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Cultural Value Orientations, Attributions, and  
Breast Cancer Screening Behaviors

by

Patricia M. Flynn

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A Thesis submitted in partial satisfaction of  
The requirements for the degree of  
Master of Arts in Experimental Psychology

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September 2004

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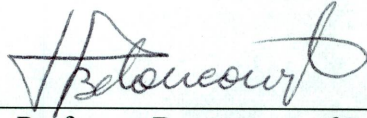
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## ACKNOWLEDGEMENTS

I would like to express my heartfelt appreciation to my mentor and chairperson, Hector Betancourt, Ph.D. His continuous support, encouragement, and patience with this project have irrefutably influenced my education and career path in psychology. I am also very grateful to Kelly Morton, Ph.D. and Michael Galbraith, Ph.D. for their helpful comments and recommendations with this research project. Finally, I would like to thank Ann Bradshaw and Shari Lane for their assistance and good wishes.

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## ABSTRACT OF THE THESIS

### Cultural Value Orientations, Attributions, and Breast Cancer Screening Behaviors

by

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Master of Arts, Graduate Program in Psychology  
Loma Linda University, September 2004  
Dr. Hector Betancourt, Chairperson

Discrepancies in breast cancer screening behavior exist among various ethnic groups in the United States (Jacobs & Lauderdale, 2001), with Latino American women reporting particularly low screening rates in comparison to Anglo American women (ACS, 2002). Research indicates that behavior is in part influenced by aspects of culture and relevant psychological processes (Betancourt & Lopez, 1993; Betancourt & Fuentes, 2001). This study was designed to investigate the relations among cultural values, attributional processes, and breast cancer screening behavior among Anglo and Latino women. This study also investigated the influence of acculturation among Latino women in relation to the other study variables. The Value Orientation Scale (Betancourt & McMillin- Williams, 2003), the Revised Causal Dimension Scale (McAuley, Duncan, & Russel, 1992), the Behavior Risk Factor Surveillance System Questionnaire (CDC, 1997), and Stephenson's Multigroup Acculturation Scale (Stephenson, 2001) were used for the study. Bentler's (1995) analysis of structural equations (EQS) program was used to test a model of the relations among culture, attributions, and breast cancer screening behaviors resulting in a good fit of the data. Level of acculturation had little effect on the study variables.

## Introduction

Practicing early detection facilitates a favorable prognosis and recovery for breast cancer patients (Kattlove, Liberati, Keeler, & Brook, 1995; Kerlikowske, Grady, Rubin, Sandrock, & Ernster, 1995). Research however indicates that Latino women are disproportionately underutilizing the health care system, therefore contributing to ethnic disparities in breast cancer stage presentation, treatment outcomes, and mortality rates due to breast cancer (Calle et al., 1993; Fox & Roetzheim, 1994; Jacob & Lauderdale, 2000; Stein, Fox, & Murata, 1991). Past research has focused on biological and genetic factors responsible for these ethnic disparities, however the findings have provided little insight regarding the cause of such disparities (Axtell & Myers, 1978; Dennis, Gardner, & Lim, 1975; Gregorio, Cummings, & Michalek, 1983). Contemporary researchers are beginning to examine behavioral and environmental factors that may underlie ethnic differences in health practices and outcomes (Pollack, 1984).

Some cross-cultural research has been conducted in relation to preventive health behaviors, however these studies have been fraught with methodological limitations including inappropriate ethnic classification systems and the use of inadequate cultural value orientation measures. Since health and illness are largely interpreted according to one's cultural background, properly investigating the influences of culture can provide insight into this public health concern by contributing to intervention developments aimed at improving breast cancer screening rates.

The goal of the present study is to investigate how culturally specific value orientations and psychological processes relevant to perceptions of causation and controllability of breast cancer influence Latino and Anglo women's screening behaviors.

Because research indicates these cognitive elements are influenced by culture and in turn determine behaviors (see Betancourt, Harding, & Manzi, 1992; Betancourt & Lopez, 1993; Betancourt & Weiner, 1982); therefore it is appropriate to study these concepts within the context of cancer screening practices. In particular, the purpose of this research is to examine how cultural value orientations, such as fatalism, influence the cognitive processes of attribution to lead to preventive health behaviors. Such an investigation will help us to fully comprehend ethnic variations in breast cancer screening.

Guided by the attribution theory of motivation, it is proposed that variations in breast cancer screening behavior are a function of cognitive processes concerning perceived causes of breast cancer and cultural antecedents such as value orientations and acculturation. Specifically, cultural value orientations such as control versus subjugation to nature are believed to influence breast cancer screening behaviors through attributional processes. In addition, for Latino women, attributional processes and related health behaviors will be influenced by level of acculturation.

The following literature review provides the empirical and theoretical foundation for the proposed study concerning the influence of cultural value orientations on breast cancer screening behaviors. First, an overview of breast cancer and the importance of screening practices is provided followed by research on ethnic variations in health behaviors. Then the nature and role of the cultural variables, such as fatalistic value orientations and level of acculturation are discussed in relation to these discrepancies. Lastly, the guiding theoretical perspective of attribution will be described in relation to the proposed study. Relevant aspects of the Latino culture are highlighted throughout the

literature review to provide a better understanding of the values and beliefs which may influence psychological processes such as attributional thinking and consequently the practice of preventive health behaviors.

### *Breast Cancer and Screening Behavior*

Cancer is the second leading cause of death in the United States with breast cancer being the most commonly diagnosed type of cancer for women across all ethnic groups (Chang, Kerlikowske, Napoles-Springer, Posner, Sickles, & Perez-Stable, 1996; Meyerowitz, Richardson, Hudson, & Leedham, 1998). It is estimated that 12.8% of all women or one in eight women will be diagnosed with breast cancer during their lifetime (American Cancer Society, 2001). The American Cancer Society (2001) has estimated that nearly 192,200 newly diagnosed cases of breast cancer will be reported in 2001 and close to 40,200 women will die due from this disease. Given these statistics, it is apparent that the need to improve breast cancer screening rates is a major public health concern.

Practicing regular breast cancer screening behavior can actually extend life, reduce the severity and longevity of treatment, and improve the quality of life of women diagnosed with cancer. According to the American Cancer Society ([www.cancer.org](http://www.cancer.org)), women aged 40 and older should have a screening mammogram every year. Between the ages of 20 and 39, women should have a clinical breast examination by a health professional every 3 years. After age 40, women should have a breast exam by a health professional every year. In addition, women aged 20 or older should perform breast self-examinations (BSE) every month.

The current 5-year survival rate for cancers which can be detected through screening methods is 77%, however if Americans engaged in regularly scheduled

screenings this number would increase to greater than 95% (McDonald, 2001). Through the use of mammography, breast self-examinations, and clinical breast examinations, mortality rates could be reduced by 30% to 40% (National Cancer Institute, 1991). However, researchers have found discrepancies in cancer screening rates based on ethnicity, consequently placing certain populations at a greater risk for later stage diagnosis and higher mortality rates.

#### *Ethnicity and Breast Cancer Screening Behavior*

Disparities in cancer incidence, screening, stage distribution, and mortality exist between various ethnic groups in the United States (Jacobs & Lauderdale, 2000). Although Latino women are less likely to be diagnosed with breast cancer, they are more likely to be diagnosed at a later stage compared to non-Latino White women (Chen, Trapido, & Davis, 1994). Although these rates are more favorable for the Latina population, an estimated 1,800 deaths due to this disease are expected in 2001 (American Cancer Society, 2001). It is expected that the Latino population will be the largest ethnic minority in the U.S. and in some cities Latinos will likely be in the majority by the end of the decade (Hedeem & White, 2001) Thus, screening behavior for this group is of increasing concern for health care reform.

While the link between ethnicity and cancer screening behavior has been noted in several studies, the nature of the relationship appears to depend on the type of screening. Stronger, more consistent relationships have been found for the correlation between ethnicity and cervical cancer screening whereas mixed results have been found when linking ethnicity with breast cancer detection screening behaviors.

Several national studies have been used to examine the relation between ethnicity and breast cancer screening behavior. According to the National Health Interview Survey from 1987, Latinas were significantly less likely than non-Latino whites to report ever having a mammogram even after adjusting for age, income, and education (Calle et al., 1993). On the other hand, an analysis of the data from the 1986 Access to Care Survey indicated no significant relationship between ethnicity and mammography usage after controlling for similar variables (Hayward, Shapiro, Freeman, & Corey, 1988). Breen and Kessler (1994) reported similar nonsignificant findings in their analysis of mammography usage in the 1990 NHIS data. They did however find that fewer Latinas reported having a clinical breast exam.

There are several methodological limitations in these large, national studies. Because most surveys during this time did not ask questions regarding specific Latino ethnicity, subjects were classified by matching their surname with a Spanish surname list. This categorization system is by no means a reliable or valid measure of ethnicity since women may marry outside their ethnic group and acquire their husband's name (Jacobs, et al., 2000). Furthermore, intra-ethnic differences are likely to exist and be obscured by aggregating all Latinas into one group. For instance in an subgroup analysis of the 1987 NHIS data, 100% of Mexican Americans reported never having a mammogram whereas 86% of Cuban women reported never having a mammogram (Caplan, Wells, Haynes & 1992).

While some smaller studies with similar, less valid ethnic classification systems support the findings of Hayward et al. (1988) and Breen and Kessler (1994), other researchers employing more accurate ethnic classification systems have found support for

the relationship between ethnicity and breast cancer screening. For instance Stein, Fox, and Murata (1991) found direct, independent effects for ethnicity on mammography use in a sample of self-identified African American, Latino, and Anglo women. Moreover, Fox and Roetzheim (1994) noted that only 39% of Latinos reported having mammography within the past year whereas 60% of non-Latino Whites had a mammogram performed. These findings indicate a clear disparity between recommended utilization by the health-care community (1 exam a year after 40) and actual rates for breast cancer screening within the Latina population.

#### *Ethnicity and Late Stage Diagnosis*

Although studies examining breast cancer screening behaviors have reported inconsistent results, several studies have found later stage diagnoses in Latino women (Chen et al., 1994; Hedeem et al., 2001) even after controlling for SES (Richardson, Marks, Solis, Collins, Birba, & Hisserich, 1987). The large scale, Surveillance, Epidemiology, and End Results (SEER) program that examined four regions from 1992 until 1995 (Hedeem et al., 2001), found that Latino women were diagnosed at later stages compared to non-Latino women, reporting a higher percentage of large cancer tumors. Seventy-eight percent of Latino women reported tumors larger than 1 cm and 46% had tumors larger than 2 cm, whereas non-Latino Whites reported 70% and 33% respectively. Furthermore, women born in Latin America had an even higher incidence of smaller and larger sized tumors (82% and 54%) compared to Latino women born in the United States (75% and 41%).

Similarly, after adjusting for age, family history of breast cancer, reports of palpable mass, and income, Latino women reported a longer time lapse between



abnormal breast diagnosis and follow-up procedures compared to Anglo women (Chang, Kerlikowski, Napoles, Posner, Sickles, & Perez-Stable, 1996). Given that diagnosis of cancer at an early stage is the most important prognostic indicator of survival, timeliness of breast cancer screening and follow-up after abnormal screening results are crucial.

It is apparent from the reviewed studies that the relationship between ethnicity, screening behavior and follow-up is complex. Results tend to differ by screening test, immigration status, and by the definition of ethnicity employed in the study. There is little evidence for a direct link between ethnicity and breast cancer screening, however, ethnicity may serve as a proxy for other culturally relevant variables.

*Ethnicity and Culture.* A major limitation of the studies to date is the assumption that ethnicity or race are the direct determinants of variations in behavior. While it is true that culture is highly associated with ethnicity, it is culture, not race, or any other grouping factor that influences behavior. Moreover, since psychological processes are more proximal determinants of behavior, the influence of culture on behavior is mediated by its effect on the psychological determinants (Betancourt & Lopez, 1993). Hence, a clear distinction between culture and ethnicity is necessary in order to understand ethnic variations in health behavior. Specifically, identifying what about culture influences health behavior and how these cultural factors relate to the corresponding mediating psychological processes are important to fully understand ethnic, racial, or SES variations in health behavior.

