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Gender Roles and Acculturation: Relationships With Cancer Screening Among Vietnamese American Women

Anh B. Nguyen,
The National Cancer Institute, Rockville, Maryland

Trenette T. Clark, and
University of North Carolina at Chapel Hill

Faye Z. Belgrave
Virginia Commonwealth University

Abstract

The aim of this study was to examine the influence of demographic variables and the interplay between gender roles and acculturation on breast and cervical cancer screening outcomes among Vietnamese American women. Convenience sampling was used to recruit 100 Vietnamese women from the Richmond, VA, metropolitan area. Women were recruited to participate in a larger cancer screening intervention. All participants completed measures on demographic variables, gender roles, acculturation, and cancer screening variables. Findings indicated that traditional masculine gender roles were associated with increased self-efficacy for breast and cervical cancer screening. Higher levels of acculturation were associated with higher probability of having had a Papanicolaou test. In addition, acculturation moderated the relationship between traditional female gender roles and cancer screening variables. For highly acculturated women, higher levels of feminine gender roles predicted higher probability of having had a previous clinical breast exam and higher levels of self-efficacy for cervical cancer screening, while the opposite was true for lower acculturated women. The findings of this study indicate the important roles that sociodemographic variables, gender roles, and acculturation play in affecting health attitudes and behaviors among Vietnamese women. These findings also help to identify a potentially high-risk subgroup and existing gaps that need to be targeted by preventive interventions.

Keywords

Vietnamese American; women; breast cancer; cervical cancer; self-efficacy

Cancer screening, such as routine clinical breast examinations, plays an important role in reducing cancer-related mortality. Vietnamese American women experience higher rates of cervical cancer than their White counterparts (34.8 per 100,000 vs. 130.6 per 100,000,

Correspondence concerning this article should be addressed to Anh Bao Nguyen, Cancer Prevention Fellowship Program, The National Cancer Institute, Rockville, MD 20850. anh.nguyen3@nih.gov.
Anh B. Nguyen, Cancer Prevention Fellowship Program, Division of Cancer Control & Population Sciences, The National Cancer Institute, Rockville, Maryland; Trenette T. Clark, School of Social Work, University of North Carolina at Chapel Hill; Faye Z. Belgrave, Department of Psychology, Virginia Commonwealth University.

respectively) (Lin, Phan, & Lin, 2002; Ries et al., 2008), are less likely to engage in cancer screening practices (Do et al., 2007; Ho et al., 2005; McGarvey, 2003; Nguyen et al., 2006; Taylor et al., 2004), and for those who migrated from Vietnam to the United States, are at higher risk of breast cancer. Research is needed to uncover both access or structural barriers and cultural barriers to cancer screening for Vietnamese American women. These findings could potentially inform programming to increase health promotive and preventive behaviors in this growing population.

Some studies have examined potential barriers of cancer screening among Vietnamese, and more broadly, Asian women. In a study of 645 Vietnamese American women, McPhee et al. (1997) examined barriers to breast and cervical cancer screening. McPhee and colleagues identified several significant barriers to breast and cervical cancer testing, including low level of education, not having a regular physician, short duration of residence in the U.S., and never having been married. In another study, Wu and colleagues (2006) examined barriers to cancer screening in Asian women. They found that out of 17 potential barriers to cancer screening practices, the top three barriers to cancer screening were being examined by a male practitioner, having their breast touched by a stranger, and being exposed to unnecessary radiation. In a study of 100 Chinese American women ages 60 and older, Tang, Solomon, and McCracken (2000) found that in addition to sociodemographic factors, culturally related factors such as gender roles may influence screening practices among Vietnamese women. Increased acculturation and marital status were associated with previous breast cancer screening. Furthermore, increased modesty, a trait valued for women in Asian cultures, was associated with decreased screening. These findings suggest that values inherent in gender roles may shape health behaviors.

The aim of the present study was to examine the influence of demographic variables and the interplay between gender roles and acculturation on breast and cervical cancer screening outcomes among Vietnamese American women. We define Vietnamese American women as women who identify with a Vietnamese ethnic background who reside in the U.S. We recruited Vietnamese American women from two local faith-based sites (Catholic and Buddhist) as part of an original cancer screening intervention, "*Súc Khoê Là Quân Tọrong Hôn Sác Dêp! Health is More Important than Beauty!*" The original study implemented and evaluated a breast and cervical cancer screening intervention to promote cancer screening knowledge, attitudes, self-efficacy, intention, and behavior for Vietnamese American women (results are not reported in the present article). In this study, we used baseline data that was collected before the intervention was implemented.

We rely on Andersen's (1968, 1995) Behavioral Model of Health Care Services as our theoretical framework and for the selection of the study's variables. The model posits that people's use of health services (e.g., cancer screening,) is a function of their predisposition to use these services, enabling or impeding factors, and their need for care. Predisposing characteristics represent proclivity to utilize health care services and include demographic factors such as age and gender, social structures that determine status such as education, and beliefs such as beliefs about health services benefits. Enabling factors facilitate or impede the engagement of certain health behaviors and constitute both personal (e.g., income and health insurance status) and community factors (e.g., availability of health facilities and

programs). Lastly, an individual's perceived needs (i.e., how they view their general health and specific illness) influence utilization of health services. The Andersen Behavioral Model has been used to understand and frame screening and other health care utilization behaviors among diverse populations including Asian Americans (Lee, Lundquist, Ju, Luo, & Townsend, 2011; Lindamer et al., 2012; Stein, Andersen, Robertson, & Gelberg, 2012; Vyas et al., 2012).

Although some critics have suggested that the model neglects the role of culture, Andersen (1995) proposed that cultural variables constitute predisposing factors that influence whether an individual is more or less likely to use health services. Cultural variables such as gender roles shape power structures within society and can influence one's social class and freedom to make health choices. In addition, cultural processes such as acculturation may influence the adoption of Western attitudes and beliefs that may impact health practices while also contributing to gender roles and gender identity. We further explore cultural constructs discussed next. We examine how these variables affect self-efficacy for cancer screening along with actual cancer screening as cancer screening efficacy beliefs affect behaviors (Bandura, 1996). That is, women who feel efficacious (i.e., having control over) their health, may be more likely to engage in positive health behaviors than women who have lower self-efficacy as it relates to health.

Gender Roles

Gender roles refer to beliefs regarding divisions of specific tasks and differences in behaviors, abilities, and personality that society expects men and women to hold (Littlefield, 2003). Traditional gender roles suggest that men hold masculine characteristics while women hold feminine characteristics. Masculinity includes *instrumental* traits such as independence, perseverance, confidence, and decisiveness (Spence & Buckner, 2000). Femininity includes *expressive* traits such as warmth, understanding, sensitivity to others' needs, and awareness of feelings. Individuals who ascribe to more traditional gender roles are more likely to be attuned than their nontraditional counterparts to cultural expectations about gender-specific attributes and behaviors and are more likely to rely on gender schemas to process information (Bem, 1979). It is important to note that we believe the endorsement of masculine and feminine gender roles to be orthogonal. It is possible for women to identify highly with both masculine and feminine roles. A classic study by Kelly and colleagues (1978) supports this hypothesis. Kelly and colleagues examined psychometric properties of various sex role inventories and found that when feminine–masculine scores were dichotomized by median-split procedures, many subjects were misclassified. Findings indicated that masculinity and femininity appeared to be unrelated, and thus, should be measured separately.

