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A Profile of Mexican-born Women Who Adhere to National Cervical Cancer Screening Recommendations

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Abstract

The purpose of this study was to examine Mexican-born women's utilization and adherence to cervical cancer screening guidelines. Ninety-seven women in southeastern U.S. participated. Data was collected in Spanish. The majority of women met adherence guidelines for the Pap exam. Marital status, educational attainment, *marianismo*, blood pressure knowledge, fatalism, cultural cancer beliefs, trust in provider, and perceived provider communication abilities were not associated with utilization or adherence to screening guidelines. This study had higher than expected adherence to screening guidelines. Nearly all women received screenings through safety net services indicating the need to advocate for continued public health funding.

Keywords

Mexican-born women; immigrants; preventive screenings; cervical cancer

The United States (U.S.) is home to five million Mexican-born women, both documented and undocumented, making this the country's largest female immigrant group living in the United States (Immigration Policy Center, 2010; Wallace & Castañeda, 2010). The rate of cervical cancer among Hispanic/Latina women is 11.3 per 100,000, which is more than one and a half times the rate of cervical cancer among Non-Hispanic women (7.4 per 100,000 persons) (Center for Disease Control and Prevention [CDC], 2012a). However, testing is lower than national levels for women in many areas (Cokkinades, Bandi, Siegel, & Jemal, 2012; White, Garces, Bandura, McGuire, & Scarinci, 2012).

According to national reports, Mexican-born women are the least likely to be screened for cervical cancer (obtained a Pap exam at least once in previous three years) (CDC, 2012b; Flores & Bencomo, 2009) and demonstrate the lowest percentage of adherence to cervical cancer screening recommendations (75%) when compared to U.S. born Mexican women (80.1%), Hispanic women (78.7%), and the overall U.S. female population (83.0%) (CDC, 2012b). Mexican-born women, especially those who have lived in the U.S. for 10 years or less, are poorer, have lower levels of education, and are unlikely to have a usual source of care compared to other women living in the U.S. (Nandi et al., 2008; Wallace & Castañeda, 2010).

Many factors influence Mexican-born women's access to health care and adherence to healthcare screening recommendations including education, poverty, limited employment opportunities, low income, health insurance status, and limited English proficiency. Fifty-eight percent of Mexican-born women have less than a high school education, compared with 14% of other foreign-born women, 12% of U.S. born African-American women, and 12% of non-Hispanic white women (Wallace & Castañeda, 2010). Nearly half (47%) of all Mexican-born women live at or below the poverty level (U.S. Census Bureau, 2010; Wallace & Castañeda) and are the least likely to be represented in the labor force compared to other foreign-born women, non-Hispanic women, and African-American women (Wallace & Castañeda). More than one-half of Mexican-born women are uninsured compared to 25% of other foreign-born women, adding to their vulnerability of these Mexican women (Wallace & Castañeda). Previous study results identify the need for efforts to ensure that female Latinas, especially those with low income and minimal insurance coverage obtain appropriate screenings (Gonzalez, Castañeda, Mills, Talavera, Elder, & Gallo, 2012; White et al., 2012).

Finally, limited English proficiency among foreign-born Latinas is associated with impaired healthcare access and decreased healthcare utilization (Cordasco, Ponce, Gatchell, Traudt, & Escarce, 2011; Ding & Hargraves, 2009; Mutchler, Bacigalupe, Coppin, & Gottlieb, 2007). Three out of every five Mexican-born women experience linguistic barriers, while the rate for all foreign-born persons experiencing language barriers is one out of five (Wallace & Castañeda, 2010). More than half of Mexican-born women report that they do not speak English or have limited English proficiency (U.S. Census Bureau, 2010). Language difficulty has been reported as a reason for Latina women to not obtain cervical cancer screening tests and diagnoses (Percarc-Lima, Aldrich, Gamba, & Atlas, 2010), even though these women perceive cervical cancer as a serious disease (Moore dePeralta, Holaday, & McDonnell, 2014).

Conceptual Framework

The Interaction Model of Client Health Behavior (IMCHB) (Cox, 1982) was the guiding framework for this study. The IMCHB examines how "client singularity" (client background variables and behavioral determinants), and elements of the client-professional interaction relate to health outcomes and behaviors, including utilization of healthcare services and adherence to the recommended care regimen. Identifying associations between client singularity variables, elements of the client-professional interaction, and health outcomes may advance the healthcare providers capacity to respond to client needs and influence positive health behaviors and health outcomes (Cox & Roghmann, 1984).