According to Betancourt and Lopez (1993), while ethnicity is used in reference to groups that are characterized in terms of common nationality or language, culture can be conceived in terms of social norms, roles, beliefs, and values. These elements include a

wide range of topics such as familial roles, communication patterns, affective styles, and values regarding personal control, individualism, collectivism, spirituality, and religiosity. According to these authors, behavior is influenced by psychological processes which, among other things, are influenced by culture, it is culture and how it relates to psychological processes and behavior, not ethnicity or any other grouping factor, that will facilitate an understanding of health behavior in a multi-ethnic society. Part of the rationale for this research is the examination of cultural variables (e.g. cultural beliefs or value orientation, such as mastery/subjugation to nature or fatalism), as well as their relationships to psychological processes relevant to behaviors that may result in a better understanding of ethnic group and individual variations in health behavior. In no way is it enough to simply compare groups (e.g. Anglo versus Latino American women) that are assumed to be different. We must measure the specific cultural constructs (e.g., fatalism and acculturation) in relation to the specific behavior in order to fully comprehend what is driving these ethnic differences in breast cancer screening behavior. Furthermore it is also important to recognize that cultural differences exist within ethnic groups (e.g., Latinos born in Central America vs. the United States).

### *Cultural Values and Health Beliefs*

Health and illness are largely interpreted according to one's cultural background (Spector, 1977). Western cultural groups view illness as a "person-centered, temporally bounded, and discontinuous" event (Fabrega, 1974, p. 198). The focus is on illness as an "episodic, intrapersonal deviation caused by microlevel, natural etiological agents such as genes, viruses, bacteria, and stress" (Landrine & Klonoff, 1992, p. 267). Consequently U.S. health care workers describe and treat diseases without reference to the family,

community, or gods. Alternatively, according to Landrine and Klonoff (1992) several cultural groups (e.g., some Latinos) view disease and illness as an interpersonal process. Illness is viewed as a "long-term, fluid, and continuous manifestation of long-term and changing relationships and dysfunctions in the family, the community, or nature as well as in the relationship between the individual and any of these" (p. 268). Health care providers who are unaware of these cultural beliefs may have difficulty making a correct diagnosis and in providing effective treatment strategies for these ethnic groups (Landrine, 1992).

The Latino worldview includes a complex belief system about the etiology, symptom expression, and treatment of illnesses that affect health care utilization (Fishman, Bobo, Kosub, & Womeodu, 1993; Freidenberg & Jimenez-Velasquez, 1992; Pachter, 1993, 1994). These cultural beliefs include the influence of supernatural forces, punishment from God, spiritual imbalance, and a lack of faith (Freidenberg & Jimenez-Velasquez, 1992; Pachter, 1993, 1994; Zea, Quezada, & Belgrave, 1997). An underlying theme representative of Latino health beliefs is the importance placed on harmony and balance (Koss-Chioino, 1995). Latinos may believe for example, that good deeds will be rewarded and bad deeds punished by a deity or other force, a concept often referred to as equity (Murguia, Zea, Reisen, Peterson, 2000). They regard illness in a highly fatalistic manner; maintaining that the outcome is entirely in God's hands and that there is little or nothing they can do. Therefore it goes against their cultural beliefs to engage in preventive health behaviors or to aggressively treat disease. In fact, many Latino's seek medical help only when severely ill, however at this point successful treatment may be much less likely (U.S. Department of Health and Human Services, 1991).

*Cancer Beliefs and Latinos.* Latino men and women's health beliefs about cancer diagnosis and treatment, specifically, are quite discouraging for health care professionals working in the field of illness prevention. Frank-Stromborg and Olsen (1988) researched the correlations between individual health beliefs and health practices by organizing focus groups of Latino nurses who work with minority patients. Their findings suggest that Latino men and women believe cancer is a death sentence, that cancer engenders great fear, that there is stigma surrounding cancer, and that cancer is God's punishment for sins, (e.g., "I deserve to suffer, I was bad). These health beliefs were in turn related to health practices such as forbidding health care workers to mention the diagnosis in front of the patient, encouraging patient denial, and offering penance and prayer to heal the cancer. Latino nurses felt their patients believed cancer was caused by many things and therefore was difficult to prevent. They felt that going to see a health care professional would serve no purpose in dealing with cancer, a finding which may explain the underutilization of screening practices in this group.

In light of cultural differences in health beliefs concerning the causes and treatment of illness, the predominant approach used in the U.S. may not be the most appropriate method for increasing breast cancer screening behaviors. Because cultural beliefs impact psychological processes relevant to women's health behaviors, it is imperative that specific cultural factors be identified and understood in order to better comprehend the psychological processes that lead to screening behaviors. Without further consideration of cultural value orientations, underutilization of preventive services will continue to be unexplained and successful interventions will remain unlikely for Latinos. The aim of this proposal is to contribute to a better understanding of the variables of

fatalism and cultural value orientation, which may influence Latino women's breast cancer screening behaviors and investigate theoretically relevant mediating psychological processes (e.g., attribution and motivation).

*Control vs. Subjugation to Nature. Fatalismo*, the belief that there is little an individual can do to alter fate is an important culturally transmitted value orientation (Perez-Stable et al., 1992). This culturally held value has been described on a continuum between mastery, or "control over nature", and fatalism, or "subjugation to nature" (Kluckhohn & Strodtbeck, 1961). The contemporary view explains fatalism as one's general perception of life based on the belief that life events are inevitable and that one's destiny is not within one's own hands (Davison, Frankel, & Smith, 1992). Fatalism places control outside of the individual and often times in the hands of a metaphysical force such as "God". However, fatalism primarily measures perceived control rather than supernatural beliefs. Fatalistic perspectives promote a complex psychological process marked by feelings of fear, predetermination, pessimism, and the inevitability of death (Chavez, Hubbell, Mishra, & Valdez, 1997; Powe, 1995). These beliefs which fit under the cultural theme of *fatalismo*, may explain why people in some ethnic groups engage less in preventive health behaviors.

Research indicates that Latino's are more likely to hold fatalistic beliefs compared to Anglos (Chavez, et al., 1997; Harmon, Castro, & Coe, 1996; Perez-Stable, et al., 1992; Suarez, et al., 1997;). United States Latinos' life orientation is characterized as including "negative attitudes and disorientation... with little motivation toward helping themselves" (Burma, 1970, p. 8). More than other groups (e.g. Anglos), Latinos are believed to be preoccupied with the present with little thought about the future. This fatalistic

orientation towards life thereby renders health promotion and illness prevention an anomaly. Some researchers have described Latinos as directing little effort at promoting and preserving good health. Unless the cause is readily evident, illness is thought to be a matter of destiny (Mirande & Enriquez, 1979). Because of this fatalistic perspective, illnesses, such as cancer, that do not present tangible symptoms, often go undetected or untreated (Gonzalez-Swafford & Gutierrez, 1983). Cancer fatalism, specifically, is the belief that death is inevitable when cancer is present (Powe, 1994) and includes the perception that participation in cancer screening will not change one's plight in life (Powe, 1995; Powe & Johnson 1994). These views may explain the research reporting lower mammography (Calle et al., 1993; Stein et al., 1991) and clinical breast exam utilization in Latino women (Breen & Kessler, 1994).

Most of the research on fatalism simply assumes that Latinos are more fatalistic in their cancer beliefs and explain ethnic differences by speculating on the role of culture, failing to properly assess cultural variations resulting from psychological processes relevant to fatalism and health behaviors. Moreover, when investigated, studies suggesting a relationship between screening behaviors and fatalistic beliefs usually involve serious methodological confounds. Lack of appropriate cultural measures and lack of theoretical foundation generally limit the validity and utility of results. For instance, one group of researchers investigating Latina's cervical cancer screening simply asked respondents to rank four statements which they assumed would be an inclusive measure of fatalism. In addition, the study does not reference any theoretical foundation as a premise for the generation of the fatalism measure. The statements used in this study include: "Fate is a risk factor for cervical cancer", "There is very little I can do to prevent

cervical cancer", "If found early, cervical cancer can be cured", and "If I had cervical cancer, I would rather not know", (Chavez et al., 1997). In order to obtain more reliable and valid findings, researchers must employ a more comprehensive measure of fatalism which includes several items that measure various aspects of the construct.

Suarez et al. (1997) created a fatalistic attitudinal scale toward cancer and found significant correlations with cervical cancer screening, however they were not able to confirm the correlation between fatalism and mammography usage. The respondents were simply asked if they agreed with a series of five generated questions which the authors assumed reflected a fatalistic value orientation, however the researchers failed to report any reliability or validity indices for the measure. A sample of the questions include; "cancer treatment is worse than the disease"; "just about anything can cause cancer"; "if I had cancer, I would not want to know"; "a person's chances of surviving cancer are poor"; and "I worry a lot about getting breast cancer". Moreover, no demographic information concerning the immigration status of the subjects was obtained. Because acculturation influences mammography usage (Suarez, 1994) and fatalistic attitudes (Chavez et al., 1997), it is crucial that researchers obtain this information to fully understand the cultural influences on this health behavior. From a psychological perspective, it is important that cultural variables are appropriately measured and their relationships to the psychological processes responsible for variations in the corresponding behaviors be statistically tested (Betancourt & Lopez, 1993).

A more comprehensive study examined the level of acculturation in knowledge about Pap smear exams, fear/fatalism towards cancer, and cervical cancer screening behaviors in a large group of Latino women from Pheonix (Harmon, et al., 1996).

Researchers developed a fatalism questionnaire incorporating the concepts of perceived risk, perceived lack of control, and fearful expectations towards cancer, which was then tested for reliability ( $\alpha = .62$ ). Multivariate analysis indicated that fear/fatalism towards cancer ( $r = -.30, p < .01$ ) was the best predictor of recency of Pap smear examination followed by insurance status ( $r = .28, p < .05$ ). These results suggest that beyond structural barriers, a measure of fatalistic value orientation has important effects on Latino women's Pap smear examination history.

Powe (1994) developed a comprehensive and fairly accurate measure for cancer fatalism in an analysis of cultural beliefs and screening behavior. The Powe Fatalism Inventory, which includes 15 questions, was developed to capture the attributes of fear, predetermination, pessimism, and inevitability of death. The questionnaire was administered to a large sample of African American subjects to examine their decision to participate in colorectal cancer screening. The study tested the Powe Fatalism Model which suggests that demographic factors such as race, age, gender, education, and income, as well as cancer fatalism, and knowledge of colorectal cancer have a direct relationship with screening behavior. Powe found support for a significant relationship between race and cancer fatalism, and cancer fatalism and participation in colorectal cancer screening. In a subsequent analysis (Powe, 1995), results indicate that education, income, and knowledge of colorectal cancer are negatively correlated with cancer fatalism. These significant univariate relationships between demographic factors, fatalism, knowledge, and cancer screening behavior provide a basis for conducting future multivariate and more multivariate model development.



From a health psychology perspective, in order to better comprehend the underlying relationship between cultural value orientations and health behaviors, related psychological processes which may mediate this association need to be investigated. Although these studies examine the cultural beliefs of African Americans and not Latinos, comparative studies indicate that these two cultural groups are similarly more likely to report fear of radiation as a barrier to mammography usage compared to Anglos (Fox & Stein, 1991) and that Latinos are less knowledgeable than African Americans about cancer screening methods (Harlan, Bernstein, & Kessler, 1991). These findings suggest that we may find more powerful results when employing a similar psychometrically validated measure of fatalism with a Latino population of women. However, it should be noted that Powe's Fatalism measure is specific to colorectal cancer and does not explore general fatalistic value orientations as measured in a variety of life settings and situations. In order to fully comprehend the fatalistic value orientation, control over nature versus subjugation to nature should be measured across several life domains (e.g., work, interpersonal relationships, world affairs, financial & economic security, & health) and not be limited to specific illnesses.

As indicated, the problem in all breast cancer and fatalism studies, is that they attribute variations to group (e.g., race), but ignore the most relevant issue; why are the racial groups different? Disparities in health behaviors and outcomes are not the result of an individual's race or ethnicity. The conceptual foundation of fatalism as a value orientation may be the underlying cause for ethnic disparities in breast cancer screening rates.

In addition to the complexities associated with the role of culture in explaining ethnic variations in behavior, the role of acculturation must also be addressed.

Specifically, ethnic groups such as Latino Americans in the U.S. include families who have lived in the U.S. for several generations as well as recent immigrants and those who have just arrived from the various Latin American countries. As a consequence, there will be intra-group variability concerning cultural variables as a function of acculturation to mainstream Anglo American culture.

*Acculturation.* Variations in level of acculturation make it even more important to focus on actual cultural variables that may be relevant to the behavior one is interested in examining rather than simply examining ethnic group variations. Acculturation is the process of cultural adaptation that occurs when groups from different cultural backgrounds interact causing changes in the cultural patterns of either or both groups (Linton, 1940). Acculturation is a complex, multidimensional process of learning ranging on a continuum from low levels of acculturation, where the individual is not very influenced by the host culture, to high levels of acculturation, where there is a great deal of immersion in the dominant culture (Stephenson, 2000). Since health beliefs and their relationship to health behaviors are influenced by one's culture, it is important to investigate the degree to which such beliefs may change as a function of acculturation.

