type="checkbox"/> 5 Uterino
<input type="checkbox"/> 2 Cervical	<input type="checkbox"/> 6 Vejiga
<input type="checkbox"/> 3 Pulmon	<input type="checkbox"/> 7 Linfoma
<input type="checkbox"/> 4 de colon	<input type="checkbox"/> 8 Otro (esplica) _____

3. Por favor, describe los resultados del diagnóstico _____

4. ¿Conoce usted personalmente a alguien que ha sido diagnosticado con cáncer?

0 No 1 Sí

5. ¿Quién?

1 Padre, madre, hermana, hermano, hijo/a

2 Esposo

3 Tío, tía, abuelo, abuela, cuñado/a

4 Amigo/a

6. Que paso con esta persona? _____

VITA

VITA

Ann Marie Hernandez

Education

- Internship: Audie L. Murphy VA Hospital
San Antonio, Texas
APA accredited
- Graduate: Purdue University
Indianapolis, Indiana
Clinical Rehabilitation Psychology Program
M.S., August 2007; Ph.D., August 2010
APA accredited
- Undergraduate: University of the Incarnate Word
San Antonio, TX
Summa Cum Laude
B.A., May 2004
Majors: Psychology & Sociology

Awards

- 2010 Purdue School of Graduate Studies Dissertation Award
- 2009 American Psychological Association, Division 38 Student Research Award
- 2009 IUPUI School of Science Quittner Dissertation Award
- 2008 Psi Alpha Omega, National Honor Society in Psychology for Students of Color and Students Interested in the Study of Ethnic and Cultural Issues

2007-2010	National Cancer Institute Behavioral Oncology Pre-doctoral Fellowship (R25)
2005-2010	Alliance for Graduate Education and the Professoriate Scholar (AGEP Scholar)
2005- 2007	Dean's Science Fellowship
2004	University of the Incarnate Word Outstanding Achievement of Psychology Award
2004	Kappa Gamma Pi, National Catholic College Graduate Honor Society
2003	The Society of Success and Leadership
2002-2004	Ronald E. McNair Scholar
2001-2004	League of United Latin American Citizens Rey Feo Scholarship
2001-2004	Psi Chi, National Psychology Honor Society
2002-2004	Alpha Chi Honor Society, National College Honor Society
2000-2004	University of the Incarnate Word Endowed Scholarship
2000-2004	University of the Incarnate Word Academic Scholarship
2000-2004	The Charles, Lela, and Mary Slough Foundation Scholarship
2000-2004	University of the Incarnate Word Dean's List
2000-2004	National Dean's List
2000-2004	Sigma Lambda Delta Honor Society
2000-2004	Who's Who among American Colleges and Universities
2000	Alpha Lambda Delta, First Year Student Honor Society

Clinical Experience

August 2008 - May 2009	Academic Student Appointment Fibromyalgia Clinical Research Center Indianapolis, Indiana Supervisor: Silvia M. Bigatti, Ph.D.
May 2008 - September 2008	Practicum Student CompleteLife Psychosocial Oncology Team Indiana University Simon Cancer Center (IUSCC) Indianapolis, Indiana Supervisor: Shelley Johns, Ph.D.

- September 2007 - May 2008 Practicum Student
 Larue D. Carter Memorial Hospital
 Indianapolis, Indiana
 Supervisor: Joan Farrell, Ph.D.
- June 2006 - January 2007 Practicum Student
 Indiana University, Department of Medicine
 Indianapolis, Indiana
 Supervisor: Silvia M. Bigatti, Ph.D.
- September 2005
 – December 2006 Practicum Student
 Psychiatry Department
 Indiana University
 Indianapolis, Indiana
 Supervisor: Dan Rexroth, Psy.D.

Thesis Research

- Hernandez, A.M. & Bigatti, S.M. (2010). *Difference between older Mexican-American caregivers and noncaregivers in depression*. *Cultural Diversity and Ethnic Minority Psychology*, 16, 50-58.

Dissertation Research

- Hernandez, A.M. (2010). *Illness representations of breast cancer among Hispanics*.

Publications

- Hernandez, A.M. & Bigatti, S.M. (2010). *Difference between older Mexican American caregivers and noncaregivers in depression*. *Cultural Diversity and Ethnic Minority Psychology*, 16, 50-58.

Bigatti, S.M., Hernandez, A.M., Cronan, T.A., & Rand, K.L. (2008). Sleep disturbances in fibromyalgia: Relations to pain and depression. *Arthritis Care and Research*, 59, 961-967.