For this study, the independent variables based on client singularity indicators included: age and marital status (demographic variables); acculturation and *marianismo* (social influences); income, education, and insurance status (environmental resources); fatalism and cultural attitudes towards breast cancer (affective response); and blood pressure knowledge (cognitive appraisal). Variables based on the client-professional interaction consisted of trust (affective support) and communication (professional/technical competencies). Blood pressure knowledge and cultural attitudes towards breast cancer were included to address

adherence to blood pressure and mammogram screenings, which are not discussed in this article.

Research Questions

Two major research questions were addressed in this study:

1. Do Mexican-born women a) utilize the Papanicolaou exam and b) are they adherent to preventive cervical cancer screening guidelines?
2. Are client singularity and/or client-professional interaction factors associated with utilization and adherence to cervical cancer screening guidelines?

Methods

Design and sample

A descriptive, correlational cross-sectional design was employed to examine Mexican-born women's adherence to recommended health screening exams for cervical cancer screening and attributes that might be related to utilization and adherence to cervical cancer preventive screening recommendations as endorsed by the 2009 American Congress of Obstetricians and Gynecologists (ACOG) guidelines. A convenience sample of 101 Mexican-born women was recruited from July to September 2011 from community settings in western and central North Carolina. Participants were eligible if they met the following criteria: Born in Mexico and self-identified as Mexican; able to speak and understand the English or Spanish language; 18 -75 years of age; resided in U.S. for at least one year; had been seen by a healthcare provider for any reason in the previous 3 years; and alert and oriented to time, place, and person.

Recruitment strategies included posting Spanish and English flyers at a health department, churches, grocery stores, a bakery, beauty salons, and restaurants; announcing the study at two churches with large Mexican congregations; informing community health leaders in the Hispanic community; and social nomination. The final sample size was $N = 97$, as four women did not complete the data. The team members were bilingual in English and Spanish; the research assistants were native Spanish speakers. Interviews were conducted in Spanish based on participant preference; all study tools were read to the participants to account for literacy levels. Informed consent and data collection interviews took approximately one hour to complete. Most interviews were completed in homes, churches, or congregate community settings. The university Internal Review Board approved this study.

Measures

Demographic and health history questionnaire—The researcher-developed demographic tool was used to identify the participant's age, length of time in the U.S., marital status, educational attainment, insurance status, and income. The health questionnaire was used to obtain family and participant health history; if Pap smear had ever been obtained; date and place of most recent Pap smear; and number of Pap smears received in previous 5 years.

Short Acculturation Scale for Hispanics (SASH)—The Short Acculturation Scale for Hispanics (SASH) (Marín, Sabogal, Marín, Otero-Sabogal, & Perez-Stable, 1987) measured social influence. Respondents' answers were summed for a total score, then divided by the total number of items (12). An average score of 2.99 dichotomized participants into a lower acculturation level (≤ 2.99 or less) or a higher acculturation level (> 3.0) (Marín & Gamba, 1996). The alpha coefficient was acceptable ($\alpha = .869$).

Marianismo Beliefs Scale (MBS)—The Marianismo Beliefs Scale (MBS) (Castillo, Perez, Castillo, & Ghosheh, 2010) examined cultural and gender related beliefs as a proxy of social influence. The tool (English and Spanish) consists of 24 items rated on a 4 point scale ranging from (1) strongly disagree to (4) strongly agree. Tool constructs include family pillar, virtuous and chaste, subordinate to others, silencing self to maintain harmony, and spiritual pillar. Responses are summed for and divided by 24. A higher mean score indicates a greater affinity for qualities that encompass marianismo beliefs (Castillo et al.). The reliability coefficient in this study was .851 for the MBS scale.

Powe Fatalism Inventory (PFI)/Spanish Powe Fatalism Inventory (SPFI)—The Spanish Powe Fatalism Inventory (SPFI) (Lopez-McKee, McNeill, Eriksen, & Ortíz, 2007) was used to measure the degree of cancer fatalism. The English and Spanish versions consists of a 15-item tool with a dichotomous response set (yes/no). Each “yes” response is given a score of one and a “no” response receives a score of zero. A higher total summed score indicates a higher degree of cancer fatalism (Lopez-McKee et al.). When reliability analysis was conducted, two items performed poorly on multiple indices and were removed from further analysis. Removal of these items did not change the acceptability of the reliability coefficient (.757) but slightly lowered the overall scores.