Research indicates that level of acculturation may serve as a mediating factor associated with cultural value orientations, such as fatalism (Balcazar, Castro, & Krull, 1995; Elder, Castro, de Moor, Mayer, Candelaria, Campbell, Talavera, & Ware, 1991; Harmon et al., 1996; Polednak, 1992). Moreover, some studies have found relationships between lower levels of acculturation, lower levels of health preventive behaviors

(Balcazar et al., 1995; Elder et al., 1991; Markides & Lee, 1991; Moyerman & Forman, 1992), and more fearful attitudes toward cancer (Chavez et al., 1997; Harmon et al., 1996). For instance, lower acculturated Latinas reported less knowledge about Pap smears, were more fatalistic, and exhibited lower utilization rates for cervical cancer screening (Harmon et al., 1996).

More recently, acculturation is viewed as an important framework for understanding between and within ethnic group differences (Stephenson, 2000). For instance, within the Latino population there may be a wide array of within-group differences that may be due to one's geographical location in the U.S. and subsequently their differing experiences within the dominant American society. Although the authors (Chavez et al., 1997) did not use a scale for acculturation, one study which asked respondents their place of birth, found that recent Latina immigrants were more likely to hold fatalistic beliefs and were less likely to report having a Pap smear compared to Latina's born in the U.S.

While this information provides some insight into Latina health behaviors, such proxies of acculturation (e.g., place of birth) do not adequately reflect cultural health beliefs that influence health prevention behaviors. Since beliefs about health and illness that affect preventive health behaviors are culture bound, it is important to investigate to what extent such beliefs may change as a function of acculturation. However, to more effectively understand the role of culture and acculturation it is necessary to measure specific cultural variables, such as cultural beliefs, expectations, or value orientation, and their relationship to psychological processes, which in turn influence behavior. In addition, since the effect of cultural factors, as well as their variations associated with

acculturation, influence behavior through their effects on more immediate psychological determinants, the relationships between culture and a psychological process should help to contribute to the understanding of ethnic variations in health behavior. The following section deals with the relationships between cultural factors and psychological processes relevant to preventive behavior, such as attributions of causality and motivation.

*Psychological Processes Relevant to Screening Behavior: The Attribution Theory of Motivation.*

The attribution theory of motivation posits that motivational sequences are initiated following an event or outcome. Under certain outcomes, particularly those which are unexpected, negative, or important, a search for a cause or explanation is instigated which in turn influences one's emotions (Weiner, 1995, 1996). The causal judgment is located within a three-dimensional space including locus, stability, and controllability.

Fritz Heider (1958), the originator of attributional thinking, pointed to factors within the person (internal) and factors within the environment (external) as the most fundamental distinction between causes. This internal-external differentiation, termed *locus*, can be viewed on a bipolar continuum of causes in which actions and behaviors are reflected upon. Individuals who believe they are responsible for their outcomes (internal control) are more likely to take action to resolve the situation. However, individuals who believe outside forces have more control over their outcomes (external control) are consequently more passive when responding to situational demands (Rotter, 1966).

Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum (1971) further argued for the second dimension; *stability*. This dimension of causality addresses perceptions of

variance. Whether the cause is perceived as constant or variable over time influences expectancies about an individual's ability to perform specific behaviors (Weiner, 1992). The final dimension of causality, delineates between perceptions of control made by the individual, *personal control*, from those made by others, *external control* (Weiner, 1996). Many researchers have concluded that feelings of personal control, or the belief that an individual can overcome barriers effectively and act upon their environment, are extremely important in deterring undesirable psychological states and therefore behavioral consequences (Weiner, 1986; Weiner et al., 1992; & 1996).

Perceptions of control appear to be particularly important in the study of health promotion. Locus of control has received a considerable amount of attention in the literature on breast cancer screening behaviors. For instance, several studies have found that women who practice breast self-examination (BSE), tend to have higher internal control scores on the Multidimensional Health Locus of Control scale (MHLOC), whereas women with a high sense of powerful others control practice fewer BSEs (Bundek, Marks, & Richardson, 1993; Hallal, 1982; Murray & McMillan, 1993; Redeker, 1989). Furthermore, elderly Latino women who believe health outcomes are controlled by powerful others, are more likely to have a recent CBE and Pap smear (Bundek et al., 1993). These findings suggest that specific locus of control beliefs promote the practice of specific health promoting behaviors.

Perceptions of control also influence how individuals cope with chronic illnesses. For example, several studies with cancer patients have found that patients who believe they had control over their illness were more adjusted to their cancer than patients who did not hold this belief (Helgeson, 1992; Taylor, Lichtman, & Wood, 1984a; Thompson,

Nanni, & Levine, 1994). A similar study investigating causal attributions and feelings of control in myocardial infarction (MI) patients found that patients who attributed the cause of their illness to factors under their personal control were more likely to have made active plans for their recovery. However, patients who attributed the MI to external factors such as fate or bad luck were less likely to initiate any plans for recovery (Bar-On, 1987). Thus, control appears to not only influence health promoting behaviors such as screening practices but also plays an important role in coping and recovery from cancer and other illnesses.

In addition to perceptions of internal and external control, health-promoting behaviors crucial to the early diagnosis of breast cancer will be influenced by causal distinctions between whether the contraction of breast cancer is dependant on permanent factors and perceptions that these factors are controllable. Therefore, according to the theoretical framework of attribution and motivation, it is expected that the dimensions of stability and locus will influence breast cancer screening behaviors (eg., motivation and action associated with perceived stability of causes or a determinant of expecting success or failure).

Furthermore, health-promoting behaviors, such as screening practices, are a function of value and behavior expectancies (Kirscht, 1986). According to Weiner (1996), perceived stability of causes are important to expectancy change, which in addition to value is an important determinant of motivation and action. Weiner's theory of motivation and emotion holds that attributional thinking influences perceptions of value and outcome expectations. This suggests that the extent to which health is perceived as within the patients control is likely to influence the perceived value of

practicing health behaviors such as screening, and therefore in the case of breast cancer, early diagnosis. Similarly, in a study of elderly Latino women, motivation (attention to health information) and attributions of control were associated with BSE frequency. (Bundek, et al., 1993). Therefore, in order to perform a health promoting behavior, the individual must value their health, believe the behavior will promote health, and assume they are capable of performing that behavior.

Researchers also indicate that individual differences in perception moderate the likelihood of performing health behaviors (Ajzen, 1991; Becker & Janz, 1984; Christensen, Moran, & Wiebe, 1999; Redeker, 1988). For instance, if a woman highly values her health but does not believe that screening will help detect breast cancer or prevent death due to this disease, then she is less likely to practice regular screening. Health expectancies and values are though to be independent, however, an interrelationship between these antecedents of behavior may affect adjustments and therefore health outcomes. Therefore it is important to consider factors such as cultural value orientations (fatalism), which may influence individual and group differences in psychological processes associated with performing health behaviors.

Perceptions of illness causality and outcome expectations may be affected by culture (Betancourt, Harding, & Manzi, 1992; Betancourt & Lopez, 1993; Betancourt & Weiner, 1982). Several researchers examining breast cancer screening behaviors and perceptions of control in different ethnic groups have found a predominant external control orientation among Latino women compared to Anglos (Mirowsky & Ross, 1984; Sugarek, Deyo, & Homes, 1988). Consequently it is important to examine the cultural elements (such as fatalistic value orientation) that contribute to these ethnic variations in

perceptions of control, which in turn influence health promotion practices such as breast cancer screening behaviors.

Ethnic variations in behavior are a function of psychological processes, such as attributional thinking concerning the causes of behavioral outcomes, which are in turn influenced by factors such as cultural beliefs and values. Therefore, in order to fully understand the health behavior of a particular ethnic group, one must study the role of all of these variables as well as the relationships among them. The purpose of this research is to investigate the relationships between the fatalistic subjugation to nature value orientation in attributional thinking concerning controllability of causal attributions for breast cancer as determinants of preventive screening behavior among women of Anglo (non-Latino White) and Latino (Latin American of any race) ethnic backgrounds. In addition, the relationship between level of acculturation to the mainstream Anglo culture and the other variables in Latino women will also be investigated. In general, it is proposed that the fatalistic value orientation significantly influence screening behavior, both directly and through its mediating effect on perceived controllability of causal attributions for breast cancer among Latino and Anglo American women. Also, it is expected that in the case of Latino American women the level of acculturation to mainstream Anglo American culture will be significantly associated with the value orientation and the other variables of the study.



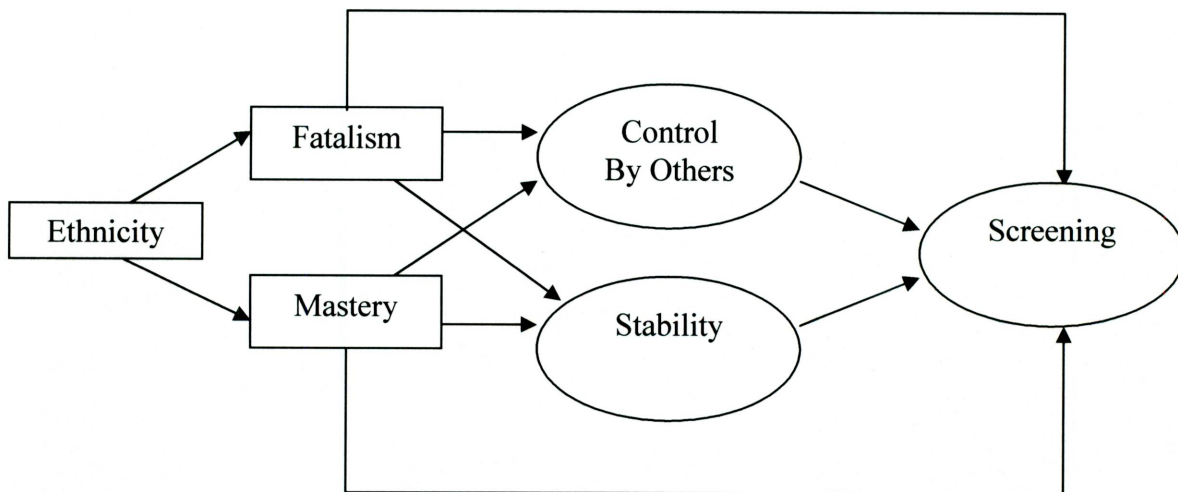


Figure 1. Conceptual Model for the general and specific hypotheses.

The following are the hypotheses to be tested.

#### *General Hypothesis*

A causal model integrating the relations among ethnicity, cultural value orientations, and attributional processes as determinants of breast cancer screening behaviors will fit the data.

#### *Specific Hypotheses*

1. There are differences between Anglo and Latino American women in value orientation, controllability and stability of causal attributions for breast cancer, and screening behaviors.
2. For both, Anglo and Latino American women, reported perception of controllability of the causes of breast cancer will be influenced by value orientation. Fatalism will be negatively correlated perceptions of controllability of causal attributions for breast cancer.

3. For both, Anglo and Latino American women, screening behavior will be influenced by value orientation, both directly and through the mediating effect on controllability of causal attributions for breast cancer. Fatalism will be negatively correlated with breast cancer screening behaviors.
4. For Latino American women, the level of acculturation will be associated with cultural value orientation as well as the perceived controllability and stability of the causes of breast cancer. Latinas with higher scores on acculturation will be negatively correlated with fatalism and positively correlated with perceptions of controllability.

## Methods

### *Participants*

A total of 159 women from Southern California participated in the study. Participants were recruited from health clinics, local churches, and women's organizations in the greater Los Angeles region. Of the 159 women, 64 were Anglo and 95 were Latino women. Although 159 women filled out a questionnaire, several participants did not fully complete the survey. As a result, 89 participants were omitted from the study. Differences between the omitted participants and the remaining participants are noted in Table 1. A total of 70 participants were included in the analyses, of these, 37 were Anglo and 33 were Latino.

Table 1

### *Differences between Omitted Participants and Remaining Participants*

	Omitted Participants N=89	EQS Subsample N=70
Ethnicity		
Anglo	36.4%	52.9%
Latino	63.6%	47.1%
Income	45.3%	31.8%
<\$14,999	17%	10.6%
\$15-24,999	17%	15.2%
\$25-39,999	7.5%	16.7%
\$40-59,999	13.2%	25.8%
>\$60,000		
Age	52	55
Education	10	13
Insurance	41.7%	62.9%
Mammogram	85.9%	85.7%
BSE	76.5%	91.4%
Clinical	81.4%	81.4%

The average age of the remaining 70 participants was 55, ranging from 40 to 84 years of age. Most of the participants were married (48.6%), 28.6% were either divorced or separated, 11.4% were widowed, and 11.4% were single. In regards to education, most participants had completed high school (45.6%), however years of education ranged from 2 to 28 years. Thirty percent of the participants reported an annual income between \$0 and 14,999, 10% reported between \$15,000 and 24,999, 14.3% reported and income between \$25,000 and 39,999, 15.7% reported \$40,000 and 59,000 and 24.3% reported an annual income of over \$60,000. Of the total participants in the study, 62.9% had insurance whereas 37.1% did not have insurance.