In Vietnamese culture, accepted female traits and qualities are ones that are closely aligned to the "three submissions." These three cultural values that are prescribed for Vietnamese women include: (1) obedience to the father, (2) obedience to the husband, and (3) serving and caring for children (Chung & Bemak, 1998). In addition, Asian women in the U.S. may submit to and tolerate hyper-masculinity and patriarchal values in the home to allow Asian men to compensate for the marginalization and discrimination that they encounter in the host

culture (Dasgupta & Dasgupta, 2000). As a result, Vietnamese women may adhere more closely to traditional conceptualizations of feminine gender roles than White and other ethnic minority women.

Although there has been very limited research on Vietnamese women, gender roles, and health outcomes, studies of Asian women and other ethnic minority populations suggest that masculine gender roles are likely to be linked to better health outcomes than feminine gender roles. Because traditional masculine roles reflect autonomy and agency, women who endorse these traits are likely to feel empowered in making their own health decisions, resulting in increased well-being. They may also be more assertive in seeking health care and more likely to practice health promotive behaviors, such as cancer screening. Previous research provides support for this mechanism as women who endorse masculine gender norms are more likely to report higher levels of body satisfaction (Steinfedlt, Zakrajsek, Carter, & Steinfeldt, 2011), higher levels of ego-strength and self-esteem (Woo & Oie, 2006), lower occurrence of social anxiety disorder (Roberts, Hart, & Coroiu, 2011), and lower suicidal thoughts than women who hold more traditional views on gender roles (Hunt, Sweeting Keoghan, & Platt, 2006).

Acculturation

Acculturation is an ongoing process of change that occurs for the individual as he or she is confronted with two or more cultures and adapts into the foreign host culture by adopting its attitudes, beliefs, values, and behaviors (Berry, 1980; Robbins, Chatterjee, & Canda, 2006). As ethnic minorities undergo acculturative processes, this leads to the adoption of normative health practices found within the host culture that can be compromising (An, Cochran, Mays, & McCarthy, 2008; Kaplan et al., 2003; Reid, Higgs, Beyer, & Crofts, 2002; Yi, 1998b). However, acculturation may also lead to healthy behaviors such as cancer screening (Pourat, Kagawa–Singer, Breen, & Sripipatana, 2010; Tang, Solomon, & McCracken, 2000; Yi & Reyes–Gibby, 2002). In general, Vietnamese Americans tend to be less acculturated than other Asian subgroups (Pourat, Kagawa–Singer, Breen, & Sripipatana, 2010; Matsuoka, 1990; Stein, 1979), and this may partly explain why Vietnamese women engage in lower rates of Papanicolaou (Pap) testing and clinical breast examinations than other women. Less acculturated Asian Americans are more likely to endorse traditional Confucian values, stronger collectivistic values, and gender role differentiation (Tung, 2010). These underlying values may encourage women to place the needs of others before theirs, resulting in the subordination of women's own health care in respect to caring for others (Nguyen & Clark, in press).

However, we believe that the process of acculturation is complex and that the interplay between the acculturative process and underlying assumptions relating to gender roles and identity manifests into variable health attitudes and behaviors. To our knowledge, there has not been previous research that has examined the moderating effect of acculturation on the relationship between gender roles and cancer screening.

For the present study, we argue that acculturation interacts with gender role beliefs, resulting in differential health behaviors and attitudes for Vietnamese American women. In addition to

expected main effects, we believe that there will be a synergistic effect between acculturation and traditional masculine gender roles (or instrumental traits) that will lead to positive cancer screening variables. Because highly traditional Vietnamese women (i.e., less acculturated) are more likely to adhere to Confucian cultural perspectives that put the needs of the family before their own (Tung, 2010), this will lead women who ascribe to more traditional feminine gender roles (or expressivity) to be more passive in seeking personal health care, such as cancer screening. More acculturated women are likely to endorse masculine gender roles that reflect autonomy and agency, resulting in feelings of empowerment in health decision-making. These women are expected to experience increased likelihood in health behaviors.

Our study hypotheses were

1. Acculturation will be positively associated with cancer screening variables (i.e., screening efficacy and receipt of clinical breast exams [CBE] and Pap test).
2. Traditional masculine gender roles (or instrumentality) will be positively associated with cancer screening variables while traditional feminine gender roles (or expressivity) will be negatively associated with these variables.
3. Acculturation will moderate the relationship between traditional gender roles and cancer screening variables. Specifically, for highly acculturated women, the association between masculine gender roles and cancer screening variables will be stronger than for lower acculturated women. In addition, for lower acculturated women, feminine gender roles were expected to be associated with decreased cancer screening variables while we do not expect to find this relationship for highly acculturated women.

Method

Participants

Convenience sampling was used to recruit 100 Vietnamese women from the Richmond, VA, metropolitan area. Mean age was 39.06 years (SD = 13.63). Women were recruited to participate in a larger cancer screening intervention. Pretest data collected before participation in the intervention was used in this study. Participants were recruited from a Catholic Vietnamese church (57%) and a Buddhist temple (43%) with the help of community liaisons through the use of fliers, bulletins, and service announcements. Individuals were also referred by community liaisons. Interested individuals contacted the principal investigator who determined eligibility. There were three inclusion criteria for participation: be at least 18 years of age, female, and self-identify with a Vietnamese ethnic background. This also included Vietnamese women who were born in the U.S. Potential participants were notified of the time and place of the session on the church or temple grounds. Data collection began early Fall of 2010 and ended in late Spring 2011. Data were collected by the first author who is female and Vietnamese American and collected by trained Vietnamese American liaisons.

Participants completed questionnaires at baseline that included demographic items. According to the American Cancer Society (ACS, 2012), mammogram and CBE screening should continue regardless of a woman's age. At the time of participant recruitment in 2009, the ACS recommended that women who are 70 years and older and who have had three or more consecutive normal Pap test results with no abnormal Pap test results in the last 10 years may choose to stop undergoing cervical cancer screening. Therefore, recruitment targeted women between the ages of 18 and 70 years. Although the ACS currently recommends that women undergo Pap testing every 3 years starting at the age of 21 years, the current study included women who were 18 years and older because of ACS recommendations during the recruitment period that encouraged Pap testing at the start of initiation of sexual activity. In addition, women who reported a previous hysterectomy were eligible to participate, but their data were excluded from analyses that involved cervical cancer screening. Thus, data from eight women with previous hysterectomies were excluded from those analyses. Demographic characteristics of participants are presented in Table 1.

Procedure

The study protocol received university Institutional Review Board approval before initiation. On scheduled days, participants signed informed-consent forms. Half of the women participated in a breast and cervical cancer screening intervention, although those results are not reported in this article. All participants completed measures on demographic variables, gender roles and acculturation, and cancer screening variables at baseline. Questionnaires were administered by either the first author or by trained Vietnamese American community members and took ~40 min to complete. Participants were thanked and provided with monetary incentives ($20) upon completion.

Measures

Translation procedures—A bilingual translator, a Vietnamese physician and member of the local community, first translated the English documents into Vietnamese. An independent bilingual translator from the Vietnamese parish community back-translated the Vietnamese documents into English. The Vietnamese documents were piloted on community liaisons to ensure comprehension and culturally appropriateness of the measures. When discrepancies in translation arose, discussions with liaisons from the church and temple helped to resolve disputes in wording. Participants were provided the option to complete questionnaires in either Vietnamese or English. Seventy (70%) out of the 100 participants completed the Vietnamese version of the questionnaire.

