2013

The Influence of Acculturation and Health Beliefs on Breast Cancer Screening Behaviors Among Vietnamese American Women Living in Florida

Kim Loan Thi Nguyen

THE INFLUENCE OF ACCULTURATION AND HEALTH BELIEFS

ON BREAST CANCER SCREENING BEHAVIORS

AMONG VIETNAMESE AMERICAN WOMEN LIVING IN FLORIDA

DISSERTATION

Presented in Partial Fulfillment of the

Requirements of the Degree of

Doctor of Philosophy in Nursing

Barry University

Kim Loan Thi Nguyen, M.S.N, R.N., NEA-BC

2013

THE INFLUENCE OF ACCULTURATION AND HEALTH BELIEFS

ON BREAST CANCER SCREENING BEHAVIORS

AMONG VIETNAMESE AMERICAN WOMEN LIVING IN FLORIDA

DISSERTATION

by

Kim Loan Thi Nguyen

2013

APPROVED BY:

Claudette Spalding, PhD, ARNP, CNAA
Chairperson, Dissertation Committee

Jessie M. Colin, PhD, RN, FRE, FAAN
Member, Dissertation Committee

Joseph DeSantis, PhD, ARNP, ACRN
Member, Dissertation Committee

Claudette Spalding, PhD, ARNP, CNAA
Chair, Division School of Nursing

John McFadden, PhD, CRNA
Interim Dean, College of Health Sciences

Abstract

Background: Despite the effectiveness of early detection and screening programs to reduce breast cancer mortality and morbidity rates, preventative health behaviors remain low among Vietnamese American women. Florida is the fourth-largest state where Vietnamese people reside. Yet, no research study has been conducted on this growing population.

Purpose: To determine if there is an influence of acculturation levels and health beliefs on breast cancer screening among Vietnamese American women living in Florida.

Theoretical Framework: The Health Belief Model (HBM) provided the theoretical framework for this study by utilizing seven constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, confidence, and health motivation.

Methods: Two hundred willing participants were asked to complete a self-administered demographic survey, Champion's Health Belief Model Scale (HBMS), and Suinn-Lew Self Identity Acculturation Scale (SL-ASIA). Multiple regression analysis were used to analyze data.

Results: Findings indicated that acculturation was positively associated with breast cancer screening behaviors while health beliefs were not. Age, health insurance, and marital status were found to be significantly associated, while education and employment were not.

Conclusions: It is hopeful that the findings foster the development of a culturally and linguistically appropriate educational materials and outreach programs on breast cancer and screening recommendations within the Vietnamese American community in Florida.

ACKNOWLEDGMENTS

DEDICATION

I would like to dedicate this dissertation to my Father, Nguyen Van Loi (1945-2005). I wished that you could be here today as I complete my journey in the doctoral program. I know you are watching me every day from above. To my Mother, Pham Thi Kim Ngai, you are a blessing in disguise. Although I may not say it often enough, I am very proud and so fortunate to have you as my Mother. It was the both of you who encouraged me to study nursing and to always study hard as it will lead you to success and opportunities. Lastly, I dedicate this dissertation my beautiful daughter, Taylor Mai Simon, who came into my life as a blessing while in the doctoral program. You are the best and most precious thing in my life! Thank you for being patient with me while I was writing this dissertation. I know you missed may play dates, but now, I can make up for all the lost time. I also thank my brothers and sister (Lan, Melani Linh, Liem, and Ly) for their love and support during this journey.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

According to the National Cancer Institute (NCI) (2012), breast cancer is defined as cancer that forms in tissues of the breast, usually the ducts and lobules. Breast cancer is the leading cause of cancer in women both in the developed and the developing world (World Health Organization [WHO], 2012). In 2012, the American Cancer Society (ACS) estimated the risk of breast cancer to be 13%, or more than one in eight women. The risk factors for breast cancer include and are not limited to: family history of breast cancer, age, genetics, breast lesions, obesity, poor diet, and race, among others (ACS, 2012).

Background of the Study

It is known that adherence to breast cancer screening recommendations (i.e., breast self-exam [BSE], clinical breast exam [CBE], mammography) can lead to an increased chance of survival and reduction of breast cancer morbidity and mortality (ACS, 2012; Centers for Disease Control and Prevention [CDC] 2008, 2012; WHO, 2012). Despite the effectiveness of early detection and screening to reduce breast cancer mortality, rates of these preventative health behaviors remain low among minority women (Hedeen, White, & Taylor, 1999; Jenkins et al., 1996; Jenkins, McPhee, Bird, & Bonilla, 1990; Nguyen, Belgrave, & Sholley 2010). Although it is unclear which factors may cause low adherence to breast cancer screening, several studies (Bottorff et al., 1998; Chalmers & Liker, 1996; D'Avano, 1992; Edmonds & Brady, 2003; Jenkins et al., 1990; Jenkins et al., 1996; Le, Gomez, Clarke, Glaser, & West, 2002; Parker, Johnston-Davis, Wingo, Ries, & Heath, 1998) have identified factors that may influence breast

cancer screening (e.g., levels of acculturation, health beliefs age, education, employment, insurance status, and marital status). Therefore, it is important to understand which factors influence the breast cancer screening behaviors in order to identify areas of focus regarding educational needs.

Global Impact

Breast cancer is considered a major global burden of health worldwide (WHO, 2012). Forouzanfar et al. (2011) reported that from 1980 to 2010 in 187 countries, the overall number of breast cancer diagnoses has more than doubled from 641,000 to 1.64 million, an annual increase of 3.1%. More than two-thirds of women diagnosed with breast cancer in 2010 were aged 50 years and older, and 39% of those women lived in developed countries (Forouzanfar et al., 2011). For women aged 15 to 49 years, there were more than twice as many women in developing countries diagnosed with breast cancer, 23% versus 10% (Forouzanfar et al., 2011). In 2010, nearly over 1.5 million women worldwide were diagnosed with breast cancer (WHO, 2012). It is the most common malignancy found in women, amounting to 21% of all new cases (Parkin, Pisani, & Ferlay, 2008). According to Parkin et al. (2008), the worldwide ratio of mortality to incidence is approximately 61%. As a result, breast cancer ranks as the fifth-leading cause of death from cancer overall (458,000 deaths), but it is still the most frequent cause of cancer death in women in both developing (269,000 deaths, 12.7% of total) and developed regions, with an estimated 189,000 deaths. This is almost equal to the estimated number of deaths from lung cancer (Parkin et al., 2008).

To understand its impact globally, a case of breast cancer is diagnosed every 29 seconds, while a woman dies from this disease every 75 seconds worldwide (Susan G. Komen for the Cure, 2012). The incidence rates vary greatly worldwide, with age standardized rates as high is 99.4 per 100,000 in North America, Eastern Europe, South America, Southern Africa, and western Asia (WHO, 2012). The U.K. and U.S. have one of the highest incidence rates worldwide (combined with the rest of North America and Australia/New Zealand), making these countries a priority for breast cancer awareness (WHO, 2012). Breast cancer survival rates also vary worldwide, ranging from 80% in developed countries to below 40% in less developed countries due to lack of early detection programs, as well as adequate diagnosis and treatment facilities (WHO, 2012). Although screening programs are available in more developed countries, these programs have only addressed the preexisting trends in incidence but do not mask the steady increase in breast cancer risks. Clearly, breast cancer has reached epidemic proportions throughout the world.

United States

Since the 1940s, breast cancer rates have been climbing steadily in the United States (U.S.). In 2012, the National Cancer Institute reported 226,870 newly diagnosed breast cancer cases and 39,510 breast cancer deaths. In the U.S., every three minutes, a woman is diagnosed with breast cancer, and every 13 minutes, a woman dies from the disease (Susan G. Komen for the Cure, 2012). According to American Cancer Society (2012) and Parkin et al. (2008), a woman's lifetime risk of breast cancer in the U.S. has nearly tripled during the past four decades. The National Cancer Institute (2012) and the

ACS (2012) estimate that one in eight women will develop breast cancer in her lifetime, and one in five will die from the disease .

In the U.S., the incidence rates are the highest among White females (127.3/100,000 women), and the mortality rates are the highest among African-American women (32.4/100,000 women) (NCI, 2010). However, breast cancer is most frequently diagnosed form of cancer among Chinese, Japanese, Filipino, and Hawaiian women in the U.S. (Gomez et al., 2010; Ma et al., 2012; Miller et al., 1996; Parker et al., 1998). The incidence rate of breast cancer among Asian/Pacific Islanders is 93.7 per 100,000 women (NCI, 2010). The mortality rate of breast cancer among Asian/Pacific Islanders is 12.2 compared with 23.4 White female counterparts per 100,000, age-adjusted to the 2010 U.S. standard population (NCI, 2010). It is estimated that approximately one-third of Vietnamese women are likely to develop breast cancer compared with women of other racial and ethnic groups in the U.S. (Ma et al., 2012; Nguyen et al., 2010; Nguyen, Vo, McPhee, & Jenkins, 2000). Breast cancer is the second most frequent cancer after cervical cancer among Vietnamese women living in the U.S. (Ma et al., 2012; Miller et al., 1996; Nguyen et al., 2010; Nguyenet al.et al., 1998).

In the U.S., breast cancer is the leading cause of cancer morbidity and mortality in women second to lung cancer (ACS, 2012; CDC, 2012; Parkin, Bray, Ferlay, & Pisani, 2005; NCI, 2012). Breast cancer arises from a complicated mix of multiple factors, which may include risk factors and personal characteristics such as personal or family history of breast cancer, high breast tissue density, earlier onset of menstruation (12 years or younger), later menopause (55 years or older), late first-term pregnancy (30 years or

older), no children or no breastfeeding, early or recent use of oral contraceptives, more than four years use of hormone replacement therapy, postmenopausal obesity, alcohol consumption, exposures to secondhand cigarette smoke, and exposure to ionizing radiation (ACS, 2012; CDC, 2012; Gray, Evans, Taylor, Rizzo, & Walker, 2009; NCI, 2012).

Vietnamese in the United States

Bouvier and Agresta (1985) reported that in 1980, 95% of the Asian and Pacific Islander population was comprised of six Asian groups: Chinese, Filipino, Asian Indian, Japanese, Korean, and Vietnamese. This remains to be the same based on the U.S. Census (2010). The Vietnamese sub-group became the fourth-largest Asian American group (U.S. Census Bureau, 2010), one of the fastest growing segments of the nation's population. The Vietnamese American population grew from 1,122,528 in 2000 to 1,548,449 in 2010, representing a 37.9% increase over a 10-year period (U.S. Census Bureau, 2010). The increase in the Vietnamese population has been attributed primarily to immigration rates and the redefinition of the Asian and Pacific Islander group.   It has been projected that by 2030, the Vietnamese population will be the second-largest segment of the Asian Pacific Islander population, equaling or surpassing the Filipino population, which is currently the second largest U.S. Asian Pacific Islander minority (Gomez et al., 2010; Jenkins et al., 1999). Although Vietnamese refugees and Vietnamese immigrants share common experiences (e.g., the Vietnam war, refugee life, and assimilation issues), there is a wide diversity within and across the Vietnamese population that influences the levels of breast cancer screening (e.g., levels of

acculturation, health beliefs, age, education, employment, insurance status, and marital status) (Edmonds & Brady, 2003; Le et al., 2002; Parker et al., 1998; Yi, 1994).

Asian American/Pacific Islanders (APPIs) in the U.S. continue to bear disproportionate burden of cancer incidence and mortality (CDC, 2010). Within this cultural group, Vietnamese women are the most notable group that experiences cancer disparity, particularly to breast cancer (Gomez et al., 2010; Smigal et al., 2006). Regardless of public health interventions and considerable gains in screening, the mortality rate from breast cancer is still high among Vietnamese women (CDC, 2012; Gomez et al., 2010; Nguyen et al., 2000; Satcher, 2001).

Vietnamese Women in Florida

Florida ranks as the fourth-largest state where Vietnamese people reside (U.S. Census Bureau, 2010). The Vietnamese population in Florida grew from 33,190 in 2000 to 58,470 in 2010, representing a 79% increase over a 10-year period (U.S. Census Bureau, 2010). Despite the growth of Vietnamese people residing in Florida, little is known about Vietnamese American women's level of acculturation to American society, health beliefs, health problems, preventive behavior behaviors, and specifically breast cancer screening. No research studies have focused on this specific group in Florida. With the Vietnamese population of 58,470, the exact number of Vietnamese American women living in Florida is unclear. Therefore, the educational needs for this population are unknown, especially regarding breast cancer screening. However, there have been several studies (Bottorff et al., 1998; Chalmers & Liker, 1996; D'Avano, 1992; Edmonds & Brady, 2003; Jenkins et al., 1996; Jenkins et al., 1990; Le et al., 2002; Parker et al.,

1998) conducted on breast cancer knowledge, prevention, and screening behaviors in other states and countries where large numbers of Vietnamese American women reside such as California, Texas, Washington, Massachusetts, Louisiana, Canada, and Australia.

Problem Statement

The burden of breast cancer is equally distributed within the U.S. population. It differs by race, ethnicity, environment, genetic factors, and various demographic characteristics (ACS, 2012; Gomez et al., 2010). Although screening tests such as BSE, CBE, and mammography are recommended for the early detection for breast cancer, Vietnamese women fail to utilize these screening tests or do not utilize them on a regular basis (Hoang & Erickson, 1982; Jenkins et al.1990; Jenkins et al., 1996; Jenkins et al., 1999; Kagawa-Singer & Pourat, 2000; McPhee et al., 1997; Tang, Solomon, Yeh, & Worden, 1999). Due to the underutilization and the delay in utilization of breast cancer screening, Vietnamese women tend to be diagnosed with tumors that are larger and more severe, and have spread more regionally (Tang, Solomon, Yeh, & Worden, 1999). However, reports of low breast cancer screening were found among Vietnamese women for various reasons such as low levels of acculturation (Ho et al., 2005; Nguyen & Belgrave, 2012; Pourat, Kagwa-Singer, Breen, & Sripipatana; 2010; Yi, 1995;1998), health beliefs (Jenkins, Le, McPhee, Stewart, & Ha, 1996; Ma et al., 2012; Nguyen & Belgrave, 2012; Shanahan & Brayshaw, 1995; Shriever, 1990), age, education, employment, insurance status, and marital status (Jenkins et al., 1996; Ma et al., 2012; Nguyen et al., 2009; Nguyen & Belgrave, 2011; Nguyen et al.,2000; Phipps et al., 1999; Salder et al., 2001; Xu, Ross, Ryan, & Wang, 2005;Yi,1998; Yi & Luong, 2005).

Therefore, the breast cancer incidence and mortality rates for Vietnamese American women living in Florida are unknown compared to the general Vietnamese population. Additionally, no statistical data are available regarding breast cancer incidences, mortality, or morbidity in Florida for Vietnamese American women or American Asian/Island Pacific women.

Purpose of the Study

The purpose of this study is to determine how the levels of acculturation, health beliefs, and identified variables such as age, education, employment, insurance, and marital status influence breast cancer screening behaviors among Vietnamese American women living in Florida.

Definitions of Key Terms: Theoretical and Operational

Vietnamese American Woman

Theoretical definition. A female U.S. resident or citizen with an origin of birth in Vietnam or a descendant of Vietnamese parents (Wikipedia, 2012). Vietnamese women are defined as women ages 18 or older who met criteria, self-identified as either being born in Vietnam or as a descendent of Vietnamese parents, and lived in the state of Florida.

Operational definition. For the purposes of this study, Vietnamese women were operationally defined by an ordinal level variable on the demographic survey under county of residence. County of residence was classified using the U.S. Department of Agriculture (USDA) Urban-Rural Continuum Codes in which codes one through three define urban counties and codes four through nine define rural counties.

Acculturation

      Theoretical definition. Acculturation is defined as the process whereby an

individual's initial learning was in one culture and then adopts attitudes, values, and

behaviors of another culture (Gupta, Kumar, & Stewart, 2002; Suarez, 1994; Tang et al.,

1999;Yi, 1988; Yi, 1994;).

      Operational definition. Acculturation is defined by the total score on the 21-item

SL-ASIA self-report questionnaire (Suinn, Rikard-Figuerora, Lew, & Vigil, 1987). A

lower score indicates lower levels of acculturation, while a higher score indicates higher

levels of acculturation (Appendix C).

Health Beliefs

      Theoretical definition. Health beliefs are variables that influence one's feelings

about wellness and illness, which may also influence one's practice of preventive

behaviors. Traditional health beliefs vary among ethnic groups and may greatly

influence the decisions an individual may make regarding healthcare (Becker, 1974;

Champion, 1984; 1997; 1999; Rosenstock, 1966; Rosenstock, Strecher, & Becker, 1988).

      Operational definition. For this study, health beliefs were measured by nominal

level items on the Champion's Health Belief Scale (1999). A-53-item instrument that

examined variables such as the participant's perception of her susceptibility to breast

cancer (5 items), perceived seriousness of the threat of the disease(7 items), perception of

the benefits of BSE (6 items), benefits of mammography (6 items), perception of the

barriers to BSE (6 items), perception of the barriers of mammography (5 items),

confidence in utilizing breast cancer tools (11 items), and health motivators (7 items) that

propel her to utilize those tools. Each item is rated on a five-point Likert scale with answers ranging from *Strongly Disagree* with a score of 1 point to *Strongly Agree* with a score of 5 points. Minimum and maximum values for subscales are susceptibility (5-25), seriousness (7-35), benefits- BSE (6-30), confidence (11-55), health motivation (7-35), benefits of mammography (6-30), and barriers to mammography (5-30).

Breast Cancer Screening Behaviors

Theoretical definition. Breast cancer screening behaviors refers to participation in the recommended breast cancer screenings such as performing BSE monthly, having CBE, or having mammogram as recommended by healthcare professionals, ACS (2012), CDC (2012), and NCI (2012).

Operational definition. For this study, breast cancer screening behaviors were measured by the demographic instrument, which was operationally defined by items 17-24 on the demographic instrument. Composite scores of these items were analyzed with higher scores indicating increased breast cancer screening behaviors and lower scores indicating decreased breast cancer screening behaviors.

Breast Self -Exam (BSE)

Theoretical definition. Breast self-examination is the inspection and palpation of one's own breast for detecting any changes or abnormalities (American Cancer Society, 2012).

Operational definition. For this study, BSE was measured by the knowledge questions on Champion's Health Belief Model Scale (CHBMS) (Champion, 1988; Champion, 1999).

Clinical Breast Exam (CBE)

Theoretical definition. A breast examination performed by a physician or trained nurse. CBE is a complement to mammograms and an opportunity for women and their doctor or nurse to discuss changes in their breasts, early detection testing, and factors in the woman's history that might make her more likely to have breast cancer (American Cancer Society, 2012).

Operational definition. For this study, clinical breast examination was self-reported by the participants.

Mammography/Mammogram

Theoretical definition. An X-ray exam of the breasts in a woman. The goal of a screening mammogram is to find cancer when it is too small to be felt by a woman or her doctor. Finding small breast cancers early with a screening mammogram greatly improves a woman's chance for successful treatment (ACS, 2012)

Operational definition: For this study, mammography was self-reported by the participants in the demographic questionnaire.

<div align="center">

Research Questions and Hypotheses

</div>

Research Questions

In reviewing the information that forms the background of this problem, research questions can be generated. This study's research questions were as follows:

1) Does the level of acculturation influence breast cancer screening behaviors among Vietnamese American women living in Florida?

2) Do health beliefs influence breast cancer screening behaviors among Vietnamese American women living in Florida?

3) Do selected demographic variables (e.g., age, education, employment, insurance status, and marital status) have an influence on breast cancer screening among Vietnamese American women living in Florida?

The rationale for inclusion of these demographics, or attribute variables, was drawn from the review of literature on acculturation, health beliefs, and breast cancer screening behaviors on Vietnamese women.

Hypotheses

Based on an extensive literature review and the theoretical foundations formed during this study and the historical and cultural aspects of the Vietnamese immigrants, three hypotheses was proposed that was tested in this study:

H1. There was a positive relationship between acculturation levels and breast cancer screening behaviors among Vietnamese American women living in Florida.

H2. There was a positive relationship between health beliefs and breast cancer screening behaviors among Vietnamese American women living in Florida.

H3. Age, education, employment, insurance status, and marital status will make significant independent and combined contributions to breast cancer screening behaviors among Vietnamese American women living in Florida.

<div align="center">

Theoretical Framework

</div>

The Health Belief Model (HBM) presented by Rosenstock, Strecher, and Becker (1988) will provide the theoretical framework for this study. The theoretical base for this

model was initially formulated by Hochbaum, Leventhal, Kegeles, and Rosenstock during the 1950s with only four constructs: susceptibility, severity, benefits, and barriers (Becker, 1974). Later, confidence and health motivation were added to these constructs (Rosenstock et al., 1988). The HBM has been used to identify persons engaging in health promotion activities because they value health, define disease as a threat with serious avoidable consequences, and expect positive outcomes from the activities (Becker, 1974; Rosenstock et al., 1988; Strecher & Rosenstock, 1997). This model has been commonly used in various studies predicting health-related screening behaviors, specifically women at risk for breast cancer (Avci, 2008; Champion, 1984; 1987; 1993; 1999; Champion & Scott, 1997; Dundar et al., 2006; Gozum & Aydin, 2004; Karayurt & Dramali, 2007; Lee, Kim, & Song, 2002; Park, Hur, Kim, & Song, 2007; Nahcivan & Secginli, 2007; Parsa, Kandiah, Nasir, Hejar, & Afiah, 2008; Petro-Nutus & Mikhail, 2002; Russell, Champion, & Perkins, 2008; Secginli & Nahcivan, 2004; Wyper, 1990). The six constructs of the HBM (i.e., perceived susceptibility, perceived severity or seriousness, perceived benefits, confidence, and health motivation or cues to action) were discussed in association with breast cancer screening behaviors.

Perceived Susceptibility

Perceived susceptibility relates to individuals' beliefs regarding the risks or chances of contracting a particular disease or condition. This construct can range from the denial of contracting the disease to being very aware of the possibility of contracting the disease or condition (Becker, 1974). Regarding breast self-exams (BSE), clinical breast exams (CBE), or mammography, a woman who is aware of a family history of

breast cancer may engage in screening activities if she feels susceptible to the disease. An increase in perceived susceptibility has been linked to an increase in breast cancer screening behaviors (Champion, 1999; Chen, Diamant, Thind, & Maly, 2008; Petro-Nustus & Mikhail, 2002).

Perceived Severity

Perceived severity or seriousness is concerned with how threatening the condition is to the person. Perceived severity is a perceived harmful consequence of the condition to personal physical health, role and social status, or ability to complete desired task (Champion, 1984). Perceived susceptibility and perceived severity were together identified as a threat and initially combined in the HBM as a predictor of preventive behaviors (Becker, 1974). Therefore, a threat must be recognized before health promoting behaviors will occur. Regarding SBE, CBE, or mammography, a woman must perceive that breast cancer is both serious and that there is a possibility that she is personally at risk for breast cancer (Champion, 1999).

Perceived Benefits

Perceived benefits refer to perceived positive attributes of an action in reducing the threat of the disease or condition (Becker, 1974). Regarding SBE, CBE, or mammography, a woman must perceive that benefits to breast cancer screening directly relate to early detection and treatment, resulting in a reduction in morbidity (Champion, 1999).

Perceived Barriers

Perceived barriers refer to negative aspects of the anticipated behavior that would be accepted for the purpose of preventing or detecting disease, maintaining health, and curing or decreasing consequences of the disease state (Becker, 1974). These barriers may be psychological or psychosocial factors. Psychological factors may include health beliefs, modesty, embarrassment, perception of others, knowledge deficits, or fear (Champion 1984; 1985). Psychosocial factors may be cost, socioeconomic class, religion, or cultural aspects. These factors may be affected by demographic factors such as age, educational level, employment, insurance status, or marital status (Champion, 1984; 1985). Perceived barriers have been found to predict women's utilization of mammogram or perform BSE or CBE (A'Davanzo, 1992; Champion, 1999; McGarvey et al., 2003). If a woman perceives more benefits of and fewer barriers to BSE, she would be more likely to practice BSE (Foxal, Barron, & Houfek, 1998; Ho et al., 2005; Petro-Nustus & Mikhail, 2002).

Confidence

Confidence refers the conviction that the individual has that an action will achieve a desirable outcome (Rosenstock et al., 1988). It is the confidence that a person has to successfully perform an action such as BSE. If a woman is confident and knowledgeable in performing BSE or having a CBE, she will decrease her chances of breast cancer morbidity through early detection, diagnosis, and treatment.

Health Motivation

Health motivation refers to a state of concern about general health matters that results in a positive health activity and willingness to seek and comply with orders that are believed to decrease disease (Rosenstock et al., 1988). It can be facilitative cues or reinforcing factors that may influence individuals to seek treatment or comply with recommendations. A woman wanting to improve her health and confidence of positive results will opt to perform BSE (Champion, 1993; Champion & Menon, 1997).

The model (Figure 1) suggests that an individual's motivation to engage in breast cancer screening is influenced by levels of acculturation, selected demographics, and health beliefs. The HBM has been used to explore the influence of health beliefs on breast cancer screening behaviors nationally and internationally (Avci, 2008; Champion, 1984; 1987; 1993; 1999; Champion & Scott, 1997; Dundar et al., 2006; Gozum & Aydin, 2004; Karayurt & Dramali, 2007; Lee et al., 2002; Park, Hur, Kim, & Song, 2007; Nahcivan & Secginli, 2007; Parsa et al., 2008; Petro-Nutus & Mikhail, 2002; Russell et al., 2008; Secginli & Nahcivan, 2004; Wyper, 1990).

Figure 1. The Health Belief Model adapted by Nguyen (2012) to depict the relationship among variables that may influence breast cancer screening behaviors.

On the basis of the HBM, Champion adapted, redeveloped, and revised the Champion's Health Belief Model Scale (CHBMS) for breast cancer screening such as BSE and mammography screening (Champion, 1999). The model was revised twice prior to 1999 (Champion, 1984; 1997). The instrument from this adaptation was utilized for this study to measure the influence of an independent variable, health beliefs, on breast cancer screening behaviors.

Relationship of Model to the Study

According to the HBM, it is proposed that if individuals perceive their own susceptibility to a disease, believe that the disease is severe, recognize the benefits as well as the barriers to preventive action, feel confident performing the action, and are

motivated in health matters, there is a high likelihood that the individual will engage in preventive behavior for that disease. Because this model is focused on perceptions and subjective probability estimates of benefits and barriers to action, it has been described as cognitively based, decision-making model (Lauver, 1987).

The HBM may assist the researcher and healthcare providers to understand how health beliefs influence the breast screening behaviors among Vietnamese American women in Florida. In addition, this model helps identify the knowledge deficits and educational needs for this population regarding breast cancer, prevention, and screening. It is an appropriate theoretical framework in studying their knowledge, risks, seriousness, benefits, barriers, and motivation to health prevention recommendations such as SBE, CBE, and mammography. To decrease breast cancer morbidity and mortality among the Vietnamese population through education, early detection, and early treatment, the need to understand the extent of which factors (i.e., acculturation, selected demographics, or health beliefs) that may influence their breast cancer screening behaviors is paramount.

<div align="center">

Assumptions

</div>

The following assumptions were applied to this study:

1) The HBM as a framework for research is supported by empirical studies.

2) The research instruments selected to measure the variables actually measures the variables under investigation, and not some closely related variable.

3) The data analysis techniques utilized to analyze and interpret the data is appropriate for the study (Creswell, 2011).

4) The researcher's biases will not influence the participants or the results of the study (Slife & Williams, 1995).

5) Participants will have the appropriate reading and comprehension level necessary to participate in the study.

6) The participants will freely participate in the study.

7) The participants were honest and truthful when answering the questionnaires.

<div align="center">

Significance of the Study to Nursing

</div>

It is anticipated that the results of this study are significant to nursing in terms of education, practice, research, and public policy.

Nursing Education

In terms of education, this study was significant in that it may add to the growing body of knowledge regarding a phenomenon that has not been extensively studied. It is anticipated that the knowledge gained from this study may enable nurses and other healthcare professionals to provide ongoing education about breast cancer screening recommendations and its importance and help women to detect early signs of breast cancer. This study may also provide a better understanding of how levels of acculturation and health beliefs influence breast cancer screening. Benefits of nurses and healthcare providers to understand the specific health beliefs of the Vietnamese Americans are to develop culturally and linguistically appropriate educational materials and outreach programs within the community of this population. Furthermore, nurses may be able to broaden their understanding of the factors that influence Vietnamese women's breast cancer screening behaviors.

Nursing Practice

Nurses and other healthcare providers have an important task in giving women advice and education aimed at preventive behaviors and encouraging a healthy lifestyle. This study may contribute and guide evidenced-based practice that may be useful for nurses who work with the Vietnamese population or are unfamiliar with the Vietnamese population. The results of this study may also identify the knowledge deficits and educational needs of this population. Nurses recognizing the needs of this population can be instrumental in making healthcare organizations aware of variables impacting on the health-seeking behaviors of this population. Furthermore, study findings can be used to develop culturally and linguistically appropriate educational materials and programs and nursing interventions focused on breast cancer screening for Vietnamese women. According to the CDC (2012), in order for breast cancer screening programs to be successful, there is a continuing need to reflect the cultural, socioeconomic, and health beliefs of women in the intended community.

Nursing Research

This study could contribute to the knowledge base of this topic. This study may be the first and only study that focused on the levels of acculturation, health beliefs, and breast cancer screening among Vietnamese women in Florida. This study can guide evidenced-based practice and research in the care of this population on breast cancer. Research indicates many Vietnamese American women have misconceptions of breast cancer and many are unaware of cancer screening tests (Ho et al., 2005; Jenkins et al., 1999; Jenkins et al., 1996; Nguyen, Belgrave, & Sholley, 2010; Sadler, Dong, Ko, Luu,

& Nguyen, 2001;Yi, 1994; Yi & Luong, 2005) causing low participation rates (Donnelly, 2008; McGarvey et al., 2003; Sadler et al., 2001). If found in its early stage, the precursors to breast cancer can be treated, preventing the progression to invasive cancer. In addition, this study may attempt to reduce health disparities by identifying, reducing, or removing barriers that prevent breast cancer screening among Vietnamese women which may decrease mortality and morbidity.