Anglo women comprised 52.9% of the population, and 47.1% of the participants were Latina. Of the Latino women, 22.9% were Mexican-American, 12.9% were Central American/Caribbean, 7.1% marked other, and 1.4% were Puerto Rican. Most of the participants reported English as their first language (64.3%), 34.3% reported Spanish as their first language, and 1.4% reported other.

In regards to screening behaviors, 85.7% of the women had a mammogram whereas 14.3% did not. Eighty-one percent had a clinical breast exam performed by their doctor and 19% have never had a clinical breast exam. Ninety-one percent of the women have performed a breast self-exam whereas 8.6% have not.

Some differences in regards to the Anglo and Latino participants existed. For instance, Anglo participants were older, more educated and wealthy, and were more likely to have health insurance (see Table 2).

Table 2

*Demographics by Ethnicity*

	Anglo N=37	Latino N=33
Income		
<\$14,999	14.3%	51.6%
\$15-24,999	8.6%	12.9%
\$25-39,999	17.1%	12.9%
\$40-59,999	17.1%	16.1%
>\$60,000	42.9%	6.5%
Age	60	49
Education	15	12
Insurance	78%	48.5%

*Instruments*

The instrument consisted of a questionnaire including demographic information, the Behavioral Risk Factor Surveillance System Questionnaire (Center for Disease Control, 1999), the Cultural Value Orientation Scale (Betancourt & McMillin, 2001), the Revised Causal Dimension Scale (McAuley, Duncan, & Russeel, 1992), and the Stephenson Multigroup Acculturation Scale (Stephenson, 2000). The questionnaire was prepared in English. It was translated into Spanish and then back-translated into English by two native Spanish speakers.

*Demographic Information.* Participants were asked to answer questions concerning their age, SES, education, marital status, insurance status, ethnicity, religion, native language, number of years in the U.S., relatives diagnosed with breast cancer, and relatives diagnosed with other types of cancer.

*Cancer Screening Behavior.* Questions from Section 11, Women's Health, in the *Behavior Risk Factor Surveillance System Questionnaire* (Center for Disease Control,

1999) were used to obtain information about women's breast cancer screening behaviors. Three questions from the questionnaire were included for the purpose of this study. Each question was preceded by a description of the particular screening test (e.g., mammogram, breast self exam). For example, "A mammogram is an x-ray of each breast to look for breast cancer. Have you ever had a mammogram?" Participants were asked to respond yes, no, or don't know/not sure. Higher scores indicate having been screened for breast cancer and lower scores indicate no screening.

*Cultural Values.* The *Cultural Value Orientation Scale* (Betancourt & McMillin, 2003) was used to assess the fatalism/mastery cultural value orientations. The measure is comprised of two subscales; the Subjugation to Nature (fatalism) subscale and the Control over Nature (mastery) subscale. The value orientations were assessed across a variety of domains including world affairs, general life orientation, relationships, work, child rearing, farming, and health. The CVOS includes a total of 32 items with 18 items designed to assess fatalistic values and 16 items designed to assess mastery values. The following is a sample item from the fatalism subscale, "My fate seems completely predetermined," and a sample from the mastery subscale, "When it comes to life, I play a very active role." Participants were asked to rate each statement on a 5-point Likert Scale with higher numbers indicating more fatalistic/mastery orientations. The CVOS has good internal consistency for each of the two subscales: fatalism, .90 and mastery, .81.

*Attributions.* The *Revised Causal Dimension Scale* (CDSII), (McAuley, Duncan, and Russell, 1992) consists of 12 items designed to assess four causal dimensions (a) locus of causality, (b) stability, (c) personal control, and (d) controllability of others. Previous studies suggest that the measure has acceptable internal consistency for each of

the four scales: locus of causality, .67; stability, .67; personal control, .79; and external control, .82. The controllability of others and the stability subscales of the CDSII were used for the purpose of this study. Each subscale was comprised of three items scaled on a semantic differential. Participants were asked to think about what they feel is the most likely cause of breast cancer and then classify this reason along the causal dimensions. The following is a sample item from the stability scale, “stable over time ..... variable over time.” An example from the controllability of others subscale is, “under the power of other people ..... not under the power of other people.” Cronbach’s alpha for the control by other subscale is .79 and the stability subscale was .57 for the study sample.

*Acculturation. Stephenson Multigroup Acculturation Scale (SMAS)* (Stephenson, 2000) was developed to measure acculturation as defined by the degree of immersion in dominant and ethnic societies. The measure was developed for use across ethnic groups and includes items assessing the domains of language, interaction, food, and media. The SMAS is comprised of 17 items related to ethnic society immersion (ESI) and 15 items related to dominant society immersion (DSI). The following is sample item from the ESI “I eat traditional foods from my native country” and a sample item from the DSI, “I speak English with my spouse or partner.” Previous studies report good reliability; Cronbach alpha for the entire scale was .86, .97 for the ESI, and .90 for the DSI (Stephenson, 2000). Item intercorrelations for the ESI ranged from .51 to .87 and .57 to .83 for the DSI. For the purpose of this study, the SMAS was administered to Latino women only in order to test hypothesis five regarding the associations between acculturation, cultural values, and screening behaviors. Reliability for the ESI was .85 and the DSI was .91.

## Results

### *Preliminary Data Analyses*

To test potential effects of the demographic variables ethnicity, age, education, income and insurance status on mastery, fatalism, control by other, stability, and breast cancer screening, a series of analyses of variance (ANOVAs) and correlations were conducted. Analyses indicate significant differences between Anglos and Latinas on fatalism, mastery, control by others, personal control, stability, and clinical breast examination (see Table 3). Latinas scored significantly higher on the cultural value orientations and attributional properties. Latinas were also significantly less likely to have had a clinical breast examination.

Table 3

### *Constructs of Interest by Ethnicity*

	Anglo		Latino		<i>F</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Fatalism	2.57	(.46)	3.39	(.59)	42.86	.00
Mastery	3.77	(.46)	4.10	(.43)	9.73	.00
Other Control	2.59	(1.05)	2.87	(1.10)	1.12	.29
Stability	2.54	(.74)	2.92	(.85)	3.96	.05
Mammogram	1.86	(.35)	1.85	(.36)	0.04	.85
Clinical	1.92	(.28)	1.69	(.47)	6.01	.02
Self	1.89	(.31)	1.94	(.24)	.49	.49

Significant differences in age on mammography screening was reported with older women more likely to have had a mammogram. Age also significantly influenced fatalistic values, with younger women reporting more fatalistic value orientations. Results



indicate significant differences between level of education and self breast exams and cultural value orientations. Less educated women were less likely to perform self breast exams and were more likely to hold fatalistic and mastery value orientations. There were also significant differences on income level and fatalism. Women with less income held more fatalistic value orientations. Lastly, there were significant differences in insurance status on clinical breast exams, fatalism, control by others, and stability. Those without insurance were less likely to have had a clinical breast exam, they were more likely to hold fatalistic values, and they endorse control by others and stability attributions regarding the causes of breast cancer. Interactions between ethnicity and these demographic factors on the study variables were also tested. Results indicate no significant interactions between ethnic group and income, age, education, insurance status on the outcome variables.

#### *Screening of the Data*

Data were examined to determine whether the sample met distribution assumptions for structural equation modeling. Screening for univariate outliers was conducted through the examination of means and standard deviations for all observed variables (see Table 3). No outliers were found that were 3.5 standard deviations above or below the mean. Screening for multivariate outliers was conducted through evaluation of Mahalanobis distance as a Chi-square statistic with no cases exceeding the critical value for Chi-square ( $\chi^2$  [N = 70] = 112.317,  $p < .001$ ), confirming the absence of any multivariate outliers.

Based on a review of the histograms for all variables, the data appears to approximate a normal distribution. Standardized values of skewness and kurtosis for all

the variables, except breast self-exam, range between +2.0 and -2.0. The skewness and kurtosis for breast self-exam fell outside of this range with a value of -2.72 and 5.39 respectively. The mean value for breast self-exam indicates that most of the women in the sample had performed a breast self-exam (91%). Inspection of scatterplots indicate a linear relationship.

Bivariate correlations among the variables used in the structural equation models were reviewed to determine if multicollinearity or singularity existed. Correlations among the latent factors control by other, stability, screening, mastery and fatalism (as represented by composites) and the ethnicity ranged from .13 to .62 (see Table 4). Correlations among items from each scale and their latent factors range from .37 to .88. These findings indicate no evidence of multicollinearity or singularity. Overall, screening of the data indicate that the assumptions for structural equation modeling were not violated.

### *Structural Equation Modeling*

Structural equation modeling can be used to test a hypothesized model through the simultaneous analysis of all variables to determine the extent to which it is consistent with the data (Byrne, 1994). Structural equation modeling compares the covariance matrix from an approximation of population values to the covariance matrix for the observed data. The null hypothesis will be rejected if there are nonsignificant differences between the two matrices and the overall goodness of fit is adequate. The hypothesized model and relations among the variables may then be supported by the data.

The hypothesized models were tested for adequacy using Bentler's (1995) structural equation statistics package (EQS). The raw data was analyzed using the

Table 3

*Correlations between All Variables in the Model, N=70*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Mammogram	1.00													
2. Self Breast	.46***	1.00												
3. Ethnicity	-.23	.09	1.00											
4. Subjugation	.06	.10	.62***	1.00										
5. Mastery	.09	.14	.35**	.27*	1.00									
6. Control item	.20+	.12	.07	.21+	.12	1.00								
7. Power item	.10	-.05	.04	.10	.12	.68***	1.00							
8. Regulate item	.22+	.11	.22+	.28*	.32**	.60***	.59***	1.00						
9. Permanent item	.19	.17	.18	.32**	-.08	.18	.14	.17	1.00					
10. Stable item	.21+	.02	.07	.23+	.11	.31**	.32**	.25*	.06	1.00				
11. Unchangeable item	.13	.16	.25*	.39**	.00	.30*	.18	.36**	.36**	.37**	1.00			
12. Other Control factor	.20+	.06	.13	.22+	.21+	.87***	.88***	.84***	.19	.34**	.32**	1.00		
13. Stability factor	.21+	.17	.24+	.44***	.02	.37**	.29*	.37**	.66***	.65***	.83***	.39**	1.00	
14. Screening	.72***	.72***	-.12	-.18	.05	.05	-.01	.01	.02	.04	-.03	.02	.01	1.00

+ p&lt;.10; \* p&lt;.05; \*\* p&lt;.01, \*\*\* p&lt;.001

maximum likelihood method of estimation. Two absolute fit indices were used to test the hypothesized model. The nonsignificant ( $p > .05$ ) Chi-square was used to determine the degree to which the estimated covariance model matches the data covariance matrix. The GFI was also used to calculate a weighted proportion of variance in the sample covariance matrix accounted for by the estimated population covariance matrix (Bentler, 1983; Tanaka & Huba, 1989). In addition, two incremental fit indices were used to test the observed model to a model with no relation among the variables. The comparative fit index (CFI, Bentler, 1988) and the incremental fit index (IFI, Bollen, 1989) were used to supplement the absolute fit indices. These two indices range from 0 to 1 with higher scores indicating a better fit of the specified model over the null model. CFI values greater than .90 are indicative of adequate fitting models whereas a value of .95 is indicative of a good fitting model (Bentler, 1995).