Covariates

Demographic measures—Participants provided their age, education, marital status, income, employment, health insurance, whether they had a regular physician, and previous hysterectomy (refer to Table 1).

Personal Attributes Questionnaire—Gender roles were assessed using the Personal Attributes Questionnaire (PAQ; Spence, Helmreich, & Stapp, 1974) that consists of 24 descriptive statements that were developed to assess masculine and feminine personality attributes. The PAQ has three subscales; each subscale Masculine (*Instrumentality*),

Feminine (*Expressiveness*), and Masculine–Feminine (or *Androgynous*) has eight items. The items are rated on a 5-point scale that has an adjective at one end with its presumed opposite at the other end (e.g., *Very passive–Very active*) or with its divergent adjective at the opposite pole (e.g., *Not at all competitive–Very competitive*). We believe that masculine and feminine gender roles are orthogonal and independent such that women can score high on both the instrumentality and expressiveness subscales. We did not use the androgynous subscale as median-split scoring procedures for androgyny tend to misclassify respondents (Kelly, Furman, & Young, 1978). To our knowledge, the PAQ has not been previously used with a Vietnamese sample. In the current sample, the reliability coefficient of the feminine subscale was $\alpha = .83$ and the masculine subscale was $\alpha = .71$.

Acculturation—The Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn et al., 1987) was used to measure acculturation. The SL-ASIA is a widely used acculturation measure for people from Asia or with an Asian American background with demonstrated strong reliability ($\alpha = .88$). The SL-ASIA has 18 items that measure language, ethnic identity, friendship choices, behaviors, generational and geographic history, and attitudes. Items are rated on a 5-point Likert-type scale from 1 (*low acculturation*) to 5 (*high acculturation*). Cronbach's α for the current study was .85.

Outcome Variables

Self-efficacy for breast and cervical cancer screening—Perceived self-efficacy refers to beliefs that one can exercise control over one's health (Bandura, 1986). A measure developed by Champion, Skinner, and Menon (2005) was used to assess cancer screening efficacy. This measure has demonstrated strong reliability ($\alpha = .87$). Participants responded to 20 items (e.g., *You can make an appointment for a Pap test; You can find a way to pay for a clinical breast exam*) using a Likert-response format (1 = *Strongly Disagree* and 5 = *Strongly Agree*). Higher scores reflect stronger beliefs that the participant perceives that she has the skills and ability to obtain a Pap test or CBE. For the current study, Cronbach's α: Pap testing self-efficacy scale = .84; and CBE self-efficacy scale = .91.

Previous receipt of a CBE or Pap test—Cancer screening behavior was obtained by asking participants if they have ever received a Pap test or CBE (e.g., *Have you ever had a Pap test?* yes = 1 and no = 0).

Data Analysis Strategy

Multiple regression analyses examined the associations between sociodemographic, cultural, and cancer screening variables. Preliminary analyses were conducted to screen data for outliers and test assumptions for linear regression. Continuous predictor variables were centered to reduce nonessential multicollinearity and increase interpretability of constants.

Age, education, and health insurance status were used as covariates because of demonstrated associations with cancer screening variables in prior studies (Benyamini, Blumstein, Boyko, & Lerner–Geva, 2008; Couture, Nguyen, Alvarado, Velasquez, & Zunzunegi, 2008; DeNavas–Walt, Proctor, & Smith, 2008; Ho et al., 2005; Kandula, Wen, Jacobs, & Lauderdale, 2006; Meissner et al., 2009; Somanchi, Juon, & Rimal, 2010; Taylor, Yasui,

Nguyen, Woodall, & Do, 2009). These demographic traits were controlled for and entered in the first step of the model. Centered scores in acculturation, masculine gender roles, and feminine gender roles were entered into the second step of the model. Higher order interaction effects between acculturation and gender roles were entered into the third step. Logistic regression analyses were conducted for dichotomous cancer screening outcomes following identical blocking procedures as mentioned above.

Results

Bivariate associations among the study's variables are provided in Table 2.

Hierarchical Multiple Regression

Self-efficacy for breast cancer screening—A hierarchical multiple regression analysis was conducted to determine factors associated with self-efficacy for breast cancer screening. The model accounted for a significant amount of variance in self-efficacy for breast cancer screening, $F(9, 90) = 6.73$, $p < .001$, $R^2 = .40$. The addition of cultural variables in Model 2 significantly improved the amount of explained variance (R^2 change = .07, $F = 3.18$, $p = .02$) as did the addition of interaction effects in Model 3 (R^2 change = .04, $F = 3.02$, $p = .05$) (refer to Table 3).

Age was significantly and positively associated with increased levels of self-efficacy for breast cancer screening, $\beta = .24$, $t(98) = 2.43$, $p = .02$. Having health insurance was also significantly associated with increased levels of self-efficacy for breast cancer screening, $\beta = .35$, $t(98) = 3.71$, $p < .001$. In addition, higher levels of traditional masculine gender roles were significantly associated with increased levels of self-efficacy for breast cancer screening, $\beta = .30$, $t(98) = 2.97$, $p = .004$. Lastly, acculturation approached significance in moderating the relationship between feminine gender roles and self-efficacy for breast cancer screening, $\beta = .18$, $t(98) = 1.80$, $p = .07$. For highly acculturated women, higher levels of feminine gender roles were associated with higher levels of self-efficacy for breast cancer screening. For lower acculturated women, higher levels of feminine gender roles were associated with lower levels of self-efficacy for breast cancer screening (refer to Figure 1).

Self-efficacy for cervical cancer screening—A hierarchical multiple regression analysis was conducted to determine factors related to higher scores in self-efficacy for cervical cancer screening following identical blocking procedures in the previous model. The model accounted for a significant amount of variance in self-efficacy for cervical cancer screening, $F(9, 81) = 6.65$, $p < 001$, $R^2 = .43$. The addition of cultural variables in Model 2 significantly improved the amount of explained variance (R^2 change = .09, $F = 3.83$, $p = .01$) as did the addition of interaction effects in Model 3 (R^2 change = .05, $F = 3.58$, $p = .03$) (refer to Table 4).

Age was significantly and positively associated with increased levels of self-efficacy for cervical cancer screening, $\beta = .21$, $t(89) = 1.99$, $p = .05$. Having health insurance was also significantly associated with increased levels of self-efficacy for cervical cancer screening, $\beta = .38$, $t(89) = 3.90$, $p < .001$. In addition, higher levels of traditional masculine gender roles

were significantly associated with increased levels of self-efficacy for cervical cancer screening, β = .30, $t(89) = 2.87$, $p = .005$. Lastly, acculturation significantly moderated the relationship between feminine gender roles and self-efficacy for cervical cancer screening, β = .26, $t(89) = 2.41$, $p = .02$. For highly acculturated women, higher levels of feminine gender roles were associated with higher levels of self-efficacy for cervical cancer screening. For lower acculturated women, higher levels of feminine gender roles were associated with lower levels of self-efficacy for cervical cancer screening (Figure 2).