Nursing Health/Public Policy

Regarding health/public policy, this study addresses a leading health indicator addressed in the Healthy People 2010 objectives and goals for Asian American/Pacific Islanders (Ghosh, 2003). Specifically including the Vietnamese population, 4 of the 15 objectives and goals were to 1) reduce the overall cancer death rate, 2) reduce breast cancer death rate, 3) increase the proportion of women aged 40 years and older who have received a mammogram within the preceding two years, and 4) increase the number of states that have a statewide-population based cancer registry that captures case information on at least 95% of the expected number of reportable cancers. Responsible action is important to decrease the incidence of breast cancer. The overall goal is to reduce the incidence and mortality rates of breast cancer and increase the number of women screening by ending the number of health disparities among Vietnamese American women (ACS, 2012; CDC; 2012; NCI, 2012; Ghosh, 2003).

This study was significant and important in that it was congruent with governmental policy. It adopted a preventative approach by first understanding the Vietnamese population, their healthcare needs regarding breast cancer and screening,

levels of acculturation, and health beliefs regarding breast cancer screening. Preventative approaches are consistent with primary prevention behaviors that it examines the relationship between behavioral and beliefs that influence health (NCI, 2012). For example, behavioral factors such as smoking and poor dietary choices that may result in death from cancers such as colon, endometrial, and breast (NCI, 2012). Early detection measures remain the first priority as recommended by National Cancer Institute (NCI) (2012) and the WHO (2012) for national health programs against breast cancer. If these factors are identified early and interventions can be developed to address these factors, perhaps the incidence and mortality of breast cancer among Vietnamese women can be decreased.

This study could build on the existing knowledge base of Vietnamese women in California, Texas, Australia, and Canada. It could also fill some gaps in the scientific knowledge, which will be discussed in the review of literature in Chapter Two. This study could serve as a point of origin for additional research studies with this population. Furthermore, this study may provide much needed information on breast cancer screening behaviors of this understudied population.

<div align="center">**Scope and Limitations to the Study**</div>

Scope

The sample for this study included women living in Florida who are a minimum of 18 years of age and self-identified Vietnamese American ethnicity. This sample may be recruited using a community-based sampling strategy, meaning that participants were recruited at public sites frequented by women such as Asian grocery stores/markets, nail

salons, restaurants, churches, and Buddhist temples. The main focus of this research study is to predict the influence of acculturation and health beliefs on breast cancer screening behaviors among Vietnamese American women living in Florida.

Limitations to the Study

A few limitations were identified in this study. Three major limitations that may affect the results of this study include:

1) Measurement of data at one point in time. Since data was collected on these participants at only one point in time, inferences about the participants' levels of acculturation, health belief, and breast screening cannot be made.

2) Due to the use of snowball sampling, findings from this study were limited with respect to generalizability and sampling error may be present (Creswell, 2011; Polit & Beck, 2003). This study was limited to bilingual Vietnamese women, which may exclude other possible participants who only speak, read, and write Vietnamese, which may affect generalizability.

3) This study used self-reported measures, which may represent inaccurate data and affect the validity of study findings (Creswell, 2011). In addition, the researcher was present during data collection; therefore, the participants may answer some questions based on social desirability and not answer truthfully or leave questions blank, which could also affect the results of the study.

Threats to External Validity

Threats to external validity may occur because the Vietnamese American participants only lived in Florida, which is not representative of the overall Vietnamese

population. Therefore, the findings cannot be generalizable to all Vietnamese women. Sampling bias may occur due to the selection of a convenience sample, which can further limit generalizability and may compromise the validity to the study findings.

Threats to Internal Validity

Threats to internal validity may occur since this study is a non-experimental research; therefore, it will not have a control group or an experimental group. Another threat to internal validity may occur with the data collection procedures. Since the researcher was present to collect the data, participants may not truthfully answer the self-reported questionnaire; instead, they may answer in a more socially acceptable way. The instruments used in this study have never been used in the Vietnamese American population in Florida; however, they have been used in similar studies (Ho et al., 2005; McGarvey et al., 2003; Nguyen & Belgrave, 2012; Nguyen et al., 2010; Nguyen, Hood, & Belgrave, 2012; Tang et al., 1999; Yi, 1995).

Chapter Summary

In summary, this chapter discussed the introduction of the topic and background of the study, which included the global impact, the impact within the U.S., the Vietnamese American population, and the Vietnamese American population in Florida. It also discussed the problem statement, purpose of the study, definition of key terms from a theoretical and operational definition, research questions and hypotheses, theoretical framework using the Health Belief Model (HBM), assumptions, significance of the study to nursing as it relates to education, practice, research, and health/public policy, scope and limitations of the study, and threats to external and internal validity.

CHAPTER TWO

The purpose of this study is to determine how the levels of acculturation, health beliefs, and identified variables such as age, education, employment, insurance, and marital status influence breast cancer screening behaviors among Vietnamese American women living in Florida.

Review and Critique of the Literature

This chapter will present a review and critique of the existing literature on the variables under investigation in this study: Health Belief Model as it relates to health beliefs, acculturation, and breast cancer screening behaviors among Vietnamese women. A review of each variable will occur with a critique of the existing literature immediately following the review. Qualitative, quantitative, and mixed method studies were reviewed to support the discussion.

Sources of Literature Review

A literature search was conducted from a variety of disciplines in order to gather information on the topics of study. Databases utilized included Academic Search Premier (EBSO), Cumulative Index for Nursing and Allied Health Literature (CINAHL), Dissertation Abstracts, ERIC, Health and Psychosocial Instruments (HAPI), Ovid, MedLine, Proquest, PsychoInfo, PubMed, and Women's Studies. Additionally, Internet search engines such as Google and Yahoo were used to obtain information. Research studies, theory-based publications, and books were searched from 1990 through 2012. All search results were limited to writings in the English language.

Electronic bibliographic databases were searched using identified keywords and phrases such as: (a) acculturation, (b) health beliefs, (c) breast cancer behaviors and

Vietnamese Women, (d) Vietnamese women, Florida, and breast cancer screening. These key words and phrases were searched in combination with each other studies to further expand the research. Printed materials and article reference lists were hand searched to identify materials to include in this literature review was representative of the current published nursing literature. Since there was little nursing research conducted in the area of breast cancer screening in Vietnamese American women, the literature search was extended to other disciplines such as community and public health, behavioral science, medical science, and psychological science. Even with broader search efforts, there were not many published studies found. In order to have a longitudinal understanding of the progress of the behavior research in this population, the literature search included studies from the 1970s when the Vietnamese first migrated to the U.S. In addition, to further understand the acculturation, health beliefs, and breast cancer screening behaviors of this population in various geographic locations, the literature search was expanded to different countries outside the U.S.

Articles and research reports deemed appropriate for this study were pulled from literature and classified into the following categories: (a) The Health Belief Model and Breast Cancer Screening , (b) Acculturation, (c) Health Beliefs, and (d) Breast Cancer Screening and Vietnamese.

The Health Belief Model

As stated in Chapter One, the Health Belief Model (HBM) (Rosenstock et al., 1988) with the six constructs (i.e., susceptibility, severity, benefits, barriers, confidence, and motivation) was the theoretical framework used to guide this study. It has been used to predict the behaviors of certain groups to take the recommended health actions (i.e.,

health screening or prevention) towards an illness or disease prevention. Many researchers have used the HBM as a theoretical framework, either by itself or in combination with another framework to predict screening behaviors among various populations. It has been widely used to guide healthcare practices and cancer screening behaviors in a various disciplines and across various cultures.

Adapted from the HBM, Champion's Health Belief Model Scale (CHBMS) (1999) was utilized for this study to measure the influence of health beliefs on breast cancer screening behaviors. The CHBMS has been commonly used in breast cancer screening studies in various disciplines and across multiple cultures and ethnicities.

Vietnamese American Women and Breast Cancer Screening

In 1992, D'Avanzo conducted a study to better understand the reasons why Vietnamese refugees may not optimally use existing health services since they are the largest group of Southeast Asians in the U.S. The research asserts that this group is a poorly understood minority group. Their healthcare needs and health-related behaviors have had little research conducted. The HBM (Rosenstock, 1966) was used as the conceptual framework to guide this study. A random sample of 75 refugees living in Connecticut was interviewed by a bilingual translator. The age range of the refugees was 20 to 60 years. The majority of the sample (76%) was between the ages of 20 and 40, and the rest were greater than 40 years old (24%). The Vietnamese refugees were divided into three groups based on time of arrival to the U.S. (1975 to 1980, 1981 to 1985, and 1986 to 1990), which was one of the research variables. A linguistically appropriate

questionnaire was designed to measure barriers to heath care use, demographics, and

sociocultural data. Multivariate analysis of variance (MANOVA) was used to analyze

the effects of time arrival on whether not having a translator available in healthcare

facilities, feeling understood by healthcare providers, being able to understand the written

and verbal instructions of providers, or not having a primary provider are barriers to care.

The results indicated two different but related concepts of obstacles: access and perceived

barriers. Other results indicated that time of arrival groups would differ significantly on

those variables (F=4.81; df =8,136, p<0.001). In distinguishing the groups, willingness

to seek more frequent healthcare if a translator were provided ranked first (F=18.22; df

=2,72, p <0.001). In addition, the willingness to change healthcare sites to gain a

translator ranked fairly high as well (F=13.74; df=2,72, p <0.001). The researcher

indicated a gradual increase in confidence concerning understanding and being

understood by providers, with the newest arrivals having the highest level in lack of

confidence. The assimilation of Vietnamese refugees into the U.S. healthcare system is

gradual and may be closely tied to their perceived ability to communicate healthcare

needs. It is suggested by the researcher that a need to gain more understanding of the

behavioral and cultural characteristics of this population could facilitate the hiring of

translator within the healthcare setting. Although this study was not specific to

Vietnamese women and breast cancer screening, the HBM was used to guide the research

study. In addition, time of arrival was reported to be linked to levels of acculturation and

barriers to care regarding cancer screening behaviors, which are variables within the

current study. Furthermore, the described Vietnamese population in this study could be

applied to the current study since they are similar in various characteristics. This study

provided strong bases for further studies that can be expanded to specific diseases such as

breast cancer.

Ho and colleagues (2005) conducted a study of 209 Vietnamese women living in

Harris County, Texas to characterize the demographic factors, beliefs, and barriers to

cervical and breast cancer screening. The CHBM (1993) was the framework used to

assess attitudes regarding risk of breast cancer and to design component assessing risks of

cervical cancer. Participants' ages ranged from 20-88 years ($M = 44.4$ years). A

language-appropriate questionnaire was developed using translation and back translation

method to address the construct of the HBM (susceptibility, seriousness, benefits,

barriers, and health about screening for breast and cervical cancer). The questionnaire

was mailed out to women using the telephone directory and church directories.

Descriptive statistics were used to analyze the data. Cronbach's alpha was used to

measure internal consistency for each of the five constructs of the HBM, which ranged

from 0.67 to 0.86. The results of breast cancer screening behaviors indicated that the lack

of barriers ($p < 0.001$), age ($p < 0.0001$), a high education level ($p < 0.056$), presence of

family history of cancer ($p < 0.056$), married status ($p < 0.001$), and seriousness of the

perceived disease (73%) were statistically significant in positively predicting the use of

screening examinations and tests. The researchers indicated that simple interventions

would be of value such as dissemination of information about screening programs in

which people can be seen by a healthcare provider and receive test results the same day.

Although this study was relevant and pertinent to the current study, it combined breast

and cervical cancer screening, which are completely different types of screening. Pap smears for cervical cancer screening are much more invasive than BSE, CBE, or mammography. It would be interesting if this study could be replicated to only address breast cancer screening in Harrison County, Texas. This study supported the previous studies that Vietnamese women continue to have lower screening rates even with free educational programs. Lack of barriers, higher educational level, married status, and susceptibility and severity remain to be incongruent with each other when predicting breast cancer screening behaviors.

McGarvey et al.(2003) studied the differences in cancer screening practices and attitude among low-income Hispanics, Vietnamese, and Cambodian women living in northern Virginia. The HBM was used to determine the participant's readiness to act or comply with cancer screening recommendations in relation to whether she perceived that she was susceptible to breast cancer. The sample consisted of 78 women (25 Hispanics, 28 Vietnamese, and 25 Cambodian) who were recruited from a health and occupational counseling agency. The inclusion criteria included women at age 40 or older who had an income at or below the federal poverty level. CHBMS was used to measure the participant's attitudes regarding risk of breast cancer and breast cancer screening behaviors. The interviews were conducted either at the participant's homes or at the agency using the participant's native language. The results indicated that the Vietnamese group reported having the lowest income level with the medium annual income of $11,699 (SD=$8,229). It was found that there was a significant main effect of ethnicity on health and screening beliefs (Wilk's Lambda, $F[16,96]=4.63$, $p <0.001$); between

group differences in Confidence (F[2,62]=17.59, $p<0.001$); motivation (F[2,62]=13.43, $p<0.001$); and susceptibility to getting cancer (F[2,62]=6.85, $p<0.001$). There were no significant differences found between the groups in the receipt of mammogram (47% Vietnamese, 54% Hispanic, and 64% Cambodian). The Vietnamese and Cambodian groups were found to perceive cancer to be more serious. Therefore, they were more motivated to act or find ways to detect cancer at an early stage. However, the Vietnamese women differed significantly than the Cambodian in susceptibility (p <0.001), confidence ($p <0.001$), and motivation ($p <0.001$). Interestingly, it was found that the Vietnamese and Hispanic women were more alike than Vietnamese and Cambodian women in other areas. This study was relevant and adds to the current body of knowledge by including breast cancer screening, but it also included cervical cancer, which was not the intent of this study. Comparing three different ethnic groups to determine cancer screening practices and attitudes does not provide a clear understanding of their cancer screening behaviors, as they are all culturally different in health beliefs. It would be interesting if the study could have focused specifically on breast cancer screening behaviors and Vietnamese American women in various demographic locations that are stratified by various socio-economic factors or conduct a similar study that separates each ethnic group.

Phipps, Cohen, Sorn, and Braitman (1999) conducted a pilot study on cancer knowledge, beliefs, and attitudes among Vietnamese and Cambodian women living in Philadelphia, Pennsylvania. Using a qualitative approach, a bilingual Vietnamese and a bilingual Cambodian interviewer interviewed the participants over the phone by asking

open-end questions about health beliefs and healthcare experience. In addition, the

interviewers asked questions that included demographics (e.g., gender, place of birth,

age, education, employment status, and years living in U.S.), knowledge about cancer and

cancer prevention, perception of one's own health, experience with OB-GYN

examinations (e.g. Pap testing, mammograms, breast exams, and follow-up exams),

smoking and alcohol use, and language of preference when communicating with

healthcare professionals. A convenience sample (N =38) of Cambodian and Vietnamese

women were identified though a registry of patient who received prenatal care at an OB-

GYN clinic (n =28) and a registry of community organization serving the Vietnamese

community (n =10). Women aged 21 and older from Cambodia (M n =34, M =33.3, SD

=9.2) and Vietnam (Mdn =34, M =31.3, SD =7.6 in clinic versus Mdn =46, M =48.9, SD

=7.4 in community) participated in the study. Cambodian women (Mdn =9, M =8.2, SD

=3.3) were found to have lived in the U.S. longer than the Vietnamese women (Mdn =4,

M =4.7, SD =2.9 in clinic versus Mdn =6, M =6.6, SD =4.1 in community). However,

Vietnamese women (Mdn=5, M=6.1, SD=3.7 in clinic versus Mdn=8, M=8.4, SD=5.2 in

community) were found to be more educated than Cambodian women (Mdn=3, M=4.7,

SD=4.0). The researchers found that 27 (71%) (95% CI, 54% to 85%) women did not

know what cancer was. Many women in the clinic group (82%) did not know what

cancer was compared with the community group (40%) (p =0.001). Cambodian women

(84%) did not know what cancer was compared to Vietnamese women (47%) (p =0.038).

Also, they found that lack of knowledge about cancer was associated with less education

(Mdn = 3 years versus 6 years in women who knew what cancer was) (p =0.035).

Women who did not know what cancer was were found to be younger (*Mdn* =34 years) than those who knew what cancer was (*Mdn* =43) (*p* =0.002). Cancer knowledge was not found to be associated with number of years living in U.S. (*p* =0.60). The majority of the women (74%) (95% CI, 57% to 87%) were unable to name a way to prevent cancer. The researchers found that answers to questions on what cancer was and how to prevent it were strongly associated (*p* <0.001). None of the participants went to physicians who spoke their native language. The majority of the women (79%) reported that they relied on a clinic translator to communicate with the physician. The researchers concluded that there were many deficiencies in cancer knowledge, prevention, and screening behaviors especially among individuals who were less educated, less proficient in English, and younger. Interestingly, length of time in the United States was not found to be related to the participant's knowledge and beliefs about cancer. The researchers also concluded that language barriers, with the majority of women communicating through translators, made it more difficult to acquire new knowledge about cancer and cancer prevention. Several limitations were found with this study. One of the limitations was the sampling technique, which only included participants from a clinic or community organization which excluded other Cambodian and Vietnamese groups. Another limitation was the small sample size and use of convenience sampling which affects the reliability, validity, and generalizability of results. Since many of the Vietnamese participants accessed the clinic, they may have been more motivated regarding their healthcare and were exposed to more medical information about breast and cervical cancer than Cambodian women. This study and its results were very valuable regarding the educational needs of the

Vietnamese and Cambodian women. The researchers provided detailed information regarding statistical data, which was helpful when referring to the results and discussion. However, this study examined both breast and cervical cancer screening among the Vietnamese and Cambodian. It would be interesting to limit the research to the Vietnamese population and breast cancer, which would be helpful in this current study.

Sadler and colleagues (2001) conducted a descriptive study on breast cancer knowledge, attitudes, and screening adherence among a convenience sample of 275 Vietnamese women using the HBM as the theoretical framework. Participants were recruited through a breast cancer education program and the opportunity to participate in the program's baseline and follow-up survey to women who were shopping at the collaborating Asian grocery store. The participants' ages ranged from age 20 to 71 years (M=42 years, SD=12 years). Nearly all of the women (98.1%) reported Vietnamese as their native language. Telephone follow-up calls were made to each participant and if unable to reach after 10 attempts, the follow-up survey was mailed. Using descriptive analysis, the baseline results indicated that a SBE within the past month was reported by 23% (65) of the participants. Of the 180 women aged 40 years and over, 41% (75) reported a CBE and only 30.5% (55) reported having a mammogram within the past 12 months. Among the 109 women, aged 50 years and older, 36.7% (40) reported a CBE, and 23% (26) reported mammogram within the past 12 months. When asked about their most common barriers to breast cancer screening, the responses were 47.6% (131) lack of time, 20.7% (57) language barriers, 10.9% (30) lack of money, 6.5% n (18) did not want to think about breast cancer, 6.2% (17) felt the topic was embarrassing to discuss, 5.5%

(15) did not believe that breast cancer education was important, and 3.6% (10) reported transportation challenges. Interestingly, of the 275 women, 81.1% (223) were willing to receive personal educational on breast cancer screening. In a follow-up survey, only 178 women completed the survey by either telephone interview or by mail. The follow-up results indicated that of 116 women, 48.6% (56) of at least 40 years old had set up a clinic breast cancer screening. It was found that 47.8% (67) of women greater than age 50 years reported having set up a mammogram screening. The results of this study remain to indicate that Vietnamese women continue to have low adherence rates to breast cancer screening even with free educational offerings. Barriers of screening were reported as lack of time, language barrier, and cost. This study supported this research by indicating that low screening rates for breast cancer remain to be a concern for this growing Vietnamese population. This study was conducted in California where majority of the studies on the Vietnamese population occur. It would be interesting to replicate this study in other states within the U.S. where a higher population of Vietnamese reside.

In summary, there were many studies found utilizing the HBM and breast cancer screening behaviors among various ethnicities and cultures since the 1950s. However, very few studies were found that included or in combination of HBM, acculturation, health beliefs, breast cancer screening behaviors, and Vietnamese American women. Some of the studies addressed breast and cervical cancer while other studies included other types of cancers and diseases and Vietnamese people but not specific to Vietnamese women. Due to the paucity in literature on the research topic, this study is warranted and necessary to explore if there is an influence of acculturation and health beliefs on breast

cancer screening behaviors among Vietnamese American women living in Florida. This

study added to the current state of knowledge and filled the gaps in knowledge about this

growing Vietnamese population in Florida.

Acculturation

Vietnamese American Women and Breast Cancer Screening

Yi (1995) examined the role of acculturation, access to healthcare, and the

utilization level of four major preventive health services (e.g., clinical breast

examination, Pap smear testing, routine physical examination and blood pressure

measurement) among Vietnamese women (n=141) living in Western Massachusetts.

Participants' ages ranged from 18 and 65 years (M=34). Data was collected through

telephone interviews using a demographic survey by two bilingual Vietnamese women a

modified Suinn-Lew Asian Self-Identity Acculturation (SL-ASIA) scale during October

and December 1991. Access to care was measured by asking questions regarding type of

health insurance, if participants usually see a particular physician/provider and use a

regular place for healthcare. Four dependent variables were used to measure the

utilization of preventive health services (e.g., clinical breast exam (CBE), Pap smear

testing, blood pressure measurement, and routine physical examination). Descriptive

statistics (e.g., mean, variance, frequency, tabulations, and standard deviations) were used

to calculate variables of interest. Chi-square statistics was used to test the association

between use of preventive health services and selected demographics. One-way analysis

of variance and t-tests were used to compare categories of preventive health and access

variable. The results indicated that participant age, having a child, education, and

employment status were significantly (p=<0.05) related to type of insurance coverage. Employment status was related to having a regular place for care. In addition, access was related to socioeconomic factors. Using the Tukey multiple comparison test, women with private insurance/HMOs had a significantly (p =<0.001) higher language score (more English usage) than women with Medicaid/Medicare coverage or no insurance coverage. Length of residence in the U.S. was significantly (p =<0.001) associated with having a regular physician for care. Also, length of residence (M =7.7 years versus M =3.7 years) was found to be significantly (p =<0.0001) associated to having CBE versus not ever having CBE. Interestingly, other preventive services such as routine physical examination (p =<0.0001), blood pressure testing (p =<0.0001), and Pap smear testing (p =<0.003) were also significantly associated with length of residence in the U.S. The adjusted odds ratios indicated that length of resident increases, the probability of ever having had a Pap smear increases (OR =1.16, 95%, CI [1.27, 1.05]). The researcher found that Vietnamese women were less likely than the general population to utilize preventive health services. In addition, it was found that more acculturated women had more access to care than those who were less acculturated. Furthermore, length of residence in the U.S. had an independent effect in predicting prior use of preventive health services, Pap test, and CBE. Although the results to this study were valuable, several limitations were found with this study. The study employed self-reported measures of the use of preventive health services which are vulnerable to self-presentation biases. The participants may have underreported socially undesirable behaviors or over-reported desirable behaviors. This study could not be generalizable to

the overall Vietnamese population since the sample size was small. In addition,

participant households were identified and located by telephone directory, which exclude

those households with non-published phone numbers, no telephone service, or non-

Vietnamese last names. This was a good study since it utilized SL-ASIA and breast

cancer screening tools to measure acculturation and breast cancer screening behaviors.

However, the study also included cervical cancer, which was not applicable to the current

study. Therefore, results for cervical cancer were not addressed. However, it would have

been interesting to conduct a study solely dedicated to breast cancer screening utilizing

the SL-ASIA.

Tang et al. (1999) conducted a study to examine the role of cultural factors and

acculturation levels in breast self exams (BSE) and cervical cancer screening among

college aged Asian (*n*=156) and Caucasian (*n*=50) women living in the U.S.

Acculturation factors included global acculturation, values, behavioral competencies, and

self-perceived identity. Results for cultural values and breast and cervical cancer

screening were discussed in subsequent sections. The 26-item Suinn-Lew Asian Self-

Identity Acculturation Scale (SL-ASIA) was used to measure levels of acculturation in

participation of breast and cervical cancer screening. The researcher did not find any

acculturation factors as significant predictors for ever performing BSE among Asian

women. The only variable found to be a significant predictor of ever performing BSE

was openness around sexuality (*p*=0.01), with Asian women who were more open around

their own sexuality more likely ever to have performed BSE. In addition, acculturation

factors such as global acculturation (*OR*=2.5, *CI* =0.93, 6.75), values (*OR*=0.74, *CI*

=0.47, 1.16), behavioral competencies (OR=1.15, CI=0.62, 2.11), and self-perceived identity (OR=1.09, CI=0.58, 2.05) were found to be significant (α^2= 3.14, p<0.001) with ever performing BSE. The researchers also found acculturation factors such as global acculturation (OR=3.08, CI=1.14, 8.31), values (OR=1.02, CI=0.67, 1.57), behavior competencies (OR=1.27, CI=0.69, 1.57), and self-perceived identity (OR=0.82, CI=0.43, 1.55) to be significant (X^2=11.37, p=0.001) for Pap test screening. In addition, the researchers found that Asian women who were in later years in college, who had ever engaged in sexual intercourse with a male, who had a prevention orientation toward health, and who were more acculturated were more likely to have ever gotten a Pap test. They concluded that acculturation levels significantly impact breast and cervical screening behaviors. It was surmised that the more Americanized a woman was, the more likely she was to have received a Pap test. In addition, screening behaviors are influenced largely by family, as reflected in global acculturation, which is based upon parental ethnic identification and country of birth, language preferences, and traditional cultural involvement. This was an interesting study that examined the role of culture and levels of acculturation on breast and cervical cancer screening. However, this study did not stratify the Asian population, which was difficult to determine the groups that had the higher level of cultural barriers or low levels of acculturation. Furthermore, this study included cervical cancer along with breast cancer, which was not the variable relevant to the literature review but did add value to the perspective of cancer screening behaviors to Asian American women.

Pourat, Kagawa-Singer, and Breen (2010) conducted a research study to compare the impact of access versus acculturation on breast and cervical cancer screening among a sample size of 2145 American Asian women that consisted of subgroups. These subgroups were stratified into Chinese (733), Filipina (428), Japanese (257), Korean (309), Vietnamese (273), and South Asian (199). The participant age ranged from 18 to $\geq$65 years. The data was taken from a 2003 California Health Interview Survey (CHIS). The conceptual framework used for this study was a modified Andersen's framework of healthcare access and utilization to conceptualize the impact of access and acculturation indicators on cancer screening. Data were analyzed using logistic regression. The results indicated that CBE rates were highest among Japanese (64%) and Filipinas (65%) than other ethnicities. Mammogram rates were highest among Japanese (69%) than other ethnicities. South Asians had significantly lower mammography rates (39%) compared to the other subgroups. The Vietnamese reported the highest public insurance coverage (OR=0.2, p=0.1) or (42%), had private doctor/HMO as usual source of care (OR=3.2, p=<0.001) or (90%), but reported most difficulties communicating with the doctor (OR=1.1) or (13%), and lived closer to an Asian primary care clinic than other subgroups. Lack of insurance was reported to reduce likelihood of CBE, but having a private doctor/HMO usual source of care increases the likelihood of CBE for the Vietnamese. Uninsured over uninsured U.S. born were less likely to receive CBE due to lack of access for the Vietnamese. Difficulty finding a satisfactory provider increased the likelihood for mammography for the Vietnamese. Among the acculturation factors, fluency in spoken English reduced the likelihood for mammography among the Vietnamese. Access

variables were found to explain more variance with mammography than acculturation. The researchers concluded that access indicators explained more variance in cancer screening than acculturation. In addition, access moderates the relationship of acculturation on cancer screening. A positive bias towards the significant overall impact of access may be attributed to having more access measures in the model than acculturation measures. This study was interesting that it focused in on two major variables that are relevant to the current study, access and acculturation. Access is directly linked to one of the barriers to the HBM constructs. Although acculturation levels were measured, the researcher did not use the SL-ASIA, which is an instrument that was used in the current study to measure levels of acculturation. Acculturation was only measured based three constructs: communicated in an Asian language at home, were very fluent in spoken English, and whether they were U.S. born, lived in U.S. over 10 years, or lived in U.S. under 10 years. This limited data comparison and analysis ability. In addition it included both breast and cervical cancer. Results for cervical cancer were not reported since it was relevant to this current study. This study was conducted in CA, where majority of the cancer screening among Vietnamese women had taken place. Therefore prior educational outreach programs have been received.