#### *Model for Total Screening Behavior*

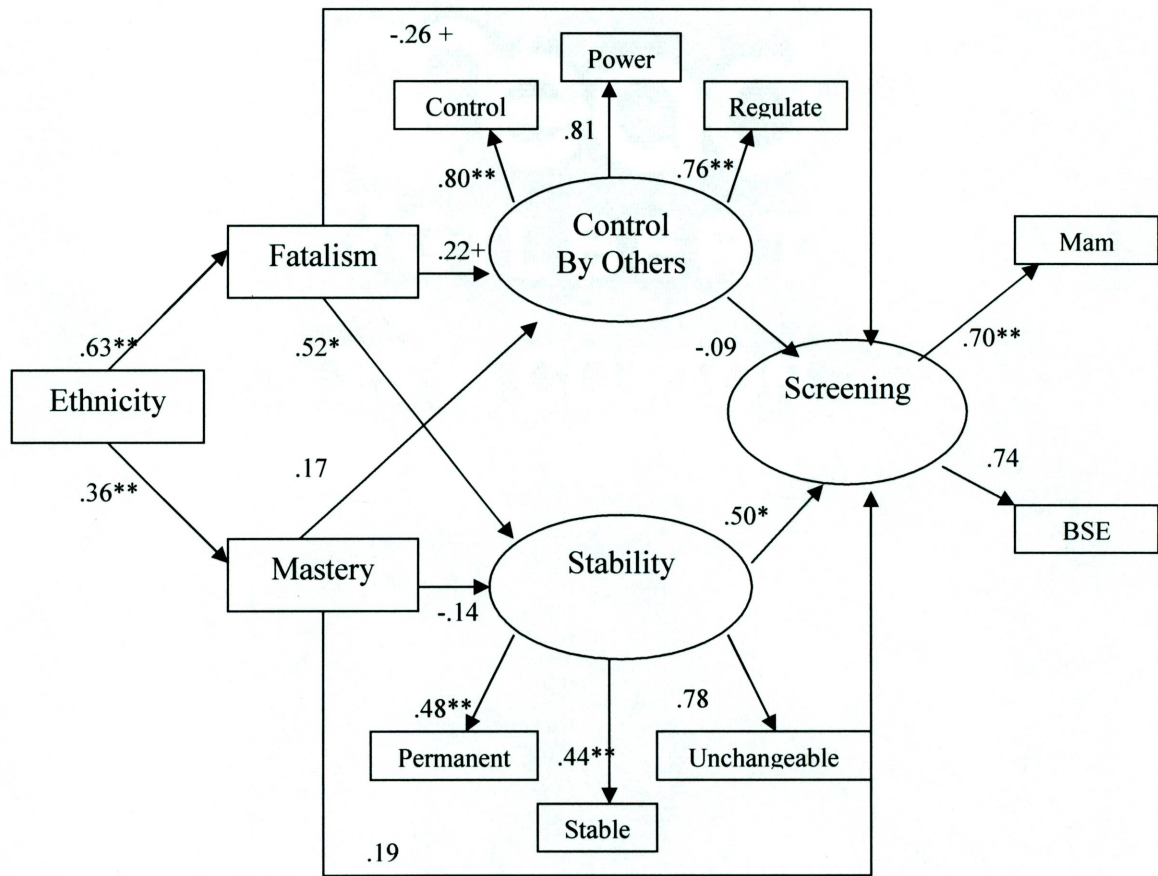
Although control by others and personal control were measured in this study, the relation of these attributional properties to other variables in the model were complex. Specifically, control by others related to the other variables in ways consistent with theory however personal control seemed to relate in more complex ways, which at times were not conceptually meaningful. Therefore, only control by others was included in all the analyses. Furthermore, although information regarding mammography, clinical breast exam, and breast self-exam was gathered, preliminary analyses indicated that the items measuring clinical breast exams did not hold together with the other two measures for breast cancer screening which were used as indicators of a screening latent variable. These issues will be further considered in the discussion.

The measurement model used for this analysis was comprised of 3 latent factors and 11 measured variables (see Figure 2). The latent factors control by other and stability were each modeled with 3 items from the CDSII as described earlier. Two indicators from the Behavioral Risk Factor Surveillance Questionnaire represented the latent factor screening. These two indicators were each represented by one question regarding mammography and breast self-examination. The manifest variable fatalism was computed with 18 items from the Cultural Value Orientation Scale and mastery was computed with 16 items from this scale. Ethnicity was included as a measured variable, with higher scores representing Latino women and lower scores representing Anglo women.

According to this model screening is a function of fatalism and mastery, both directly and indirectly through the attributional properties of control by others and stability. In addition, the cultural value orientations, subjugation and mastery, are a function of ethnicity. In order to identify the model, paths between control by others and power, stability and unchangeable, and between screening and breast self-exam were set to 1.00.

#### *General Hypothesis*

Consistent with the general hypothesis concerning the relations among ethnicity, cultural value orientations and attributional properties as predictors of breast cancer screening behavior, structural equation modeling resulted in a good fit of the data (CFI = .973, IFI = .975) (see Figure 2). The Chi-square was nonsignificant ( $\chi^2$  [37, N = 70] = 42.023,  $p = .262$ ) and the model accounts for a significant proportion of the variance (GFI = .908).



CFI = .973,  $\chi^2$  [37, N = 70] = 42.023,  $p = .262$

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 2. Model for testing hypotheses

The Wald and LaGrange Multiplier test statistics were reviewed to determine if any paths should be dropped or added. The LaGrange Multiplier test suggested the addition of two paths, however these paths were not theoretically relevant and therefore were not added to the model. The Wald test statistic suggested that the direct paths between 'cultural value' orientations and 'screening', 'mastery' and 'stability', and 'mastery' and 'control by others' should be dropped. However, due to the sample size used in the EQS model ( $N = 70$ ), it was decided that these paths would be included in the final model as their significance levels may be a result of the small sample size. Therefore, the original model was maintained to test the specific hypothesis.

#### *Specific Hypotheses*

To test hypothesis one, which predicted ethnic differences between Anglo and Latino women on cultural values, attributional properties and breast cancer screening, a series of analyses of variance (ANOVAs) were conducted (see Table 3). Results partially confirm hypothesis one. Specifically, the analyses indicate ethnic differences in the cultural value orientations, mastery and fatalism, with Latino women scoring higher on both of these values. Moreover, Latino women were more likely to hold attributions of control by others and stability. While there were no ethnic differences in women having had a mammogram or breast self-examination, Latino women were less likely to have had a clinical breast exam. However, it should be noted that when the mediating role of value orientations were tested through structural equation modeling (see Figure 2) the direct effect of ethnicity on attributions became irrelevant, supporting the view that culture is the most proximal mediating factor associated with behavior.

As predicted by hypothesis two, perceptions of controllability of the causes of breast cancer were influenced by cultural value orientations. The path between 'fatalism' and 'control by others' (.22,  $p \leq .10$ ) indicates that individuals with more subjugation to nature value orientations (fatalism) attribute cancer to causes perceived as more controllable by others.

Screening behaviors were directly influenced by value orientations as stated by hypothesis three. The direct effect of 'subjugation' to nature on 'screening' behaviors (-.26,  $p \leq .10$ ) indicates that the more fatalistic an individual is, the less likely they are to have been screened for breast cancer. Additionally, results indicate that 'mastery' over nature also has a direct effect on 'screening' behavior (.19,  $p > .10$ ), suggesting that the more mastery value orientations an individual has, the more likely they are to be screened for breast cancer.

Although it was hypothesized that attributional properties of 'control by others' would mediate the relation between cultural value orientations and 'screening' behaviors, this relation was weak (-.09,  $p > .10$ ), however the direction of the relation was theoretically as expected. In addition, the relation between cultural values and screening were mediated by the attributional property of stability. Specifically, individuals who endorse more 'fatalistic' value orientations are more likely to perceive the causes of breast cancer to be 'stable' (.52,  $p \leq .05$ ), which in turn is related to more 'screening' behaviors (.50,  $p \leq .05$ ).

To test hypothesis four, which predicted associations between level of acculturation for Latino women and cultural values and attributional properties, results partially confirm the predicted associations (see Table 4); however, the direction of the



associations were not confirmed. Level of 'acculturation' was found to influence 'mastery' value orientations ( $r = .30, p \leq .05$ ) and perceptions of 'control by others' ( $r = -.26, p \leq .10$ ) and 'stability' ( $-.27, p \leq .10$ ). However, the later two associations were significant at the .10 level. Specifically, it was predicted that the more acculturated the Latino women, the lower their scores on fatalism and the higher their perceptions of controllability. Results indicate small, nonsignificant associations between level of 'acculturation' and 'fatalism' and an inverse relation between 'acculturation' and 'controllability by others' ( $-.26, p \leq .10$ ).

#### *Post Hoc Analyses, Mediation of Cultural Values*

According to Baron and Kenny (1986) to test for mediation, three conditions must be established. First, the independent variable must influence the mediator variable. Second, the independent variable must affect the dependent variable and lastly, the mediator must affect the dependent variable. If mediation exists, the effect of the independent variable on the dependent variable should decrease.

Table 4

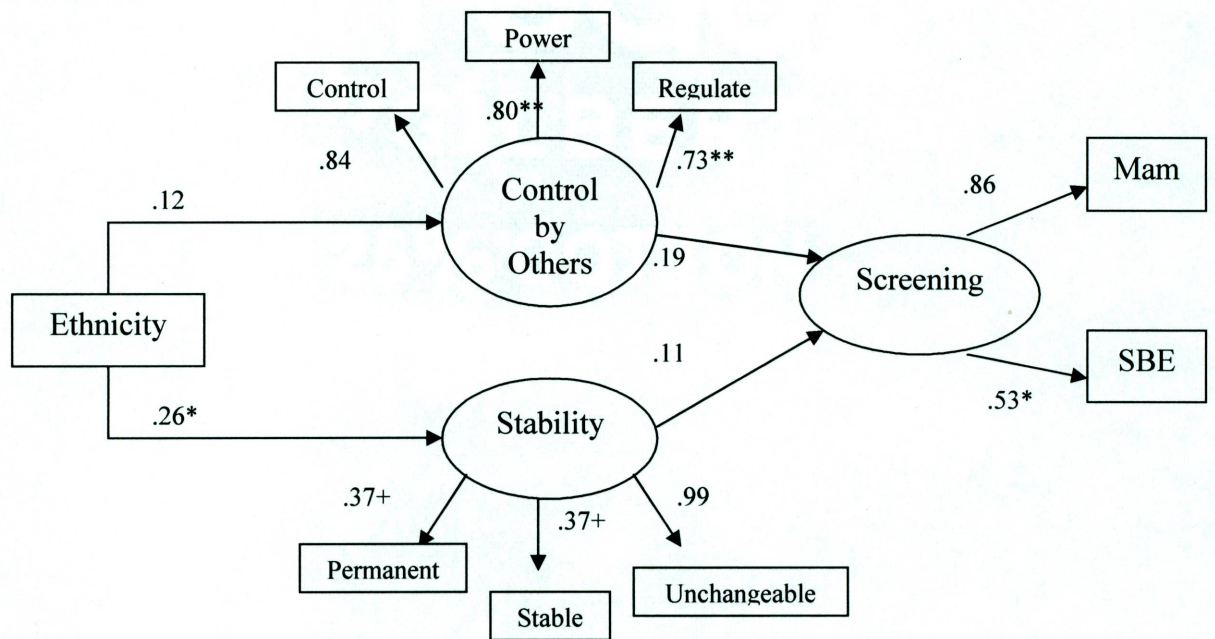
#### *Correlations among Acculturation, Cultural Values, and Attributional Properties*

	1	2	3	4	5	6
1. Ethnic Society Immersion	1.00					
2. Dominant Society Immersion	.09	1.00				
3. Fatalism	-.01	-.06	1.00			
4. Mastery	.30*	.08	.47**	1.00		
5. Control by Others	-.08	-.26+	.15	.22+	1.00	
6. Stability	.03	-.27+	.25+	-.06	.43**	1.00

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ , \*\*\*  $p < .001$

To test for the mediating role of cultural values between ethnicity and attributional properties (see Figures 2 & 3), control by others, stability, and screening were included as latent factors and ethnicity was included as a manifest variable. According to this model, attributional properties were a function of ethnicity, and screening was a function of attributional properties. The paths from control to the latent factor control, unchangeable to stability, and mammogram to screening were set to 1.00.

Structural equation modeling indicates that the model fits the data (CFI = .946, IFI = .951) (see Figure 3). The Chi-square was nonsignificant ( $\chi^2 [24, N = 70] = 30.45, p = .170$ ) and the model accounts for a good proportion of the variance (GFI = .917). When comparing the two models, the direct paths between 'ethnicity' and the attributional properties of 'control by others' (.12,  $p \geq .10$ ) and 'stability' (.26,  $p \leq .05$ ) (see Figure 3) reduced to nonsignificance when cultural value orientations were added to the model (see Figure 2). These findings confirm the mediating role of cultural value orientations on ethnicity and attributional properties as predicted by the approach to the study of culture guiding this research.