Previous receipt of a CBE—A multiple logistic regression analysis was conducted to assess factors associated with participants having previously received CBEs (0 = no, 1 = yes). Using previous receipt of a CBE as the outcome, the same covariates and similar blocking procedures from the previous analyses were used. Model 3 was significant, $\chi^2(9) = 58.57$, $p < .001$. Nagelkerke R^2 value = .60, and the Cox and Snell R^2 value = .44. The variables correctly explained 83% of the variance for women having had a CBE (Hosmer and Lemeshow Test was nonsignificant, $\chi^2(8) = 10.44$, $p = .24$, indicating that the model did not differ from the observed data and was a good fit). According to the Wald criterion, age was significantly and positively associated with previous receipt of a CBE, $B = .15$, $\chi^2(1) = 18.41$, $p < .001$. The change in odds of receiving a CBE associated with a 1-year increase in age was 1.16 (see Table 5). In addition, acculturation significantly moderated the relationship between feminine gender roles and previous receipt of a clinical breast examination, $B = .02$, $\chi^2(1) = 3.81$, $p = .05$. For highly acculturated women, higher levels of feminine gender roles predicted higher probability of having had a previous CBE, while for lower acculturated women, higher levels of feminine gender roles predicted lower probability of having had a previous CBE (Figure 3).

Previous receipt of a Pap test—A multiple logistic regression analysis was conducted to assess factors associated with participants having previously received a Pap test (0 = no, 1 = yes). Using previous receipt of a Pap test as the outcome, the same covariates and similar blocking procedures from the previous analyses were used.

Model 2 was significant, $\chi^2(7) = 47.58$, $p < .001$. Nagelkerke R^2 value = .56, and the Cox and Snell R^2 value = .41. The variables correctly explained 84% of the variance for women having had a Pap test (Hosmer and Lemeshow Test was nonsignificant, $\chi^2(8) = 7.98$, $p = .44$, indicating that the model did not differ from the observed data and was a good fit). Age was significantly and positively associated with previous receipt of a Pap test, $B = .10$, $\chi^2(1) = 10.34$, $p < .001$. The change in odds of receiving a Pap test associated with a 1-year increase in age was 1.10. Household income was significantly and positively associated with previous receipt of a Pap test, $B = .56$, $\chi^2(1) = 5.05$, $p = .03$. The change in odds of receiving a Pap test associated with a 1-year increase in household income was 1.74. Lastly, acculturation was significantly and positively associated with previous receipt of a Pap test, $B = .11$, $\chi^2(1) = 4.84$, $p = .03$. The change in odds of receiving a Pap test associated with a 1-year increase in acculturation was 1.12 (refer to Table 6).

Discussion

Health disparities exist for cancer screening among Vietnamese American women who show lower rates of screening than women from other ethnic groups. To develop and tailor health promotion interventions that increase positive cancer screening practices, it is important to elucidate variables that are associated with cancer screening. Andersen's Behavioral Model of Health Services was used to identify variables examined in this study. The current study's findings advance our understanding of predictors associated with health care attitudes and utilization among Vietnamese women. Specifically, these findings highlight that gender roles, acculturation, and sociodemographic variables are associated with cancer screening variables among Vietnamese women.

Gender Roles

We hypothesized that traditional masculine gender roles (or instrumentality) would be positively associated with cancer screening variables while traditional feminine gender roles (or expressivity) would be negatively associated with these variables. Our findings support previous research that has shown that traditional masculine gender roles are associated with increased self-efficacy for breast and cervical cancer screening and extends the literature by being one of the first to find support for this finding with a Vietnamese American female sample. Women who endorse traditional cultural beliefs relating to women's roles display lower help-seeking behaviors, which influences breast cancer screening experiences (Kagawa-Singer, Wellisch, & Durvasula, 1997). In addition, Frank, Toweell, and Huyck (1985) found that Asian women who endorse more masculine gender roles are more likely to feel in control of their lives. It is possible that the sense of control these women feel over their lives includes control over their health care practices. Interestingly, although we found that traditional masculine gender roles are associated with increased self-efficacy for breast and cervical cancer screening, we did not find support for our hypothesis that gender roles would predict previous receipt of a CBE or Pap test. Furthermore, while we found a relationship between health insurance and self-efficacy for breast cancer screening and cervical cancer screening, we did not find the expected a relationship between health insurance and previous receipt of a CBE or Pap test. Hence, it is possible that unmeasured enabling community factors, such as a lack of accessible community health care facilities may be impeding efficacious women's participation in CBEs and Pap testing. Attention to such structural barriers in research and community and policy interventions is needed.

Because we believe that women may endorse high levels of both masculine and feminine gender roles, we are not suggesting a polarizing effect of gender role identification on cancer screening. Rather, gender role identification is a complex process, and different salient features of ascribed gender roles may impact health behaviors in different ways. For example, women who strongly adhere to feminine gender roles may be highly compliant to screening guidelines because of motivations to stay healthy to care for their children and husbands. These women may also strongly adhere to masculine gender roles and have higher perceived control in health maintenance. Future research should examine different collectivist values that may determine inherent values found in gender roles that influence screening. Future research should use longitudinal designs to investigate how gender roles

may change over time and how changing gender roles influence cancer screening practices among Vietnamese women.

Acculturation

We hypothesized that acculturation would be positively associated with cancer screening variables. As hypothesized, we found that higher levels of acculturation were associated with a higher probability of having had a Pap test but not for a CBE. These findings are consistent with studies that highlight the role of acculturation in increasing Pap testing (e.g., McPhee et al., 1997; Yi, 1994). More acculturated women who have resided in the U.S. for a number of years may be more familiar with health care services and have more U.S. friends and colleagues who discuss having annual Pap tests. Taken together, more acculturated women are more likely to adopt mainstream practices, such as engaging in cancer screening.

In this study, acculturation moderated the relationship between traditional female gender roles and cancer screening variables. That is, for highly acculturated women, higher levels of feminine gender roles predicted higher probability of having had a previous CBE and higher levels of self-efficacy for cervical cancer screening, while the opposite was true for lower acculturated women. Vietnamese American women who are highly acculturated may endorse both the normative practice of cancer screening in this country along with more traditional feminine and cultural norms that stress women's obligation to her family by engaging in self-care activities such as screening. This finding suggests that identification with traditional feminine roles is a protective factor for cancer screening variables but only if the individual is highly acculturated.

We also found that those who reported lower levels of acculturation and stronger feminine gender role beliefs were least likely to report having had a previous CBE and had lower self-efficacy for cervical cancer screening. Vietnamese women who are feminine and not acculturated may be more likely to endorse traditional cultural norms that do not include cancer screening. These women may not engage in cancer screening behaviors because of concern about burdening family members and financial concerns (Greimel et al., 1998). These women may be a higher risk group within the Vietnamese population and in need of culturally sensitive interventions. Future research should further investigate other conditions in which femininity may be a risk or protective factor and which sociodemographic and psychosocial factors might buffer against femininity and other risk factors.

We also found that acculturation was positively associated with masculine gender roles. We did not find an association between acculturation and feminine gender roles. These preliminary findings warrant more investigation. It is possible that highly acculturated women and less acculturated women may differ in their conceptualization of gender roles. If this is accurate, equivalence and validity of measures across the two groups of women would need to be assessed. Psychometrics research in this area is needed.