Nguyen et al. (2011) conducted a recent study using several methods to convey how community-based participatory research (CBPR) is used as an approach in forming the research inquiry and how cultural barriers must be addressed when attempting to increase screening rates among minority women. Three research studies were conducted and reported within this study. The first study conducted identified underlying themes

and issues regarding health topics within the local Vietnamese population such as access or barriers to healthcare services and knowledge deficits. Data from the first study would lead to the development of a culturally sensitive survey, which was used to conduct the second study. The second study was conducted to gain an understanding of Vietnamese women's preventative behaviors. The results from the second study guided the third study. The third study conducted was the development and piloting of a culturally sensitive and tailored intervention program for breast and cervical cancer screening for Vietnamese women. The first study had 42 men ($n=19$) and women ($n=23$) who participated in one of six focus group discussions pertaining to attitudes, beliefs, and behaviors regarding preventive and curative healthcare. The age ranged from 22 to 70 years. The results of the first study revealed that the Vietnamese population neglected health-based services due to lack of finances, health insurance, lack of English proficiency, lack of knowledge to find these services, and various cultural barriers, which include modesty and privacy. Interestingly, 43% of the female participants answered that they ignored Pap tests and mammograms when asked which health services they tend to underutilize. Based on these results, the second study explored the reasons for low breast and cervical screening rates. In this study, 70 Vietnamese women were recruited from a local Catholic church. The age ranged from 18 to +60 years. A self-reported survey assessing demographic variables, receipt, and intention of receiving CBE and Pap tests was administered. The results revealed that low rates of cancer screening receipt among the sample with 54% had never had CBE and 41% had never had Pap test. Using the goodness-of-fit tests for logistic regression, another result indicated that women who had

health insurance, a regular physician, a male physician, and were married had higher rates of CBE screening compared to women who did not have those qualities (G^2=2.91, p=1.00). Furthermore, increased levels of acculturation, increased length of residency in the U.S., and knowledge of where to go for CBE predicted higher intention to get CBE (X^2=12.30, $p \leq 0.05$). The Nagelkerke test yielded r^2=0.53. The third study conducted was an interventional pilot study with 21 Vietnamese women who were recruited from a local Catholic church. The mean age for these participants was 41 years (SD=12.81). Measures included a pretest, posttest, and follow-up survey to assess cancer screening behaviors, intent of cancer screening behaviors, knowledge of female cancers, self-efficacy in cancer screening, and measures of ethnic identity and acculturation. The SL-ASAI (1987) was used to measure acculturation levels (Cronbach's α=0.84). The results indicated that there was a relationship between cultural factors and cancer screening knowledge. Acculturation was positively related to awareness and knowledge increases (r[20]=0.57, $p \leq 0.1$). The findings also indicated that there were significant increases from baseline scores in knowledge (M=11.19, p<0.05) and self-efficacy (M=45.05, p<0.05) scores to posttest (M=18.52 & M=47.33, p<0.05) and follow-up knowledge (M=15.79, p<0.05) and self-efficacy (M=45.15, p<0.05). The findings of the third study connected participants to local healthcare providers who could accommodate women from low income backgrounds without health insurance coverage. Overall, this study led to a successful community-academic collaboration that addressed the causes for poor cancer screening behaviors. It was identified that lack of health insurance, access to a regular physician, and income below poverty level are factors that cause barriers to

cancer screening. In addition, it was discovered that the Vietnamese participants had low

rates of English proficiency and low acculturation levels. Therefore, a culturally and

linguistically appropriate education materials and outreach programs must be developed

in order to be effective with health promotion initiatives. This study was relevant to the

current research study. It added to the existing body of knowledge of the phenomenon

being studied. However, conducting three individual studies within one study was

confusing. Instead, independent studies could have been conducted, and a summary of

all three studies could have been made in a fourth study. The first study included men,

which is not the study group for this current study. A convenience sampling technique

was used; therefore, it may pose a threat to external validity. Since the population was

small for each study and the study was conducted in one location, the study cannot be

generalizable to all Vietnamese population.

Nguyen et al. (2012) conducted an interventional study to explore the relationship

between religiosity to breast and cervical cancer screening efficacy and behavior among

Vietnamese women along with the moderating role of acculturation. The 111

participants were recruited from a Vietnamese Catholic Church (57%) and Buddhist

temple (43%) in the Richmond, Virginia metropolitan area. The participants' age ranged

from 18 to 70 years. Translation procedures were employed with the self-reported

questionnaires. Selected demographics, acculturation using SL-ASIA (Suinn et al.,

1987), and the 20-item Religious Orientation Scale (Allport & Ross, 1967) were the

instruments used. Data was collected between Fall 2010 to late Spring 2011.

Hierarchical logistic regression analysis was conducted to determine factors associated

with scores in self-efficacy for breast and cervical cancer screening. According to Wald criterion, age was significantly associated with previous receipt of a CBE (β=0.14, X^2[1]=20.72, p<0.001). Logistic regression was used to determine factors independently associated with having received CBE or breast. The results indicated that high levels of acculturation were associated with increased self-efficacy for breast cancer screening (F[10, 99]=5.00, p<0.001; R^2=0.34) and higher levels of social extrinsic religiosity were associated with increased efficacy for cancer screening among less acculturated women (β= -0.29, t[109]= -2.46, p<0.02) . Having insurance was also significantly associated with increased levels of self-efficacy for breast cancer screening (β= 0.33, t[109]= 3.58, p<0.001). Although this study included cervical cancer screening along with breast cancer screening, results were not included since it was not relevant to the current study. This study was part of a previous intervention study which did offer educational session about female cancers. Therefore, this study interesting that it examined acculturation and religion on breast cancer screening among Vietnamese women in Virginia. This article was relevant and appropriate to the intent of the current study.

In summary, several studies reported that women who migrate to Western countries have a significant increase in breast cancer risks compared to women living in their native countries and the breast cancer rates approach those of the general population (John, Phipps, Davis, & Koo, 2005; National Asian Women's Health Organization, 2004; Yi, 1995). However, culture can influence attitudes, beliefs, and behaviors about health and illness. It can encourage or discourage screening behaviors. Acculturation refers to the process whereby an individual's initial learning was in one culture then adopts

attitudes, values, and behaviors of another culture (Gupta, Kumar, & Stewart, 2002; Suarez, 1994; Tang et al., 1999; Yi., 1992). Very few studies have examined the levels of acculturation on breast cancer screening behaviors among Vietnamese women. All of the studies reviewed included cervical cancer screening along with breast cancer screening. Therefore, no studies were found on the levels of acculturation on breast screening behaviors among Vietnamese women living in Florida. Only results of the breast cancer screening were reported since cervical cancer data and results were not significant to the current study. In order to understand the study population, it is important to understand the levels of acculturation among Vietnamese American women for cancer screening, specifically breast cancer, before education materials and outreach programs can be developed. It would be interesting to examine if acculturation influences breast cancer screening behaviors on the Vietnamese American women, specifically the ones living in Florida.

Health Beliefs

Vietnamese Women

According McGarvey et al. (2003), it is important to identify the beliefs of diverse subgroups of ethnic minority women living in the U.S. as they relate to breast cancer screening. The CDC (2012) indicated that in order for breast cancer early detection programs to be successful, there needs to be a reflection of cultural, socioeconomic, and health beliefs of the women in the intended community.

Traditionally, the Vietnamese family hierarchy is strongly influenced by Confucian ideals intended to explain and legitimize all social relations. Thus, a code of

behavior regulates all relations within the traditional Vietnamese family and specifies the duties and obligations of each family member. The Vietnamese family is highly valued as a support nucleus for its members; therefore, it is not usual to find three to five generations residing in the same house. In addition, the typical Vietnamese family operates in a structured of authority and respect from Confucian ideology (Shanahan & Brayshaw, 1995). The father, authority figure and head of household, makes all the important decision. Under the traditional Vietnamese family model, women are expected to engage in housekeeping, cooking, and rearing children while depending on male household members to financially support the family. Children are expected to obey and respect their parents without exception. Men have been regarded as top of the social scale compared to women, and sons are valued more highly than daughters (Shanahan & Brayshaw, 1995).

The belief and behaviors of Buddhism are common among the Vietnamese. It is practiced by an estimated 90% of the population prior to the war (Shanahan & Brayshaw, 1995). Many Buddhists believe that human suffering and hardships provide the catalyst for change and development (Young-Eisendrath, 1998). Buddhists believe that suffering is necessary to develop personal responsibility for subjective lives and awaken thoughtful compassion about human limitations (Miles, 1995). Illness as suffering has value as a catalyst for change and development. Therefore, the illness and disability journey, through pain and suffering, can provide valuable lesions in life (Miles, 1995). Delays in obtaining relief from illness may be a Buddhist stoic response to religious awakening. In the U.S., nearly 30% are Catholic and the rest Buddhist (Lipson & Dibble, 2005).

Catholicism was introduced to the Vietnamese in late 16th century by French Catholics (Shanahan & Brayshaw, 1995). Many suffered persecution during the war. Before the collapse of South Vietnam, an estimated two million people (of a population of 17 million) practiced Catholicism. This is the religion of many first wave refugees (Shanahan & Brayshaw, 1995).

Many characteristics of Vietnamese women make them less likely to seek or accept cancer screening. They tend to remain close to their neighborhoods and unlikely to respond to health information coming outside family and friendship networks for several reasons. First, the Vietnamese patriarchal family system has not prepared women to function comfortably outside these networks (Mastuoka, 1990; McKinley, Webb, & Mao, 1993). Second, the disruption of family and social roles resulting from immigration created feelings of isolation and alienation from the U.S. (Chung, Bemak, & Wong, 2000; Mastuoka, 1990; Shapiro et al., 1999). Third, health issues have low priority due to exigencies of low income (D'Avanzo, 1992). Fourth, low levels of acculturation to the assumptions and norms of healthcare and preventive medicine in the U.S., language barriers, and limited knowledge of Western medicine may preclude Vietnamese women from receiving and understanding health information (D'Avanzo, 1992; Jenkins et al., 1996; Yi, 1995, 1998). Lastly, feelings of vulnerability resulting from premigration experiences and fear of discrimination as an ethnic minority in the U.S. may preclude Vietnamese women from trusting information from unfamiliar sources (Chung et al., 2000; D'Avanzo, 1992; Mastuoka, 1990; McKelvy, Webb, & Mao et al., 1999, Shapiro et al., 1999). These factors suggested the need for culturally sensitive methods for

delivering education messages and for providing individual assistance to facilitate breast cancer screening to Vietnamese women.

In many Vietnamese households, the ideals of modesty and chastity for young Vietnamese women are held in high regard by parents and elders (McNeil, 2003). Virginity is so highly valued that loss of it may lead to lowering of the women's status. The topic of sex is regarded as taboo, and it is seldom discussed openly. Instead of open communication about sex, parents place emphasis on the ideals of academic success and fulfillment of career goals, which are highly revered in the Vietnamese culture. Premarital sex is prohibited and shameful for any unmarried women. If known by others that the unmarried female has had premarital sex, not only is it shameful for the family, but she also may not find a husband since the men only want women who are virgins. Therefore, the fear that having a Pap smear could cause loss of virginity among unmarried Vietnamese women is common. This existence of such misconceptions suggests that Vietnamese women's cultural values might influence both their concern screening beliefs and behaviors (Gupta et al., 2002; Jamin, Yoo, Moldoveanu, & Tran, 1999; Nguyen et al., 2012; Pourat et al., 2010; Tang et al., 1999; Yi, 1999).

Vietnamese American Women and Breast Cancer Screening

Jenkins et al. (1996) conducted a study to measure traditional health beliefs and behaviors among Vietnamese in San Francisco Bay and Alameda Counties, California. In addition, the researchers analyzed the relationships between these factors and access to healthcare and use of preventive health services. Using a questionnaire, face-to-face interviews were conducted by bilingual Vietnamese-American interviewers on a random

sample of Vietnamese people (*N*=215) between ages 21 and 78 years (*Mdn*=35).

Questionnaire items included sociodemographics, traditional health beliefs and behaviors, and healthcare access and utilization. A traditional health practice scale and a traditional belief scale were created using translation, back-translation methods to ensure that it was linguistically appropriate. Regression analysis was used to analyze the data. The results indicated that women ($p<0.05$) and those who had spent fewer years in the U.S. ($p<0.01$) had significantly higher traditional health practice scores. Those with fewer years of education ($p<0.0001$), those who spoke English with less proficiency ($p<0.001$), and those who had spent fewer years in the U.S. ($p<0.05$) had significantly higher traditional beliefs score. Over two-thirds of the women reported having had at least one breast exam. Although the results revealed high traditional health scores and traditional beliefs scores with years living in the U.S. and English proficiency, it was interesting that the highest association with healthcare access was marital status and poverty status. The predictive power of marital status is due to pregnancy and childbirth, which provides entry points into the healthcare system. Household income below poverty level qualifies access to MediCal and Medicare. This study was interesting that the intended or predictive results were much different than expected regarding the demographics. This study was more focused on traditional and cultural health practices as opposed to the study variables; however, it was supportive of health beliefs and cancer screening due to the selected demographic variables that were used to examine if they had an influence in healthcare access and cancer screening. Cultural and traditional practices and beliefs are some key foundations of what a woman may hold as part of their health beliefs. All

interrelate at some level. This study did not use any conceptual or theoretical framework

to guide the study. The researchers did not indicate the validity and reliability of the

instruments since it was created specifically for this study. It would be interesting to

replicate this study in another part of the country where a large number of Vietnamese

women reside.

Jamin et al. (1999) conducted a cross-sectional survey study on cultural attitudes

that may affect acceptance of medical diagnostic and treatment modalities among

Vietnamese (n=206) and Armenian (n =71) people living in Los Angeles County,

California. Participants were asked to answer a questionnaire that included

demographics, degree of acculturation, medical needs and practices, and medical

preferences and beliefs. Ninety-seven (42%) Vietnamese women participated in this

study. The age ranged from 18 and over 50 years (M=not reported). Half of the

participants reported that they were Buddhist (50%). Interestingly, the majority of the

participants (93%) resided in the U.S. less than two years. The majority of the

participants (94%) reported that their primary language used at home was Vietnamese.

Three-fourths responded that they read newspapers or magazines written in the

Vietnamese language. However, more people watched TV or listened to the radio in

English than in Vietnamese (86% versus 69%). Television was found to be the primary

media contract than newspaper and radio. Primary source of health information were

most often received by physicians and secondary by friends. Healthcare was most

commonly provided by a Vietnamese physician. However, one-third visited Western

doctors as opposed to Eastern doctors. Almost three-fourths of participants had MediCal

health coverage (75%). The participants did not indicate a preference on the basis of healthcare provider's gender, age, or ethnicity, but 55% indicated a preference for a healthcare provide who spoke Vietnamese and who had medical training both in the U.S. as well as Vietnam. The researchers found that over 75% of the Vietnamese women were more willing to have breast exams by female physicians versus having a male physician (50%). Also, they found that over 60% of the Vietnamese women were more willing to have Pap screening tests by a female physician as opposed to having a male physician (35%) perform the test. One-third of the participants believed that the chances of being cured of cancer were poor or impossible, and only 13% believed that the changes were good or very good. The researchers concluded that Vietnamese participants prefer receiving medical care and information by a bilingual Vietnamese physician. Regarding breast and cervical cancer screening test, the participants preferred a bilingual Vietnamese female physician. In addition, they concluded that not only do cultural attitudes have major impact on the effectiveness of community programs such as mammograms, Pap smears, vaccinations, and treatment for communicable diseases but also acceptance of community health-related programs. This may play a role in shaping how educational programs proceed. The study results were found to be valuable; however, several limitations were found with this study. One of the limitations is the small sample size therefore the results cannot be generalizable to the entire Vietnamese population. Another limitation is the self-reported questionnaire, which may cause the participants to answer what is socially accepted and expected. It would have been more helpful if more detailed statistical data were provided to better understand the results. In

addition, this study did not provide the number of questions for the questionnaire and specific number of questions asked for each category.

Phipps et al. (1999) conducted a pilot study on cancer knowledge, beliefs, and attitudes among Vietnamese and Cambodian women living in Philadelphia, Pennsylvania. Using a qualitative approach, a bilingual Vietnamese and a bilingual Cambodian interviewer interviewed the participants over the phone by asking open-ended questions about health beliefs and healthcare experience. In addition, the interviewers asked questions that included demographics (e.g., gender, place of birth, age, education, employment status, and years living in U.S.), knowledge about cancer and cancer prevention, perception of one's own health, experience with OB-GYN examinations (e.g. Pap testing, mammograms, breast exams, and follow-up exams), smoking and alcohol use, and language of preference when communicating with healthcare professionals. A convenience sample (*N*=38) of Cambodian and Vietnamese women was identified though a registry of patient who received prenatal care at an OB-GYN clinic (*n* =28) and a registry of community organization serving the Vietnamese community (*n*=10). Women aged 21 and older from Cambodia (*Mdn*=34, *M*=33.3, *SD*=9.2) and Vietnam (*Mdn*=34, *M*=31.3, *SD*=7.6 in clinic versus *Mdn*=46, *M*=48.9, *SD*=7.4 in community) participated in the study. Cambodian women (*Mdn*=9, *M*=8.2, *SD*=3.3) were found to have lived in the U.S. longer than the Vietnamese women (*Mdn*=4, *M*=4.7, *SD*=2.9 in clinic versus *Mdn*=6, *M*=6.6, *SD*=4.1 in community). However, Vietnamese women (*Mdn*=5, *M*=6.1, *SD*=3.7 in clinic versus *Mdn*=8, *M*=8.4, *SD*=5.2 in community) were found to be more educated than Cambodian women (*Mdn*=3, *M*=4.7, *SD*=4.0). The researchers found that

27 (71%) (95% *CI*, 54% to 85%) women did not know what cancer was. Many women

in the clinic group (82%) did not know what cancer was compared with the community

group (40%) (*p*=0.001). Cambodian women (84%) did not know what cancer was

compared to Vietnamese women (47%) (*p* =0.038). Also, they found that lack of

knowledge about cancer was associated with less education (*Mdn*=3 years versus 6 years

in women who knew what cancer was) (*p* =0.035). Women who did not know what

cancer was were found to be younger (*Mdn*=34 years) than those who knew what cancer

was (*Mdn*=43) (*p* =0.002). Cancer knowledge was not found to be associated with

number of years living in U.S. (*p* =0.60). The majority of the women (74%) (95% CI,

57% to 87%) were unable to name a way to prevent cancer. The researchers found that

answers to questions on what cancer was and how to prevent it were strongly associated

(*p* <0.001). None of the participants went to their physician who spoke their native

language. The majority of the women (79%) reported that they relied on a clinic

translator to communicate with the physician. The researchers concluded that there were

many deficiencies in cancer knowledge, prevention, and screening behaviors especially

among individuals who were less educated, less proficient in English, and younger.

Interestingly, length of time in the United States was not found to be related to the

participant's knowledge and beliefs about cancer. The researchers also concluded that

language barriers, with the majority of women communicating through translators, made

it more difficult to acquire new knowledge about cancer and cancer prevention. Several

limitations were found with this study. One of the limitations was the sampling

technique, which only included participants from a clinic or community organization that

excluded other Cambodian and Vietnamese groups. Another limitation was the small sample size and use of convenience sampling, which affected the reliability, validity, and generalizability of results. Since many of the Vietnamese participants accessed the clinic, they may have been more motivated regarding their healthcare and were exposed to more medical information about breast and cervical cancer than Cambodian women. This study and its results were very valuable regarding the educational needs of the Vietnamese and Cambodian women. The researchers provided detailed information regarding statistical data, which was helpful when referring to the results and discussion.

As previously discussed, Tang et al. (1999) conducted a study to examine the cultural factors as predictors of breast self exam (BSE) and participation in cervical cancer screening in college-aged Asian (n=156) and Caucasian (n=50) women living in the U.S. The breakdown of nationalities within the Asian sample based upon self-identity was Chinese (39%), Chinese-American (26%), Korean (17%), Korean-American (9%), and remaining 9% Vietnamese, Vietnamese-American, Japanese, Japanese-American, Filipino, and Filipino-American. Asian women (M=19.72, SD=2.13) and Caucasian women (M=20.16, SD=1.58) (t=-1.35) aged $\geq$18 were asked to participate in the study. In order to measure cultural factors, a 34-item inventory was used, which included questions on modesty, openness around sexuality, communication with mother (e.g., gynecological health, screening and sexuality), crisis versus prevention orientation, modeling mother's screening behavior, and utilization of Eastern versus Western medicine. The researchers found a significant relationship between race and mother's level of education [x^2 (3, N=206) =8.83, p<0.05], with a higher proportion of Caucasians

mothers having achieved more years of education. A significant difference was found in years of college (t=-2.18, $p<0.05$), with more Caucasian women in later years in college than the Asian women. Significant differences were found on the barriers of communication with m other (t=3.48, $p<0.001$), openness around sexuality (t =-4.57, $p<0.001$), prevention orientation (t=-0.94, $p<0.05$), and utilization of Western medicine (t =-6.35, $p<0.001$), with Asian women less comfortable communicating with their mother about screening and sexuality issues (M=2.90, SD=0.76), less open about their sexuality (M=3.52, SD=0.68), less prevention-oriented (M=4.06, SD=0.50), and less likely to utilize Western medicine to cure illnesses and promote health (M=3.40, SD=0.77). Logistic regression was performed using cultural factors to predict BSE performance among the Asian sample. The researchers found that cultural factors to screening were significant (X^2=13.16, $p<0.01$). Logistic regression using cultural barriers of communication with mother, openness around sexuality, prevention, orientation, and utilization of Western medicine found openness around sexuality to be a significant predictor ($p<0.01$) of ever performing BSE. Using logistic regression to measure cultural factors to Pap test were found to be significant (X^2 =26.16, $p<0.001$). The researchers used communication with mother, openness around sexuality, prevention orientation, and utilization of Western medicine as predictor variables found openness around sexuality ($p<0.05$) and prevention orientation ($p<0.001$) to be significant predictors of ever having gotten a Pap test. The researchers concluded that cultural factors play a role in breast and cervical screening behavior. There were significant differences in cultural barriers to screening between the Asian and Caucasian women. The researchers also concluded that

Caucasian women were less modest about their bodies and sexuality, communicated more with their mothers about issues of screening and gynecological health, were more prevention-oriented around illness, and utilized more Western types of medication. These differences may account for the lower rates of screening by the women of Asian descent. The study results were found to be valuable and key when considering cultural factors with breast and cervical cancer screening. However, limitations were found with this study. The sample was very homogenous with most subjects from high educational backgrounds. Therefore, the results could not be generalized to all young Asian women living the U.S. Another limitation was the lack of differentiating among Asian groups regarding cultural factors to breast and cervical cancer screening since health behaviors vary across Asian cultures.

Breast Cancer Among Vietnamese American Women

Pham and McPhee (1992) conducted a study measuring the knowledge, attitudes, and practices of breast and cervical cancer screening among Vietnamese American women (N=107) living in San Francisco during fall 1990. Vietnamese American aged 18 and 77 years old (M=37 years) were included in the study. A 57-item survey questionnaire in a self-addressed envelope was mailed to 400 randomly selected Vietnamese households that were found in the telephone directory. After a second request mailing, a total of 107 Vietnamese American women responded. Standard statistical techniques and tests of significance, which included chi-squire for cross-tabulations, were used to analyze data. The researchers found that majority of the women (60%) were married. They also found that the number of years residing in the U.S.

ranged from several months and 15 years (M=8.4 years). The majority of the participants

reported to have heard of cancer (97%), and over 87% had heard of self breast exams.

The researchers also found that over half of the participants (64%) heard of

mammograms. The results indicated that nearly three-fourths of the participants (73%)

reported knowing how to do BSE. The majority of the participants reported that they

learned how to perform BSE by their doctor (75%) or reading materials (35%).

However, it was found that less than half (44%) performed BSE monthly. Thirty-four

percent of the participants aged 40 and older reported to never have had mammograms.

The researchers also found that over half over the participants (52%) believed that there

is little one can do to prevent cancer. Surprisingly, the researchers found that many of

these Vietnamese women did not know common signs, symptoms, and risk factors for

breast cancer. They found that lack of screening was significantly associated (M=8.4

years living in) with recent immigration and low socioeconomic status (p=not reported).

They found that five commonly reported reasons for not obtaining breast and cervical

cancer screening (e.g., lack of physician recommendation, patient's lack of knowledge,

embarrassment, cost, and language difficulty). The researchers concluded that education

efforts should be not only focus on Vietnamese women but also physicians and other

healthcare providers. They recommended that cultural sensitivity training along with

providing translators should be a priority in order to encourage compliance with breast

and cervical cancer screening. Although the study results provided valuable information

since it was one of the first studies on breast cancer knowledge, there were several

limitations. One of these limitations related to the small sample size; therefore, it cannot

be generalizable or representative of the entire Vietnamese living in the U.S. Another

limitation related to the low response rates due to mail-in survey questionnaires.

Households were randomly selected by published telephone directory. This process does

not included non-published addresses in the telephone directory or Vietnamese women

who do not have Vietnamese surnames due to marriage or name changes. Lastly, the

survey questionnaire is based on self-reports that may cause the participants to not

honestly answer the questions since want to report what is socially and medically

accepted.

McPhee, Bird, Ha, Jenkins, Fordham, and Le (1996) conducted a pre/posttest

experimental study to promote breast and cervical cancer prevention and early detection

among Vietnamese American women living in San Francisco, California (n=306) and

Sacramento, California (n=339). Specifically, the researchers tested the impact of the

intervention on rates of preventive healthcare visits and cancer screening tests. Bilingual

lay health workers were recruited to conduct small group educational sessions to

Vietnamese American women in both communities. The study included all Vietnamese

American women in both communities aged 18 and older (M=not reported and range=

not reported). Pre- and post-intervention face-to-face surveys of Vietnamese American

women were conducted. The results indicated a significant difference (p=0.001) between

Vietnamese women living in San Francisco (86%) and women living in Sacramento

(68%) when asked about heard of physical checkup. Interestingly, no significance

(p=0.664) was found among the women living in San Francisco (70%) and women living

in Sacramento (67%) when asked if they heard of mammogram. In addition, there were

no significances found in both communities when asked if they had a mammogram (55% versus 44%). When the researchers compared responses on stages of mammography behaviors among Vietnamese women age 40 years and older, women in San Francisco (47%) were found to have lower precontemplation and contemplation scores than Sacramento women (74%). Although the results indicated high levels of knowledge and use of preventive breast cancer screening tests, the results cannot be generalizable to the Vietnamese population for various reasons. For example, northern California account for the second-highest populated region for Vietnamese women living in California. Another example relates to the self-survey method. The participants may have over reported their knowledge and usage of preventive cancer screening tests due to societal expectations of positive responses. They may fear that the American society will look down upon them for lack of knowledge and use of preventive care. Although the results were valuable, it would have been more helpful if detailed statistical results were provided in the study.

As previously discussed, Tang et al. (1999) conducted a study to examine cultural factors as predictors of BSE and participation in cervical cancer screening young Asian (n=156) and Caucasian women (n=50) living in the U.S. In addition, they compared rates of breast cancer screening behavior between Asian and Caucasian women. Significant relationships were found between race and family history of breast cancer [x^2 (1, N=206) =12.65, p<0.001] and knowing anyone with breast cancer [x^2 (1, N=205) =21.3, p<0.001]. The results indicated that using mother's education, year in college, history of breast cancer, knowing anyone with breast cancer, and race as predictors found race to be significant predictor of ever performing BSE (β=0.38, p<0.05). The researchers found

that the odds of ever performing a BSE were 2.12 times greater for the Caucasian than the Asian women after controlling for nonracial differences. The researchers concluded that Caucasian women were significantly more likely than the women of Asian descent to have ever performed BSE. Limitations to this study were previously discussed.

Nguyen et al. (2000) conducted a pretest/posttest control group design study using media-led informational and education campaign combined with various neighborhood-based activities to improve breast cancer screening among Vietnamese women living in Alameda County, California ($n=384$ pretest and $n=405$ posttest group for the intervention group) and Orange County, California ($n=404$ pretest and $n=402$ for the controlled group). Vietnamese physicians were also included in these educational programs since they were identified to be instrumental in recommending breast cancer screening tests to their Vietnamese patients. The duration of the intervention activities lasted 2.5 years, which occurred between years 1996 and 1998. Vietnamese women aged ≥ 18 years were asked to participated in the study ($M=51$ years for intervention group and $M=52$ for control group). A 108-item survey instrument was used to measure pretest and posttest interventions. The instrument included items e.g., sociodemographics, health insurance, source of healthcare, utilization of preventive care services, and knowledge, attitudes, and behaviors regarding breast cancer. Chi square tests of differences of proportions were used to examine differences between the intervention and control communities in sociodemographic characteristics and screening behaviors. Multiple logistic regression analyses were used to assess the impact of the intervention at posttest and to identify other variables significantly associated with outcomes. Differences in pretest and posttest

participation among each community were also compared. The researchers found that women in the intervention group had significant increases in plans to have a clinical breast exam (CBE) (from 76.3% to 85.2%, p=0.002) but not in recognition, receipt, or currency of CBE. However, pretest and posttest rates of CBE recognition (88.1% to 94.5%, p =0.001), receipt (72.9% to 81.8%, p =0.003), and plans (67.8% to 72.5%, p =0.000) increased significantly in the control group. Between pre- and post-test, women in the intervention group had significant increase in recognitions (78% to 85.8%, p =0.004), plans (75.2% to 82.3%, p =0.023), and currency (64.7% to 68.9%, $p = 0.027$) of mammography. However, rates of mammography recognition, receipt, plans, and currency increased in the control group as well. Using multiple regression analyses, the researchers did not find that the women in the intervention group at posttest were not more likely to recognize (OR=0.48, 95% CI=0.19-1.25), receive (OR=0.63, 95% CI=0.34-1.16), plan (OR=1.03, 95% CI=0.57-1.87), or be up to date (OR=0.56, 95% CI=0.30-1.07) for CBE. As a matter of fact, they were significantly also less likely to recognize (OR=0.47, 95% CI=0.25-0.91), receive (OR=0.47, 95% CI=0.27-0.80), and plan mammograms (OR=0.43, 95% CI=0.24-0.79), than women in the control group (data not reported). The researchers also found that women who reported greater exposure to the various interventions were significantly more likely to have heard of, to have had, and to plan a CBE and to have heard of, to have had, and to plan to have a mammogram than those who had less exposure. This study was interesting in that it was an experimental study that included a control group where educational interventions took place. It provided an overall generalization to the population. However, most of

interventional health studies are conducted in California for the Vietnamese population; therefore, many may have already received previous education. It would be interesting to replicate this study in the second-largest state such as Texas to compare the differences. A theoretical or conceptual framework was not used to guide this study.