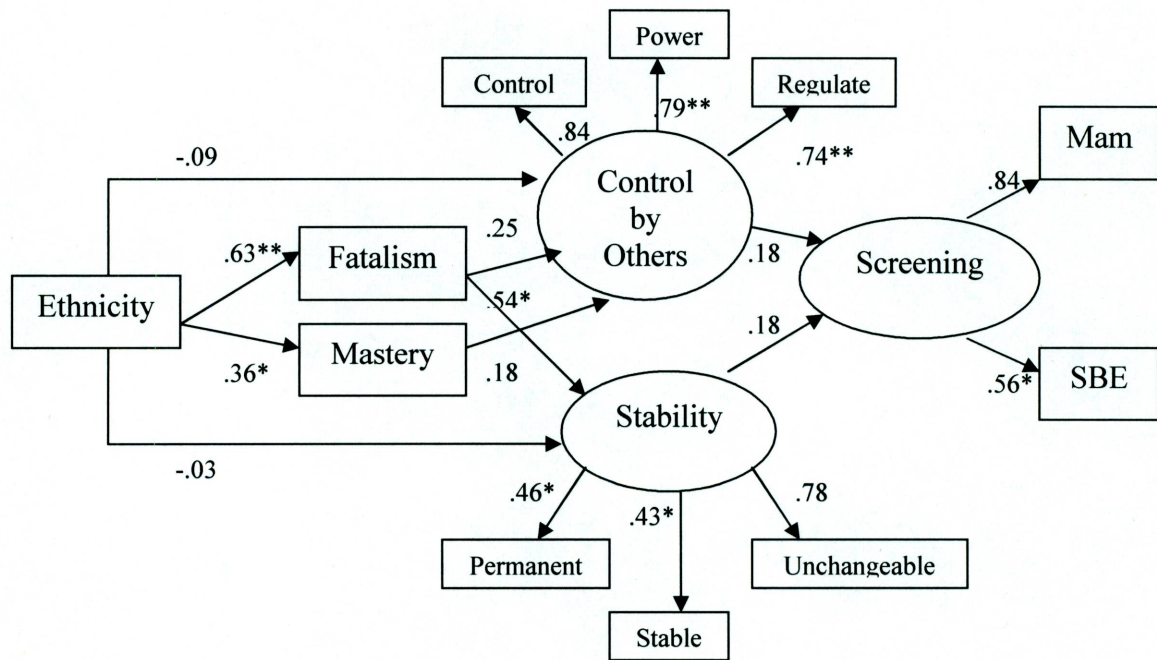



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CFI = .946,  $\chi^2$  [37, N = 70] = 42.023,  $p = .262$

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 3. *Post hoc model for testing mediation of cultural values.*



CFI = .974,  $\chi^2$  [38, N = 70] = 42.297,  $p = .290$

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 4. *Post Hoc* model for testing mediation of cultural values.

## Discussion

Although a number of studies have examined the role of ethnicity as a determinant of breast cancer screening (Breen & Kessler, 1994; Calle et al., 1993; Ries et al., 1999), few have measured specific aspects of culture with psychometrically appropriate instruments, and tested their relation to psychological processes and health behaviors. The present study provides empirical evidence supporting the causal relations among ethnicity, cultural values and attributional processes as determinants of breast cancer screening in Latino and Anglo women.

According to the study of culture (Betancourt & Lopez, 1993), it is "culture" (e.g., values, beliefs, and norms), not ethnicity or any other grouping variable that should be the focus of research examining disparities in health behaviors. Consistent with theory, ethnicity was not directly associated with attributions or screening behavior, however cultural values mediated this relation. It is particularly interesting to observe that although ANOVAs show effects of ethnicity on attributions and screening, these were not relevant when cultural value orientations were included along with ethnicity in a structural equation model. This is a clear demonstration that it is culture, and not ethnicity that truly accounts for variations in psychological processes and behavior. Moreover, this finding, confirmed through a test of mediation using structural analysis, highlights the problems associated with research based on ethnicity instead of the examination of the specific aspects of culture that actually influence behavior.

Results from structural equation modeling indicate ethnic differences in cultural values and attributional properties of control by others and stability among Latino and Anglo women. Consistent with previous research, it was found that Latinas held more

fatalistic value orientations (Chavez, et al., 1997; Harmon, Castro, & Coe, 1996; Perez-Stable, et al., 1992; Suarez, et al., 1997). In addition, Latino women also endorsed more attributions of stability and control by others regarding the causes of breast cancer.

It was however not expected that Latinas would also endorse more mastery value orientations compared to Anglos. Several possible explanations can support this finding. One explanation may have to do with the struggle Latinas have endured as immigrants in the United States. These women have had to survive in a country, with different ways of life not similar to those in which they are accustomed to. Moreover, many of the participants in this study were recruited from health clinics that provide free services to needy individuals. This alone indicates that these women have the capability to allocate resources in their community, an ability, which may go hand in hand with aspects similar to those represented by mastery value orientations.

The cultural value orientations of fatalism and mastery were directly associated with screening behavior in the Latino and Anglo women, and the direction of these relations were consistent with theory. Specifically, more fatalistic individuals were less likely to have been screened for breast cancer and those with more mastery value orientations were more likely to have been screened. Similar findings have been reported in the literature (Perez-Stable, et al., 1992). Collectively, the finding that cultural values, as opposed to ethnicity, are associated with attributions and screening behaviors support the theory for the study of culture.

The finding that acculturation played a minimal role on cultural values, lends further support to the importance for studying specific aspects of culture in relation to health behaviors. Although acculturation has been one of the more widely used measures

for exploring cultural differences, these studies have been criticized for not measuring culture per se, suggesting that acculturation is merely a proxy measure for culture (see Betancourt & Lopez, 1993). Ethnic society immersion (less acculturation), however, was found to be related to mastery value orientations. Although this relation was unexpected, the explanation provided earlier in regards to the difficulties that recent immigrants face and their need to survive in a culture not similar their own may be an explanation for this association. It was also found that individuals more immersed in the dominant society (more acculturated) were less likely to believe that the causes of cancer were under the control of others and less stable.

Since psychological processes, such as attributional thinking, are more proximal determinants of behavior than are cultural elements, it is important to examine the effects of culture on behavior as mediated by psychological processes (Betancourt, Harding, & Manzi, 1992). Consistent with this approach, results from this study found that attributional properties of control by others and stability of the causes of breast cancer mediated the association between cultural values and breast cancer screening.

The role of attributional properties regarding the causes of breast cancer was however more complex. Although control by others and stability mediated the association among cultural values and screening behaviors, the nature of the relations were only partially confirmed. A review of the literature concerning fatalistic value orientations may render the unexpected finding that fatalism was positively associated with attributions of control by others, as less surprising. Fatalism has been described as the perception that one's destiny is not within one's own hands (Davison, Frankel, & Smith, 1992). Thus this value orientation may place control outside of the individual and in the

hands of a metaphysical force such as God or fate. Therefore, more fatalistic individuals may interpret “other” as God. The attributional property of control by “others” is rather vague and therefore render it’s association with fatalism difficult to interpret. For instance, “other” could be interpreted as God, a doctor, or a supernatural force. Future research should delineate attributions of control by others more explicitly, in order to better understand the source or forces in which fatalistic individuals believe are responsible for the causes of breast cancer.

Less complex was the finding that fatalistic individuals hold more attributions of stability regarding the causes of cancer, which in turn predicted more screening behaviors. Consistent with the literature (Kluckhohn & Strodtbeck, 1979), more fatalistic individuals will perceive something negative, such as the causes of breast cancer, as more stable. Therefore, if a woman believes that the causes of breast cancer are more stable, they are likely to believe that through screening, cancer can be detected and therefore will perform breast self- exams or have a mammogram.

As noted earlier, the mediating role of attributional properties, were quite complex and their relations were, at times, not conceptually meaningful. For instance, one might assume that fatalism would be negatively associated with personal control. Although these results were not reported, analyses indicate that fatalism was positively associated with attributions of personal control, which in turn predicted screening behavior. There are several possible explanations for this unexpected finding regarding the mediating role of attributional properties.

One of the main limitations of this study is the amount of missing data on the attributional questionnaire. Although 159 Latino and Anglo women completed the



survey, only data from 72 women were used for the structural equation modeling. This is largely due to information missing on one or more of the items measuring the attributional properties of control by others and stability on the CDSII. Because most of the women included in this study came from lower incomes and were less educated, they may have had difficulty interpreting the attribution questionnaire. During data collection, several participants approached the researcher with questions regarding the format of the questionnaire. Items from this measure were scaled on a semantic differential, which may not be an appropriate format for less educated populations.

Another reason for the complex findings relating to attributions may have to do with the possibility that participants were making attributions for several causes of breast cancer rather than one in particular. Participants were first asked to state some of the reasons why they felt women got breast cancer. Hormone therapy, heredity, poor nutrition, the environment, and "I have no idea why women get cancer," were some of the reported reasons. Although women were asked to think about the most important reason for the cause of breast cancer and then make attributions regarding this particular cause, it is likely that when these women were making attributions they were not thinking about just one cause. Because many of the reasons the women reported have differing stability and controllability properties, this may have muddied the validity and reliability of the measure and its relations with cultural values and screening behavior.

While several researchers have explored the association among locus of control, which is more of a dispositional trait, and breast cancer screening (Bundek, Marks, & Richardson, 1993; Hallal, 1982; Murray & McMillan, 1993; Redeker, 1989) this study is innovative in the sense that participants were asked to make attributions regarding a

specific event or situation. In this particular study, women were asked to make attributions regarding the causes of breast cancer. The relation of these attributions regarding the causes of cancer were then tested for their association with reported screening behavior. The purpose of screening is the detection of cancer at the earliest possible stage to ensure the greater likelihood of a favorable prognosis (Meyerowitz, et. al., 1998). Therefore, asking women to make attributions of control and stability regarding situations, which are more directly linked to screening, may result in more meaningful associations between attributions and actual screening behaviors. For instance, asking women about their attributions of stability and controllability of breast cancer screening as a form of detecting breast cancer may be more appropriate. Moreover, questions regarding attributions of control and stability of cancer once diagnosed through screening, may also have more clear associations with screening behavior.

Although results indicate associations among cultural values and psychological processes as determinants of mammography and self breast-examination, the associations with clinical breast examination could not be tested for Latino and Anglo women. Preliminary analyses, which included all three screening tests as determinants of cultural values and psychological processes, indicate that clinical breast exams did not function in similar ways with mammography and self breast-exam. This may be justified due to the more invasive nature of the clinical breast exam, in the sense that a stranger (physician) is physically touching the woman's breasts. The self breast-exam is however performed by oneself and the mammogram, although quite invasive, is more dependant on technology rather than the exposure of oneself to another person, as is the case for clinical breast

exams. Follow-up analyses were conducted with clinical breast exam as a manifest variable. These analyses showed that ethnicity and clinical breast exams were linearly dependent. Latinas were significantly less likely to have had a clinical breast exam (73.3% versus 92.5%). Latinos may interpret the clinical breast exam as more invasive compared to Anglo women. This finding has been supported in qualitative research which found that Latino women are less comfortable with another person touching their breasts compared to Anglo women (Chavez, Hubell, & Mishra, 1995).

Due to the small sample sizes (Latino  $N = 45$ , Anglo  $N = 37$ ), it was not possible to test separate models for Latino and Anglo women using EQS. However, examination of the correlations among the study variables suggest that the associations among screening, cultural values, and attributions act differentially for Latino and Anglo women. In general, mastery value orientations play a stronger role predicting screening in Anglo women, whereas attributions of control by others was more relevant for Latino women.

Some limitations must be noted in relation to this study. The relatively small size of the sample ( $N = 72$ ) used for some of the analyses, mainly due to the large number of cases that had to be eliminated because of missing data, may make the findings less stable. In addition, the strength of the associations may in fact be stronger than reported, since levels of significance are largely dependent on sample size (Tabachnick & Fidell, 1996). The generalizability of the results to other populations is questionable. For instance, whether this model is appropriate for cultural groups aside from Latinos and Anglos or more educated individuals with higher socioeconomic status is uncertain. As mentioned earlier, the large amount of missing data from the attributional questionnaire also seriously limits the reported findings.

Despite these limitations, it is important to note that many of the findings from this study are particularly important from a theoretical as well as practical perspective. For instance, this study, which was designed to better understand ethnic discrepancies in breast cancer screening, moves beyond the observation of group differences based on ethnicity and highlights the importance of the role of culture as a determinant of preventive health behaviors. Therefore, it is important to not only take into consideration ethnicity when developing interventions, it is crucial that program planners consider specific aspects of culture (e.g., values, beliefs, and norms) when designing programs. Moreover, in order to implement the most effective programs aimed at addressing ethnic discrepancies in health behaviors, other aspects of culture (e.g., beliefs, norms, expectations, prejudices) should be identified and measured to test their associations with health behaviors.

This study also found that culture, and not ethnicity, was associated with psychological processes of attributional thinking. Previous studies have supported the role that perceptions of control play in predicting preventive behaviors (Bundek, Marks, & Richardson, 1993; Hallal, 1982; Murray & McMillan, 1993; Redeker, 1989). This study, however, moves beyond such research by providing evidence for the associations between attributional processes and cultural values. While it is clear that psychological processes, such as attributions, are influenced by culture, more research is need to understand their mediating role on preventive health behavior. Although these findings point to the importance of considering culture when developing interventions, it is equally important to take into consideration the ways in which psychological processes play a role in predicting screening behaviors. As noted by previous researchers

(Meyerowitz, et. al., 1998), greater effort must be allocated towards the investigation of psychological processes as determinants of cancer screening behavior. Methodologically, there is a need for the clarification of the specific aspects of attributional thinking that are more relevant to the kinds of behavior important to predicting cancer screening.