Age as a Predictor

Findings generally suggest that younger Vietnamese American women are more likely than older Vietnamese American women to have had a Pap test (e.g., McPhee et al., 1997; Nguyen et al., 2002). Our findings were inconsistent with these studies as we found a

significant and positive association between age and increased levels of self-efficacy for breast and cervical cancer screening and having had a Pap test and CBE. That is, older women were more likely to report feeling efficacious about breast cancer and cervical cancer screening and having had a Pap test and CBE than younger women. Because the mean age of our sample was 39 years, it is possible that older women were more likely to report healthier cancer screening behaviors than younger women because they have lived in the U.S. longer and were more acculturated, which is associated with favorable health screening practices (McPhee et al., 1997; Yi, 1994). Our findings are aligned with those of Ahmad and Stewart (2004) who also found that the probability of having a CBE increased with age. Population studies with representative samples of Vietnamese women are needed to help clarify the relationship between age and cancer screening variables and to identify potential moderators. It is possible that the relationship between age and cancer screening variables vary as a function of acculturation, geographic locale, income, or other factors. Future studies are needed to investigate these relationships.

Health Insurance and Household Income as Predictors

Financial concerns were important predictors of cancer screening variables. Possession of health insurance was associated with increased levels of self-efficacy for breast and cervical cancer screening. In addition, women who reported higher levels of household income were more likely to report having had a Pap test. These findings are consistent with other studies. Yi (1994) found that Vietnamese women who earned higher incomes were more likely to have had a Pap test than those from lower income brackets. Similarly, studies have shown that Vietnamese women with health insurance are more likely to have had a Pap test (McPhee et al., 1997; Taylor et al., 2004). For example, in a study of 933 randomly selected Vietnamese women, McPhee et al. (1997) found that health insurance was associated with having had a Pap test and CBE. Likewise, in a study of 6,048 Asian and Pacific Islander women in the U.S., Coughlin and Uhler (2000) found that health insurance was positively associated with breast and cervical cancer screening tests. The consistency of findings that indicate that health insurance and income are related to cancer screening practices suggest that structural interventions are needed to achieve health equity and eliminate barriers to health care, such as health care costs.

Limitations and Strengths

This study’s findings should be considered in the context of its limitations. The most important limitation is that this study used a convenience sample of Vietnamese American women in Richmond, VA. Therefore, the findings from this study may not be generalized to the larger Vietnamese women population. This study also used cross-sectional data, which limits our ability to establish causality.

Our study did not examine other covariates that have been demonstrated to influence cancer screening practices among Vietnamese women such as fluency in English (Yi, 1998a), marital status (McPhee, 1997; Yi, 1994), apprehension about Pap tests (Pham & McPhee, 1992), gender of the physician (McPhee, 1997; Nguyen et al., 2002), and ethnicity of the physician (McPhee, 1997). Future studies are needed to understand the mechanisms by which these factors interplay with gender roles and influence cancer screening practices.

In addition, the study may have been underpowered because of the small sample size. The findings of the study indicated that women with higher acculturation and higher adherence to feminine gender roles had higher levels of self-efficacy for breast cancer screening but not for cervical cancer screening. This is likely because of issues related to insufficient power. In the study, eight women had a previous hysterectomy, and their data were excluded from analyses involving cervical cancer screening ($n = 92$). Out of 92 women, 57 responded that they had a previous Pap test. This may have led to undetectable study effects because of low power. In addition, we did not assess cancer screening behaviors longitudinally. As such, we are unable to assess trends in cancer screening over time. Future research should consider assessing cancer screening behaviors over time, when plausible. This study also used self-report data without corroboration from medical records. As such, inaccurate recollection and social desirability may be potential threats to the validity of this study.

Despite these limitations, this study has several salient strengths. First, a paucity of research exists that examines Asian women and cancer screening variables, and much of the existing research uses qualitative methods. This study is a contribution to the field given that it is one of a few studies that have used quantitative methods to investigate predictors of cancer screening variables among Vietnamese women. Second, although studies that have focused on Asian women are useful and have helped to move the health care literature forward, studies of subcultural groups such as Vietnamese women, who are at higher risk than other Asian groups and Whites are urgently needed. This study is one of a few that have examined predictors of cancer screening variables among Vietnamese American women. Third, although there is abundant research on cultural variables (e.g., ethnic identity, acculturation) in studies of Vietnamese and other Asian American women, less research has focused on gender roles and examination of these gender roles within a health context.

Gender roles directly and indirectly contributed to an understanding of cancer screening behaviors. While masculine gender roles were directly linked to more cancer screening behaviors, under conditions of high acculturation (rather than low acculturation), feminine gender roles were linked to more cancer screening behaviors. Cancer screening educational and intervention programs that incorporate discussions of topics such as women role and responsibility for her health care behaviors and how her health decisions interplay with her other roles (e.g., as mother, wife) might be instructive.

Conclusion

In conclusion, the findings of this study indicate the important roles that sociodemographic variables, gender roles, and acculturation play in affecting health attitudes and behavior among Vietnamese women. These findings also help to identify a potentially high-risk subgroup and existing gaps that need to be targeted by preventive interventions. This study is an important contribution in that it demonstrates how gender roles may shape cancer screening practices among an understudied population of Vietnamese American women.

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References

Ahmad F, Stewart DE. Predictors of clinical breast examination among South Asian immigrant women. Journal of Immigrant Health. 2004; 6:119–126. [PubMed: 15269515]

American Cancer Society. American Cancer Society guidelines for the early detection of cancer. 2012. Retrieved from http://www.cancer.org/docroot/CRI/content/CRI_2_6x_Breast_Cancer_Early_Detection.asp

An N, Cochran SD, Mays VM, McCarthy WJ. Influence of American acculturation on cigarette smoking behaviors among Asian American subpopulations in California. Nicotine & Tobacco Research. 2008; 10:579–587. [PubMed: 18418780]

Andersen, RM. Behavioral model of families' use of health services. Research Series No. 25. Chicago, IL: Center for Health Administration Studies, University of Chicago; 1968.

Andersen RM. Revisiting the Behavioral Model and access to medical care: Does it matter? Journal of Health and Social Behavior. 1995; 36:1–10. [PubMed: 7738325]

Bandura, A. Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall; 1986.

Bem SL. Theory and measurement of androgyny: A reply to the Pedhazur–Tetenbaum and Locksley–Colten critiques. Journal of Personality and Social Psychology. 1979; 37:1047–1054.

Benyamini Y, Blumstein T, Boyko V, Lerner–Geva L. Cultural and educational disparities in the use of primary and preventive health care services among midlife women in Israel. Women's Health Issues. 2008; 18:257–266. [PubMed: 18329896]

Berry, JW. Acculturation as varieties of adaptation. In: Padilla, AM., editor. Acculturation: Theory, models, and some new findings. Boulder, CO: Westview Press; 1980. p. 9-26.

Champion V, Skinner CS, Menon U. Development of a self-efficacy scale for mammography. Research in Nursing and Health. 2005; 28:329–336. [PubMed: 16028267]

Chung RC, Bemak F. Lifestyle of Vietnamese refugee women. Journal of Individual Psychology. 1998; 54:373–384.

Coughlin SS, Uhler RJ. Breast and cervical cancer screening practices among Asian and Pacific Islander women in the United States, 1994–1997. Cancer Epidemiology, Biomarkers & Prevention. 2000; 9:597–603.