Yi and Luong (2005) conducted a randomized controlled study focusing on a breast cancer education program on 345 Vietnamese American women living in apartments in low-income communities in the Houston area. Participants were recruited by flyer distribution at the apartments and from house to house solicitation. The instruments used to collect data were demographic information, breast cancer knowledge, and past experience with breast cancer screening procedures. A pre-intervention questionnaire was given to all participants. The intervention group (N=179) was given a one-hour educational class that contained information on breast cancer screening and health, recommendations for screening, and screening referral information. The two bilingual lay health educators were recruited to conduct 20 educational sessions over a 3-month period. Telephone follow-up surveys were conducted five months after the intervention. The control group (N=166) received printed educational materials at the end of the study. Knowledge and attitudes about breast cancer and breast cancer screening practices along with intention to use cancer-screening procedures for the future were significantly changed in the intervention group (p<0.01 to p<0.001). Cultural appropriateness and convenient location of the educational intervention for Vietnamese women appeared to enhance the sample size. However, from the data presented, an increase in knowledge and positive attitude about breast cancer and its screening

practices were also noted in the group (percentage of knowledge gained ranged from 1.5 to 29.5%). This could be from the halo effects of the intervention since the apartment complexes are in proximity of each other. Thus, the participants may have had an opportunity to share information with each other. This study topic and population was relevant for the literature review and supports the current study. However, the bias to the sampling method, data collection, and results could not be generalizable due to threats to external validity

In 2008, a qualitative research was conducted by Donnelly in Canada to explore the Vietnamese women and their healthcare providers' perspectives that influence Vietnamese women's participation in breast and cervical cancer screening. Kleinman's Explanatory Model was the conceptual framework used to guide the study. Purposive sampling was used to recruit 15 Vietnamese Canadian women and 6 healthcare providers (4 Vietnamese physicians and 2 community health nurses). The method of data collection was individual in-depth ethnographic interviews using semi-structured questionnaire with open-ended questions. Data analysis and data collection occurred concurrently. They were transcribed and analyzed in the primary language of the participants, which followed a systematic and rigorous development code categories and subcategories. Themes and concepts were used to compare within and across transcripts in the data set and across cases. Rigor was ensured by seeking input from participants on preliminary results, which was carried out with the six healthcare participants. This process enabled the researcher to clarify and validate with participants the identified themes, social process, and structure that the Vietnamese women's participant in breast

and cervical cancer screening. The findings of the results revealed that healthcare providers who are more culturally aware of how women feel about breast and cervical examinations might have a negative effect on how Vietnamese women participate in breast and cervical cancer screening by hesitating to offer CBE and cervical cancer screening. Other results reveal that low socioeconomic status affects cancer screening due to moving frequently, lack of transportation, or time to wait in physician offices for long periods when they could be working. Another result revealed that the relationship between the patient and physician is a hierarchical one with the doctor holding the power. Women may have difficulty asking their doctors for information due to feeling intimidated by their social status and asking for information is not the social norm. Lastly, limited institutional support was another factor that influenced screening behaviors. These limitations of healthcare being provided are due to limited manpower and funding resources to distribute healthcare information to the Vietnamese population. In summary, physician support and encouragement for cancer screening are strong facilitators for women to comply with screening. This study provided a personal perspective in breast and cervical cancer screening using qualitative techniques, which will help researchers understand the viewpoints and personal aspects of barrier to screening. It would beneficial if the study could be replicated using mixed methods.

Nguyen et al.(2009) conducted a randomized controlled trial to compare the effect of lay health workers (LHWs) and media education (ME) to ME alone on breast cancer screening among Vietnamese women living in California. The study occurred from 2004 to 2007, which included 1,100 Vietnamese American women aged ≥ 40 years

old through LHW social networks. The purpose of using LHW was to promote health. Fifty LHWs were hired to assist with this study. The age range of LHWs were from 22 to 67 years (*M*=48). Each LHW recruited 22 participants for the study. Researchers randomized each LHW participants into two groups, LHW and ME (*N*=550) and ME (*N*=550), using a random drawing of names in which the first name was assigned to one group then other groups. The LHWs and ME group organized two small group outreach sessions lasting about 90 minutes. A pre-survey questionnaire was given to the participants. The first session discussed breast cancer, CBE, and mammography then led a question and answer session. Within one to two months, the LHWs contact participants to explain how to access screening and assisted with appointment scheduling. The second session occurred two months later, and the LHWs reiterated all key points made during the initial presentation. A post-intervention survey was given one month later to the participants. Both the LHW and ME groups were exposed to a breast cancer ME campaign, which included awareness of breast cancer, its stigmas, education on curability and early detection, explanation the different screening tests, and encouragement all women to obtain them. This campaign was launched in newspapers, radios, TV advertisements, and magazines. Linguistically appropriate educational materials were mailed to people and made available in stores, markets, malls, community centers, and religious affiliations. Pre-intervention and post-intervention surveys were collected via telephone by a researcher. Descriptive statistics were used to analyze the data. The results indicated that participants in the LHW and ME group showed an increase in knowledge about breast cancer compared to the ME group (2.39 vs -2.32, *p*<0.001).

Regarding breast cancer awareness, the LHW and ME group had a significant increase of awareness (88.5% pre-intervention to 99.6% post-intervention, $p<0.001$) while the ME group did not have a significant difference (86.6% pre-intervention to 89.1% post-intervention, $p<0.18$). For mammography outcomes, the LHW and ME group had a larger increase in awareness of mammography than the ME group (5.8% vs 1.8%, $p<0.05$). For post-intervention, the LHW and ME group had a significant increase in ever having a mammogram than the ME group (91.8% to 89.6%, $p<0.05$). For mammograms in the past two years, the LHW and ME (64.7% to 82.1%, p<0.001) group had a significant increase compared to the ME group (74.0% to 75.6%, $p=0.37$). Awareness of CBE increase significantly in both the LHW and ME group (77.5% to 99.4%, $p<0.001$) and ME (76.4% to 86.1%, $p<0.001$) group. This study was interesting in that it was a randomized control design that supported external validity. In addition, this study had a large sample size that supported generalizability and internal validity. This study only had two groups, LHW and ME and ME. It would have been interesting if there was a third group of LHW to provide a comparing and contrasting between the three methods of education. The age group for this study was ≥40 which excluded other women which may have added additional value to this study since there may have been women who have family history of breast cancer or have experience with BSE or CBE or mammography screenings.

Ma et al. (2012) conducted a community-based study to apply the Sociocultural Health Behavior Model to determine the association of factors proposed in the model with breast cancer screening behaviors among Asian American women. Using a cross-

sectional design, a sample of 440 Chinese women, 139 Korean women, and 145

Vietnamese women from the greater Philadelphia area, New Jersey, and New York and

who participated in a community organization volunteered to participate in the study.

Women aged 40 years and older were selected to participate in the study. Using face-to-

face instructions, participants were had a choice of responding in their native language or

English. A 95-item questionnaire was developed using back translation and pilot tested

for reliability, validity, and cultural appropriateness. The variables used were cultural

factors, enabling factors, environmental factors, family and social support factors, and

outcome factors such as status of mammogram screening. Descriptive statistics and

multinomial logistic regression were used to analyze the data. The results indicated that

of all demographic variables, only ethnicity was significantly related to the screening

status (X^2=21.32, p<0.001). The Chinese women reported the highest compliance with

breast cancer screening (69.39%). The Koreans (15.74%) and Vietnamese (14.8%)

reported similar compliance rates. As for the cultural factors, those who lived in the U.S.

for less than 15 years were more likely to have never been screened than those who lived

in the U.S. for more than 15 years (OR=1.67, 95%, CI=1.36, 2.04). Those who did not

speak English at all were more likely to have never been screened than those who spoke

English well (OR=1.96, 95%, CI=1.44, 2.66). Those who disagreed with the belief that

cancer is curable were more likely to never be screened (OR=1.29, 95%, CI=1.03, 1.62).

Those who feared getting a bad test result were more likely to never be screened

(OR=1.54, 95%, CI=1.07, 2.21). The results for enabling factors revealed that those

without a regular physician were more likely to never be screened than those who did

(*OR*=6.79, 95%, *CI*=4.37, 10.55), those who did not have health insurance to cover breast

cancer screening were likely to never be screened than those who did have insurance

(*OR*=6.54, 95%, *CI*=3.67, 11.66), and those who did not perceive the importance of being

screening compare to those who did had were less likely to have screening (*OR*=1.07,

95%, *CI*=1.07, 2.77; *OR*=3.01, 95%, *CI*=1.79, 5.06). Lack of communication levels and

knowledge had similar results in not be screened compared to those who did. The

environmental factors revealed that those who reported to having poor or fair

arrangements for making appointments for medical care and care at the medical group

were more likely to never be screened than those who reported that both were good or

high levels. Family and social support factors revealed that those who did not report

family member or friend having a mammogram were more likely to never be screened

(*OR*=17.4, 95%, *CI*=9.33, 32.3) and non-compliant (*OR*=3.03, 95%, *CI*=1.85, 4.95).

Several limitations were found with this study. The sample was drawn from Asian

American women who participated in community organizations. This excluded those

who did not participate in these community organizations; therefore, the population could

not be generalizable. Another limitation was the self-reported questionnaires, which the

participants may have answered the questions in a socially desired manner and may be

biased. This study was relevant to the current study by contributing to the current

knowledge. The sample had four times the number of Chinese women than any other

ethnic groups. Therefore, the data for the Chinese women may be more reliable due to

the large sample size. This study was conducted in the northeast, which cannot be

generalizable to all Asian American women. It would be interesting to stratify the three

Asian groups by state and among the ethnicities itself. Also, the study only limited the

age group of 40 and older, which excluded those women under 40 who had children at a

younger age or had family who had breast cancer history.

Nguyen et al. (2012) conducted a study to examine health sources of cancer

screening knowledge for 111 Vietnamese women living in metropolitan area of

Richmond, Virginia. The participants were recruited from a Vietnamese Catholic Church

(57%) and Vietnamese Buddhist temple (43%). The age ranged from 18 to 70 years

(M=40.23, SD=14.23). The researchers were interested in whether reliance on different

health sources was linked to cancer screening attitudes, efficacy beliefs, and behaviors.

Variables in this study included selected demographics, sources of health information

(i.e., newspapers, friends, family, church or temple members, television, or radio),

attitudes towards breast and cervical cancer screening, self-efficacy for breast and

cervical cancer screening, previous receipt of a CBE or Pap test. Participants completed

a questionnaire with study measures that were administered by the researcher or trained

community member. By using regression analysis, the results indicated informal sources

significantly predicted attitudes toward breast cancer screening, (β=0.31, t[109]=3.20,

p<0.001). Therefore, higher reliance on informal sources of health information was

associated with more positive attitudes towards breast cancer screening. Having health

insurance (β=0.32, t[109]=3.43, p<0.001) and higher reliance on informal sources of

health information (β=0.25, t[109]=2.79, p<0.001) were associated with higher levels of

self-efficacy for breast cancer screening. Age was found to significantly predict receipt

of CBE (β=0.13, X^2[1]=22.48, p<0.001). The findings in this study were that higher

reliance on informal sources for health information was associated with positive attitudes towards breast cancer screening and higher levels of self-efficacy for breast cancer screening and family members or peer that are more acculturated within the dominant society may act as "cultural brokers" and serve as cultural translators for family members, other adults, or their peers. Another finding was that women who were reliant on Vietnamese literature may be less acculturated thereby more likely to ascribe to traditional norms regarding health and screening behaviors. Other findings included were that older women were more likely than younger women to have high levels of self-efficacy for CBE and higher levels of household income predicted having had breast cancer screening. This study was relevant to the current study; however, the sample size was small, and the location was in Richmond, Virginia. Therefore, the study cannot be generalizable. Threats to external validity may be a possibility. This study did not have a theoretical framework to guide this study. If the researchers used CHBMS (1999), it may have identified additional predictors to breast cancer screening. Although this study included cervical cancer screening as well as breast cancer, results and findings to cervical cancer screening were not reported as they were not germane to this literature review.

Chapter Summary

In summary, this chapter reviewed research on the Health Belief Model (HBM) that included Vietnamese American women and breast cancer screening, acculturation that included Vietnamese American women and breast cancer screening, and health beliefs that expanded on the Vietnamese women and cultural aspects. The research

reviewed on health beliefs also included Vietnamese American women and breast cancer screening.

CHAPTER THREE

METHODS

The purpose of this study was to determine how the levels of acculturation, health beliefs, and identified variables such as age, education, employment, insurance, and marital status influence breast cancer screening behaviors among Vietnamese American women living in Florida.

Introduction to the Methodology

The quantitative methods that were used to conduct this study are presented in this chapter. The design, sampling techniques, instruments that were used to measure the major variables and their appropriateness to this study, ethical considerations, data gathering procedures, and data analysis techniques were depicted and justified.

Research Questions Reviewed and/or Hypotheses

Research Questions

In reviewing the information that forms the background of this problem, research questions can be generated. This study's research questions were as follows:

1) Does the level of acculturation influence breast cancer screening behaviors among Vietnamese American women living in Florida?

2) Do health beliefs influence breast cancer screening behaviors among Vietnamese American Women living in Florida?

3) Do selected demographic variables (e.g., age, education, employment, insurance status, and marital status) have an influence on breast cancer screening among Vietnamese American women living in Florida?

The rationale for inclusion of these demographics, or attribute variables, was drawn from the review of literature on acculturation, health beliefs, and breast cancer screening behaviors on Vietnamese women.

Hypotheses

Based on an extensive literature review and the theoretical foundations formed during this study, and the historical and cultural aspects of the Vietnamese immigrants, three hypotheses were proposed that were tested in this study:

H1. There was a positive relationship between acculturation levels and breast cancer screening behaviors among Vietnamese American women living in Florida.

H2. There was a positive relationship between health beliefs and breast cancer screening behaviors among Vietnamese American women living in Florida.

H3. Age, education, employment, insurance status, and marital status will make significant independent and combined contributions to breast cancer screening behaviors among Vietnamese American women living in Florida.

Overview of the Design

A non-experimental research approach was employed as this study's methodological approach. Non-experimental research was the research approach most frequently used in nursing research (Polit & Beck, 2003). There are two types of non-experimental research approaches: descriptive research and *ex post facto* or correlational research. Descriptive research was used when the researcher wants to observe and describe research phenomena without examining relationships between variables nor explaining or predicting the variables under investigation. When the researcher desires to

determine the relationships among variable, then correlational research was the approach

that must be utilized (Creswell, 2011). Correlational research was used when the

researcher wants to know the relationships among variables as they naturally occur,

without manipulation or control by the researcher. The researcher wants to note the

effect of the dependent variable or variables on the independent variable after the effect

has occurred (Creswell, 2011).

      Correlational, or *ex post facto*, research has strengths and weaknesses. In terms of

strengths, this research approach was useful in that it was realistic and useful for many

nursing research studies that are not amenable to experimental research approaches. This

research approach has been useful in testing hypotheses that are derived from a

theoretical model, as the direction of causation among the model's concepts can be

researched (Creswell, 2011). Lastly, correlational research has been used successfully in

collecting and analyzing large amounts of research data in an efficient and effective

method (Creswell, 20011).

      Regardless of the approach's strengths, correlational research has weaknesses that

must be considered. Several major weaknesses can be identified. One weakness was that

the researcher cannot manipulate the independent variable; therefore, true control over

the research study cannot occur. Since random assignment of participants in this

approach does not occur, the researcher must rely on those who agree to participate in the

study as the study's only group of participants, which was another identified weakness.

This group of participants under study may have pre-existing differences that may affect

the study's results. Without having two groups, comparisons between group differences

cannot be made; therefore, it must be assumed that members of this group are similar to each other. Another weakness was due to many correlational studies are at risk for inaccurate interpretation of the study's results (Creswell, 2011; Polit & Beck, 2003). Furthermore, the results of many correlational studies are often considered tentative because of the lack of conceptual or theoretical basis in these studies. If the relationships examined are not based on a conceptual or theoretical model, incorrect interpretation of the relationships of variables could occur (Creswell, 2011). This was not the case in this study; the Health Belief Model (Rosenstock et al., 1988) utilizing Champion's Health Belief Model Scale (CHBMS) (1993) provides a solid theoretical model for this study.

The design that was used in this study was a cross-sectional, correlational design. The purpose for selecting this design was to determine the direction, the influence, and strength of relationships between groups of predictor (independent) variables (e.g., select demographic variables (e.g., age, education, employment, insurance status, and marital status, acculturation, and health beliefs) to the criterion (dependent) variable, breast cancer screening behaviors. Participants completed two self-administered questionnaires pertaining to acculturation levels and CHBM. In addition, a demographic survey was also administered.

Setting and Sample

The setting for this study was a variety of community sites in Florida that Vietnamese people frequently visit or work (e.g., Asian and Vietnamese grocery stores, churches or Buddhist temples, Vietnamese restaurants, and nail salons). Vietnamese American women was recruited from but not limited to the following cities: Fort

Lauderdale, Lakeland, Miami, Orlando, St. Petersburg, and West Palm Beach. Business

owners and religious figureheads were contacted by a formal letter and a face-to-face

meeting to request their permission to collect data from Vietnamese people at their

establishments (refer to Appendix I). Additionally, the owners and religious figureheads

were asked to post flyers at their establishments to advertise the study (refer to Appendix

H). The researcher will negotiate appropriate dates and times for the data collection.

In order to determine an adequate and appropriate sample size for this study, the

number of variables and proposed statistical techniques, a priori power analysis was

conducted using G*POWER 3 (Faul, Erdfelder, Lang, & Buchner, 2007). G*POWER

was available at no charge on the Internet and has received favorable ratings for accuracy

and precision (Goldstein, 1989). To confirm accuracy for this study, the selected

computerized sample size estimates were compared with values listed in tables in Cohen

(1988). The hypotheses for this study included seven predictor variables and one

criterion variable. Power analyses were conducted for bivariate correlation [i.e. Pearson

product-movement correlation (r)] as well as for multiple regressions.

In view of the relative seriousness and consequences of type I or type II errors in

the context of this study, alpha (α) was set at the conventional level of .05, and beta (β)

was set at the conventional level of 0.20, or four times alpha. Therefore, the desired

power was calculated as 1-β= 0.80. Since this researcher will not be certain of the

association of the variables under investigation, the researcher will set the effect size as

an estimate (Cohen, 1988). Since this study will use multiple regression, as it was a

powerful statistical test, effect size for multiple regression must be employed; therefore, a

medium effect size of 0.15 was chosen as the study's effect size (Munro, 2001). With these levels selected by the researcher, the following values was entered into the *G*power* statistical program (effect size=0.15; *alpha*=0.05; Power=0.95), a sample size of 172 was required (*Lambda*=25.8000; Critical *F*=1.8899; Numerator *df*=10; Denominator *df*=161) (Faul et al., 2007).

To accommodate potentially unanswered questionnaires due to missing data that may not be possible for statistical analyses, the desired sample size for this study was 200. This projected sample size was considerably larger than estimates based on Woods and Catanzaro's (1988) rule for "at least 15 participants per variable, or a total sample size of at least 50 more than the number of variables" for multiple regression (p. 420) or Nunally and Bernstein's (1994) less stringent requirement of 10 subjects per predictor. Given the number of Vietnamese over age 18 living in Florida, it seemed to be quite feasible that the desired sample size would be obtained. However, in the event that a smaller sample size was obtained, post hoc power analyses would be conducted to determine the actual power achieved.

Selection of Participants

The selection of participants is important in any research study to ensure that the researcher surveys members of the population to accurately represent the population. Since it was not feasible to sample the entire population of Vietnamese women who reside in Florida, this researcher will survey a certain number of Vietnamese women from this population that will serve as the study's sample. The sample was a representative subset of the population (Hulley, Newman, & Cummings, 2001).

In order to draw a sample from this population, a nonprobability sampling technique utilizing snowball sampling was employed.   According Polit and Beck (2003) and Creswell (2011), nonprobability sampling technique is weaker, less accurate, and less representative of the sample compared to probability sampling technique. However, it was most commonly used in nursing research studies (Polit & Beck, 2003). Snowball sampling technique was helpful when participants were asked to identify and refer other people who meet the eligibility criteria for the study (Polit & Beck, 2003). This sampling technique was most useful when the research population, who possess similar traits, was difficult to reach or identify (Polit & Beck, 2003). Snowball sampling technique was less expensive and less time consuming for the researcher compared to other sampling techniques (Salkind, 2000). However, this type of nonprobability sampling method may be considered biased and therefore poses a threat to external validity (Creswell, 2011; Polit & Beck, 2003).

Inclusion and Exclusion Criteria

In order to determine the traits of the participants that the researcher wants to survey, the researcher must determine inclusion and exclusion criteria before participant recruitment can commence. The purpose of inclusion criteria was to define the characteristics of the sample, while exclusion criteria are necessary to decide which characteristics of participants are not desirable (Hulley et. al., 2001).

Inclusion Criteria

Inclusion criteria not only defines the characteristics of the sample, but it identifies a sample that can be surveyed to find an answer to the research questions.

Inclusion criteria usually include demographic, clinical, geographic, and temporal characteristics (Hulley et. al., 2001). For the purposes of this research study, inclusion criteria includes:

1) Participants must be a minimum of 18 years of age.

2) Participants must reside in Florida.

3) Participants must be able to read and comprehend English.

4) Participants must self-identify as Vietnamese or Vietnamese-American, or Vietnamese-Chinese.

Exclusion Criteria

Exclusion criteria are used to note characteristics of the population that are not desired by the researcher and that can be used to limit participation in the study. Exclusion criteria may be used when participants are likely to become lost to follow-up, are unable to provide reliable data, or when participants have medical conditions that may limit participation (Hulley et. al, 2001). For the purposes of this study, exclusion criteria include:

1) Participants who are less than 18 years of age.

2) Participants who do not live in Florida.

3) Participants who cannot read or comprehend English.

4) Participants who are unwilling to self-identify as Vietnamese or Vietnamese-American or Vietnamese-Chinese descendants of Vietnamese parents.

Ethical Considerations and Protection of Human Subjects

Efforts were made to conform to ethical procedures in several ways. Potential participants will receive verbal and written descriptions of this study including the purpose and participation in English. They were informed that their participation was completely voluntary. In addition, they were informed that they have the right to choose to not answer any item that they are not comfortable answering. It was emphasized to potential participants in this study that the data collected would remain anonymous. Participants were instructed that they should not write their names or any other identifying information on the surveys. There were no alternative procedures for collecting data for this study. Raw data was stored in a locked boxed in the researcher's home office and will remain stored for a five-year period; only the researcher and supervisor will have access to the data. Data was entered into files by using the PASW (Predictive Analytics Software) Statistical Package for the Social Sciences (SPSS) version 21.0.0 for Windows NT (SPSS, 2012) by identification numbers (e.g., 001, 002, 003…). Findings may be reported in presentations and publications in aggregate form.

There are no direct benefits for participating in this study. However, it was possible that the participants may benefit from the opportunity to gain self-awareness regarding their own levels of acculturation and health beliefs regarding breast cancer screening. Therefore, a positive result may be an increase breast cancer screening behaviors and decrease with barriers (Jenkins et al., 1990). Participants who chose to withdraw from the study still received the small token of appreciation for their participation.

As mentioned previously, protection of participants throughout the research process was essential. The protection of participants begins with the recruitment process. In order to recruit participants, advertising directed at participants will include information for potential participants. Advertisement for this study will include a flyer with certain information that was displayed in institutions that focus on Vietnamese women. This information will include the name and telephone number of this researcher, supervisor and IRB point of contact, the purpose of the research, inclusion criteria, a token of appreciation for participation, and the time commitment required for participants (Scott-Jones, 2000). This advertisement flyer was submitted to the IRB as part of the IRB application package. A copy of this flyer can be located in Appendix H.

Participants were provided with a letter that details the safety and informs participants that by completing the survey, the participant willingly consents to participate in the study. The letter provided the same information as the recruitment flyer but also provided any potential risks, discomforts, benefits, assurance of confidentiality, and contact numbers for the researcher, supervisor, and IRB point of contact. Clearly, IRB approval must be obtained before this researcher can forego with this research study. Since this was an anonymous, community study, it was submitted to IRB as an exempt study; therefore, an informed consent will not be required from the participants. Appendix A contains a copy of the letter to participants that explains the purpose of the study.

When planning the study, the issue of compensation for participants must also be considered. Researchers must be careful with offering inducements or incentives for

participation so not to make participants feel coerced into participating or to exploit members of a vulnerable population. On the other hand, inducements in an indirect manner compensate participants for their time spent completing the study (Scott-Jones, 2000). Once the questionnaires have been placed in the closed box, a small token of appreciation of two "scratch off" Florida lottery tickets worth $2 was offered to the participants. Florida lottery tickets were chosen by this researcher since they are a small, inexpensive, and fun inducement for participation.

Throughout the research process, anonymity of participants was a priority. The privacy and confidentiality of this study's participants was necessary not only because of the sensitive nature of the information collected, but the sexuality issues of the participants must be considered. Since it was not known how open participants are regarding breast self exams (BSE), clinical breast exams (CBE), and mammograms, protecting their privacy and confidentiality was paramount.

During the data collection process, measures were taken to protect the privacy of the participants. This may be difficult, however, since the data was collected in the field, but this researcher will attempt to provide as much privacy as possible in this limited environment for participates. Providing clipboards and attempting to provide a quiet, private place to complete the survey will also be assured by this researcher. A request for exempt status was made in accordance with Department of Health and Human Services (DHHS) Regulations, 45 Code of Federal Regulations (CFR) 46, exempt category 2 (i) research involving survey or interview procedures (responses were recorded in such a manner that the human subjects <u>cannot</u> be identified, directly or through identifiers linked

to the subjects), and (ii) any disclosure of the human subjects' responses outside the

research <u>cannot</u> reasonably place the subjects at risk of criminal or civil liability or be

damaging to the subjects' financial standing, employability, or reputation. It should not

be possible to link the participant to their completed questionnaire or to know the identity

of those who participated in the study. Anonymity of the participants should be enhanced

by the lack of the signed questionnaires (Folkman, 2000). As discussed earlier, a signed

informed consent will not be obtained due to the exempt status of this study.

 Confidentiality of the research data once it was collected was also important. As

discussed previously, the data was kept in a locked box at the researcher's home office

after collection for five years. Only this researcher and supervisor will have access to the

data. Once the time period has expired, the data was destroyed.

<div align="center">**Recruitment Procedures**</div>

 Various strategies were used to recruit participants including personally

approaching the subjects, word of mouth, posted flyers, and announcements at churches,

and Buddhist temples. The researcher also placed an advertisement in a popular local

Vietnamese newspaper and magazine both in English and Vietnamese to recruit

participants.

 The researcher also sought permission from the owners to be present during peak

days and hours of operation to personally recruit participants and explain the study

(Appendix H). In addition, an advertisement was placed in a popular local Vietnamese

newspaper and magazine both in English and Vietnamese to recruit participants. In order

to maintain anonymity, those who respond to advertisements in newspapers and

magazines were given the specific locations and times where the researcher was collecting data in order to provide the participant choices in locations. The researcher intends to be at these establishments from 10:00 a.m. to 4:00 p.m., three times a week, for approximately six weeks or until 200 questionnaires have been collected. Since this study was an anonymous study, a signed consent was not needed. By completing the anonymous questionnaires, it served as consent to participate in the study. A convenient time and place were set for data collection at the establishments (e.g.: restaurants, grocery stores, restaurants, nail shops, churches, or Buddhist temples).

No visits to the businesses or churches and Buddhist temples were made until approval from Barry University IRB was received. After approval from Barry University IRB was received (Appendix J), permission was obtained from business owners/leaders to post flyers in their establishments. Flyers were posted at the businesses or churches/Buddhist temples. In addition, an advertisement in a popular local Vietnamese newspaper and magazine both in English and Vietnamese were placed to recruit participants.

Regardless of the process in the solicitation approach to participate in the study (e.g., individually or by group), the participants were given the same instructions regarding the purpose of the study, consent to participate by means of completing the questionnaires, benefits and risks related to participation, directions for completing the questionnaires, an explanation and assurance of anonymity, plans for dissemination of findings, and incentives for participation in the study.

Data Collection Procedures

Once the Vietnamese women have agreed to participate in the study, they were given a clipboard with the questionnaires attached along with a pen and an envelope. The participants were asked to place the completed questionnaires in the sealed envelope and drop inside a closed box on the researcher's table. The researcher was available for questions from participants.

Data were collected via structured instruments in a self-administered questionnaire as previously discussed. Self-administered questionnaires are one of the most effective means of increasing the return rate of questionnaires. Since the researcher was on site during the data collection process, participants will have the opportunity to seek clarification about items that are included on the survey that the participant does not understand. As a data collection method, self-administered questionnaires are very efficient and relatively inexpensive (Creswell, 2011).

Data Management and Storage

These research instruments are composed of fixed-alternative questions that ask participants to choose among the choices provided. Fixed-alternative questions are more efficient for data collection since they allow the participant to complete the items quickly since the participant was not required to compose or generate a response (Creswell, 2011).

Some of the demographic questions, however, may require participants to answer open-ended questions. This type of question requires the participant to provide an answer to an item. Open-ended questions may require more time to complete since responses are

required, but these items provide more in-depth information that cannot be found with fixed-alternative questions (Creswell, 2011). It was estimated that participants will need about 30 minutes to complete this survey.

After all research data was collected and the desired number of participants was surveyed, data analysis began. Before data analysis begins, however, the surveys need to be checked for completeness. Questionnaires with more than 30% missing data were excluded from data analysis (Munro, 2001). Each questionnaire that was included in data analysis was assigned a number for data entry. This number was important to refer to that particular survey in case the researcher or dissertation committee needed to refer to that questionnaire in the future. The data was recorded using the latest version of PASW (Predictive Analytics Software) Statistical Package for the Social Sciences (SPSS) version 21.0.0 for Windows NT. PASW SPSS (SPSS, 2012), which is a computerized program for quantitative data entry and data analysis.

As noted previously, those surveys with greater than 30% missing data were discarded. The technique of mean replacement or substitution was employed. Mean replacement or substitution involves calculating the mean of the variable without the missing values, and replacing the missing values with the mean of the variable that was available (Munro, 2001). As previously discussed, the data were kept in a locked box in the researcher's home office for a period of five years. Only the researcher and supervisor will have access to this data. Once the time period expired, the data were destroyed.

Once means replacement or substitution has been completed, the data can be analyzed to look for skewed data, or data that was not evenly distributed when continuous data was being analyzed. Skewed data can be subjected to various data transformation techniques as described by Green, Salkind, and Akey (2000).

Data Analysis Plan

The statistical techniques of multiple regression analysis were used to analyze the data in this study. These techniques were selected as the most appropriate tests that will allow the researcher to answer the research questions via hypothesis testing. Regression analysis was used to describe and test the existence of predictable relationships among a set of variables (Mertler & Vannatta, 2009).

Instruments and Measures

Three instruments were used to measure the variables in this study. The three variables of acculturation, health beliefs, and breast cancer screening behaviors each can be measured by research instruments that have been tested to measure these variables. In addition to these variables, a researcher-designed demographic survey was included with the instruments. In order to make this survey attractive and to recruit participants, the research instruments and the demographic survey were collated into a booklet that was entitled "Breast Cancer Screening Behaviors Study."