Future research should further explore perceptions of control by others in relation to cultural value orientations and health behaviors by delineating who “others” may be. In addition, efforts should be made to reorganize the CDSII and possibly eliminate the semantic differential so that individuals from lower SES and education levels may better understand these items. Because preliminary analyses suggest differential associations among culture, psychological processes, and screening behaviors for Latino and Anglo women, future research would benefit from testing models for invariance using structural equation modeling.

## References

- Axtell, L., & Myers, M. (1978). Contrasts in the survival of Black and White cancer patients. *Journal of the National Cancer Institute, 60*, 1209-1215.
- American Cancer Society, (2001). *Cancer facts and figures 2001*. Atlanta, Georgia.
- American Cancer Society (2001). *Cancer facts and figures for Hispanics 2000-2001*. Atlanta, Georgia.
- Bar-On, D. (1987). Causal attributions and the rehabilitation of myocardial infarction victims. *Journal of Social and Clinical Psychology, 5*, 114-122.
- Balcazar, H., Castro, F. G., Krull, J.L. (1995). Cancer risk reduction in Mexican American women: The role of acculturation, education, and health risk factors. *Health-Education-Quarterly, 22*, 1, 61-84.
- Betancourt, H., & Lopez, S.R. (1993). The study of culture, ethnicity, and race in American psychology. *American-Psychologist, 48*, 6, 629-637.
- Betancourt, H., & Weiner, B. (1982). Attributions for achievement-related events, expectancy, and sentiments: A study of success and failure in Chile and the United States.
- Betancourt, H., Hardin, C., & Manzi, J. (1992). Beliefs, value orientation, and culture in attribution processes and helping behavior. *Journal of Cross-Cultural Psychology, 23*, 2, 179-195.
- Bundek, N., Marks, G., & Richardson, J. (1993). Role of health locus of control beliefs in cancer screening of elderly Hispanic women. *Health Psychology, 12*, 3, 1933-1999.
- Center for Disease Control (1999). Section 11, Women's Health, in the Behavior Risk

Factor Surveillance System Questionnaire.

Chavez, L., Hubbell, A., McMullin, J., Martinez, R., & Mishra, S. (1995).

Understanding knowledge and attitudes about breast cancer. *Archeology of Family Medicine*, 4, 145-152.

Chen, F., Trapido, E., & Davis, K. (1994). Differences in stage presentation of breast and gynecological cancers among whites, blacks, and Hispanics. *Cancer*, 73, 11, 2838-2842.

Davison, C., Frankel, S., & Smith, G. (1992). The limits of lifestyles: Re-assessing fatalism in the popular culture of illness prevention. *Social Science Medicine*, 34, 675-685.

Dennis, D., L. (1987). Foster care experience in relation to locus of control, learned helplessness, and effectance motivation. *Dissertations-Abstracts-International*, 48, 3-B, 908.

Fabrega, H. (1974). *Disease and social behavior: An interdisciplinary perspective*. Cambridge, MA: MIT Press.

Fishman, B. M., Bobo, L., Kosub, K., & Womeodu, R. J. (1993). Cultural issues in serving minority populations: Emphasis on Mexican Americans and African Americans. *American Journal of Medical Sciences*, 306, 16-166.

Friedenberg, J., & Jimenez-Velasquez, I. Z. (1992). Assessing impairment among Hispanic elderly: Biomedical and ethnomedical perspectives [Special issue: Hispanic aged mental health]. *Clinical Gerontologist*, 11, 131-144.

Gregorio, D., Cummings, M., & Michalek, A. (1983). Delay, stage of disease, and

survival among White and Black women with breast cancer. *American Journal of Public Health*, 73, 590-593.

Harmon, M., Castro, F., & Coe, K. (1996). Acculturation and cervical cancer: Knowledge, beliefs, and behaviors of Hispanic women. *Women and Health*, 23, 3, 37-57.

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

Helgeson, B.S. (1992). Moderators of the relation between perceived control and adjustment to chronic illness. *Journal of Personality and Social Psychology*, 63, 655-666.

Hubell, A., Chavez, L., Mishra, S., & Valdez, R. (1996). Differing beliefs about breast cancer among Latinas and Anglo Women. *Western Journal of Medicine*, 164, 405-409.

Jacobs, E & Lauderdale, D. (2000). Receipt of cancer screening procedures among Hispanic and Non-Hispanic health maintenance organization members. *Cancer Supplement*, 91, 1, 257-261.

Kerlikoske, K., Grady, D., Rubin, S. M., Sanrock, C., & Ernster, V.L. (1995). Efficacy of screening mammography: A meta-analysis. *Journal of the American Medical Association*, 273, 2, 149-154.

Kluckhohn, F. & Strodtbeck, F. (1961). *Variations in value orientations*. Evanston, IL: Row, Peterson.

Koss-Chioino, J. D. (1995). Traditional and folk approaches among ethnic minorities. In Aponte, J.F., Rivers, R.Y., & Wohl, J. (Eds.), *Psychological interventions and cultural diversity*, 145-163. Needham Heights, MA: Allyn & Bacon.



- Landrine, H. (1992). Clinical implications of cultural differences: The referential versus the indexical self. *Clinical Psychology Review, 12*, 401-415.
- Landrine, H., & Klonoff, E. (1992). Culture and health-related schemas: A review of proposal for interdisciplinary integration. *Health Psychology, 11*, 4, 267- 276.
- McAuley, E., Duncan, T., and Russell, D. (1992). Measuring causal attributions: the revised causal dimension scale (CDSII). *Personality and Social Psychology Bulletin, 18*, 5, 566-573.
- McDonald, C. (2001). The American cancer society addressing disparities and the disproportionate burden of cancer. *Cancer Supplement, 91*, 1, 195-206.
- Murguia, A., Zea, M., Reisen, C., & Peterson, R. (2000). The development of the cultural health attributions questionnaire (CHAQ). *Cultural Diversity and Ethnic Minority Psychology, 6*, 3, 268-283.
- Murray, M. & McMillan, C. (1993). Health beliefs, locus of control, emotional control and women's cancer screening behavior. *British Journal of Clinical Psychology, 32*, 87-100.
- National Cancer Institute (1991). Incidence data from the Surveillance, epidemiology, and end results program, 1973-1988. *Cancer Statistics Preview, 1973-1988*. Washington, DC: National Cancer Institute. NIH Publication 91-2789.
- Pachter, L. M. (1993). Latino folk illnesses: Methodological considerations. *Medical Anthropology, 15*, 103-108.
- Pachter, L. M. (1994). Culture and clinical care: Folk illness beliefs and behaviors and their implications for health care delivery. *Journal of the American Medical Association, 271*, 690-694.

- Palos, G. (1994). Cultural heritage: Cancer screening and early detection. *Seminars in Oncology Nursing, 10*, 2, 104-113.
- Perez-Stable, E., Sabogal, F., Otero-Sabogal, R., Hiatt, R., & McPhee, S. (1992). Misconceptions about cancer among Latino and Anglos. *Journal of the American Medical Association, 268*, 22, 3219-3223.
- Powe, J. (1994). Perceptions of cancer fatalism among African Americans: The influence of education, income, and cancer knowledge. *Journal of National Black Nurses, 13*, 41-48.
- Powe, B., & Johnson, A. (1994). Cancer fatalism among elderly African Americans: Effects on colorectal cancer screening. *Cancer Nursing Forum, 12*, 65-78.
- Richardson, J. L., Marks, G., Solis, J.M., Collins, L.M., Birba, L., & Hisserich, J.C. (1987). Frequency and adequacy of breast cancer screening among elderly Hispanic women. *Preventive Medicine, 16*, 761-774.
- Rosenbaum, R.M. (1972). A dimensional analysis of the perceived causes of success and failure. *Unpublished doctoral dissertation*, University of California, Los Angeles.
- Spector, R.E. (1996). *Cultural diversity in health and illness*. (4<sup>th</sup> Ed.) Stamford, Connecticut: Appleton & Lange.
- Stephenson, M. (2000). Development and Validation of the Stephenson multigroup acculturation scale (SMAS). *Psychological Assessment, 12*, 1, 77-88.
- Suarez, L., Roche, L., Nichold, D., Simpson, D., (1997). Knowledge, behavior, and fears concerning breast and cervical cancer among older low-income Mexican-American women. *American Journal of Preventive Medicine, 13*, 2, 137-424.
- Sugarek, N., Deyo, R., & Holmes, B. (1988). Locus of control and beliefs about cancer

- in a multi-ethnic clinic population. *Oncology Nursing Forum*, 15, 481-486.
- Taylor, S.E., Lichtman, R.R., & Wood, J.V. (1984a). Attributions, beliefs about control, and adjustment to breast cancer. *Journal of Personality and Social Psychology*, 46, 489-502.
- Thompson, S.C., Nanni, C., & Levine, A. (1994). Primary versus secondary and central versus consequence-related control in HIV-positive men. *Journal of Personality and Social Psychology*, 67, 540-547.
- Triandis, H.C., McCusker, C., Betancourt, H., Iwao, S., Leung, K., Salazar, J.M., Setiadi, B., Sinha, J.B., Touzard, H. & Zaleski, Z. (1993). An etic-emic analysis of individualism and collectivism. *Journal of Cross-Cultural Psychology*, 24, 3, 366-383.
- U.S. Department of Health and Human Services (1991). *Health US, 1990*. Washington, DC: U.S. Government Printing Office.
- Weiner, B. (1979). A theory of motivation for for some classroom experiences. *Journal of Educational Psychology*, 71, 3-25.
- Weiner, B. (1986). *An attributional theory of motivation and emotion*. New York: Springer-Verlag.
- Weiner, B., Frieze, I.H., Kukla, A., Reed L., Rest, S., & Rosenbaum, R. M., (1971). *Perceiving the causes of success and failure*. Morristown, NJ: General Learning Press.
- Weiner, B., Graham, S., & Chandler, C. C. (1982). Pity, anger, and guilt: An attributional analysis. *Personality and Social Psychology Bulletin*, 8, 226-232.
- Zapka, J.G., Stoddard, A., Barth, R., Costanza, M.E. (1989). Breast cancer screening

utilization by Latina community health center clients. *Health-Education Research, Special Issue: Cancer control*, 4, 4, 461-478.

Zea, M. C., Quezada, T., & Belgrace, F. Z. (1997). Limitations of an accultural health psychology for Latinos: Reconstructing the African influence of Latino culture and health related behaviors. In Garcia, J. G. & Zea, M. C., *Psychological interventions and research with Latino populations*. Boston: Allyn & Bacon.

1997 COLLECTION

COLLECTION

2001 NOV 14

2001 NOV 14

## Appendix A

### Consent Form

Greetings:

The purpose of this letter is to invite you to participate in a study entitled **Culture and Health. If you are a Caucasian or Latino woman, 40 years of age or older you are eligible to participate in this study.** This study is designed to help a student investigator to learn more about people's culture and how they think about their health.

Participation in this study is expected to take 30 to 40 minutes and only asks that you fill out a questionnaire. There is no cost to participating in this study. By participating, you may feel a little uncomfortable by thinking about your own health but you will be exposed to no particular risk other than what you are exposed to in daily life. In addition, you will receive a free gift bag as well as a handout about how to perform breast self examinations.

Your participation is completely voluntary and you may refuse to take part in the study. At any time you are free to withdraw without consequence. If you choose not to participate, or to stop at any time, please return the questionnaire and you will still receive the gift bag and information about breast self examinations. Your responses will be strictly ANONYMOUS and will only be used as part of a group of respondents to the questionnaire. So please do not write your name on the questionnaire.

If after you participate in this study you have any questions, comments, or concerns about the study or the informed consent process, you may contact the research investigators at the address and phone numbers provided below.