Couture MC, Nguyen CT, Alvarado BE, Velasquez LD, Zunzunegi MV. Inequalities in breast and cervical cancer screening among urban Mexican women. Preventive Medicine: An International Journal Devoted to Practice and Theory. 2008; 47:471–476.

Dasgupta, S., Dasgupta, SD. Women in exile: Gender relations in the Asian American community in the United States. In: Wu, J., Song, M., editors. Asian American studies: A reader. New Brunswick, NJ: Rutgers University Press; 2000. p. 324-337.

DeNavas-Walt, C., Proctor, BD., Smith, JC. Current Population Reports. Washington, DC: U.S. Census Burea; 2008. Income, poverty, and health insurance coverage in the United States: 2007; p. 60-235.

Do H, Taylor VM, Burke N, Yasui Y, Schwartz SM, Jackson J. Knowledge about cervical cancer risk factors, traditional health beliefs, and pap testing among Vietnamese American Women. Journal of Immigrant and Minority Health. 2007; 9:109–114. [PubMed: 17165138]

Frank SJ, Towell PA, Huyck M. The effects of sex-role traits on three aspects of psychological well-being in a sample of middle-aged women. Sex Roles. 1985; 12:1073–1087.

Greimel E, Padilla G, Grant M. Gender differences in outcomes among patients with cancer. Psycho-Oncology. 1998; 7:197–206. [PubMed: 9638781]

Ho V, Yamal JM, Atkinson EN, Basen–Engquist K, Tortolero–Luna G, Follen M. Predictors of breast and cervical screening in Vietnamese women in Harris County, Houston, TX. Cancer Nursing. 2005; 28:119–129. [PubMed: 15815181]

Hunt K, Sweeting H, Keoghan M, Platt S. Sex, gender role orientation, gender role attitudes and suicidal thoughts in three generations: A general population study. Social psychiatry and psychiatric epidemiology. 2006; 41:641–647. [PubMed: 16732400]

Kagawa-Singer M, Wellisch DK, Durvasula R. Impact of breast cancer on Asian American and Anglo American women. Culture, Medicine and Psychiatry. 1997; 21:449–480.

Kandula NR, Wen M, Jacobs EA, Lauderdale DS. Low rates of colorectal, cervical, and breast cancer screening in Asian Americans compared with Non-Hispanic Whites: Cultural influences or access to care? Cancer. 2006; 107:84–192.

Kaplan CP, Zabkiewicz D, McPhee SJ, Nguyen T, Gregorich SE, Disogra C, Jenkins C. Health-compromising behaviors among Vietnamese adolescents: The role of education and extracurricular activities. Journal of Adolescent Health. 2003; 32:374–383. [PubMed: 12729987]

Kelly JA, Furman W, Young V. Problems associated with the typological measurement of sex roles and androgyny. Journal of Consulting and Clinical Psychology. 1978; 46:1574–1576.

Lee HY, Lundquist M, Ju Luo, Townsend A. Colorectal cancer screening disparities in Asian Americans and Pacific Islanders: Which groups are most vulnerable? Ethnicity & Health. 2011; 16:501–518. [PubMed: 22050536]

Lin SS, Phan JC, Lin AY. Breast cancer characteristics of Vietnamese women in the Greater San Francisco Bay Area. Western Journal of Medicine. 2002; 176:87–91. [PubMed: 11897726]

Lindamer LA, Liu L, Sommerfeld DH, Folsom DP, Hawthorne W, Garcia P, Aarons GA, Jeste DV. Predisposing, enabling, and need factors associated with high service use in a public mental health system. Administration and Policy in Mental Health and Mental Health Services Research. 2012; 39:200–209. [PubMed: 21533848]

Littlefield MB. Gender role identity and stress in African American women. Journal of Human Behavior in the Social Environment. 2003; 8:93–104.

Matsuoka J. Differential acculturation among Vietnamese refugees. Social Work. 1990; 35:341–345.

McGarvey E, Clavet GJ, Johnson JB, Butler A, Cook KO, Pennino B. Cancer screening practices and attitudes: Comparison of low-income women in three ethnic groups. Ethnicity and Health. 2003; 8:71–82. [PubMed: 12893586]

McPhee SJ, Stewart S, Brock KC, Bird JA, Jenkins CN, Pham GQ. Factors associated with breast and cervical cancer screening practices among Vietnamese American women. Cancer Detection and Prevention. 1997; 21:510–521. [PubMed: 9398991]

Meissner HI, Yabroff R, Dodd KW, Leader AE, Ballard–Barbash R, Berrigan D. Are patterns of health behavior associated with cancer screening? American Journal of Health Promotion. 2009; 23:168–175. [PubMed: 19149421]

Nguyen AB, Clark TT. The role of acculturation and collectivism in cancer screening for Vietnamese women. Health Care for Women International. (in press).

Nguyen TT, McPhee SJ, Bui-Tong N, Luong TN, Ha-Iaconis T, Nguyen T, Lam H. Community-based participatory research increases cervical cancer screening among Vietnamese-Americans. Journal of Health Care for the Poor and Underserved. 2006; 17:31–54. [PubMed: 16809874]

Nguyen TT, McPhee SJ, Nguyen T, Lam T, Mock J. Predictors of cervical Pap smear screening awareness, intention, and receipt among Vietnamese-American women. American Journal of Preventive Medicine. 2002; 23:207–214. [PubMed: 12350454]

Pham CT, McPhee SJ. Knowledge, attitudes, and practices of breast and cervical cancer screening among Vietnamese women. Journal of Cancer Education. 1992; 7:305–310. [PubMed: 1305417]

Pourat N, Kagawa–Singer M, Breen N, Sripipatana A. Access versus acculturation: Identifying modifiable factors to promote cancer screening among Asian American women. Medical Care. 2010; 48:1088–1096. [PubMed: 20966779]

Reid G, Higgs P, Beyer L, Crofts N. Vulnerability among Vietnamese illicit drug users in Australia: Challenges for change. International Journal of Drug Policy. 2002; 13:127–136.

Ries, LAG., Melbert, D., Krapcho, M., Stinchcomb, DG., Howlader, N., Horner, MJ., Edwards, BK. SEER cancer statistics review, 1975–2005. Bethesda, MD: National Cancer Institute; 2008. Retrieved from http://seer.cancer.gov/csr/1975_2005/

Robbins, SP., Chatterjee, P., Canda, ER. Contemporary human behavior theory: A critical perspective for social work. 2. Boston, MA: Allyn & Bacon; 2006.

Roberts KE, Hart TA, Coroiu A. Gender roles traits among individuals with social anxiety disorder. Personality and Individual Differences. 2011; 51:952–957. [PubMed: 22131614]

Somanchi M, Juon HS, Rimal R. Predictors of screening mammography among Asian Indian American women: A cross-sectional study in the Baltimore-Washington Metropolitan Area. Journal of Women's Health. 2010; 19:1–9.

Spence JT, Buckner CE. Instrumental and expressive traits, trait stereotypes, and sexist attitudes. Psychology of Women Quarterly. 2000; 24:44–62.

Spence JT, Helmreich R, Stapp J. The Personal Attributes Questionnaire: A measure of sex-role stereotype and masculinity-femininity. JSAS: Catalog of Selected Documents in Psychology. 1974; 4:43.

Stein BN. Occupational adjustment of refugees: The Vietnamese in the United States. International Migration Review. 1979; 13:25–45.