Demographic Survey

Considerable attention was devoted to developing socially and culturally sensitive items to describe the demographic characteristics of the study sample. The Demographic survey consisted of 28 items. (Appendix B)

The first demographic items include age in years, a variable in the study hypotheses. Response options for the marital status items (item two) included single, married, or divorced. Marital status was collapsed and coded as not married=0, married=2, and divorced=3. Marital status has been found to be associated with breast cancer screening compliance (Phipps et al., 1999; Pourat et al., 2012; Tang et al., 1999; Yi, 1995; Yi & Luong, 2005;). Item three (e.g., Year of arrival to the United States) was not a variable in the study but provided valuable information for future studies. Levels of adaptation and acculturation have been found to be affected by years living in the United States (Shapiro et al., 1999; Yi, 1994; 1995; 1998). Item four (e.g., How many years of education completed?) was a major variable in the study. It was measured as a continuous item due to the number of possible values. According Hulley, Martin, Cummings (2001) continuous variables have quantified intervals on an infinite scale of values, which makes the data much richer.

Item five (e.g., What was your annual household income?) was a categorical item in $14,999 increments. It was not a variable in the study but was valuable to determine since cost was has been determined in literature as a barrier (D'Avano, 1992: McPhee et al., 1997). Item six was also an ordinal level item. It asked how many persons are currently living in the household. Dependent on the number, when calculated with item five (e.g., annual income), poverty levels may be calculated (U.S. Census Bureau, 2003). According to a recent study by Qui and Ni (2003), Vietnamese Americans were likely than Caucasian persons and other Asian ethnic subgroups live below the poverty level. This may lead to barriers in healthcare utilization and access (Jenkins et al., 1996;

McPhee et al., 1997; Yi & Luong, 2005). Item seven (e.g., Are you employed?) was a categorical or dichotomous item about employment that affects annual income (e.g., item five). Lack of income increases barriers to screening. Item eight was an ordinal item that asks type of insurance, which can also affect levels breast cancer screening and access to care (Leclere, Jensen, & Biddlecom, 1994). Lack of insurance has been linked to increase barriers to screening (D'Avano, 1992; Jenkins et al., 1996; McPhee et al., 1997).

If question eight's answer was yes, item nine was answered with ordinal items regarding source of insurance. Questions 10, 11, 12, and 13 were dichotomous items about regular place of medical care, regular doctor, preference of a Vietnamese doctor, and regular follow-ups if had a Vietnamese doctor. For Vietnamese women, these questions are important since they would eliminate a patient's lack of English-language proficiency as a potential barrier to access (D'Avanzo, 1992; Jenkins et al., 1990; Jenkins et al., 1996; Qui & Ni, 2003). Item 13 asked for county of residence which was one of the inclusion criteria. The researcher can determine the number of participants that qualified or not qualified for the study. Item 14 (e.g.,Would you prefer a female or male doctor?) was a categorical question to determine if gender of the physician influenced breast cancer screening behaviors. However, it was not a variable in this study but would be a variable of interest in future studies. Items 15 and 16 were not variables in this research but were helpful in future studies to stratify the population. However, item 15 determined the inclusion criteria. Item 16 helped determine if having children was associated with breast cancer screening due to access healthcare for prenatal care or during delivery. Item 16 was also important since parity affects cancer risks (ACS,

2012). Items 17 to 28 were dichotomous questions that related to breast cancer screening behaviors, which was the dependent variable in this study.

Acculturation

Acculturation was measured by using the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA), which was developed by Suinn et al. (1987) (Appendix C). It was modeled after the Acculturation Rating Scale for Mexican Americans (ARSMA) (Cuellar, Harris, & Jasso, 1980), which was used in Mexican Americans of varying socioeconomic, educational, and linguistic levels. The SL-ASIA assesses the multidimensionality of bicultural development by addressing cognitive, behavioral, and attitudinal aspects of acculturation for Asians in the U.S. (Johnson, Wall, Guanipa, Terry-Guyer, & Velasquez, 2002).

It was a widely used acculturation measure for people from Asia or with an Asian American background with a demonstrated strong initial reliability of α=0.88 (Suinn et al., 1987). The SL-ASIA is a 21-item, self-reported questionnaire and contains items on language preference, ethnic identity, friendships, behaviors, generational status and geographic background, and attitudes. Responses are rated on a five-point Likert scale. Scoring was obtained by adding each answer for each question on the scale and then finding a total value by summing across the answers for all 21 items. A final acculturation score was calculated by dividing the summed value by 21. A lower score (e.g.,1.00) indicates the participant identifies more with the traditional Asian culture, while a higher score (e.g., 5.00) indicates the participant identifies more with the Western culture of the United States. A score of 3.00 indicates that the participant is bicultural,

meaning that he or she may be capable of assuming the better of two worlds (Suinn et al., 1987).

In previous studies, many efforts have been made to test the reliability and validity of the SL-ASIA scores. Reports on internal consistency have ranged from 0.68 to 0.91 (Atkins & Gim, 1989; Chung et al., 2000; Lese & Robbins, 1994; Ownbey & Horridge, 1998; Suinn et al., 1987; Suinn, Ahuna, & Khoo, 1992;). Using exploratory factor analysis, the following five factors (i.e.., Reading/Writing/Cultural Preference, Ethnic Interaction, Affinity of Ethnic Identity and Pride, Generational Identity, and Food Preference) have been identified with the Asian population (Suinn et al., 1987; Suinn et al., 1992; Chung et al., 2000). Researchers have demonstrated construct validity with several variables (e.g., generational status (Iwamasa, 1996; Suinn et al., 1987), years lived in the U.S. (Suinn et al., 1987; Iwamasa, 1996; Ownbey & Horridge, 1998), total years attending school in the U.S. (Suinn et al., 1992; Iwamasa, 1996; Ownbey & Horridge, 1998), years lived in a non-Asian neighborhood (Suinn et al., 1992; Ownbey & Horridge, 1998), self-rating of acculturation (Suinn et al., 1987; Suinn et al., 1992; Iwamasa, 1996; Ownbey & Horridge, 1998), and self-rating of cultural values (Iwamasa, 1996).

Champion's Health Belief Model Scale (CHBMS)

The HBM constructs of perceived susceptibility, perceived severity, perceived benefits, perceived barriers, confidence, and health motivation related to breast cancer screening were using Champion's Health Belief Model Scale (CHBMS) (1993). This scale contains 53 Likert-format items, with five response options ranging from "1

(strongly disagree) and 5 (strongly agree)." A higher ranking on the Likert scale indicates greater agreement with the health beliefs that were assessed (e.g., a higher benefits score indicates greater perception of benefits). Missing data are considered neutral and have a value of 3. All subscales are positively related to screening behaviors except for barriers, which are negatively associated. The adapted version of the CHMBS (1993) consists of 8 subscales, specifically, susceptibility to breast cancer (5 items),severity of breast cancer (7 items), benefits of BSE (6 items), barriers to BSE (6 items), confidence (11 items), health motivation (7 items), and benefits of mammography (6 items).

The instrument's validity and reliability were previously tested in the U.S. and outside the U.S. (Avci, 2008; Champion, 1984; 1985; 1987; 1988;1999; Dundar et al., 2006; Gozum & Aydin, 2004; Han, Williams, & Harrison, 2000; Ho et al., 2005; Kandiah et al., 2008; Karayurt & Dramali, 2007; Lee et al., 2002; Nahcivan & Secginli, 2007; Park, Chang, & Chung, 2005; Petro-Nustus & Mikhail, 2002; Secginli & Nahcivan, 2004, 2006). Snowball sampling consisting of 200 Vietnamese American women from various Asian and Vietnamese grocery stores, churches or Buddhist temples, Vietnamese restaurants, and nail salons were obtained. Questions were given in person. Content validity was established through a study previously conducted by Ho et al. (2005) using a panel of judges who were bilingual and studied HBM. Construct validity was established through factor analysis and multiple regressions. Champion (1984, 1985, 1987, 1988, 1999) reported internal consistency reliabilities using Cronbach's alpha ranged from 0.75

to 0.93, indicating good levels of internal consistency (Burns & Groves, 2011). Test-retest reliabilities using Pearson's *r* ranged from 0.45 to 0.70 (Champion 1987).

Selected Demographic Variables

The independent variable is breast screening behavior located within the demographic survey that includes selected items, which are questions 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, and 27. All are dichotomous items addressing breast cancer screening behaviors. If answers are "yes" to items 21 and 22, the participant was asked to indicate the month and year of last exam. The month and year were computed as continuous items to determine frequency and patterns. Items 23 to 25 were used to determine benefits and motivation within the constructs of the HBM and breast cancer screening behaviors. Items 26 and 27 were used to determine perceived barriers within the constructs of the HBM and breast cancer screening behaviors. Item 28 is important to determine effectiveness of flyer for the study and identification of the best locations to recruit participants for future studies.

<div align="center">

Data Analysis

</div>

The statistical techniques of multiple regression analysis were used to analyze the data in this study. These techniques were selected as the most appropriate tests that will allow the researcher to answer the research questions via hypothesis testing. Regression analysis is used to describe and test the existence of predictable relationships among a set of variables (Mertler & Vannatta, 2009).

Regression Analysis

The first research question (Does the level of acculturation influence breast cancer screening among Vietnamese women living in Florida?) was answered using regression analysis. Levels of acculturation were measured using SL-ASIA. Regression, making use of correlations between variables, allows the researcher to make a prediction about the dependent variable because of what is known about the independent variables (Munro, 2001). In this research study, what is known about acculturation, the study's independent, or predictor, variable, was used to predict breast cancer screening, the study's dependent, or outcome, variable.

The second research question (Do health beliefs influence breast cancer screening among Vietnamese women living in Florida?) was answered using regression analysis. The CHBMS (1993) was used to measure health beliefs in this study. Regression, making use of correlations between variables, allows the researcher to make a prediction about the dependent variable because of what is known about the independent variables (Munro, 2001). In this research study, what is known about health beliefs, the study's independent, or predictor, variable, was used to predict breast cancer screening, the study's dependent, or outcome, variable.

The third research question, "Does selected demographic variables (e.g., age, education, employment, insurance status, and marital status) have an influence on breast cancer screening among Vietnamese women living in Florida" was answered by conducting regression analyses. The same principles regarding independent variables for questions one and two were employed for question three.

In order to correctly use regression, certain levels of data are required. To calculate the regression correlation, the researcher must ensure that there is at least two measures on each participant. Although it is possible to use regression with any level of measurement, optimally, the measures should be at the interval or ordinal levels of measurement (Munro, 2001). Since regression is a complex statistical test, the researcher must utilize computerized statistical programs to record and analyze the data. To correctly and accurately analyze data using regression analysis, the latest computer program such as the PASW (Predictive Analytics Software) Statistical Package for the Social Sciences (SPSS) version 21.0.0 for Windows NT (SPSS, 2012) should be used (Green, Salkind, & Akey, 2000).

Regression analysis requires the use of coding for continuous or simple categorical data before data entry and subsequent data analysis. Although there are a few coding procedures that can be used in regression analysis, orthogonal coding was used in this study to code the data. In orthogonal coding, the research hypotheses can be coded so that they can be tested with regression analysis. Orthogonal coding is used with nominal data. The numbers of -1, 0, 1, and 2 can be assigned to each group where comparisons are to be made. The nominal data can then be entered using these assigned codes (Munro, 2001).

Once the data has been collected, entered, and analyzed, interpretation of the regression analysis data can begin. Since it is not known at this point the effect that the independent variables (acculturation, health beliefs, and the demographic variables) have on the dependent variable, the researcher has the option of conducting simultaneous

regression analysis, hierarchical regression analysis, or stepwise regression analysis based on the measurement levels of the variables. With simultaneous regression, all variables are entered at once. In stepwise regression analysis, the independent variables are entered in the order of statistical significance. In this study, this researcher has decided to use multiple regression analysis, where the independent variables are entered in the order determined by the researcher or based on theoretical assumptions. In this study, the independent variables were entered in the following order: acculturation, health beliefs, and then the demographic variables were entered simultaneously. This researcher has chosen this order since the effects of acculturation and health beliefs are hypothesized to have more of an effect on the dependent variable of breast cancer screening than the demographic variables. Since the variables of acculturation and health beliefs are determined more important than the demographic variables, these two variables are assigned a higher rank by this researcher and should be entered first (Knapp, 1999).

Once the variables were entered in the specified order and data analysis is carried out using PASW for SPSS version 21.0.0, data interpretation began. SPSS provided this researcher with a computer-generated report of the regression analysis. Of particular interest to data interpretation were the overall R, (R^2), the *beta-weights,* the *F-statistic*, and the *p value.* For each variable as it is entered, this researcher interpreted the aforementioned test statistics. The R represents the meaningfulness of the test for significance, while the (R^2) notes the amount of variance that is accounted for R, and that notes the significance of the independent variables. R and (R^2) represent the regression coefficients. These regression coefficients are then converted to *beta weights.* The *beta*

weights, since they standardize the variables, allow the researcher to show which of these variables can be viewed as predictor variables in the regression equation.

Next the *F*-distribution is used to test the significance of the (R^2s), and the *F*- or *t*-distribution is used to test the significance of the *beta weights.* *F*- and *t*-distributions with *p*, or significance, values less than .05 are considered significant. From these statistics, this researcher can determine whether the predictor values of acculturation, cultural values, and demographic variables influence breast cancer screening. The percentage of variance shows the effect of these predictor variables on the independent variable. The higher the percentage of variance, the more effect the predictor variables have on the independent variable of breast cancer screening behaviors found in selected demographics questionnaire (Green et al., 2000; Huck, 2003; Munro, 2001; Weissfeld & Butler, 1999).

Exploratory and Descriptive Analysis

Exploratory data analysis was used to examine patterns in individual item scores. This process consisted of inspection of frequency distributions and histograms for all demographic variables as well as measures of central tendency (e.g., means, medians) and measures of variability (e.g., standard deviations, ranges). Frequency distributions and histograms with superimposed normal curves were conducted for all items and total scale scores. These analyses were helpful in identifying outliers, skewness, kurtosis, out-of-range values, and missing values as well as normality of variable distributions. Negative items were reverse scored, and total scale scores were computed (Munro, 2001). Tests for differences in demographic variables (e.g., age, education, employment,

insurance status, and marital status) from the sample were conducted using chi-square tests for nominal-level variables. Descriptive statistics (e.g., measures of central tendency and variability appropriate to level of measurement) were computed for all major study variables. Reliability estimates for measuring internal consistency (e.g., Cronbach's alpha, Spearman-Brown split-half) were estimated for the study sample. A hypotheses table, which includes the hypotheses, statistical test to be employed, and data analysis for this research study, can be found in Appendix G.

Chapter Summary

In summary, this chapter discussed the methods, reviewed the research questions and hypotheses, study design, clearly identified the setting, sample, and participant selection by expanding on the inclusion and exclusion criteria, explicitly discussed ethical considerations and protection of human subjects, recruitment procedures, data collection and management/storage procedures, instruments used to measure independent and dependent variables, and data analysis utilizing regression analysis and explanatory/, descriptive analysis.

CHAPTER FOUR

The purpose of this study was to determine how the levels of acculturation, health beliefs, and identified variables such as age, education, employment, insurance, and marital status influence breast cancer screening behaviors among Vietnamese American women living in Florida.

Findings of the Study

A non-experimental, correlational design was used to determine the relationship of the predictor (independent) variables; select demographic variables (age, education, employment, insurance status, and marital status), acculturation, and health beliefs, and criterion (dependent variable), breast cancer screening behavior among Vietnamese American women living in Florida. Data were collected over a two-week period from Vietnamese American women aged 18 years and older who resided in Florida. Snowball sampling methods were used to recruit participants at community settings in Florida (e.g., Asian and Vietnamese grocery stores, nail salons, churches or Buddhist temples, Vietnamese restaurants, and business establishments). This study utilized the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA) (Suinn et al., 1987) and Champion's Health Belief Model Scale (CHBMS) (Champion, 1991), as well as the researcher-developed demographic instrument to collect data. Descriptive statistics were computed and used to describe the demographic characteristics of the sample, as well as descriptive characteristics of the varied scales and subscales. Reliability estimates were obtained for all scales and subscales. The three hypotheses were tested using multiple regression techniques. Data were analyzed using PAWS SPSS 21.0.0. (SPSS, 2012)

Initial examination of the data revealed that there were no missing values for the 200 questionnaires collected. The distributions of the major study variables measured using an interval or ratio scale were then evaluated for normality. Per Kline (2005), a variable is distributed normally if its skewness index (i.e., skewness statistic/standard error) is less than three and if its kurtosis index (i.e., kurtosis statistic/standard error) is between 10 and 20. As shown in Table 1, only two variables, age and breast cancer screening behaviors, were distributed normally. Thus, all the other variables were transformed using a natural log function (Tabachnick & Fidell, 2010). As the skewness index of the transformed variables fell below three or dropped considerably, the transformed variables were used in subsequent procedures.

Table 1

Skewness and Kurtosis Statistics for the Major Study Variables (N = 200)

Variables	Skewness	Kurtosis
Age	-.09	-1.13
Number of years spent studying	.97	1.88
Breast cancer screening behaviors	-.54	-.82
SL-ASIA	1.14	1.31
Health behaviors		
Susceptibility	1.89	4.64
Seriousness	-1.09	.69
Benefits	1.61	4.06
Barriers	2.02	4.27
Motivations	1.46	1.61
Confidence	-.78	11.62

Note. *SE* for skewness statistic was .17. *SE* for kurtosis statistic was .34.

Description of Sample

Response Rate

The overall response rate was 100%. Snowball sampling method resulted in a total of 210 questionnaires collected from the target population. However, 10 of the 210 collected were discarded due to missing data or were blank. Therefore, 200 questionnaires were used in data analysis. As discussed in Chapter Three, a sample size of 172 was required for the study utilizing the G*POWER 3 (Faul et al., 2007). Thus,

200 completed questionnaires were not only acceptable but exceeded the required sample size. Therefore, all 200 of 210 questionnaires were included in data analysis, since all questionnaires met the aforementioned criteria for inclusion covered in Chapter Three.

Demographic Characteristics of the Sample

The sample size of this study was 200 participants. All participants completed the demographic questionnaire. No missing data were found. As shown in Table 2, participants were between 19 and 84 years old; the mean age was 50.87 (SD = 16.42). Participants spent between 3 and 22 years studying; the mean number of years spent studying was 11.47 (SD = 3.06). Thus, on average, the sample of Vietnamese American women completed some high school. The number of family members living in the participants' home ranged from 1 to 7; the mean number was 2.53 (SD = 1.51). Participants had between 0 and 12 children; the mean number of children was 2.62 (SD = 2.33).

Table 2

Descriptive Statistics for the Demographic Variables (N = 200)

Variables	Range	*M*	*SD*
Age	19 to 84	50.87	16.42
Number of years spent studying	3 to 22	11.47	3.06
Number of family members in home	1 to 7	2.53	1.51
Number of children	0 to 12	2.62	2.33

As shown in Table 3, close to half of the sample of participants were married (46.5%), 35.5% were single, and 18% were divorced. A third of the participants arrived in the United States between 1968 and 1980 (31.5%), 38% arrived between 1981 and 2000, and 28% arrived between 2001 and 2012. The majority had an annual income of less than $25,000 (74%). Slightly more than half (54%) were employed. Seventy-four percent of the participants had health insurance. Of those who had insurance, slightly more than half (52%) had private health insurance, 33.8% had Medicare, 6.1% had Medicaid, and 8.1% had an HMO. More than a third went to a place of medical care regularly (61%), had a regular doctor (64.5%), and preferred to see a Vietnamese American doctor (67.5%). The majority indicated, however, that even if their doctor was Vietnamese American, they would not have regular follow-up care (79.5%). Less than half of the sample of participants stated that they would prefer to have a female doctor (43.5%) although 53.5% indicated that the doctor's gender was not really important.

Table 3

Frequencies and Percentages for the Demographic Variables of the Study (N = 200)

Variables	Frequency	Percentage
Marital status		
Single	71	35.5
Married	93	46.5
Divorced	36	18.0
Year arrived in the United States		
Born in the U.S.	5	2.5
1968 to 1980	63	31.5
1981 to 2000	76	38.0
2001 to 2012	56	28.0
Annual household income		
Less than $10,000	56	28.0
$10,000 to $24,999	92	46.0
$25,000 to $39,999	17	8.5
$40,000 to $54,999	8	4.0
$55,000 or more	27	13.5
Employment status		
Employed	108	54.0
Unemployed	92	46.0

(Table 3 continued)

Variables	Frequency	Percentage
Type of health insurance		
No insurance	52	26.0
Private insurance	77	38.5
Medicare	50	25.0
Medicaid	9	4.5
HMO	12	6.0
Has regular place for medical care		
Yes	122	61.0
No	78	39.0
Has regular doctor		
Yes	129	64.5
No	71	35.5
Prefers Vietnamese doctor		
Yes	135	67.5
No	65	32.5
Regular visits if doctor Vietnamese		
Yes	41	20.5
No	159	79.5

(Table 3 continued)

Variables	Frequency	Percentage
Gender preference for doctor		
Female	87	43.5
Male	6	3.0
Does not matter	107	53.5

Response to Measure Instruments

The SL-ASIA responses were rated on a five-point Likert scale. Scoring was
obtained by adding each answer for each question on the scale and then obtaining a total
value by summing across the answers for all 21 items. A final acculturation score was
calculated by dividing the summed value by 21. A lower score (e.g.,1.00) indicates the
participant identifies more with the traditional Asian culture, while a higher score (e.g.,
5.00) indicates the participant identifies more with the Western culture of the United
States. A score of 3.00 indicates that the participant is bicultural, meaning that he or she
may be capable of assuming the best of two worlds (Suinn et al., 1987). The findings in
Table 4 reveal that the measure of acculturation, the SL-ASIA, was highly reliable. Per
Nunnally and Bernstein (1994), a scale has acceptable internal consistency if Cronbach's
alpha is .70 or higher.

Four of the subscales from Champion's Health Beliefs Model Scale (CHBMS)
had acceptable alphas; two of the subscales from had unacceptable alphas.

Table 4

Cronbach's Alpha for the Acculturation Scale and Health Belief Subscales (N = 200)

Measures	Item *N*	Alpha
SL-ASIA	21	.93
CHBMS		
Susceptibility to breast cancer	5	.49
Seriousness of breast cancer	7	.72
Benefits of BSE, CBE, Mammogram	4	.44
Barriers to BSE, CBE, Mammogram	7	.79
Health motivation	6	.79
Confidence	11	.94

Descriptive Findings for the Study Variables

Acculturation

Mean acculturation scores ranged from 1.45 to 4.40 (with the highest possible score being five); the mean acculturation score was 2.41 (*SD* = .63). As noted earlier, low scores indicate a Vietnamese self-identity, moderate scores indicate a Vietnamese and American self-identity, and high scores indicate an American self-identity. Since the mean acculturation score was 2.41, the sample of participants had an average Vietnamese and American identity.

Health Beliefs

The findings in Table 5 reveal that only 36.5% of the participants heard about self-breast exams. However, 72% had heard about mammograms, and 69.5% had heard about clinical breast exams. Only 27% of the participants performed a self-breast exam, butut 63.5% had a mammogram and 66% had a clinical breast exam. Only 35.5% planned to do a self-breast exam, but 78.5% indicated that they would have a mammogram, and 77% stated they would have a clinical breast exam. Participants indicated that they were afraid to have clinical breast exams or mammograms primarily because of transportation problems (44%), prohibitive costs (43.5%), and language barriers (38%).

The items on hearing about, having, and planning to do or have a self-breast exam, mammogram, and clinical breast exam were summed to arrive at a single breast screening score. The descriptive statistics for this single variable as well as the other study variables are shown in Table 6. Breast screening behavior scores ranged from 0 to 9 (with the highest possible score being 9; the mean number of behaviors was 5.25 ($SD = 2.84$). Therefore, the sample of participants did perform a moderate number of breast screening behaviors.

Table 5

Frequencies and Percentages for the Breast Screening Behaviors

Variables	Frequency	Percentage
Heard of self-breast exam		
Yes	73	36.5
No	127	63.5
Heard of mammograms		
Yes	144	72.0
No	56	28.0
Heard of clinical breast exam		
Yes	139	69.5
No	61	30.5
Performed self-breast exam		
Yes	54	27.0
No	146	73.0
Had mammogram		
Yes	127	63.5
No	73	36.5
Had clinical breast exam		
Yes	132	66.0
No	68	34.0

(Table 5 continued)

Variables	Frequency	Percentage
Plan to do self-breast exam		
Yes	71	35.5
No	129	64.5
Plan to have a mammogram		
Yes	157	78.5
No	43	21.5
Plan to have a clinical breast exam		
Yes	154	77.0
No	46	23.0
Reasons for not having CBE or mammogram[1]		
Cost	87	43.5
Not knowing where to go	5	2.5
Lack of transportation	88	44.0
Takes too much time	42	21.0
Language barriers	76	38.0
Fear or embarrassment	16	8.0

(Table 5 continued)

Variables	Frequency	Percentage
Not important, don't need it	2	1.0

[1] Participants could select as many reasons as they wanted. Frequencies and percentages refer to the total number selected.

The highest possible score for each of the Health Behavior subscales was five, with higher scores indicating greater agreement to the construct being measured. Participants' Susceptibility to Breast Cancer scores were between 1 and 3; the mean score was 1.40 (SD = .34), thus indicating that susceptibility was relatively low for this particular sample. Participants' Seriousness of Breast Cancer scores were between 1.86 and 5.00; the mean score was 3.96 (SD = .71). Therefore, on average, the sample of Vietnamese Americans was moderately serious about breast cancer. Participants' Benefits of Breast Self-Examination scores were between 1.50 and 4.25; the mean score was 2.43 (SD = .45), thus indicating that the sample of participants were neutral towards the benefits of breast self-exams. Participants' Barriers to Breast Self-Examination scores were between 1 and 3.86; the mean score was 1.62 (SD = .55). Therefore, on average, the sample of Vietnamese Americans did not really feel there were barriers to doing breast self-exams. Participants' Health Motivation scores ranged from 1.50 to 5; the mean score was 2.52 (SD = .72). Thus, the participants had relatively neutral health motivation scores. Participants' Confidence Performing a Breast Self-Examination

scores were between 1 and 3.92; the mean score was 2.01 (*SD* = .30). Thus, the sample

of Vietnamese Americans were not confident about performing their own breast exams.

Table 6

Descriptive Statistics for the Study Variables (N = 200)

Variables	Range	*M*	*SD*
Breast screening behaviors	.00 to 9.00	5.26	2.84
Acculturation (SL-ASIA)	1.45 to 4.40	2.41	.63
Champion's Health Belief Model (CHBMS)			
Susceptibility to breast cancer	1.00 to 3.00	1.40	.24
Seriousness of breast cancer	1.86 to 5.00	3.96	.71
Benefits of breast self-examination	1.50 to 4.25	2.43	.45
Barriers to breast self-examination	1.00 to 3.86	1.62	.55
Health motivation	1.50 to 5.00	2.52	.72
Confidence	1.00 to 3.91	2.00	.30

Hypotheses Testing

A forced entry linear regression procedure was used to test the three hypotheses. The assumption of multivariate normality was assessed via a normal probability plot. According to Norusis (1991), when the points are clustered towards the line, multivariate normality can be assumed. As the points were clustered towards the line in the normal probability plot, the assumption of multivariate normality was fulfilled. The assumptions of linearity and homoscedasticity were assessed via a plot of the standardized residuals by the standardized predicted values; when the plot results in a random scatter (and not a

funnel-shaped or u-shaped pattern), then both assumptions are fulfilled (Norusis, 1991).

Since the plot resulted in a random scatter, these assumptions were fulfilled.

Hypothesis 1

It was hypothesized that there would be a positive relationship between

acculturation levels and breast cancer screening behaviors among Vietnamese American

women living in Florida. The linear regression findings in Table 7 revealed that

acculturation scores positively predicted breast cancer screening behaviors, $\beta = .35$, $p =$

.001. Therefore, the first hypothesis was strongly supported; the more acculturated the

Vietnamese American women were, the higher were their breast cancer screening

behavior scores.

Hypothesis 2

It was hypothesized that there would be a positive relationship between health

beliefs and breast cancer screening behaviors among Vietnamese American women living

in Florida. The findings in Table 7 showed that Susceptibility to Breast Cancer scores

were marginally associated with breast cancer screening behavior scores, $\beta = -.10$, $p =$

.059. Thus, the more susceptible the Vietnamese American women were towards breast

cancer, the higher were their breast cancer screening behavior scores. Similarly, Benefits

of BSE, CBE, and Mammogram scores negatively predicted breast cancer screening

behavior scores, $\beta = -.12$, $p = .044$; the more beneficial Vietnamese American women

believed breast self-exams were, the lower were their breast cancer screening behavior

scores. Interestingly, Confidence in Performing a Breast Self-Exam marginally predicted

breast cancer screening behavior scores, $\beta = -.09$, $p = .092$; the less confident Vietnamese

American were about performing their own breast, the lower were their breast cancer screening behavior scores. Given that the associations were negative, the second hypothesis was thus not supported.

Hypothesis 3

It was hypothesized that age, education, employment, health insurance status, and marital status would be significantly associated with breast cancer screening behaviors among Vietnamese American women living in Florida. The findings in Table 7 revealed that three of the demographic variables significantly predicted breast cancer screening behavior scores. First, age was positively associated with breast cancer screening behavior scores, $\beta = .38$, $p = .001$; the older the participants were, the higher were their breast cancer screening behavior scores. Second, health insurance status was significantly related to breast cancer screening behavior scores, $\beta = .39$, $p = .001$. Vietnamese Americans with health insurance had a significantly higher mean score ($M = 6.31$, $SD = 2.24$) than Vietnamese Americans without health insurance ($M = 2.78$, $SD = 2.54$). Third, marital status was significantly associated with breast cancer screening behavior scores, $\beta = .14$, $p = .012$. Specifically, participants who were married ($M = 5.89$, $SD = 2.49$) had significantly higher mean screening scores than participants who were single or divorced ($M = 4.70$, $SD = 3.01$).