Paper Presentations

Velásquez, J.M., Hernandez, A.M., Salinas, C., Schneegans, S., & Vontur, M. (2005, May). From classroom to service learning to agency change: How undergraduates can shape socially responsive agencies. Paper presented at the Psychologists for Social Responsibility Conference, Lewis & Clark College, Portland, OR.

Velásquez, J.M., Hernandez, A.M., & Garcia, J.C. (2004, November). Hypnotizability of patients with chronic back pain. Paper presented at the National Conference of Undergraduate Research, Indianapolis, IN & the Sixth Annual Texas National McNair Scholars Research Conference in Denton, TX.

Velásquez, J.M., Hernandez, A.M., & Garcia, J.C. (2004, April). Hypnotizability of patients with chronic back pain. Paper presented at the Western Psychological Association Conference, Phoenix, AZ.

Velásquez, J.M., Hernandez, A.M., Vontur, M., & Schneegans, S. (2004, April). Effectiveness of parent training/mentoring, and school consultation on academic performance in a community based partnership. Paper presented at the Western Psychological Association Conference in Phoenix, Arizona.

Invited Presentations

Bigatti, S.M., Hernandez, A.M., & Johnston, E. (2009). Cancer and Couples Can we understand one without the other? Research Presentation at the IU Cancer Center CRO Educational Series, Indianapolis, Indiana.

- Bigatti, S.M. & Hernandez, A.M. (2009). Psychosocial Characteristics of Cancer Patients and their Husbands. Research Presentation made to MRISP Scholars Program, San Diego State University, San Diego, California.
- Bigatti, S.M. & Hernandez, A.M. (2008, May). Breast cancer and couples. Research Presentation made to the Indianapolis VA Medical Center and the Cancer Control Program of the Indiana University Cancer Center, Indianapolis, IN.
- Johnston, E.L., Hernandez, A.M., Sledge, G.W., & Bigatti, S.M. (2008, February). Depression in advanced breast cancer patients: The role of relational variables. Invited presentation at the 2008 IUPUI Foundation Luncheon, Indianapolis, IN.
- Velásquez, J.M., Hernandez, A.M., Schneegans, S., & Vontur, M. (2004, April). How university and community partnerships meet APA (2002) undergraduate goals and outcomes. Presentation at the Western Psychological Association Conference, Phoenix, AZ.
- Velásquez, J.M., Hernandez, A.M., & Salinas, C. (2002, December). Strategic and tactical approaches to managing construction and teaching activities for a Department of Housing & Urban Development, Hispanic Serving Institutions Assisting Communities grant. Invited address to HUD HSIAC New Directors Conference, Washington, D.C.
- Velásquez, J.M., & Hernandez, A.M. (2002, December). Strategic and tactical approaches to managing construction and teaching activities for a Department of Housing & Urban Development, Hispanic Serving Institutions Assisting Communities grant. Invited presentation to the National HUD HSIAC Directors Meeting, Office of University Partnerships, San Antonio, TX.

Poster Presentations

- Johnston, E.L., Hernandez, A.M., Sledge, G.W., & Bigatti, S.M. (2009). Depression in advanced breast cancer patients: The role of relational variables. Poster presented at the Society of Behavioral Medicine's 30th Annual Meeting and Scientific Sessions, Montreal, Canada.
- Johnston, E.L., Wagner, C.D., Hernandez, A.M., Sledge, G.W. & Bigatti, S.M. (2009). Matching of cognitive appraisals and the psychological impact on couples facing advanced breast cancer. Accepted poster presentation at the Multinational Association of Supportive Care in Cancer, Rome, Italy.
- Johnston, E.L., Hernandez, A.M., Wagner, C.D., Miller, K. D., & Bigatti, S.M. (2009). Primary cognitive appraisals and the impact on illness adjustment, psychological distress, perceived social support and marital satisfaction in advanced breast cancer couples. Accepted poster presentation at the International Psycho-Oncology Society, Vienna, Austria.
- Johnston, E.L., Hernandez, A.M., Sledge, G.W., & Bigatti, S.M. (2009, March). Depression in advanced breast cancer patients: The role of relational variables. Poster presentation at the Society of Behavioral Medicine's 30th Annual Meeting and Scientific Sessions, Montreal, Canada.
- Hernandez, A.M., Bigatti, S.M., Sledge, G.W., Johnson, E. & Sweat, L. (2008, March). Differences in cognitive appraisals between initial diagnosis and recurrent breast cancer patients. Poster session presented at the Society of Behavioral Medicine's 29th Annual Meeting and Scientific Sessions, San Diego, CA.
- Lydon, J.R., Hernandez, A.M., Miller, K., & Bigatti, S.M. (2008, March). Religious Coping Predicts Psychological Distress and Marital Satisfaction in Husbands of Breast Cancer Patients. Poster session presented at the 29th Annual Meeting of the Society of Behavioral Medicine, San Diego, CA.