Stein JA, Andersen RM, Robertson M, Gelberg L. Impact of hepatitis B and C infection on health services utilization in homeless adults: A test of the Gelberg-Andersen behavioral model for vulnerable populations. Health Psychology. 2012; 31:20–30. [PubMed: 21574705]

Steinfeldt JA, Zakrajsek R, Carter H, Steinfeldt MC. Conformity to gender norms among female student-athletes: Implications for body image. Psychology of Men & Masculinity. 2011; 12:401–416.

Suinn RM, Rickard–Figueroa K, Lew S, Vigil P. The Suinn-Lew Asian Self-Identity Acculturation Scale: An initial report. Education and Psychological Measurement. 1987; 47:401–407.

Tang TS, Solomon LJ, McCracken LM. Cultural barriers to mammography, clinical breast exam, and breast self-exam among Chinese American women 60 and older. Preventive Medicine. 2000; 31:575–583. [PubMed: 11071839]

Taylor VM, Schwart SM, Yasui Y, Burke N, Shu J, Lam DH, Jackson JC. Pap testing among Vietnamese women: Health care system and physician factors. Journal of Community Health. 2004; 29:437–449. [PubMed: 15587344]

Taylor VM, Yasui Y, Nguyen TT, Woodall E, Do H. Pap smear receipt among Vietnamese immigrants: The importance of health care factors. Ethnicity and Health. 2009; 14:575–589. [PubMed: 19626504]

Tung WC. Asian American's Confucianism-based health-seeking behavior and decision-making process. Home Health Care Management & Practice. 2010; 22:536–538.

Vyas A, Madhavan S, LeMasters T, Atkins E, Gainor S, Kennedy S, Remick S. Factors influencing adherence to mammography screening guidelines in Appalachian women participating in a mobile mammography program. Journal of Community Health: The Publication for Health Promotion and Disease Prevention. 2012; 37:632–646. [PubMed: 22033614]

Woo M, Oei TPS. The MMPI-2 Gender-Masculine and Gender-Feminine scales: Gender roles as a predictors of psychological health in clinical patients. International Journal of Psychology. 2006; 41:413–422.

Wu T, West B, Chen Y, Hergert C. Health beliefs and practices related to breast cancer screening in Filipino, Chinese and Asian-Indian women. Cancer Detection, and Prevention. 2006; 30:58–66. [PubMed: 16458452]

Yi JK. Factors associated with cervical cancer screening behavior among Vietnamese women. Journal of Community Health. 1994; 19:189–200. [PubMed: 8089269]

Yi JK. Acculturation and pap smear screening practices among college-aged Vietnamese women in the United States. Cancer Nursing. 1998a; 21:335–341. [PubMed: 9775483]

Yi JK. Vietnamese American college students' knowledge and attitudes toward HIV/AIDS. Journal of American College Health. 1998b; 47:37–42. [PubMed: 9693478]

Yi JK, Reyes–Gibby CC. Breast cancer screening practices among low-income Vietnamese women. International Quarterly of Community Health Education. 2002; 21:41–49.

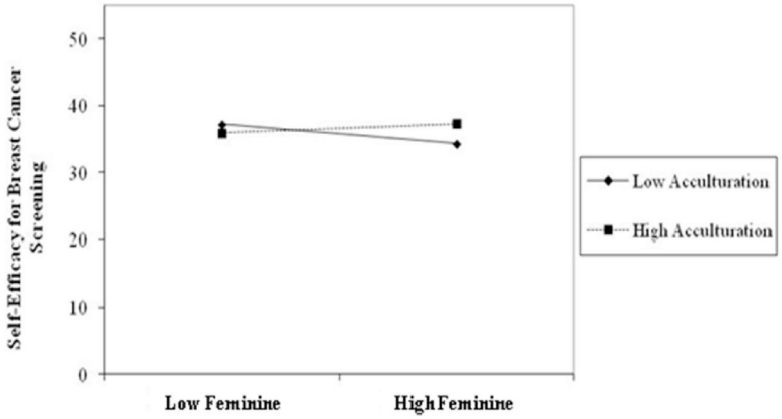

Figure 1.
Moderating role of acculturation on expressivity and self-efficacy for breast cancer screening.

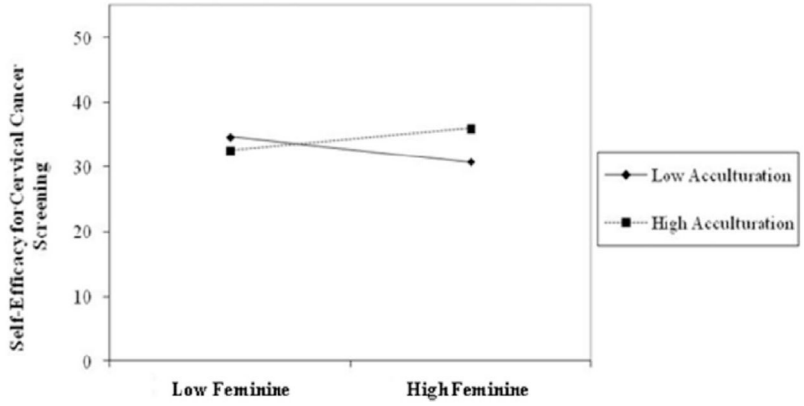

Figure 2.
Moderating role of acculturation on expressivity and self-efficacy for cervical cancer screening.

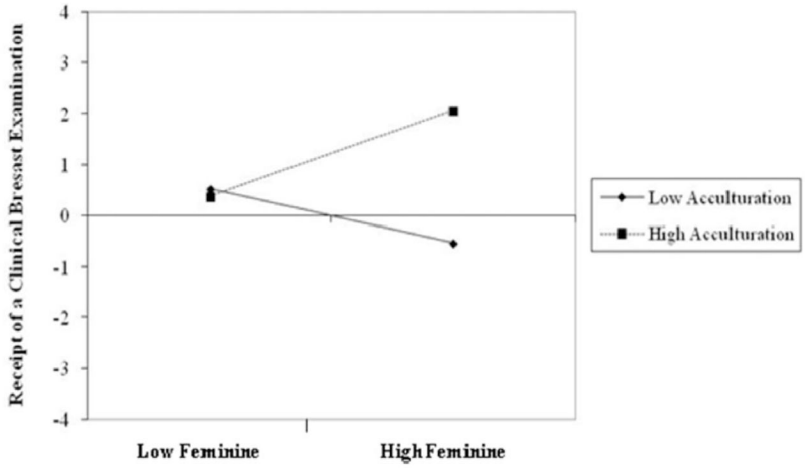

Figure 3.
Moderating role of acculturation on expressivity and receipt of a CBE.

Table 1

Participant Demographics

	Number	Percentage
Education		
Some high school	28	28
High school graduate/GED	25	25
Some college	18	18
College graduate	26	18
Post college graduate	3	3
Children		
Yes	71	71
No	29	29
Household income		
Less than $10,000	15	15
$10,000–15,000	14	14
$15,000–25,000	23	23
$25,000–50,000	20	20
$50,000–75,000	14	14
Over $75,000	16	14
Marital status		
Single	24	24
Married	66	66
Divorced	6	6
Widowed	3	3
Employed		
Yes	27	27
No	73	73
Regular physician		
Yes	60	60
No	39	39
Health insurance		
Yes	70	70
No	30	30

Note. Numbers may not always add up to 100 because of missing responses.