Table 7

Linear Regression Results for the Breast Cancer Screening Behaviors Model (N = 200)

Variables	β	Sig.	TOL
Acculturation (SL-ASIA)	.34	.000	.74
Health behaviors (CHBMS)			
Susceptibility to breast cancer	-.10	.059	.79
Seriousness of breast cancer	-.01	.934	.71
Benefits of breast self-examination	-.12	.044	.64
Barriers to breast self-examination	.01	.926	.49
Health motivation	.11	.162	.43
Confidence	-.09	.092	.88
Age	.38	.000	.53
Number of years spent studying	.08	.256	.54
Unemployed vs. employed	.03	.683	.55
No insurance vs. has insurance	.39	.000	.67
Marital status			
Married vs. single or divorced	.14	.013	.83
Single vs. divorced	.01	.817	.89

Note. TOL = Tolerance. Overall model $F(13, 186) = 17.80$, $p = .001$. Model $R^2 = .554$.

Chapter Summary

In summary, this chapter discussed the findings of the study by describing the sample, which was Vietnamese-American women living in Florida and statistical results from the instruments (i.e., select demographics, SL-ASIA, and CHBMS). Thereafter, descriptive findings for major study variables (i.e., acculturation, health beliefs, and breast cancer screening behaviors) were discussed. Lastly, the results of the hypotheses tests were discussed. The first hypothesis, that acculturation would be positively associated with breast cancer screening behaviors, was strongly supported. The second hypothesis, that health behaviors would be positively associated with breast cancer screening behaviors, was not supported. The third hypothesis, that age, education, employment, health insurance status, and marital status would be significantly associated with breast cancer screening behaviors, was partially supported as only age, health insurance, and marital status were significantly associated with breast cancer screening behaviors.

CHAPTER FIVE

SUMMARY AND DISCUSSION

The purpose of this study was to determine how the levels of acculturation, health beliefs, and identified variables such as age, education, employment, insurance, and marital status influence breast cancer screening behaviors among Vietnamese American women living in Florida. This chapter summarizes the study and discusses the findings of how the major variables (i.e., acculturation, health beliefs, and select demographics) influence breast cancer screening behaviors by utilizing tools to measure levels of acculturation (SL-ASIA) and health beliefs (CHBMS). Thereafter, the significance of the study to nursing education, practice, research, and health/public policy as well as strengths and limitations of the study is discussed. Finally, recommendations for futures studies and conclusion are also included.

Summary of the Study

Breast cancer is the most common cancer in Vietnamese women (McPhee, 2002). Although screening tests such as BSE, CBE, and mammography are recommended for the early detection for breast cancer, Vietnamese women fail to utilize these screening tests or do not utilize them on a regular basis (Hoang & Erickson, 1982; Jenkins et al.1990; Jenkins et al., 1996; Jenkins et al., 1999; Kagawa-Singer & Pourat, 2000; McPhee et al., 1997; Tang et al., 1999). Due to the underutilization and the delay in utilization of breast cancer screening, Vietnamese women tend to be diagnosed with tumors that are larger and more severe and have spread more regionally (Tang et al.,

1999). They are often diagnosed with breast cancer at a younger age compared to the general U.S. population with about 50% of the women younger than 50 years of age at the time of diagnosis (Lin, Phan, & Lin, 2002), and at advanced stages, making optimal treatment difficult. Preventative and early detection practices are still considered an emerging concept for the Vietnamese population.

Although Florida ranks as the fourth-largest state where Vietnamese people reside (U.S. Census Bureau, 2010), very little was known about the Vietnamese people who reside in Florida. There has not been any research studies found on this specific group in Florida. Although it is unknown which factors exactly cause breast cancer, certain risk factors are linked to the disease. In order to determine if a woman is at risk for breast cancer, adherence to screening recommendations is paramount. It is important to note that varied factors will influence a women's decision to participate in recommended screening practices. Education plays a key role in improving the rates of adherence to recommendations for screening. In order to facilitate effective health communication and education, it is initially important to understand a woman's acculturation level and health beliefs regarding illness or disease, specifically breast cancer (Ho et al., 2005).

Since this study was one of the first studies conducted in Florida on Vietnamese American women, it was important to learn more about this population. The purpose of this study is to determine how the levels of acculturation, health beliefs, and identified variables such as age, education, employment, insurance, and marital status influence breast cancer screening behaviors among Vietnamese American women living in Florida. As the result, culturally appropriate education and interventions can be developed and

implemented to reduce morbidity and mortality rates among Vietnamese American women. Results of this study have added to the body of knowledge and needed research among Vietnamese American women living in Florida. Findings of this study have identified the relationships among study variables and should increase knowledge that may be used to implement educational programs and interventions by encouraging adherence to breast cancer screening behaviors.

A review of the literature on this population provided a wealth of information. There were several studies found on breast cancer knowledge, prevention, and screening behaviors in other states and countries where large numbers of Vietnamese American women reside such as California, Texas, Washington, Massachusetts, Louisiana, Canada, and Australia. Interestingly, no studies were found in Florida, even though Florida is the fourth-largest state where Vietnamese people reside. Therefore, the educational needs for this population were unknown, specifically breast cancer screening.

The theoretical framework that guided this study is the Health Belief Model (HBM) (Rosenstock et al., 1988). The six constructs of the HBM (i.e., perceived susceptibility, perceived severity or seriousness, perceived benefits, confidence, and health motivation or cues to action) were used to predict health-related screening behaviors, specifically Vietnamese American women at risk for breast cancer. From this theoretical framework, three research hypotheses were generated and tested in this study:

H1. There were a positive relationship between acculturation levels and breast cancer screening behaviors among Vietnamese American women living in Florida.

H2. There were a positive relationship between health beliefs and breast cancer screening behaviors among Vietnamese American women living in Florida.

H3. Age, education, employment, insurance status, and marital status will make significant independent and combined contributions to breast cancer screening behaviors among Vietnamese American women living in Florida.

This study employed a cross-sectional, correlation survey design utilizing snowball sampling of Vietnamese American women living in Florida in order to determine the influence of acculturation and health beliefs on breast cancer screening behaviors. Data were collected via anonymous, self-reported questionnaires from Vietnamese American women (N=200) at various sites in Florida over a two-week period in 2013. Data were analyzed using SPSS 21.0. 0. A forced entry linear regression procedure was used to test the three hypotheses. The assumption of multivariate normality was assessed via a normal probability plot.

The sample size of this study was 200 participants with ages ranging from 19 and 84 years old with the mean age of 50.87 ($SD = 16.42$). Participants spent between three and 22 years studying with the mean number of years spent studying was 11.47 ($SD = 3.06$). Slightly more than half of the participants (54%) were employed. Seventy-four percent of the respondents had health insurance. Close to half of the sample of participants were married (46.5%), 35.5% were single, and 18% were divorced. Data from this study strongly supported Hypothesis One (acculturation would be positively associated with breast cancer screening behaviors), did not support Hypothesis Two (health behaviors would be positively associated with breast cancer screening behaviors),

and partially supported Hypothesis Three (age, education, employment, health insurance status, and marital status would be significantly associated with breast cancer screening behaviors). Only age, health insurance, and marital status were significantly associated with breast cancer screening behaviors while education and employment were not.

<div align="center">**Discussion of Findings**</div>

The study findings are discussed in terms of participants' demographic and background characteristics, as well as hypotheses and relationships associated between major study variables.

Demographic and Background Characteristics

Since the study employed snowball sampling to collect data, it is necessary to compare the study's sample with the demographics of Vietnamese people in the U.S. since limited data were found regarding Vietnamese people in Florida. Where possible and appropriate, the study's demographics were compared to previous studies and other Asian populations. According to the U.S. Census Bureau (2010), there are approximately 1,548,449 Vietnamese people living in the United States and approximately 58,470 Vietnamese people living in Florida. In 2000, the U. S. Census Bureau reported that largest number of Vietnamese people lived in Tampa-St. Petersburg-Clearwater, FL with 9,318 people. Orlando had 7,621 people, Miami-Fort Lauderdale had 4,080, and Jacksonville had 2,630 people. Based on this data, the Vietnamese people are scattered throughout Florida as opposed to congregating in one or two locations as previous studies conducted in California (Jenkins et al., 1990; Jenkins et al., 1996; Jenkins et al., 1999; Nguyen et al., 2000, Nguyen et al., 2002, Nguyen et al., 2009, McPhee et al., 1996;

McPhee et al., 1997;. McPhee, 1998; McPhee et al., 2002) and Texas (Ho et al., 2005). The total number of Vietnamese women living in the U.S. could not be located for the U.S. Census 2010. However, based on the 2000 U.S. Census, there were 600,964 women living in the U.S. while 436,941 were 18 years or older. No data were found identifying the exact number of Vietnamese men versus women living in Florida. Therefore, the exact number of Vietnamese women living in Florida is undetermined.

The participants ranged in age from 19 to 84 years old (*M*=50.87, *SD* = 16.42). According to the U.S. Census (2010), the median age for Vietnamese people in the U.S. was 35.4 years. Since 2000, the Vietnamese population median age has increased from 30.5 years to 35.4 years in 2009 (US Census, 2010). In this study, age was positively associated with breast cancer screening behavior scores. This study found that the older the respondents were, the higher their breast cancer screening behavior scores. This is comparable with other studies conducted by Jenkins et al. (1990), Yi (1995), Jenkins et al. (1996), Jenkins et al. (1999), Solomon et al. (1999), Nguyen et al. (2000), Sadler et al. (2001), Nguyen et al. (2002), Nguyen et al. (2009), McPhee et al. (1996), McPhee et al. (1997), McPhee (1998), McPhee et al. (2002), Ho et al. (2005), Xu (2005), and more recent studies by Pourat et al. (2010), Nguyen, Belgrave, and Sholley (2011), and Nguyen et al. (2012). Similarly, Nguyen and Belgrave (2012) reported that age significantly predicts receipt of CBE ($\beta = 0.13$, *p*<0.001). As indicated in Chapter Three, the inclusion criteria for the study were all Vietnamese American women aged 18 years and older since they were considered legal adults who can consent to participate in this study.

In this study, the participants spent between three and 22 years studying. Thus, on average, the sample of Vietnamese American women living in Florida completed some high school while others had advanced education. Educational data for U.S. Census 2010 were not found. However, based on the 2000 U.S. Census, 68,366 of 465,833 Vietnamese American women were enrolled in college or graduate school. Additionally, Vietnamese American women between ages 18 to 24 years were in college or graduate school, while 10,200 Vietnamese American women aged 35 years or older were in college or graduate school. In this study, educational level did not predict or impact breast cancer screening behaviors. The results of this study were comparable to the study conducted by McPhee (1998), which indicated that educational level was not significantly associated with educational level. The possible explanation to this finding may be that higher educated women may not clearly understand breast cancer screening recommendations and practices as less educated women. Both groups may have knowledge deficits about breast cancer regardless of educational level. Conversely, the studies conducted by Ho et al.(2005) and Xu et al.(2005), found that higher breast cancer screening behaviors were associated to higher educational levels. Due to lack of research and statistical data, it is undetermined what the exact educational levels are and how it may impact breast cancer screening for Vietnamese American women people living in Florida.

In this study, slightly half (54%) of the participants were employed. As a result, employment status did not predict breast cancer screening behaviors. However, higher employment status are often associated with increased income, insurance, and

educational level (Jenkins et al.,1990; Jenkins et al., 1996; Jenkins et al., 1999; McPhee et al., 1996; McPhee et al., 1997; McPhee, 1998; McPhee et al., 2002; Nguyen et al., 2000; Nguyen et al., 2002; Nguyen et al., 2009; Nguyen et al., 2005, 2011; Nguyen et al., 2012; Pham and McPhee, 1992; Pourat et al., 2010; Sadler et al., 2001; Solomon et al., 1999; Xu (2005); Yi , 1995;). Interestingly, the study conducted by Yi (2005), employment status was related to having a regular place for care, which increases the recommendations for breast cancer screening. This study did not ask if the participants were working full time or part time, which may have impacted the answer to this question. To better understand the population under study, perhaps a future study could inquire if the participants worked full time, part time, occasionally, or not at all.

Income was not a major variable in this study. However, higher income can be associated with other variables to this study such as educational level, employment, and insurance (Nguyen et al., 2012). Conversely, low-income, high unemployment rates, and limited knowledge are associated with low preventive screening behaviors as found in the study by McPhee et al.(1996). This study indicated that majority of the Vietnamese American women had an annual income of less than $25,000 (74%). This is congruent to the report by the U.S. Census (2010) that for every 100 people of Vietnamese origin in the U.S., 12 people are living in poverty. Interestingly, the average median income for a Vietnamese family of four people is $59,000 a year compared with $47,000 of the Hmong (lowest), $99,000 of India (highest), and $62,000 nationally (US Census, 2010). The U.S. Census (2010) reports that the poverty levels for all Vietnamese were 13.1%, Vietnamese families were at 10.7%, married couples were 8.7%, single female

households with a family were 21.6%, and people aged 65 and older were 11.6%.

According to the U.S. Census 2000, for every 100 people of Vietnamese origin in the

U.S., 12 people are living in poverty. Interestingly, the Vietnamese American women in

this study had a lower income level than the U.S. Census (2010) reported median income

for Vietnamese families and other Asian populations. In a study conducted by Qui and

Ni (2003), Vietnamese Americans were likely than Caucasian persons and other Asian

ethnic subgroups to live below the poverty level. This may lead to barriers in healthcare

utilization and access (Jenkins et al., 1996; McPhee et al., 1997; Yi & Luong, 2005).

However, income is an enabling factor that leads individuals to access breast cancer

screening services due to higher levels of financial resources.

It was interesting to find that 75% of the participants had health insurance in this

study since income levels were reported below the median income levels for the

Vietnamese population (U.S. Census 2010). In this study, of those who had insurance,

slightly more than half (52%) had private health insurance, 33.8% had Medicare, 6.1%

had Medicaid, and 8.1% had an HMO insurance. This is consistent with the study

conducted by Yi (1995), which reported a significant association between private

insurance/HMO with increased preventive screening behaviors ($p<=0.001$).

Interestingly, Pourat et al. (2010) indicated that the Vietnamese women living in

California had the highest public insurance coverage ($OR=0.2$, $p=0.1$). Nguyen et al.

(2010) and Nguyen et al. (2012) found that having health insurance and higher reliance

on informal sources of health information were associated with higher levels of self-

efficacy for breast cancer screening ($\beta = 0.33$, $t[109]=3.58$, $p = .001$). Similarly, studies

by McPhee et al. (1997) and Yi (1995) reported that having health insurance coverage was positively associated with having prior mammography and other breast screening examinations. Additionally, high insurance rates have been associated with higher adherence of having regular medical care (Ho et al., 2005; McGarvey et al., 2003; Xu et al., 2005). Yi (1995) found that participant age, having a child, education, and employment status were significantly related to having insurance coverage. Health insurance was a variable in this study to predict the use of breast cancer screening examinations. In this study, more than a third went to a place of medical care regularly (61%), had a regular doctor (64.5%), and preferred to see a Vietnamese American doctor (67.5%). Conversely, the majority of the participants in this study indicated that even if their doctor was Vietnamese American, they would not have regular follow-up care (79.5%). This finding could be explained by the notion that breast cancer knowledge and preventive breast cancer screening are still emerging concepts within the Vietnamese population.

In this study, close to half of the sample of participants were married (46.5%), 35.5% were single, and 18% were divorced. Marital status data was not found for U.S. Census 2010. However, the 2000 U.S. Census reported that there were 465,833 Vietnamese women living in the U.S. Of those Vietnamese women, there were 265,538 married, 120,469 single, and 9,396 divorced. According to Phipps et al.(1999), Pourat et al. (2012), Tang et al. (1999), Yi (1995), and Yi and Luong (2005), marital status has been found to be associated with breast cancer screening compliance. Similarly, Jenkins et al. (1996) found that marital status was most influential in healthcare access, which is a

strong predictor of received cancer screening examinations and tests (*OR*=12.69, 95% *CI*, 4.10-32.75). Undoubtedly, the predictive power of marital status on breast cancer screening behaviors stems from the fact that pregnancy and childbirth provide points of entry into the healthcare system.

Although year of arrival to the U.S. was not a variable in this study, it was interesting to find that the results of this study indicated that year participants arrived in the U.S., which was almost evenly distributed. A third of the participants arrived in the United States between 1968 and 1980 (31.5%), 38% arrived between 1981 and 2000, and 28% arrived between 2001 and 2012. However, Bird et al.(1998), McPhee et al.(1996), and Pham and McPhee (1992) found that lack of breast cancer screening was significantly related to length of stay in the U.S. They found that Vietnamese women, who recently arrived to the U.S., were least likely to have received preventive services. Similarly, Pham and McPhee (1992) and Bird et al. (1998) found that recently immigrated Vietnamese were least likely to have received preventive cancer screenings due to lack of understanding to the breast cancer recommendations, access to care, and being less acculturated. Yi (2005) found that length of residence in the U.S. was significantly associated with having a regular physician for care. Also, length of residence was found to be significantly associated to having CBE versus not ever having CBE. It may be that increased time allows greater time to work, obtain healthcare insurance, and education and knowledge about screening recommendations, which may increase the participation in screening programs.

Relationship Between the Major Study Variables

  Hypothesis 1. It was hypothesized that there would be a positive relationship between acculturation levels and breast cancer screening behaviors among Vietnamese American women living in Florida. The results of the statistical analysis conducted to test Hypothesis One in this study indicated that acculturation scores (SL-ASIA) positively predicted breast cancer screening behaviors ($\beta = .35$, $p = .001$). Therefore, the first hypothesis was strongly supported; the more acculturated the Vietnamese American women were, the higher were their breast cancer screening behavior scores. The study's finding was inconsistent with Yi (1995) who reported no association between acculturation variables with prior preventive health services ($p=<0.05$), specifically cancer screenings. However, it was consistent with other studies conducted by Jenkins et al. (1996) and Nguyen et al. (2010) ($p \leq 0.05$), which indicated that those who were more acculturated were more likely to have increased length of stay in the U.S. and have private health insurance, which is a strong predictor for breast cancer screening. Conversely, low levels of acculturation have been associated with barriers to preventive health screenings, specifically breast cancer (Yi, 1995). As the acculturation level increased, breast cancer screening behaviors increased. Higher levels of acculturation may be attributed to longer length of residency in the U.S., more time to work, more time, more time seek medical care, and more time to learn about breast cancer and screening recommendations.

  Hypothesis 2. It was hypothesized that there would be a positive relationship between health beliefs and breast cancer screening behaviors among Vietnamese

American women living in Florida. The results of the statistical analysis conducted to test Hypothesis Two in this study indicated a negative association; therefore, the second hypothesis was not supported. Only one other study was found that conducted a study on health beliefs and breast cancer screening among Vietnamese American women in Texas (Ho et al., 2005). This study was used to compare and contrast the findings to the current study since the variables under study and population were similar. Susceptibility to breast cancer was marginally associated with breast cancer screening behavior scores (β = -.10, p = .059). Thus, the more susceptible the Vietnamese American women were to breast cancer, the higher were their breast cancer screening behavior scores. Ho et al. (2005) reported a low mean score for susceptibility (8%) with participants who performed BSE, performed BSE monthly, CBE, and had mammogram. Perhaps, the susceptible scores would have been impacted if participants from this study were asked if they had a family history of breast cancer, which may engage them in screening activities if they felt susceptible to the disease (Champion, 1999; Chen et al., 2008; Petro-Nustus & Mikhail, 2002).

Similar to susceptibility, seriousness (or severity) to breast cancer negatively predicted breast cancer screening behavior scores (β = -0.01, p = 0.93), meaning that the Vietnamese American women in this study do not recognize breast cancer as a threat at this time. In addition, they may not perceive that breast cancer is serious or a possibility that they are personally at risk for breast cancer before performing a BSE or CBE or having a mammography. Conversely, the study conducted by Ho et al. (2005) reported a higher perceived seriousness score for breast cancer (mean score 52%). Since there are

no studies conducted on this population in Florida, it is difficult to determine if the low severity/seriousness score truly reflected this population. Further studies on this population are needed to provide a better means of comparison.

Unexpectedly, benefits of BSE scores negatively predicted breast cancer screening behavior scores (β = -.12, p = .044); the more beneficial Vietnamese American women believed breast self-exams were, the lower were their breast cancer screening behavior scores. Again, this is contrary to the study conducted by Ho et al. (2005), which reported a high benefit score for BSE (55%) and mammography (45%). Champion (1999) indicated that a woman must perceive that benefits to breast cancer screening directly relate to early detection and treatment resulting in a reduction in morbidity. Due to the lack of research conducted on health beliefs on breast cancer screening among Vietnamese American women living in Florida, it is difficult to determine what the knowledge base is for breast cancer, breast cancer risks, breast cancer screening recommendations, and treatment options. Further studies are needed to better understand the knowledge base and educational needs of this population on breast cancer screening.

Barriers to breast cancer screening behaviors were not found to be negatively predictive (β = 0.01, p = 0.44) of breast cancer screening behaviors. The majority of the participants in the study reported that it was "not important, don't need" to perform BSE, CBE, or have a mammogram, which correlates higher scores to "giving up quite a bit" and "require starting a new habit which is difficult." Furthermore, this response is congruent to the low susceptibility and low seriousness scores to breast cancer. Consistent with the study conducted by Ho et al.(2005), barriers to BSE (17%) and

mammography (10%) were not found to negatively predict breast cancer screening

behaviors. Perhaps this population does not feel at risk for breast cancer at this time.

Again, due to the lack of research conducted, it is undetermined what the healthcare

needs and knowledge base of this population are. However, Sadler et al. (2001) reported

that the most common barriers to participate in breast cancer education sessions were

lack of time, language barriers, and cost. At this time, it is unknown if this Vietnamese

American population perceives more benefits of and fewer barriers to BSE, CBE, or

mammography. Further studies are needed to better understand this population and their

healthcare needs in order to develop educational programs.

Interestingly, confidence in performing a breast self-exam marginally predicted

breast cancer screening behavior scores (β = -0.09, p = 0.092); the less confident

Vietnamese American were about performing their own breast, the lower were their

breast cancer screening behavior scores. This was comparable to the study conducted to

Ho et al. (2005), who reported a 20% confidence rate in performing BSE. Since there

were no other studies found on health beliefs on breast cancer screening behaviors among

Vietnamese American women besides the one already addressed, comparison to reported

results of other studies could not be made. This finding is congruent to the Health Belief

Model theory (Rosenstock et al., 1988). The more confident a woman is in performance

of certain health motivation behavior, the more frequent and confident she will do it.

Lastly, hmotivation was found to marginally predict breast cancer screening

behaviors (β = 0.11, p = 0.162), meaning that the higher motivation level to improve

health status, the higher breast cancer screening behavior. Congruent to the study by Ho

et al. (2005), which reported a high health motivation (48%) score, which may have reflected the participants having higher levels of education. Increased confidence level of BSE practice has been associated with increased breast cancer screening behaviors, which is congruent with the Health Belief Model theory (Rosenstock et al., 1988). The more confident one is in performing of a certain health motivation behavior, the more frequently she will do it.

Hypothesis 3. It was hypothesized that age, education, employment, health insurance status, and marital status would be significantly associated with breast cancer screening behaviors among Vietnamese American women living in Florida. The results of the statistical analysis conducted to test Hypothesis Three in this study revealed that three of the demographic variables significantly predicted breast cancer screening behavior scores. First, age was positively associated with breast cancer screening behavior scores (β = p.38, $p = 0.001$); the older the participants were, the higher were their breast cancer screening behavior scores. This finding supports the study conducted by Ho et al. (2005), which indicatedthat age (older) was statistically significant ($p<0.0001$) in positively predicting the performance of BSE or CBE and use of mammogram. In addition, Jenkins et al. (1999) also found that women aged 40 or greater were positive predictors of performing SBE, CBE, and having mammogram (*OR*=2.5, 95% CI, 1.1-5.6). Second, health insurance status was significantly related to breast cancer screening behavior scores ($\beta = 0.39$, $p = 0.001$). Vietnamese Americans with health insurance had a significantly higher mean score (*M* = 6.31, *SD* = 2.24) than Vietnamese Americans without health insurance (*M* = 2.78, *SD* = 2.54). This is

congruent to the study by Yi (1995) indicating that age, having a child, and education,

and employment status were significantly (*p*=<0.05) related to type of health insurance

coverage.

Third, marital status was significantly associated with breast cancer screening

behavior scores (β = .14, *p* = .012). Specifically, participants who were married (*M* =

5.89, *SD* = 2.49) had significantly higher mean screening scores than participants who

were single or divorced (*M* = 4.70, *SD* = 3.01). This finding is consistent with the study

by Ho et al. (2005) who reported that marital status (79% married) was statistically

significantly (*p*=0.001 in positively predicting the use of breast cancer screening

examinations (BSE and CBE) and tests (mammogram). The study by Jenkins et al.

(1996) further supports this study's finding by reporting that marital status was one of the

influential factors of healthcare access, which is a strong predictor of received preventive

cancer screening examinations or tests(*OR*=12.69, 95% *CI*, 4.10-32.75). As previously

stated, the predictive power of marital status for healthcare access stems from the fact

that pregnancy and childbirth provide points of entry into the healthcare system.

Education and employment status were not found to be statistically significant to

breast cancer screening behaviors in this study. The study by McPhee et al.(1990)

supported this finding, which reported that educational levels were not significant to

breast cancer screening behaviors. However, this study contrasted with the study

conducted by Yi (1995), which reported that educational level (*p*<=0.0001) and

employment status (*p*<0.000) were found to be statistically significant to access to

healthcare programs. The study by Xu et al. (2005) also contrasted with this study. They

reported that higher education level was significantly related to more knowledge about

BSE (r=0.234, p<0.01), doing BSE (r=0.265, p<0.01), and having CBE (r=0.190,

p<0.05). As previously indicated, Yi (1995) found that age, having a child, and

education, and employment status were significantly (p=<0.05) related to type of health

insurance coverage.

Significance of the Study to Nursing

Globally, adherence to breast cancer screening recommendation remains to be

major health concern. Despite the effectiveness of early detection and screening programs

to reduce breast cancer mortality, rates of these preventative cancer screening remain low

among minority women (Hedeen, White, & Taylor, 1999; Jenkins, McPhee, Bird, Pham,

Nguyen et al., 1996; Jenkins, McPhee, Bird, & Bonilla, 1990; Nguyen, Belgrave, &

Sholley 2010). Breast cancer rates have been climbing steadily in the United States since

the 1940's. According to American Cancer Society (2012) and Parkin et al.(2008), a

woman's lifetime risk of breast cancer in the U.S. has nearly tripled during the past four

decades. The Vietnamese population is one of the fastest growing populations in the U.S.

Regardless of public health interventions and considerable gains in screening, the

mortality rate from breast cancer is still prevalent among Vietnamese women yet

adherence to breast cancer screening recommendations remains to be a concern for the

Vietnamese American women (CDC, 2012; Gomez et al., 2010; Nguyen et al., 2000;

Satcher, 2001).

Florida ranks as the fourth-largest state where Vietnamese people reside (U.S.

Census Bureau, 2010), but little is known about this population since no research has

been conducted on this population. Therefore, it is unknown what the knowledge base, educational, and healthcare needs are specifically about breast cancer and breast cancer screening for this population. It is hopeful that the findings from this study will trigger the impulsion for increased education and interventions by nurses and other healthcare professionals and will significantly add to the body of nursing scientific knowledge by providing data related to breast cancer screening behaviors for Vietnamese Americans and Vietnamese American women living in Florida in particular. This data is currently not available for Florida and sparse for other states where large numbers of Vietnamese people reside such as California or Texas.

Nursing Education

This research study's findings have significance in all levels of nursing education, including all levels of preparation of nursing curricula, conferences, and continuing education courses. Nursing curricula contains content on cancer risks, specifically breast cancer risks, screening recommendations, and purpose of BSE, CBE, and having a mammogram. In the U.S., breast cancer is the leading cause of cancer morbidity and mortality in women second to lung cancer (ACS, 2012; CDC, 2012; Parkin et al., 2005; NCI, 2012). Nursing students, practicing nurses, and advanced practice nurses should be educated on the various types and stages of breast cancer, as they pertain to this particular population since Asian American/Pacific Islanders (APPIs), specifically the Vietnamese in the U.S., continue to bear disproportionate burden of cancer incident and mortality (CDC, 2010).

Due to the underutilization and the delay of breast cancer screening recommendations, Vietnamese women tend to be diagnosed with tumors that are larger and more severe and have spread more regionally (Tang et al., 1999). Therefore, it is paramount that healthcare professionals understand the health beliefs and levels of acculturation on breast cancer screening among the Vietnamese American women. The benefits for nurses and healthcare providers in understanding the specific health beliefs of the Vietnamese Americans are to develop culturally and linguistically appropriate educational materials and outreach programs within the community of this population. Furthermore, nurses may be able to broaden their understanding of the factors that influence Vietnamese women's breast cancer screening behaviors. Additionally, the findings of this study may also add to the growing body of knowledge regarding a phenomenon that has not been extensively studied. It is hoped that the knowledge gained from this study may guide nurses and other healthcare professionals to provide ongoing education about breast cancer screening and its importance.

Nursing Practice

Nursing students, practicing nurses, and advanced practice nurses are in a unique position to develop, implement, and evaluate education and screening programs that are targeted towards this population. These education and screening programs that are targeted to this population need to be focused on various age groups since each age group has varying levels of acculturation and health beliefs, as well as barriers to breast cancer screening.

Education and screening programs that are developed by nurses must include

contention on behavior change theory, specifically the Health Belief Model (HBM)

(Rosenstock et al., 1988), as its core component. The HBM has been used to identify

persons engaging in health promotion activities because they value health, define disease

as a threat with serious avoidable consequences, and expect positive outcomes from the

activities (Becker, 1974; Rosenstock et al., 1988; Strecher & Rosenstock, 1997). This

model has been commonly used in various studies predicting health-related screening

behaviors, specifically women at risk for breast cancer (Avci, 2008; Champion, 1984;

1987; 1993; 1999; Champion & Scott, 1997; Dundar, Ozmen, Ozturk, Haspolat, et al.,

2006; Gozum & Aydin, 2004; Karayurt & Dramali, 2007; Lee et al., 2002; Park et al.,

2007; Nahcivan & Secginli, 2007; Parsa et al., 2008; Petro-Nutus & Mikhail, 2002;

Russell et al., 2008; Secginli & Nahcivan, 2004; Wyper, 1990). The HBM examines the

client's perceived susceptibility, perceived severity or seriousness, perceived benefits,

confidence, and health motivation or cues to action (Rosenstock et al., 1988). The goal

of these education and screening program is to be effective in helping with early

detection initiatives.