- Johnston, E.L., Hernandez, A.M., Sledge, G.W., & Bigatti, S.M. (2008, March). Predictors of marital satisfaction in breast cancer patients and their partners. Poster session presented at the 29th Annual Meeting of the Society of Behavioral Medicine, San Diego, CA.
- Hernandez, A.M. & Bigatti, S.M. (2007, December). Appraisals, coping and distress among couples dealing with breast cancer. Poster session presented at the 30th Annual San Antonio Breast Cancer Symposium, San Antonio, TX.
- Lydon, J.R., Hernandez, A.M., & Bigatti, S.M. (2007, March). Marital Satisfaction in Husbands of Patients with Fibromyalgia Syndrome. Poster session presented at the 28th Annual Meeting of the Society of Behavioral Medicine, Washington, D.C.
- Hernandez, A.M., Bigatti, S., Cronan, T.A. (2007, March). Sleep disturbances in fibromyalgia: Relations to pain and depression. Poster session presented at the Society of Behavioral Medicine's 28th Annual Meeting and Scientific Sessions, Washington, D.C.
- Hernandez, A.M., Bigatti, S.M., & Lopez, L. (2007, March). Mammography screening in Latino women: Using the health beliefs model. Poster session presented at the American Psychosocial Oncology Society (APOS) 4th Annual Conference, Austin, TX.
- Hernandez, A.M., Lee, T.S., & Bigatti, S.M. (2007, March). Caregiver burden predicts well being in husbands of breast cancer patients. Poster session presented at the 4th Annual Conference of the American Psycho-Oncology Society, Austin, Texas.
- Hernandez, A.M., Steffens, R., Bigatti, S. (2007, March). Depression among Mexican-American caregivers. Poster session presented at the Society of Behavioral Medicine's 28th Annual Meeting and Scientific Sessions, Washington, DC.

Hernandez, A.M., & Bigatti, S.M. (2006, April). Relationship between fatalism, perceived health, and breast cancer beliefs among Hispanic women. Poster session presented at the 7th Annual IUPUI Symposium Highlighting the Research of Faculty, Staff, and Students of Color, Indianapolis, IN.

Hernandez, A. M. & Bigatti, S.M. (2006, April). The relationship between fatalism and perceived health and breast cancer beliefs among Hispanic women. Poster session presented at the Indiana Psychological Association Conference, Indianapolis, IN.

Professional Memberships

2009- present	APA Division 18- Psychologists in Public Service, Student Member
2009- present	Bexar County Psychological Association, Student Member
2008 – present	American Association of Hispanics in Higher Education
2008- present	APA Division 38- Health Psychology, Student Member
2007- present	National Latino Psychological Association, Student Member
2007 – present	APA Division 45- Society for the Psychological Study of Ethnic Minority Affairs
2006- present	Midwestern Psychology Association, Student Affiliate
2006- present	American Psycho-Oncology Society, Student Member
2005 – present	American Psychological Association, Student Affiliate
2005 – present	Society for Behavioral Medicine, Student Member

Teaching Experience

Fall 2007	Seminar in Teaching Psychology
Spring 2007	Psychology Capstone Course (undergraduate level course)
Fall 2006	Preparing Future Faculty (PFF) Participant
Spring 2006	Stress and Health (undergraduate level course)

Workshops/Conferences Attended

2008	Behavioral Cooperative Oncology Group
2008	Data Analysis Training Institute of Connecticut

2007	Motivational Interviewing Workshop
2007	Behavioral Cooperative Oncology Group
2006-2008	Society of Behavioral Medicine
2006, 2007	American Psycho-oncology Society
2006	7th Annual IUPUI Symposium Highlighting the Research of Faculty, Staff, and Students of Color
2006	CIC Institutions Summer Research and Graduate School Forum
2005	National Conference for Undergraduate Research
2004	Western Psychological Association