Table 2

Bivariate Associations Among Study Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Age	1	−.30**	.20	.23*	−.37*	−.19	−.17	.26**	.17	.54**	.37**
2. Education		1	.30**	.14	.55**	.26*	.07	.19	.24*	.08	.20
3. Household income			1	.46**	.42**	0.13	.00	.35**	.34**	.42**	.54**
4. Health insurance				1	.18	.03	−.07	.48**	.48**	.37**	.35**
5. Acculturation					1	.29**	.19	.24*	.27	.13	.29**
6. Masculine						1	.44**	.26*	.30**	.04	.05
7. Feminine							1	.01	.05	−.03	−.08
8. Self-efficacy CBE								1	.91**	.35**	.36**
9. Self-efficacy Pap test									1	.37**	.42**
10. Receipt of a CBE										1	.53**
11. Receipt of a Pap test											1

Note. $N = 100$.

* $p < .05$.

** $p < .01$.

Table 3

Predictors of Self-Efficacy for Breast Cancer Screening

	Model 1				Model 2				Model 3			
Variable	**β**	***B***	***SE* B**	**95% CI (lower; upper)**	**β**	***B***	***SE* B**	**95% CI (lower; upper)**	**β**	***B***	***SE* B**	**95% CI (lower; upper)**
Constant		35.43	2.11	31.24; 39.62		36.36	2.10	32.20; 40.53		36.28	2.09	32.13; 40.42
Age	.20*	.09*	.04	.01; .17	.27**	.11**	.04	.03; .20	.24*	.10*	.04	.02; .18
Education	.16	.76	.46	−.15; 1.67	.08	.35	.48	−.60; 1.29	.08	.36	.47	−.58; 1.30
Household income	.10	.37	.36	−.36; 1.09	.04	.16	.38	−.59; .90	.05	.18	.37	−.57; .92
Health insurance	.36**	4.51**	1.21	2.10; 6.92	.34**	4.18**	1.18	1.83; 6.52	.35**	4.39**	1.18	2.04; 6.74
Acculturation					.14	.10	.08	−.06; .25	.08	.05	.08	−.10; .21
Masculine					.26**	.32**	.12	.08; .56	.30**	.37**	.12	.12; .62
Feminine					−.09	−.12	.13	−.37; .13	−.06	−.08	.13	−.33; .17
Acculturation × masculine									.05	.01	.02	.02; .04
Acculturation × feminine									.18	.03	.02	.00; .06
R^2		.30				.36				.40		
F		10.00**				7.47**				6.73**		

Note. $N = 100$.

*$p < .05$.

**$p < .01$.

Table 4

Predictors of Self-Efficacy for Cervical Cancer Screening

	Model 1				Model 2				Model 3			
Variable	**β**	***B***	***SE* B**	**95% CI (lower; upper)**	**β**	***B***	***SE* B**	**95% CI (lower; upper)**	**β**	***B***	***SE* B**	**95% CI (lower; upper)**
Constant		32.93	2.86	27.34; 38.62		34.15	2.80	28.57; 39.73		33.55	2.80	27.98; 39.13
Age	.13	.07	.62	−.04; .18	.23*	.13*	.06	.01; .24	.21*	.12*	.06	.00; .23
Education	.20	1.22	.46	−.02; 2.46	.09	.57	.65	−.72; 1.85	.11	.69	.64	−.59; 1.97
Household income	.08	.35	.50	−.64; 1.34	−.02	−.08	.52	−1.12; .95	.01	.03	.51	−.99; 1.05
Health insurance	.39**	6.18**	1.63	2.94; 9.43	.39**	6.07**	1.56	2.96; 9.18	.38**	6.04**	1.55	2.96; 9.12
Acculturation					.18	.15	.11	−.06; .37	.11	.09	.11	−.12; .30
Masculine					.29**	.46**	.16	.14; .78	.30**	.48**	.17	.15; .82
Feminine					−.05	−.09	.17	−.41; .24	−.01	−.01	.16	−.34; .31
Acculturation × masculine									−.05	−.01	.02	−.05; .03
Acculturation × feminine									.26*	.05*	.02	.01; .09
R^2		.29				.37				.43		
F		8.66**				7.08**				6.65**		

Note. $N = 92$.

* $p < .05$.

** $p < .01$.

Table 5

Predictors of Previous Receipt of a CBE

	Model 1				Model 2				Model 3			
Variable	***B***	**Wald**	**Exp(B)**	**95% CI (lower; upper)**	***B***	**Wald**	**Exp(B)**	**95% CI (lower; upper)**	***B***	**Wald**	**Exp(B)**	**95% CI (lower; upper)**
Constant	−7.05	22.07	.00		−6.89	20.55	.00		−7.84	20.81	.00	
Age	.12**	18.10**	1.12	1.07; 1.19	.14**	18.43**	1.15	1.07; 1.22	.15**	18.41	1.16	1.09; 1.25
Education	.35	1.90	1.42	.86; 2.34	.23	.71	1.26	.74; 2.15	.35	1.42	1.42	.80; 2.53
Household income	.43*	3.85*	1.53	1.00; 2.34	.30	1.63	1.35	.85; 2.14	.55	.64	1.73	.45; 6.71
Health insurance	.83	1.71	2.30	.66; 8.05	.72	1.21	2.05	.57; 7.33	.38	2.34	1.46	.90; 2.36
Acculturation					.07	2.05	1.07	.98; 1.17	.07	2.23	1.08	.98; 1.18
Masculine					.02	.08	1.02	.89; 1.18	−.01	.03	.99	.84; 1.16
Feminine					.01	.04	1.01	.88; 1.17	.04	.31	1.04	.90; 1.21
Acculturation × masculine									−.01	2.18	.99	.97; 1.01
Acculturation × feminine									.02*	3.81	1.02	1.01; 1.04
Nagelkerke R^2		.54				.56				.60		
Cox and Snell R^2		.40				.42				.44		
χ^2		51.67**				54.45**				58.57**		
% Cases Predicted		82				82				83		

Note. $N = 100$.

* $p < .05$.

** $p < .01$.

Table 6

Predictors of Previous Receipt of a Pap Test

	Model 1				Model 2			
Variable	***B***	**Wald**	**Exp(B)**	**95% CI (lower; upper)**	***B***	**Wald**	**Exp(B)**	**95% CI (lower; upper)**
Constant	β5.80	16.77	.00		−5.68	14.21	.00	.83; 1.11
Age	.07**	7.93**	1.07	1.02; 1.12	.10**	10.34**	1.10	1.04; 1.17
Education	.52	3.38	1.68	.97; 2.90	.33	1.13	1.39	.78; 2.56
Household income	.75**	10.60**	2.12	1.34; 3.34	.34*	.29*	1.41	.41; 4.83
Health insurance	.38	.39	1.47	.44; 4.86	.56	5.05	1.74	1.07; 2.83
Acculturation					.11*	4.84*	1.12	1.01; 1.23
Masculine					.03	.15	1.03	.88; 1.20
Feminine					−.05	.35	.96	.83; 1.11
Acculturation × masculine					—	—	—	—
Acculturation × feminine					—	—	—	—
Nagelkerke R^2		.50				.56		
Cox and Snell R^2		.37				.41		
χ^2		41.72**				47.58*		
% Cases Predicted		83				84		

Note. $N = 92$.

* $p < .05$.

** $p < .01$.