Nurses who work with members of this population must be comfortable with and

understand the Vietnamese culture and background. Many members of this population

may not self-identify as a woman at risk or willing to participate in screening education

due to various barriers such as cost, language barriers, denial that they are even at risk,

modesty, or embarrassment of performing BSE or having CBE or mammogram. Nurses

can best assess the client's risk with the Vietnamese women by displaying a respectful,

non-biased, and non-judgmental, and straightforward approach to history taking and breast cancer screening practices. Once mutual trust has been established, the Vietnamese women may be more comfortable in providing personal information regarding their breast cancer screening behaviors. This will help guide the nurse in finding the most appropriate and effective way of educating the Vietnamese women in performing self-breast examinations.

Nurses have the responsibility of providing both written and verbal information for members of this population. Written information should be available to members of this population where it can be easily accessed such as grocery stores, restaurants, churches, temples, or nail salons. Written information must include the definition of breast cancer, risk factors, recommended screening tests and purpose, and where to access screening tests such as CBE and mammograms. Written material should be available in both English and Vietnamese and should be written at an appropriate reading level based on the demographics of the population served so that the information can be comprehended. For those who struggle with literacy, the nurse can develop teaching strategies that employ either audio or video programs that present this important information without relying on written material.

Nursing Research

The findings of this study have contributed to the body of existing knowledge on how the influence of acculturation and health beliefs on breast cancer screening behaviors among the Vietnamese American women living in Florida. This study makes a unique contribution to the knowledge base of this population since this is the first study that

focuses on the levels of acculturation, health beliefs, and breast cancer screening behaviors among Vietnamese women in Florida. The findings of this study may guide evidenced-based practice and research in the care of this population on breast cancer. Research indicated many Vietnamese American women have misconceptions of breast cancer, and many are unaware of various cancer screening tests available (Ho et al., 2005; Jenkins et al., 1999; Jenkins et al., 1996; Nguyen et al., 2010; Sadler et al., 2001;Yi, 1994; Yi & Luong, 2005), which may attribute to low participation rates (Donnelly, 2008; McGarvey et al., 2003; Sadler et al., 2001). If found in its early stage, the precursors to breast cancer can be treated, preventing the progression to invasive cancer. Based on the findings of this study, it may also guide qualitative research methods to help determine understand the perceptions and experiences to BSE, CBE, and mammograms. Therefore, triangulation methodology can be employed to gain an in-depth perspective of the relationships of these factors by combining both quantitative and qualitative techniques. In addition, this study may attempt to reduce health disparities by identify, reducing, or removing barriers that prevent breast cancer screening among Vietnamese women, which may decrease mortality and morbidity.

Nursing Health/Public Policy

Nurses need to be involved in policy development at all levels of government to ensure that members of this population receive adequate healthcare services. On the national level, nurses need to advocate for funding allocated towards breast cancer screening for underserved or low income Vietnamese women in Florida. This funding could be utilized to cover screening costs (i.e., medical screening or mammograms). With

the rising number (76% increase) of Vietnamese women living in Florida (U.S. Census, 2010) as well as incidence of breast cancer cases among Vietnamese women, advocating for funding of these services is critical.

On a federal and state level, nurses need to advocate for preventative services. Preventative approaches are consistent with primary prevention behaviors that they examine the relationship between behavioral and beliefs that influence health (NCI, 2012). For example, behavioral factors such as smoking and poor dietary choices cause death in cancers such as colon, endometrial, and breast (NCI, 2012). Early detection measures remain the first priority as recommended by National Cancer Institute (NCI) (2012) and the WHO (2012) for national health programs against breast cancer. As primary prevention efforts have not consistently decreased breast cancer mortality and morbidity in this population, nurses need to be more active in examining prevention strategies in order to make more effective in decreasing breast cancer incidence. In addition, nurses need to take an active role in tertiary breast cancer prevention. Although this concept has been discussed in the literature, putting this concept into clinical practice has not been clearly developed.

Regarding health/public policy, the findings of this study can address the Healthy People 2010 objectives and goals for Asian American/Pacific Islanders (Ghosh, 2003). Specifically including the Vietnamese population, 4 of the 15 objectives and goals were to 1) reduce the overall cancer death rate, 2) reduce breast cancer death rate, 3) increase the proportion of women aged 40 years and older who have received a mammogram within the preceding two years, and 4) increase the number of states that have a

statewide-population based cancer registry that captures case information on at least 95% of the expected number of reportable cancers. Currently, Florida does not have an active cancer registry that stratifies the Asian populations based on location, gender, age, educational levels, employment status, income, and marital status. The overall goal is to reduce the incidence and mortality rates of breast cancer and increase the number of women screening by ending the number of health disparities among Vietnamese American women (ACS, 2012; CDC; 2012; Ghosh, 2003; NCI, 2012;). This study could build on the existing knowledge base of Vietnamese women in California, Texas, Australia, and Canada. The findings of this study were able to fill in some gaps to the existing body of scientific knowledge. The findings of this study could serve as a point of origin for additional research studies with this understudied population.

<div align="center">**Strengths and Limitations of the Study**</div>

Strengths of the Study

There were several strengths to this study. Snowball sampling was an effective method of recruiting participants since the women were excited about participating in the very first health studies conducted on Vietnamese women. All were willing and excited participants about the study; therefore, they were more inclined to complete the questionnaires. Therefore, no missing data were found in 200 questionnaires.

Limitations of the Study

Results obtained from this study of Vietnamese American women provided some insight into the possible influences of acculturation and health beliefs on breast cancer screening behaviors. Results from the study could be utilized to develop nursing

interventions and to develop targeted educational strategies for this population in order to

encourage breast cancer screening initiatives. Although this study does contribute to the

knowledge base of what was unknown about this population, this study is not without

limitations. In addition to limitations described in Chapter One, further identified

limitations included:

1. The study's research design, the cross-sectional, correlational design limits

    generalizability (Salkin, 2000a). The results of this study cannot be

    generalizable to the larger population of Vietnamese women.

2. Although the sample was drawn from all Vietnamese American women aged

    18 years or older living in Florida, the majority of the participants were from

    Orange County, Florida, thus limiting the generalizability of the findings of

    this study to other counties in Florida, as well as other Vietnamese

    populations.

3. Due to the use of snowball sampling, findings from this study was limited

    with respect to generalizability and sampling error may be present (Creswell,

    2011; Polit & Beck, 2003). In addition, the study was limited to Bilingual

    Vietnamese women, which excluded other possible participants who only

    speak, read, and write Vietnamese, which may also affect generalizability.

4. The researcher was present during data collection; therefore, the participants

    may have answered the self-reported questionnaires based on social

    desirability and not answered truthfully or left questions blank, which may

    have affected the results of the study.

5. Data were collected over a two-week period in public places that Vietnamese American women frequent, and the possibility exists that some participants may have completed the questionnaire more than once since a small token of appreciation was given for each completed questionnaire. It is possible that the responses may have been different if data collection had been for a longer period of time.

6. Although it was estimated that the questionnaires would take approximately 30 minutes to complete, its length of 126 items total may have caused the participants to select responses without much thought. Therefore, the answers may have been inaccurate.

7. Since the inclusion criteria for this study was bilingual Vietnamese American women, many indicated that they spoke and understood English but some may not have fully understood the questions which may have caused them to incorrectly answer the questionnaire.

Recommendations for Future Studies

1) Replicate this study with a broader sampling method so a larger and well-represented population can participate.

2) Re-evaluate the HBM application in this population with a broader and larger sample.

3) Included cultural aspects along with health beliefs to determine the relationship of variables.

4) Replicate this study utilizing a mix-method technique that includes qualitative quantitative techniques.

5) Include Vietnamese speaking women, which will require all instruments to be translated into Vietnamese using backwards and forward translation techniques.

6) All longer duration time to collect data in order to reach more participants so higher response rate can be achieved.

7) Replicate this study conducting an experimental study with a two-group testing pre- and post-educational initiatives.

8) Allow at least nine months to one-year time for follow-up so participants can have time to respond to CBE, SBE, and mammogram recommendations.

9) Use broader media such as television or newspaper to recruit participants instead of flyers and snowball sampling technique.

10) Emphasize the important aspects in the questionnaire; eliminate unnecessary questions so participants will not be overwhelmed or become fatigued.

11) Utilize a more effective incentive to decrease the attrition rate.

12) Submit study for research grant money to assist with costs and incentives for participation.

13) Study the effects of religion on the health screening behavior in this population.

14) Study the influence and practice of the alternative healthcare practitioners on this population.

Conclusions

The purpose of this study is to determine how the levels of acculturation, health beliefs, and identified variables such as age, education, employment, insurance, and marital status influence breast cancer screening behaviors among Vietnamese American women living in Florida. A non-experimental, correlational design was used to determine the influence of the predictor (independent) variables; select demographic variables (age, education, employment, insurance status, and marital status), acculturation, and health beliefs, and criterion (dependent variable), breast cancer screening behavior among Vietnamese American women living in Florida. Two hundred Vietnamese American women participated in this study, who were between the ages of 19 and 84 years old (*M*= 50.87, *SD* = 16.42). Data were collected using a 102-item anonymous questionnaire, which included a researcher-developed demographic questionnaire. Two well-developed, reliable, and standardized instruments were used in this study. Acculturation was measured by using the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA), which was developed by Suinnet al. (1987). It is a widely used acculturation measure for people from Asia or with an Asian American background with a demonstrated strong initial reliability of α=0.88 (Suinn et al., 1987). Health beliefs were measured by using Champion's Health Belief Model Scale (CHBMS) (1993). The CHBMS's internal consistency reliabilities using Cronbach's alpha ranged from 0.75 to 0.93, indicating good levels of internal consistency (Burns & Groves, 2011).

Hypotheses were tested using correlational and multiple regression analysis techniques. Two of the three hypotheses were supported while the other was rejected.

Analysis of the results did find statistical significance with acculturation levels and breast cancer screening behaviors among Vietnamese American women living in Florida and statistical significance with age, health insurance, and marital status but education and employment were not. Health behaviors were not positively associated with breast cancer screening behaviors; therefore, the hypothesis was not supported.

It is hopeful that the findings from this study will encourage other quantitative studies to explore other variables that may influence breast cancer screening behaviors. Furthermore, interventional and qualitative studies may be developed utilizing the Health Belief Model to guide future studies and educational initiatives on breast cancer screening. In addition, the findings of this study would encourage the development of a culturally and linguistically appropriate educational materials and outreach programs within the Vietnamese American community in Florida.

Chapter Summary

In summary, this chapter discussed the summary and findings of the study along with the significance of the study to Nursing by encompassing nursing education, nursing practice, nursing research, and nursing health/public policy. In addition, the strengths and limitations to the study were also discussed in this chapter. Lastly, the recommendation for future studies and conclusions were also included.

REFERENCES

American Cancer Society. (2010). Cancer facts & figures, 2010. Retrieved on July 15, 2012 from http://www.cancer.org/downloads/STT/2010CAFFfinalsecured.pdf

American Cancer Society. (2012).Cancer facts and figures 2011-2012. Retrieved on July 20, 2012 from http://www.cancer.org/acs/groups/content/@epidemiologysurveilance/documents/document/acspc-030975.pdf

Atkins, D. & Gim, R. (1989). Asian-American cultural identity and attitudes toward mental health services. *Journal of Counseling and Psychology, 36*, 209-212

Avci, I. A. (2008). Factors associated with breast self-examination practices and beliefs in female workers at Muslim community. *European Journal of Oncology Nursing, 12*, 127-133.

Becker, M.H. (1974). The health belief model and sick role behavior. *Health Education Monographs,2,* 2-6.

Bernstein, L., Mui, A., Monroe, K., Henderson, B. E., & Ross, R. K. (1995). Cancer incidence among Filipinos in Los Angeles County, 1972-1991. *International Journal of Cancer, 63*, 345-348.

Bird, J. A., McPhee, S. J., Ha, N., Le, B., Davis, T., Jenkins, C. N. H. (1998). Opening pathways to cancer screening for Vietnamese-American women: Lay health workers hold a key. *Preventative Medicine, 27*, 821-829.

Black, M. E. A., Frisina, A., Hack, T., & Carpio, B. (2006). Improving early detection of

breast and cervical cancer in Chinese and Vietnamese immigrant women.

Leadership and Professional Development, 33(5), 873-876.

Bottorff, J. L., Johnson, J., Bhagat, R., Grewal, S., Balneaves, Clarke, H. ... Hilton, A.

(1998). Belief related to breast health practices: The perceptions of South Asian

women living in Canada. *Social Science Medicine, 47*(2), 2075-2085.

Bouvier, L. F., & Agresta, A. J. (1985). The fastest growing minority. *American

Demographics, 7*(5), 30-33.

Brown, E., Ponce, N., & Rice, T. (2001). The state of health insurance in California:

Recent trends, future prospects. UCLA Center for Health Policy Research.

Retrieved on October 10, 2005 at http://www.healthpolicy.ucla.edu

Burns, N., & Grove, S.K. (2011). *Understanding nursing research: Building an evidence-

base practice* (5th ed). Ontario, Toronto: Elsevier

Calnan, M., & Rutter, D.R. (1986). Do health beliefs predict health behavior? An analysis

of breast self-examination. *Social Science Medicine, 22*, 673-678.

Chalmers, K. I. & Liker, K. A. (1996). Breast self-care practices in women with

primary relatives with breast cancer. *Journal of Advanced Nursing, 23*(6), 1212-

1220.

Champion, V. L. (1984). Instrument development for health belief model constructs.

Advances in Nursing Science, 6(3), 73-85.

Champion, V. L. (1985). Use of the health belief model in determining frequency of

breast self-examination. *Research in Nursing and Health, 8*, 373-379.

Champion, V. L. (1987). The relationship of breast self-examination to health belief model variables. *Research in Nursing and Health, 10*(6), 375-382.

Champion, V. L. (1988). Attitudinal variables related to intention, frequency, and proficiency of breast self-examination in women 35 and over. *Research in Nursing and Health, 15*(3), 283-291.

Champion, V. L. (1999). Revised susceptibility, benefits, and barriers scale for mammography screening. *Research in Nursing and Health, 22*, 341-348.

Centers for Disease Control and Prevention. (2012). Cancer prevention and control: Cancer facts and figures 2011. Retrieved on August 22, 2012 from http://www.ced.gov/cancer/nbccedp/about2011.htm

Centers for Disease Control and Prevention. (2008). *Breast Cancer Statistics*. Retrieved on July 20, 2012 from http://www.cdc.gov/cancer/breast/statistics/

Centers for Disease Control and Prevention. Behavioral risk factor survey of Vietnamese in California-1991. (1992). *Morbidity and Mortality Weekly Report, 41*(1), 69-72.

Chen, W-T., & Bakken, S. (2004). Breast cancer knowledge assessment in female Chinese immigrants in New York. *Cancer Nursing, 27*(5), 407-412.

Chung, R. C., Bemak, F., & Wong, S. (2000). Vietnamese' levels of distress, social support, and acculturation: Implications for mental health counseling. *Journal of Mental Health Counseling, 22*(2), 150-161.

Cohen, J. (1998). Statistical Power Analysis for the behavioral Sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Covington, M. B. (2001). Traditional Chinese medicine in the treatment of diabetes. *Diabetes Spectrum, 14*(3), 154-159.

Creswell, J. W. (2011). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (4th ed.). White Plains, NY: Addison-Wesley.

Cuellar, I., Harris, L. C., & Jasso, R. (1980). An acculturation scale for Mexican American normal and clinical populations. *Hispanic Journal of Behavioral Sciences, 2*(3), 199-217.

D'Avano, C. E. (1992). Barriers to health care for Vietnamese . *Journal of Professional Nursing, 8*(4), 245-253.

Edmonds, V. M., & Brady, P. (2003). Health care for Vietnamese immigrants. *Journal of Multicultural Nursing & Health, 9*(2), 52-58.

Faul, F., Erdfelder, E., Lang, A., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175-191.

Folkman, S. (2000). Privacy and confidentiality. In B.D. Sales & S. Folkman (Eds.), Ethics in research with human participants (pp. 49-57). Washington, DC: American Psychological Association.

Forouzanfor, M. H., Foreman, K. J., Delossantos, A. M., Lozano, R. Lopez, A.D. et al. (2011). Breast and cervical cancer in 187 countries between 1980 and 2010: Asystematic analysis. *The Lancet, 378,* 1461-1484.

Gellis, Z. D. (2003). Kin and nonkin social supports in a community sample of Vietnamese immigrants. *Social Work, 44*(2), 250-257.

Ghosh, C. (2003). Healthy people 2010 and Asian Americans/Pacific Islanders: Defining a baseline of information. *American Journal of Public Health, 193*(12), 2093-2098.

Goldstein, R. (1989). Power and sample size via MS/PC-DOS computers. *American Statistician*, *43*, 253-260.

Gomez, S. L., Clarke, C. A., Shema, S.J., Chang, E. T., Keegan, T. H. M., & Glaser, S. L. (2010). Disparities in breast cancer survival among Asian women by ethnicity and immigrant status: A population-based study. *Research and Practice, 100*(5), 886-869.

Gozum, S. & Aydin, I. (2004). Validation evidence for Turkish adaptation of Champion's health model scales. *Cancer Nursing, 27*(6), 491-497.

Gray, J., Evans, N., Taylor, B., Rizzo, J., Walker, M. (2009). State of the evidence: The connection between breast cancer and the environment. *International Journal of Occupational and Environmental Health, 15*(1), 43-78.

Green, S. B., & Salkin, N. J. (2010). *Using SPSS for Windows and McIntosh: Analyzing and understanding data* (6th ed.). Upper Saddle River, NJ: Prentice Hall.

Han, Y., Williams, R. D., & Harrison, R. A. (2000). Breast cancer screening knowledge, attitudes, and practices among Korean American women. *Oncology Nursing Forum, 27*(10), 1585-1591.

Hedeen, A.N., White, E., & Taylor, V. (1999). Ethnicity and birthplace in relation to tumor size and stage in Asian American women with breast cancer. *American Journal of Public Health, 89*, 1248-1251.

Ho, V., Yamal, J. M., Atkinson, E. N., Basen-Engquist, K., Tortolero-Luna, G., & Follen, M. (2005). Predictors of breast and cervical screening in Vietnamese women in Harris County, Houston, Texas. *Cancer Nursing, 28*(2), 119-129.

Hoang, G., & Erickson, R. (1982). Guidelines for providing medical care to Southeast Asian. *Journal of American Medical Association, 248*, 710-714.

Hoang, G. (1985). Cultural barriers to effective medical care among Indochinese patients. *Annals Review of Medicine, 36*, 229-239.

Howlader, N., Noone, A.M., Krapcho, M., Neyman, N., Aminou, R., Altekruse (2010). *SEER Cancer Statistics Review, 1975-2009 (Vintage 2009 Populations)*, National Cancer Institute. Retrieved on July 15, 2012: http://seer.cancer.gov/csr/1975_2009_pops09/

Hulley, S. B., Martin, J. N. Martin, & S.R. Cummings. (2001). *Designing clinical research* (2nd ed.). Philadelphia, PA: Lippincott, Williams, & Wilkins.

Iwamasa, G. Y. (1996). Acculturation of Asian American university students. *Assessment, 3*, 99-102.

Jamin, D., Yoo, J., Moldeanu, M., & Tran, L. (1999). Vietnamese and Armenian health Attitudes survey. *Journal of Multicultural Nursing & Health, 5*(1), 6-14.

Jenkins, C. N. H., McPhee, S. J., Bird, J. A., & Bonilla, N. H. (1990). Cancer risks and prevention practices among Vietnamese. *The Western Journal of Medicine, 153*, 34-40.

Jenkins, C. N. H., Le, T., McPhee, S. J., Stewart, S., & Ha, N. T. (1996). Health care access and preventative care among Vietnamese immigrants: Do traditional beliefs and practices pose barriers? (1996). *Social Science Medicine, 43*(7), 1049-1056.

Jenkins, C. N. H., McPhee, S. J., Bird, J. A., Pham, G. Q., Nguyen, B. H., Nguyen, T., Lai, K. Q., Wong, C., Davis, T.B. (1999). Effect of media-led education campaign on breast and cervical cancer screening among American-American women. *Preventative Medicine, 28*, 395-406.

John, E. M., Phipps, A. I., Davis, A., & Koo, J. (2005). Migration history acculturation, and breast cancer risk in Hispanic women. *Cancer Epidemiology Biomarkers & Prevention, 12*, 2905-2913.

Johnson, M. L., Wall, T. L., Guanipa, C., Terry-Guyer, L., & Velasquez, R. J. (2002). The psychometric properties of the orthogonal cultural identification scale in Asian-*Americans. Journal of Multicultural Counseling and Development, 30*, 181-191.

Kemp, C. (2002). *Vietnamese-American medical profile*. Baylor University. Retrieved November 9, 2005, from http://www.baylor.edu/~Charles_Kemp/vietnamese_&_health.html

Kagawa-Singer, M., & Pourat, N. (2000). Asian American and Pacific Islander breast and cervical carcinoma screening rates and health people 2000 objectives. *Cancer, 89*(3) 696-705.

Kuss, T. (1997). Family planning experiences of Vietnamese women. *Journal of Community Health Nursing, 14*(3), 155-168.

Le, G. M., Gomez, S. L, Clarke, C. A., Glaser, S. L., & West, D.W. (2002). Cancerincidence patterns among Vietnamese in the United States and Hanoi, Vietnam. *International Journal of Cancer*, *102*, 412-417.

Leavell, H. R. & Clark, E. G. (1958). *Preventive medicine for the doctor and his community*. New York, NY: McGraw Hill.

Leclere, F. B., Jensen, L., & Biddlecom, A. E. (1994). Health care utilization, family context, and adaptation among immigrants to the United States. *Journal of Health and Social Behavior, 35*(4), 370-384.

Lee, E. Kim, J. S., & Song, M. S. (2002). Translation and validation of Champion's health belief model scale with Korean women. *Cancer Nursing, 25*(5), 391-395.

Lee-Lin, F., & Menon, U. (2005). Breast and cervical cancer screening practices and interventions among Chinese, Japanese, and Vietnamese Americans. *Oncology Nursing Forum, 32*(5), 995-1003

Lese, K. P., & Robbins, S.B. (1994). Relationship between goal attributes and the academic achievement of Southeast Asian adolescent refugees. *Journal of Counseling Psychology, 41*, 45-51.

Levinson, J. M. (1974). Traditional medicine in the Democratic Republic of North

> Vietnam. *American Journal of Clinical Medicine, 2*(2), 159-169.

Lin, S. (2002). Breast cancer characteristics of Vietnamese women in greater San

> Francisco Bay area. *Western Journal of Medicine*, *176*, 87-91.

Lovejoy, N. C., Jenkins, C., Wu, T., Shankland, S., & Wilson, C. (1989). Developing a

> breast cancer screening program for Chinese American women. *Oncology*

> *Nursing Forum, 16*(2),181-187.

Ma, G.X., Gao, W., Lee, S., Wang, M. Q., Tan, Y., & Shive, S. E. (2010). Health seeking

> behavioral analysis associated with breast cancer screening among Asian

> American women. *International Journal of Women's Health*, *4*, 235-243.

Marino, R., Stuart, G. W., & Minas, I. H. (2000). Acculturation of values and behavior: A

> study of Vietnamese immigrants. *Measurement and Evaluation in Counseling and*

> *Development, 33*(1), 21-41.

McGarvey, E. L., Clavet, G. J., Johnson, J. B., Butler, A., Cook, K. O., & Pennino, B.

> (2003). Cancer screening practices and attitudes: Comparison of low-income

> women in three ethnic groups. *Ethnicity & Health, 8*(1), 71-82.

McKelvey, R.S., Webb, J.A., & Mao, A. R. (1993). Premigratory risk factors in

> Vietnamese Amerasians. *The American Journal of Psychiatry, 150*(3), 470-473.

McPhee, S. J. (1998). Promoting breast and cervical cancer screening among Vietnamese

> American Women: Two interventions. *Asian American and Pacific Island*

> *Journal of Health, 6*(2), 345-350.

McPhee, S. J., Bird, J. A., Davis, T. Ha, N. T., Jenkins, C. N. H., Fordham, D., & Le, B.(1996). Pathways to early cancer detection for Vietnamese women: Suc khoc la vang! (Health is gold!). *Health Education Quarterly, 23*(supplement), S60-S75.

McPhee, S. J., Bird, J. A., Davis, T. Ha, N. T., Jenkins, C.N. H., & Le. B. (1997). Barriers to breast and cervical cancer detection among Vietnamese American women. *American Journal of Preventative Medicine, 13*(3), 205-213.

McPhee, S. J., Nguyen, T. T., Shema, S. J., Nguyen, B., Somkin, C., Vo, P., & Pasick, R. (2002). Validation of recall of breast and cervical cancer screening by women in an ethnically diverse population. *Preventative Medicine, 35,* 463-473.

Mertler, C. A., & Vannatta, R. A. (2009). *Advanced and multivariate statistical methods*. (4th ed.). Los Angeles, CA: Pryczak.

Miles, D. (1995). Disability in an Eastern religious context: Historical perspectives. *Disability and Society, 10*, 49-69.

Miller, B.A, Kolonel, L. N., Bernstein, L., Young, Jr. J. L., Swanson, G.M., West, D., et al.(1996). *Racial/Ethnic Patterns of Cancer in the United States 1988-1992, National Cancer Institute*. Retrieved on September 30, 2005 at http://seer.cancer.gov/

Miller, B. A., Chu, K. C., Hankey, B. F., & Ries, L. A. (2008). Cancer incidence and mortatlity patterns among specific Asian and Pacific Islander populations in the U.S. *Cancer Causes Control, 19*(3), 227-256.

Mitra, A. K., Faruque, F. S., & Avis, A. L. (2004). Breast cancer and environmental risks: Where is the link? *Journal of Environmental Health, 66*(7) 24-32.

Mortality & Mortality Weekly Report. (1992). Behavioral *risk factor survey of Vietnamese-California, 1991*. Retrieved on September 25, 2005 at http://www.cdc.gov/mmwr/previewrhtml/00016016.htm

Munro, B. H. (2001). *Statistical methods for health care research*. (4th ed.). Philadelphia, PA: Lippincott.

Nahcivan, N. O., & Secginli, S. (2007). Health beliefs related to breast self-examination in a sample of Turkish women. *Oncology Nursing Forum, 34*(2), 425-431.

National Cancer Institutes of Health (NCI). (2010). Cancer trends progress report update. Retrieved on July 15, 2012 at http://progressreport.cancer.gov/doc

National Cancer Institute of Health (NCI). (2010). *SEER stat fact sheets, breast*. Retrieved on July 15, 2012 at http://seer.cancer.gov/statfacts/html/breast.html

Nguyen, A. B., & Belgrave, F. Z. (2011). Health sources of cancer screening knowledge for Vietnamese women. *Journal of Cancer Education*, *27*, 320-326.

Nguyen, A. B., Belgrave, F. Z., & Sholley, B. K. (2010). Development of a breast and cervical cancer screening intervention for Vietnamese American women: A community-based participatory approach. *Health Promotion Practice*, 1-11.

Nguyen, T. T., Le, G., Nguyen, T., Le, K., Gildengorin, G., Tsoh, J, Bui-Tong, N., & McPhee, S.J. (2009). Breast cancer screening among Vietnamese Americans: A randomized controlled trial of lay health worker outreach. *American Journal of Preventative Medicine, 37*(4), 306-313.

Nguyen, T., Vo, P. H., McPhee, S. J., & Jenkins, C. N. H. (2000). Promoting early

  detection of breast cancer among Vietnamese-American women. *Cancer, 91*(1),

  267-273.

Nguyen, T. T., McPhee, S. J., Nguyen, T., Lam, T., & Mock, J. (2002). Predictors of

  cervical Pap smear screening awareness, intention, and receipt among

  Vietnamese-American women. *American Journal of Preventative Medicine,*

  23(3), 207-214.

Norusis, M. (1991). The *SPSS guide to data analysis for SPSS/PC+*. New Jersey:

  Prentice Hall.

Nunnally, J. C. & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York, NY:

  McGraw-Hill.

Office of Refugee Resettlement Program, Department of Health and Human Services.

(1998). Retrieved on January 21, 2006 at http://www.immigration.com

Ownsbey, S. F., & Horridge, P. E. (1998). The Suinn-Lew Asian self-identification

  acculturation scale: Test with non-student, Asian-American sample. *Social*

  Behavior and Personality, 26, 57-68.

Park, S, Hur, H. K., Kim, G., & Song, H. (2007). Knowledge, barriers, and facilitators of

  Korean women and their spouses in the contemplation stage of breast self-

  examination. *Cancer Nursing, 30*(1), 78-77.

Parker, S. L., Johnston-Davis, K., Wingo, P. A., Ries, L. A. S. G., & Heath, C. W.

  (1998). Cancer statistics by race and ethnicity. *CA- A Cancer Journal for*

  Clinicians, 48, 31-48.

Parkin, D. M., Bray, F., Ferlay, J., & Pisani, P. (2005). Global cancer statistics). *CA: A Cancer Journal for Clinicians, 55*, 74-108.

Parsa, P., Kandiah, M., Mohd, N. M. T., Hejar, A. R., & Nor, A. M. Z. (2008). *Singapore Medicine Journal, 49*(11), 897-903.

Petro-Nustus, W., & Mikhail, B. I. (2002). Factors associated with breast self-examination among Jordan women. *Public Health Nursing, 19*(4), 263-271.

Pham, A. H. T., Nguyen, H. T., Nguyen, H. T., & Nguyen, D. N. (1993). Cancer in the population of Hanoi, Vietnam, 1988-1998. *British Journal of Cancer, 88*, 1236-1242.

Pham, A. H. T., & Nguyen, B. D. (2002). The situation with cancer control in Vietnam. *Journal of Clinical Oncology, 32*(Supplement 1), S92-S97.

Pham, C. T., & McPhee, S. J (1992). Knowledge, attitudes, and practices of breast and cervical cancer screening among Vietnamese women. *Journal of Cancer Education, 7*(4), 305-310.

Phipps, E., Cohen, M. H., Sorn, R., & Braitman, L. E. (1999). A pilot study of cancer knowledge and screening behaviors of Vietnamese and Cambodian women. *Health Care for Women International, 20,* 195-207.