#### **Research Investigators**

Patricia Flynn Ph.D. candidate or Hector Betancourt, Ph.D.  
Loma Linda University  
Phone: (909) 558-8579

If you wish to contact an impartial third party not associated with this study regarding any complaint you may have about the study, you may contact the following for information and assistance:

#### **Office of Patient Relations**

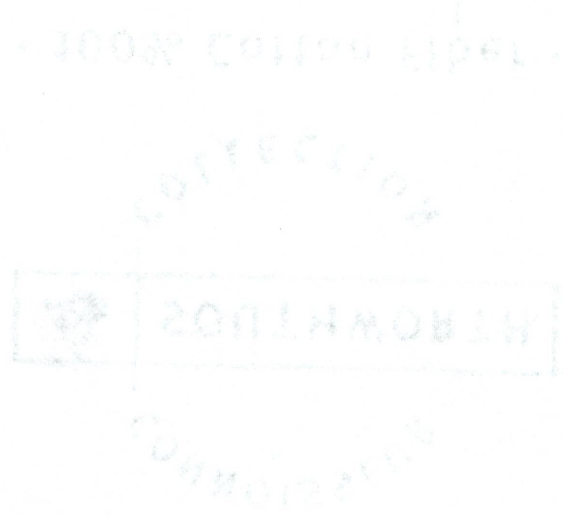
Loma Linda University Medical Center  
Phone: (909) 558-4647

Thank you for your support,

Patricia Flynn, Graduate Student

**By checking and dating below, I acknowledge that I have read the above information and have had m questions answered to my satisfaction, that I freely consent to participate in this study, and that I am at least 40 years of age.**

- I consent to participate in this study       /    /
- I decline to participate in this study       /    /



## Appendix B

## Demographic Sheet

Please answer the following questions about yourself:

1. Age: \_\_\_\_\_  
education: \_\_\_\_\_

2. Years of

(for example, completion of elementary school would be 6 years)

3. Marital Status:

Single(never married)     Married     Divorced or Separated     Widowed

4. Annual household income:

\$0-14,999     \$25,000-39,999     More than \$60,000  
 \$15,000-24,999     \$40,000-59,999

How many people does this income provide for? \_\_\_\_\_

5. Do you have health insurance?

Yes     No

6. Religious Belief:

Christian (Protestant)     Muslim  
 Christian (Catholic)     Hindu  
 Jewish     None/No preference  
 Buddhist     Other

7. Generation in the United States:

1     2     3     4

8. My ethnic or racial origin is:

African American  
 Native American  
 Anglo American (Caucasian)  
Hispanic/Latino American (choose one or more)  
 Mexican     Puerto Rican     Cuban  
 South American     Central American/Caribbean     Other \_\_\_\_\_  
Asian American (choose one or more)  
 Japanese     Korean     Chinese     South East Asian  
 Indian     Filipino     Other (describe) \_\_\_\_\_

9. My native language is \_\_\_\_\_

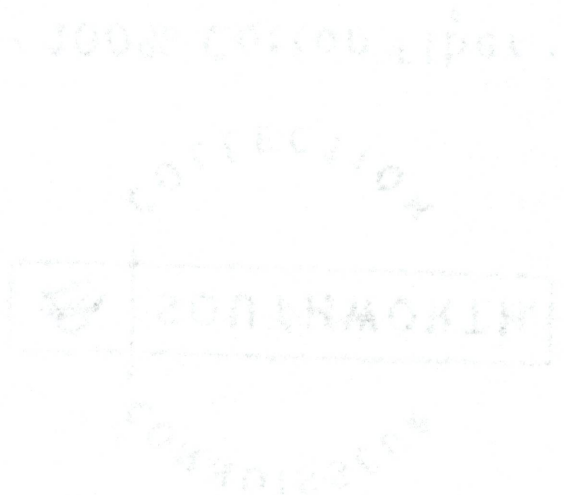
10. If English is your 2<sup>nd</sup> language, how many years have you spoken English?  
\_\_\_\_\_

Please check either Yes or No to the following questions.

11. Have you ever had breast cancer?     Yes     No

12. If you answered no to the above question, has your doctor ever found a lump in your breast?     Yes     No

13. Does/did anyone in your family have breast cancer?  Yes  No  
If you replied yes, who (mother, sister, aunt, cousin)? \_\_\_\_\_
14. Does/did anyone in your family have another type of cancer?  Yes  No  
If you replied yes, who (father, cousin, brother/sister)?





## Appendix C

### Value Orientations Scale (Betancourt & Lopez, manuscript under preparation)

#### 1-5 Likert Agreement

##### **Subjugated by Nature:**

1. Generally, if something is going to happen it usually does, no matter what I do to avoid it
2. When life start to go exactly as I want, something usually happens to change things
3. Life doesn't give you any breaks, that's why I take it one day at a time
4. I find it difficult to plan for my future because so many things that can happen
5. Life can go up or down, so I can never tell how things will turn out
6. My fate seems completely predetermined
7. For me, the future seems totally unpredictable
8. I carry my burdens because I must; that's what I am supposed to do
9. World affairs are too complex for an ordinary person like me to make a difference.
10. In relationships, those that fall apart or end in divorce do so because one can't really change someone or the things that happen
11. Most relationships are destined to be what they are
12. Even if I do everything in my power to take care of my pets, there's no telling if they'll stick around
13. Raising children is difficult, even if you are the best parent, there's no way to know how your kids will turn out
14. Fate determines if one is meant to be in good health or get sick, either way, not a lot can be done about one's health
15. Despite what doctors and scientist say, advances in technology will not influence whether I live longer or healthier
16. Every person has a set time to live and when that time is over, it's just over
17. At work, my success has to do with Destiny and being in the right place at the right time
18. When it comes to work, I just go along with whatever comes my way
19. When it comes to life, it is best to pay attention to what is happening now because the past has gone and the future is too uncertain to count on
20. A lot of things change in life. Sometimes for better, sometimes for the worse, but in the long run it works out to be about the same
21. When I enjoy something a lot, I'd rather indulge in it immediately than save it for later

##### **22. Control Over Nature**

23. No matter what is going to happen, I can always do something about it
24. There is always a way to influence what happens to you, that's why I work really hard to make my future better
25. When it comes to life, I play a very active role in what happens to me
26. When it comes to my future, I know it is up to me to take care of anything that comes my way

27. There are many troubling conditions in the world but it is still possible to make a difference by taking charge of one's own life and making the most of it
28. One can make any relationship work if they spend enough time and work hard at it
29. If I planted a garden and worked really hard at tending the plants I could guarantee everything would grow
30. I expect my children will have more than I ever will as long as they work hard and plan right.
31. It's possible to avoid getting sick and prevent most illnesses by taking care of yourself today
32. When it comes to farming, I think farmers who take advantage of the latest scientific information will grow better crops than farmers who leave it all to Nature
33. People who work hard and plan ahead will achieve greater success than those who don't
34. Saving money is important in order to guarantee a better future
35. It is best to look ahead, work hard, and be willing to give up things now so the future will be better
36. A lot of things change in life. Sometimes for better, sometimes worse but in the long run it's better than it use to be
37. If I really want something a lot, I'm willing to wait as long as it takes to get that specific thing
38. If one eats well and takes good care of their body, one will be in better health
39. Paying attention to scientific knowledge and technology, and following doctors' recommendations is important for living longer and healthier

## Appendix D

Behavior Risk Factor Surveillance System Questionnaire, Section 11, Women's Health  
(Center for Disease Control, 1999)

1. A mammogram is an x-ray of each breast to look for breast cancer. Have you ever had a mammogram?

- Yes (go to next question)
- No (go to question 4)
- Don't know/Not sure (go to question 4)

2. How long has it been since you had your last mammogram? (please check the appropriate box)

- Within the past year (1 to 12 months ago)
- Within the past 2 years (1 to 2 years ago)
- Within the past 3 years (2 to 3 years ago)
- Within the past 5 years (3 to 5 years ago)
- 5 or more years ago
- A mammogram is not recommended for my age group
- Don't know/Not sure

3. Was your last mammogram done as part of a routine checkup, because of a breast problem other than cancer, or because you've already had breast cancer?

- Routine checkup
- Breast problem other than cancer
- Had breast cancer
- Don't know/Not sure

4. A clinical breast exam is when a doctor, nurse, or other health professional feels the breast for lumps. Have you ever had a clinical breast exam?

- Yes (go to next question)
- No (got to question 7)
- Don't know/Not sure (go to question 7)

5. How long has it been since your last clinical breast exam by a doctor, nurse, or other health professional? Read only if necessary.

- Within the past year (1 to 12 months ago)
- Within the past 2 years (1 to 2 years ago)
- Within the past 3 years (2 to 3 years ago)
- Within the past 5 years (3 to 5 years ago)
- 5 or more years ago
- Don't know/Not sure

6. Was your last clinical breast exam done as part of a routine checkup, because of a breast problem other than cancer, or because you've already had breast cancer?

- Routine checkup
- Breast problem other than cancer
- Had breast cancer
- Don't know/Not sure

7. A self-breast exam is when you feel your breasts for lumps. Have you ever done a self-breast exam?

- Yes (go to next question)
- No (go to question 9)
- Don't know/Not sure (go to question 9)

8. How long has it been since you last did a self-breast exam?

- Within the past month (1 to 30 days)
- Within the past 3 months (30 to 90 days)
- Within the past 3 to 6 months (90 to 180 days)
- Within the past 6 months to one year
- One or more years ago
- Don't know/Not sure

## Appendix E

## Causal Dimension Scale- Revised (CDSII; McAuley, Duncan, Russell, 1992)

Many women who have breast cancer develop some sort of idea or hunch about how they got their cancer. Please share your hunches why you think some women get breast cancer.

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Think about the reason or reasons you have written above. The items below concern your opinions about the cause or causes of breast cancer. **Circle one number for each of the following questions.**

The reason some women get breast cancer is caused by something:

That reflects an aspect of the woman	1.....2.....3.....4.....5	Reflects an aspect of the situation
Manageable by a woman	1.....2.....3.....4.....5	Not manageable by the woman
Permanent	1.....2.....3.....4.....5	Temporary
A woman can regulate	1.....2.....3.....4.....5	A woman cannot regulate
Over which others have control	1...2.....3.....4.....5	Over which others have no control
Inside of a woman	1.....2.....3.....4.....5	Outside of a woman
Stable over time	1.....2.....3.....4.....5	Variable over time
Under the power of other people	1.....2.....3.....4.....5	Not under the power of other people
Something about the woman	1.....2.....3.....4.....5	Something about others
Over which the woman has power	1...2...3...4...5	Over which the woman has no power
Unchangeable	1.....2.....3.....4.....5	Changeable
Other people can regulate	1.....2.....3.....4.....5	Other people cannot regulate

## Appendix F

## Stephenson Multigroup Acculturation Scale (SMAS; Stephenson, 2000)

Below are a number of statements that evaluate changes that occur when people interact with others of different cultures or ethnic groups. For questions that refer to "COUNTRY OF ORIGIN" or "NATIVE COUNTRY," please refer to the country from which your family originally came. For questions referring to "NATIVE LANGUAGE," please refer to the language spoken where your family was originally from.

Circle the answer that best matches your response to each statement.

1. I understand English, but I'm not fluent in English	False	Partly False	Partly True	True
2. I am informed about current affairs in the United States.	False	Partly False	Partly True	True
3. I speak my native language with my friends and acquaintances from my country of origin.	False	Partly False	Partly True	True
4. I have never learned to speak the language of my native country.	False	Partly False	Partly True	True
5. I feel totally comfortable with (Anglo) American people.	False	Partly False	Partly True	True
6. I eat traditional foods from my native culture.	False	Partly False	Partly True	True
7. I have many (Anglo) American acquaintances.	False	Partly False	Partly True	True
8. I feel comfortable speaking my native culture.	False	Partly False	Partly True	True
9. I am informed about current affairs in my native country.	False	Partly False	Partly True	True
10. I know how to read and write in my native language.	False	Partly False	Partly True	True
11. I feel at home in the United States.	False	Partly False	Partly True	True
12. I attend social functions with people from my native country.	False	Partly False	Partly True	True
13. I feel accepted by (Anglo) Americans.	False	Partly False	Partly True	True
14. I speak my native language at home.	False	Partly False	Partly True	True
15. I regularly read magazines of my ethnic group.	False	Partly False	Partly True	True
16. I know how to speak my native language.	False	Partly False	Partly True	True
17. I know how to prepare (Anglo) American foods.	False	Partly False	Partly True	True
18. I am familiar with the history of my native	False	Partly	Partly	True

country.		False	True	
19. I regularly read an American newspaper.	False	Partly False	Partly True	True
20. I like to listen to music of my ethnic group.	False	Partly False	Partly True	True
21. I like to speak my native language.	False	Partly False	Partly True	True
22. I feel comfortable speaking English.	False	Partly False	Partly True	True
23. I speak English at home.	False	Partly False	Partly True	True
24. I speak my native language with my spouse or partner.	False	Partly False	Partly True	True
25. When I pray, I use my native language.	False	Partly False	Partly True	True
26. I attend social function with (Anglo) American people.	False	Partly False	Partly True	True
27. I think in my native language.	False	Partly False	Partly True	True
28. I stay in close contact with family members and relatives in my native country.	False	Partly False	Partly True	True
29. I am familiar with important people in American history.	False	Partly False	Partly True	True
30. I think in English.	False	Partly False	Partly True	True
31. I speak English with my spouse or partner.	False	Partly False	Partly True	True
32. I like to eat American foods.	False	Partly False	Partly True	True