Polit, D. F., & Beck, C.T. (2003). *Nursing research: Principles and methods* (7th ed.). Philadelphia, PA: Lippincott.

Pourat, N., Kagawa-Singer, M., Breen, N. & Sripipatana, A. (2010). Access Versus Acculturation. *Medical Care, 48*(12), 1088-1096.

Prehn, A., Lin, S., Clarke, C., Packel, L., Lum, R., Harper, L. S., …West, D. (1999). *Cancer incidence in Chinese, Japanese and Filipino in the US and Asia 1988-1992.* Union City: Northern California Center.

Rosenstack, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and older adults. *Holistic Nursing Practice, 10*(1), 10-17.

Salder, G. R., Dong, H. S., Ko, C. M., Luu, T. T., & Nguyen, H. P. (2001). Vietnamese American women: Breast cancer knowledge, attitudes, and screening adherence. *American Journal of Health, 15*(4), 211-214.

Satcher, D. (2001). Our commitment to eliminate racial and ethnic health disparities. Retrieved on October 15, 2005 from www.yeale.edu/yjhple/voume_1/pdf/001%20(satcher).pdf

Seginli, S., & Nahcivan, N. O. (2004). Reliability and validity of the breast cancer screening belief scale among Turkish women. *Cancer Nursing, 27*(4), 287-293.

Seginli, S., & Nahcivan, N. O. (2006). Factors associated with breast cancer screening behaviours in a sample of Turkish women: A questionnaire survey. *International Journal of Nursing Studies, 43*, 161-171.

Shanahan, M., & Brayshaw, D. L. (1995). Are nurses aware of the differing health care needs of Vietnamese patients? *Journal of Advanced Nursing, 22*(3), 456-464.

Shapiro, J., Douglas, K., de la Rocha, O., Radecki, S., Vu, C., & Dinh, T. (1999). Generational differences in psychosocial adaptation and predictors of psychological distress in a population of recent Vietnamese immigrants. *Journal of Community Health, 24*(2), 95-113.

Smigal, C., Jemal, A., Ward, E., Cokkinides, V., Smith, R., Howe, A. L., & Thun, M.(2006). Trends in breast cancer by race and ethnicity: Update 2006. *CA Journal for Clinicians, 56*(3), 168-183.

Strecher, V. J., & Rosenstock, I. M., (1997). The health belief model. In K. Glanz, F. M. Lewis, & B. K. Rimer (Eds.), *Health behavior and health education: Theory, research, and practice* (2nd ed. pp.). San Francisco, CA: Jossey-Bass.

Stillman, M. (1977). Women's health beliefs about breast cancer and breast self-examination. *Nursing Research, 26*, 121-127.

Suinn, R. M., Rikard-Figuerora, K., Lew, S., & Vigil, P. (1987). The Suinn-Lew Asian Self-Identity Acculturation Scale: An initial report. *Educational and Psychological Measurement, 47*, 401-407.

Suinn, R. M. Ahuna, C., & Khoo, C. (1992). The Suinn-Lew Asian Self-Identity Acculturation Scale: Concurrent and factorial validation. *Educational and Psychological Measurement, 52,* 1041-1046.

Tang, T. S., Solomon, L. J., Yeh, J. C., & Worden, J. K. (1999). The role of cultural variables in breast self-examination and cervical cancer screening behavior in young Asian women living in the United States. *Journal of Behavioral Medicine, 22*(5), 419-436.

Suarez, L. (1994). Pap smear and mammogram screening in Mexican-American women: The effects of acculturation. *American Journal of Public Health, 84*, 742-746.

Susan G. Komen For The Cure. (2012) Breast cancer fast facts. Retrieved on July 15, 2012 from http://www.komenpugetsound.org/understanding-breast-cancer/about-breast-cancer/breast-cancer-fast-facts.html

U.S. Census Bureau. (2010). The Asian population: 2010. Washington, DC: US Department of Commerce. Retrieved on July 19, 2012 at http://www.census.gov

Woods, N. F., & Catanzaro, M., (1988). *Nursing research: Theory and practice*. Washington DC: Mosby

World Health Organization (2012). Breast and cervical cancer rates in the world. Retrieved on July 15, 2012 from http://www.who.int./cancer/en

Yi, J. K. (1998). Acculturation and Pap smear screening practices among college-aged Vietnamese women in the United States. *Cancer Nursing, 21*(5), 335-341.

Yi, J. K., & Luong, K. N. (2005). Apartment-based breast cancer edcuaiton for low income Vietnamese American women. *Journal of Community Health, 30*(5), 345-353.

Xu, Y., Ross, C., Ryan, R., & Wang, B. (2005). Cancer risk factors of Vietnamese Americans in rural south Alabama. *Journal of Nursing Scholarship, 37*(3), 237-244.

Zhou, M., & Bankston, C. L. (2000). The experience of Vietnamese refugee children in the United States. Retrieved on January 15, 2004 from http://www.teachingtolerance/vietnamese.com

Zeigler, R. G., Hoover, R. N., Pike, M. C., Hidesheim, A., Nomura, A. M.,…West, D.W.

(1993). Migration patterns and breast cancer risk in Asian-American women.

Journal of National Cancer Institute, 85(22), 1819-8127.

APPENDICES

APPENDIX A

IRB APPROVAL

Approved by Barry University IRB:

Date: JAN 10 2013

Signature: *[signature]* Smith L Bachella, PsyD, JD

Institutional Review Board
Protocol Form
November 26, 2012 7

Appendix A
Barry University
Institutional Review Board
Cover Letter

Dear Research Participant:

Your participation in a research project is requested. The research is being conducted by Kim Nguyen, MSN, RN doctoral student in the Division of Nursing at Barry University, to seek information that will be useful in the field of nursing and other health and human services professions. In order to better care for clients/patients with diverse and ethnic backgrounds, nurses and other healthcare professionals must understand the individual breast cancer educational needs and breast cancer screening behaviors. The aim of this study is to determine the influence of acculturation and health beliefs on breast screening behaviors among Vietnamese American women living Florida. The procedure will be to administer questionnaires to 200 Vietnamese women, aged 18 years or older, living in Florida. If you decide to participate in this research, you will be asked to complete three anonymous questionnaires regarding levels of acculturation (a person's initial learning was in one culture then adopts attitudes, values, and behaviors of another culture) health beliefs about breast cancer screening, and a demographics survey about yourself. To remain anonymous, that is, no names or other identifiers will be collected on any of the instruments used; you will not be asked to write your name on the questionnaire. It is estimated that it will take you no more than 30 minutes to complete these questionnaires. Once the questionnaires are completed, you will be asked to place it inside a sealed envelope and drop it inside a closed box. The researcher will not know whether you return a completed or blank survey.

By completing the anonymous questionnaires, you will be consenting to this study. Your consent to be a research participant is strictly voluntary. If you choose not to participate or choose to drop out at any time during the study, simply return the blank questionnaire. There will be no adverse effects on you or your health. There are no known risks to you related to participating in this study. Although I would like to have completed data as much as possible, you are free to choose not to answer any particular item(s) with which you feel uncomfortable. There are no direct benefits to you for participating in this study. However, it is possible that you may benefit from the opportunity to gain self-awareness regarding your own levels of acculturation and health beliefs regarding breast cancer screening. All participants will be provided with a small token of appreciation (two "scratch off" Florida lottery tickets with a worth of $2 U.S. dollars) to thank them for their participation.

Data will be kept in a locked boxed in the researcher's home office for five (5) years. Once the time period expires, data will be destroyed. Data will be reported at professional conferences and in publications in collective form. If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Kim Nguyen, at ███████████████ or my supervisor, Dr. Claudette Spalding at ███████████ or Barry University's IRB point of contact, Barbara Cook at ███████████

Thank you for your participation.

Sincerely,

_____

Kim Nguyen, Principal Investigator

APPENDIX B

DEMOGRAPHIC SURVEY

Please answer the following items as completely and honestly as possible. If you do not feel comfortable answering any question(s), please leave the item blank and go on to the next one.

If any answer does not exactly fit your experience, use the answer choice that best represents you. Also feel free to add any information that you feel is necessary after any question.

Again, you are not being asked to write your name anywhere in this booklet so your responses will remain anonymous.

Thank you for participating in this project!

1. Age in Years: _____

2. Marital Status:
   a. Single
   b. Married
   c. Divorced
   d. Separated
   e. Widowed
   f. Domestic partnership
   g. Non cohabitation partnership

3. Year of Arrival to the United States:_____

4. How many years of education completed? (Example: completed high school- 12 years + 2 years college= 14 years)_____

5. What is your average annual income?
   a. Less than $10,000
   b. $10,000-$24,999
   c. $25,000-$39,999
   d. $40,000-$54,999
   e. Greater than $55,000

6. What is the number of family members currently living in your household (including you):_____

7. Are you employed?
    a. Yes
    b. No

8. Do you currently have health insurance?
    a. Yes
    b. No

9. If you answered yes to question #8, what is the source? If answered no, skip to 10.
    a. Private Insurance
    b. Medicare
    c. Medicaid
    d. HMO

10. Have you had a regular place of medical care?
    a. Yes
    b. No

11. Have you had a regular doctor?
    a. Yes
    b. No

12. Would prefer a Vietnamese doctor:
    a. Yes
    b. No

13. Would have regular follow up care if your doctor is Vietnamese:
    a. Yes
    b. No

14. Would you prefer a female or male doctor:
    a. Female
    b. Male
    c. Does not matter

15. County and City of Residence:_____

16. Number of Children:_____
****

17. Heard of self breast exam (SBE):
    a. Yes
    b. No

18. Heard of mammogram:
    a. Yes
    b. No

19. Heard of clinical breast exam (CBE):
    a. Yes
    b. No

20. Have you ever performed a self breast exam?
    a. Yes
    b. No

    If yes, please provide month and year of last self breast exam (SBE). If answered no, skip to next question.
        Month_____ Year_____

21. Have you ever had a mammogram?
    a. Yes
    b. No

    If yes, please provide month and year of last mammogram. If answered no, skip to next question.
        Month_____ Year_____

22. Have you ever had a clinical breast exam (CBE)?
    a. Yes
    b. No

    If yes, please provide month and year of last clinical breast exam (CBE). If answered no, skip to next question.
        Month_____ Year_____

23. Plan to perform self breast exam (SBE):
    a. Yes
    b. No

24. Plan to have mammogram:
   a. Yes
   b. No

25. Plan to have clinical breast exam (CBE):
   a. Yes
   b. No

26. Afraid to have a breast/mammogram/CBE:
   a. Yes
   b. No

27. Reason that would prevent breast exams (BSE), clinical breast exam (CBE) or mammogram(can be more than one):
   a. Cost
   b. Not knowing where to go
   c. Lack of transportation
   d. Takes too much time
   e. Language barriers
   f. Fear or embarrassment
   g. Not important, don't need it

28. How did you know about this study?
   a. Grocery store flyers/people
   b. Restaurant flyers/people
   c. Church members
   d. Temple members
   e. Newspaper
   f. Friend or another Vietnamese person
   g. Nail Salon
   h. Other_____

APPENDIX C

SUINN-LEW ASIAN SELF IDENTITY ACCULTURATION SCALE

(SL-ASIA)

INSTRUCTIONS: The questions which follow are for the purpose of collecting information about your historical background as well as more recent behaviors which may be related to your cultural identity.

1. What language can you speak?
    1. Asian only (for example, Vietnamese, Chinese, Japanese, Korean)
    2. Mostly Asian, some English
    3. Asian and English about equally well (bilingual)
    4. Mostly English, some Asian
    5. Only English

2. What language do you prefer?
    1. Asian only (for example, Vietnamese, Chinese, Japanese, Korean)
    2. Mostly Asian, some English
    3. Asian and English about equally well (bilingual)
    4. Mostly English, some Asian
    5. Only English

3. How do you identify yourself?
    1. Oriental
    2. Asian
    3. Asian-American
    4. Vietnamese-American, Chinese-American, Japanese-American, etc.
    5. American

4. Which identification does (did) your mother use?
    1. Oriental
    2. Asian
    3. Asian-American
    4. Vietnamese-American, Chinese-American, Japanese-American, etc.
    5. American

5. Which identification does (did) your father use?
    1. Oriental
    2. Asian
    3. Asian-American
    4. Vietnamese-American, Chinese-American, Japanese-American, etc.
    5. American

6. What was the ethnic origin of the friends and peers you had, as a child up to age 6?
    1. Almost exclusively Asians, Asian-Americans, Orientals
    2. Mostly Asians, Asian-Americans, Orientals
    3. Above equally Asian groups and Anglo groups
    4. Most Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
    5. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups.

7. What was the ethnic origin of the friends and peers you had, as a child from 6-18?
    1. Almost exclusively Asians, Asian-Americans, Orientals
    2. Mostly Asians, Asian-Americans, Orientals
    3. Above equally Asian groups and Anglo groups
    4. Most Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
    5. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups.

8. Whom do you now associate with in the community?
    1. Almost exclusively Asians, Asian-Americans, Orientals
    2. Mostly Asians, Asian-Americans, Orientals
    3. Above equally Asian groups and Anglo groups
    4. Most Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
    5. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups.

9. If you could pick, who would you prefer to associate with in the community?
    1. Almost exclusively Asians, Asian-Americans, Orientals
    2. Mostly Asians, Asian-Americans, Orientals
    3. Above equally Asian groups and Anglo groups
    4. Most Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
    5. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups.

10. What is your music preference?
    1. Asian music only (for example, Vietnamese, Chinese, Japanese, Korean)
    2. Mostly Asian, some English
    3. Asian and English about equally well (bilingual)
    4. Mostly English, some Asian
    5. Only English

11. What is your movie preference?
    1. Asian-language movies only
    2. Asian-language movies mostly
    3. Equally Asian/English English –language movies
    4. Mostly English-language movies only
    5. English-language movies only

12. What generation are you (circle the generation that best applies to you)?
    1. 1st generation=I was born in Asian or country other than U.S.
    2. 2nd generation=I was born in U.S.; either parent was born in Asia or country other than U.S.
    3. 3rd generation=I was born in U.S.; both parents were born in U.S., and all grandparents born in Asia or country other than U.S.
    4. 4th generation= I was born in U.S.; both parents were born in U.S., at least one grandparent born in Asia and one grandparent born in U.S.
    5. 5th generation=I was born in U.S.; both parents were born in U.S., and all grandparents also born in U.S.
    6. Don't know what generation best fits since I lack some information.

13. Where were you raised?
    1. In Asia only
    2. Mostly in Asia, some in U.S.
    3. Equally in Asia and U.S.
    4. Mostly U.S., some Asia
    5. In U.S. only

14. What contact have you had with Vietnam?
    1. Raised one year or more in Asia
    2. Live for less than one year in Asia
    3. Occasional visits to Asia
    4. Occasional communications (letters, phone calls, etc.) with people in Asia
    5. No exposure or communication with people in Asia

15. What is your food preference at home?
    1. Exclusively Asian food
    2. Mostly Asian food, some American
    3. About equally Asian and American
    4. Mostly American food
    5. Exclusively American food

16. What is your food preference in restaurants?
    1. Exclusively Asian food
    2. Mostly Asian food, some American
    3. About equally Asian and American
    4. Mostly American food
    5. Exclusively American food

17. Do you…
    1. Read only an Asian language?
    2. Read an Asian language better than English?
    3. Read both Asian and English equally well?
    4. Read English better than an Asian language?
    5. Read only English?

18. Do you…
    1. Write only an Asian language?
    2. Write an Asian language better than English?
    3. Write both Asian and English equally well?
    4. Write English better than an Asian language?
    5. Write only English?

19. If you consider yourself a member of the Asian group (Oriental, Asian, Asian-American, Vietnamese-American, etc., whatever term you prefer). How much pride you have in this group?
    1. Extremely proud
    2. Moderately proud
    3. Little pride
    4. No pride but do not feel negative toward group
    5. No pride but do feel negative toward group

20. How would you rate yourself?
    1. Very Asian
    2. Mostly Asian
    3. Bicultural
    4. Most Westernized
    5. Very Westernized

21. Do you participate in Asian occasions, holidays, traditions, etc.?
    1. Nearly all
    2. Most of them
    3. Some of them
    4. A few of them
    5. None at all

THANK YOU VERY MUCH FOR YOUR INTEREST IN THIS PROJECT AND TAKING THE TIME TO ANSWER THE QUESTIONAIRES!

APPENDIX D

HEALTH BELIEFS ON BREAST CANCER SCREENING

I am interested in how you feel about each of the following statements. Circle one number which best represents your disagreement or agreement with the statement. There are no wrong or right answers.

5	STRONGLY AGREE
4	AGREE
3	NEUTRAL
2	DISAGREE
1	STRONGLY DISAGREE

1. **The thought of breast cancer scares me**
………………………………………….…….. 5 4 3 2 1

2. **My chances of getting breast cancer are great**
………………………………………………… 5 4 3 2 1

3. **My physical health makes it more likely that I will get breast cancer**
………………………………………………… 5 4 3 2 1

4. **When I think about breast cancer, I feel nauseous**
……………………………………………….. 5 4 3 2 1

5. **It is embarrassing for me to do monthly breast exams**
……………………………………………….. 5 4 3 2 1

6. **In order to do monthly breast exams, I have to give up quite a bit**
………………………………………………… 5 4 3 2 1

7. **I eat a well balanced diet**
……………………………………………….. 5 4 3 2 1

8. **Doing self breast exams prevents future problems for me**
……………………………………………….. 5 4 3 2 1

9. **If I had breast cancer my career would be endangered**
………………………………………………… 5 4 3 2 1

10. **I have a lot to gain by doing self breast exam**
………………………………………………… 5 4 3 2 1

**11. When I think about breast cancer,
my heart beasts faster**
………………………………………..   5   4   3   2   1

12. Breast Cancer would endanger my marriage
(or significant relationship)
………………………………………..   5   4   3   2   1

**13. I always follow medical orders because I
believe they would fit my state of health**
………………………………………..   5   4   3   2   1

14. Self breast exams can be painful
………………………………………..   5   4   3   2   1

15. Breast Cancer is a hopeless disease
………………………………………..   5   4   3   2   1

**16. I feel that my chance of getting breast cancer
in the future are high**
………………………………………..   5   4   3   2   1

**17. My feelings about myself would change if
I got breast cancer**
………………………………………..   5   4   3   2   1

18. I am afraid to even think about breast cancer
………………………………………..   5   4   3   2   1

**19. If I do monthly breast exams I may find a lump
before it is discovered by regular health exams**
………………………………………..   5   4   3   2   1

20. I would not be so anxious about breast cancer
if I did monthly exams
………………………………………..   5   4   3   2   1

**21. There is a good possibility that I will get breast
cancer** ……………………………………………..5   4   3   2   1

22. I worry a lot about getting breast cancer
………………………………………..   5   4   3   2   1

23. Self breast exams are time consuming
………………………………………..   5   4   3   2   1

**24. My financial security would be endangered if
I got breast cancer**
……………………………………….   5   4   3   2   1

25. I frequently do things to improve my health
………………………………………..   5   4   3   2   1

26. I take vitamins when I don't eat good meals
…………………………………………   5   4   3   2   1

**27. My family would make fun of me if I did
self breast exam**

……………………………………………… 5 4 3 2 1

**28. I search for new information related to
my health**

……………………………………………….. 5 4 3 2 1

**29. The practice of self breast exams
interferes with my activities**

…………………………………………. 5 4 3 2 1

**30. My doctors have recommended yearly
exams in addition to visits related to illness**

…………………………………………. 5 4 3 2 1

**31. Doing self breast exams would require starting
a new habit which is difficult**

…………………………………………. 5 4 3 2 1

**32. Have you ever been treated for breast disease or
lumps in breast?**

…………………………………………. 5 4 3 2 1

33. Have you ever been treated for breast disease or lump in breast?

  a. Yes   b. No =========➔ GO TO QUESTION **35**
****

Please circle the answer that best applies. There are no right or wrong answers.

34. What type of breast disease did you have? Please write in your answer below:
  ………………………………………………………………………………….
35. Was the treatment effective?
  a. Yes   b. No

36. Have you ever heard of the breast self exam?
a. Yes   b. No

37. If yes, how often do you examine your breast?
a. Every 5-6 months   d. Every month
b. Every 3-4 months   e. Never
c. Every other month

38. When is the best time during the menstrual cycle to examine the breast?
a. One week before your period
b. During your period
c. One week after your period
d. Two weeks after your period

39. A woman should check her breast while in the shower. This statement is:
a. False, she might miss lumps
b. False, the heat of the water could cause the breast to swell
c. True, more lumps are visible when the breasts are wet
d. True, the hand glides over the skin more easily when wet

40. Are a woman's right and left breast the same size?
a. No, during adolescence there is usually a difference
b. Yes, if the woman is fully developed the breasts are the same size
c. No, variation in size is normal
d. No, many women take hormones which could cause unequal size

41. How confident do you feel about your ability to do breast self-examination?
a. Not very confident
b. Somewhat confident
c. Very confident

42. Under which of the following circumstances should a woman see her doctor at once?
a. If there is a firm ridge in the lower curve of the breast
b. If the breasts are not exactly the same size
c. If she accidently hits her breast
d. A discharge from the nipple is noticed (does not include milk)

43. Which of the following is a true statement?
a. A breast should be examined while laying on the side
b. Breast should be examined twice a month
c. Breast should be examined in a clockwise manner circling at least three times
d. A woman should not examine her breasts in the shower

44. What are the chances that a woman will have breast cancer within her lifetime?
a. Less than 10 in 100   c. About 20 in 100
b. About 15 in 100   d. About 25 in 100

45. Which of the following is true regarding age and cancer?
a. Risk is greater under age 35
b. Risk increases with age after 35
c. Age is not related to risk

46. In which of the following groups would women be at greatest risk for developing breast cancer?
a. Women who have a family history of breast cancer
b. Women who smoke cigarettes
c. Women who have several sexual partners
d. Women who breast feed

47. Which of the following statements is true?
a. The majority of all lumps in the breast are cancerous
b. About half of all breast lumps are not cancerous
c. The majority of breast lumps are <u>not</u> cancerous

48. What are the chances of a woman discovering breast cancer herself?
a. Less than ½ of all lumps are discovered by women
b. Between ½ and ¾ of all lumps are discovered by women themselves
c. Over ¾ of all breast lumps are discovered by women themselves

49. If breast cancer is discovered in a small area, the five year survival rate is:
    a. Very good   d. Poor
    b. Good   e. Very poor
    c. Moderate

50. According to the American Cancer Society's recommendations for asymptomatic women, which of the following are true?

a. Baseline mammogram for women ages 35 to 39
b. Women ages 40 to 49 should have a mammogram every 1-2 years
c. A mammogram every year for women 50 years or older

51. What do you think your chances are of getting breast cancer?
    a. Very low   d. Somewhat high
    b. Somewhat low   e. Very high
    c. Moderate

52. What are the chances that you will get a routine mammogram within the next year if your doctor recommended it?
    a. Very low   d. Somewhat high
    b. Somewhat low   e. Very high
    c. Moderate

53. If a woman your age does not have any breast problems or symptoms, how often do you think she should get a mammogram? (PLEASE WRITE YOUR ANSWER IN THE SPACE BELOW)
    ……………………………………………………………………………

APPENDIX E

PERMISSION TO USE THE SUINN-LEW ASIAN SELF-INDENTITY

ACCULTURATION SCALE (SL-ASIA)

Psychosocial Measures for Asian Americans: Tools for Practice and Research
www.columbia.edu/cu/ssw/projects/pmap

Name of Measure: The Suinn-Lew Asian Self Identity Acculturation (Suinn, Ahuna, & Khoo, 1992)

Purpose of Measure: To level of acculturation of Asian populations

Author(s) of Abstract:

Richard M. Suinn, Ph.D., ABPP
Emeritus Professor
Dept. of Psychology, Colorado State University

Dear Colleague:
    You have my permission to use the SL-ASIA scale. It is duplicated below and on my web site: http://home.earthlink.net/~colosuinn/index.html.Please note that if you feel your sample is one that requires reading a translated version, this could mean that your sample is very restricted to a first generation. If so, then by definition you would not have enough subjects who represent the various levels of acculturation (low to middle to high). If so, then this restricted range will prevent you from testing any hypothesis regarding how "level of acculturation" or acculturation differences has effects.

    Also note the usual principles regarding use of standardized tests: if you revise any part of the test - order of questions, wording of answers, etc. - then it may be questionable whether the test still is valid. Certainly, the question can be raised about whether the same norms can be used to interpret the results. If you choose to do such a revision, you should discuss the matter with a colleague who is a methodologist, or your advisor if you are a student.

    After some thoughts about acculturation and its measurement, I have added questions 22-26 to the original 21 item scale. These questions can serve to further classify your research participants in ways that use current theorizing that acculturation is not linear, uni-dimensional but multi-dimensional and orthogonal. These new items were developed based on writings of those who felt that a linear, uni-dimensional scale was insufficient. Hence, we wrote some added items as a potential separate way of classifying the subjects...if the original scale did not turn out predictive. We have not obtained any validity/reliability info on these added items, but hope that users of the added items will share their results with me.

APPENDIX F

PERMISSION TO USE CHAMPION'S HEALTH BELIEF MODEL SCALE

(CHBMS)

INDIANA UNIVERSITY
SCHOOL OF NURSING
IUPUI

March 24, 2008

Ms. Kim Nguyen

Dear Ms. Nguyen,

Thank you for your interest in my work. Enclosed please find the breast cancer research tool as well as the revised instrument article. You have permission to revise the tool for your use as long as you cite my work and send me an abstract of your completed project.

Sincerely,

Victoria Champion

Victoria Champion, DNS, RN, FAAN
Associate Dean for Research
Mary Margaret Walther Distinguished Professor of Nursing
Edward W. and Sarah Stam Cullipher Endowed Chair
Program Leader: Cancer Prevention and Control

VC:dg

Enclosure

APPENDIX G

HYPOTHESES TABLE

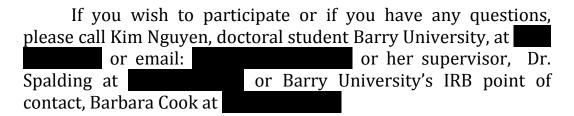| Research Hypothesis	Instrument	Statistical Test	Results
1. There were a positive relationship between acculturation levels and breast cancer screening behaviors among Vietnamese American women living in Florida.	SL-ASIA	Standard Regressional Analysis	Positively associated (β = .35, p = .001)
2. There were a positive relationship between health beliefs and breast cancer screening behaviors among Vietnamese American women living Florida.	CHBMS	Standard Regressional Analysis	Susceptibility, Seriousness, and Benefits were not associated. While Barriers, Confidence, and health motivation were marginally associated. -Susceptibility (β = -.10, p = .059) -Seriousness (β = -0.01, p = 0.93) -Benefits(β = -.12, p = .044) -Barriers (β = 0.01, p = 0.44) -Confidence(β = -0.09, p = 0.092) -Health Motivation (β = 0.11, p = 0.162)
3. Age, education, employment, insurance status, and marital status will make significant independent and combined contributions to breast cancer screening behaviors among Vietnamese American women living in Florida.	Demographic Survey	Standard Regressional Analysis	Age (β = p.38, p = 0.001), health insurance (β = 0.39, p = 0.001) and marital status (β = .14, p = .012) were statistically significant while education (β = 0.08, p =0.256) and employment (β = 0.03, p = 0.683) were not.

APPENDIX H

FLYER

Research Study On
Vietnamese Women's Health

Looking for Vietnamese women aged 18 or older to participate in a study entitled, "The Influence of Acculturation and Health Beliefs on Breast Cancer Screening Behaviors Among Vietnamese American Women Living in Florida."

Approximately 200 participants needed. All participants were provided with a small token of appreciation to thank them for their participation.

If you wish to participate or if you have any questions, please call Kim Nguyen, doctoral student Barry University, at █████ ████████ or email: █████████████████ or her supervisor, Dr. Spalding at ██████████ or Barry University's IRB point of contact, Barbara Cook at ████████████

APPENDIX I

LETTER TO BUSINESS OWNER/ RELIGIOUS GROUP LEADER

November __, 2012

Dear (*Business Owner/religious group leader*):

      I am a doctoral student at Barry University School of Nursing requesting your permission to utilize your establishment to approach Vietnamese women ages 18 and older to participate in an anonymous (no names or other identifiers were collected on any of the instruments used) research study. The Vietnamese women were asked to answer two questionnaires to determine their levels of acculturation and health beliefs on breast cancer screening, and a demographics survey which should take approximately 30 minutes. Participation in this research is strictly voluntary and there are no risks involved. I plan to begin at 10:00 AM to 4:00 PM three times a week, for approximately six weeks or until 200 questionnaires have been collected.

      The aim of this study is to determine the influence of acculturation and health beliefs on breast cancer screening behaviors among Vietnamese American women living Florida. This were one of the first Vietnamese health studies conducted in Florida. My future goal is to develop a linguistically and culturally appropriate educational health promotion program on breast cancer and breast cancer screenings. If you have any questions or concerns, please contact me at   or   or my supervisor, Dr. Claudette Spalding at   or Barry's IRB point of contact, Barbara Cook, at   . Thank you for your consideration and assistance with this important health study.

Sincerely,
Kim Nguyen, RN, MSN
Doctoral Student
Barry University School of Nursing
Miami Shores, Florida

VITA

September, 24, 1969	Born-Cao Lan, Vietnam
1990-1991	Staff Nurse, McCray Memorial Kendallville, FL
1991	ADN, Glen Oaks CC Centreville, MI
1991-1993	Travel Nurse, HSSI
1993-1994	Staff Nurse, Palm Springs Gen. Hosp Hialeah, FL
1994-1997	Charge Nurse, Cedars Medical Cnt. Miami, FL
1997	BSN, Barry University Miami Shores FL
1997-1999	Director of Nursing, Palm Springs Hialeah, FL
1999-2000	Director of Nursing, Aventura Hosp. Aventura, FL
2000	MSN, Barry University Miami Shores, FL
2000-2003	Director of Student Serv./ Instructor University of Miami Coral Gables, FL
2003-2011	Administrator, Jackson Memorial Miami, FL
2011-Present	Director, THE HEART HOSP. Baylor Plano Plano, TX