Interpersonal Trust in Physician Scale (IPTP)—The Interpersonal Trust in Physician (IPTP) tool was used to measure affective support (Hall et al., 2002). This 10-item tool assesses client view of physician behaviors that facilitate trust based on competence, compassion, reliability, integrity, and open communication. IPTP is scored on a 5-point Likert scale where 1 = strongly agree and 5 = strongly disagree. Three negatively worded items (items 2, 3, 8) are reverse scored. The responses to all items are summed to determine the degree of trust. A higher score indicates a higher degree of perceived trust in a healthcare provider. The reliability coefficient was .836 for this study.

Communication Assessment Tool (CAT)—The Communication Assessment Tool (CAT) (Makoul, Krupat, & Chang, 2007) was used to measure Mexican-born women's perception of provider professional/technical competency. This 15-item tool uses a 5-point Likert scale where 1 = poor, 2 = fair, 3 = good, 4 = very good, and 5 = excellent. The first 14 items represent the “communication” factor. The total summed score of items 1 through 14 determines the women's level of perceived communication abilities in the healthcare provider, with higher scores reflecting perceived higher degree of communication competency. The reliability coefficient for the CAT was .971.

Analytic Strategy

To answer the first research question 1, descriptive statistics (frequencies, means, proportions, and ranges) were used to describe the sample participants' demographic characteristics and their utilization and adherence to preventive cervical cancer screening recommendations.

Multiple logistic regression analysis was applied to answer question 2 and determine if an association existed between elements of client singularity (marital status, educational attainment, *marianismo*, blood pressure knowledge, fatalism, cancer beliefs), elements of the client professional interaction (trust in provider and communication), and adherence to cervical cancer screening guidelines.

Acculturation and insurance status were not entered into the regression model as 94.8% had a low level of acculturation and 89.6% did not have any form of health insurance. Alpha $\alpha = .05$ was set to determine statistical significance as appropriate. The a priori power analysis indicated that 81 participants would be required to use a multiple linear regression model with a significance level of .05, 80% power, estimated effect size of $R^2 = 0.20$ and twelve independent variables. Statistical data were analyzed using the Statistical Package for Social Sciences version 18.0 (SPSS, Inc., Chicago, IL).

Results

Participants in this study were between the ages of 20 and 71 ($M = 37.46$, $SD = 9.07$) and reported living in the U.S. between 2 and 24 years ($M = 11.86$, $SD = 4.81$). Two women were excluded from the analysis, due to a hysterectomy with no history of a pre-cancerous lesion and exceeding the age of 65. Among the 95 remaining women, almost two-thirds (64.6%) were between 20 and 39 years of age, and the majority were married or partnered (83.3%). Of note, 60.4% of participants had less than a high school education, more than half (52.2%) had an income $< \$10,000$; and the majority (89.6%) did not have health insurance. None of the women reported a personal history of cervical cancer or an abnormal Pap exam. Three women stated that a member of their family (mother, grandmother, sister) previously had been diagnosed with cervical cancer.

Women's scores on tools indicated that the majority of women (94.8%) exhibited a low acculturation level and a moderate affinity to *marianismo* beliefs. For example, on *marianismo* questions related to the family, the women agreed or strongly agreed with statements about motherhood such as, "A Latina must be the source of strength for her family" and "A Latina mother should teach her children to be loyal to the family" but disagreed or strongly disagreed with statements about a woman's sexual role including "A Latina should satisfy her partner's sexual needs without argument" and "A Latina should not talk about sex." Women expressed a low level of cancer fatalism, perceived a moderate level of trust in their physician, and perceived that their providers demonstrated moderate to high communication abilities.

Utilization and adherence to preventive screening guidelines

Findings for research question 1 indicated that virtually all of the women (99.0%, $n = 94$) had received at least one Pap smear in their lifetime (utilization) and that 90.5% of women ($n = 86$) met adherence guidelines defined as having had at least two Pap exams in the previous 5 years (ACOG, 2009). Most (78.7%) of the participants who had a Pap exam revealed that their most recent Pap smear took place within the past year, and more than half (55.5%) of the women reported having an annual Pap exam. The local health department was the most common venue for the Pap exam (45.2%), followed by community or hospital clinics (34.4%).

Regarding research question 2, a multiple logistic regression analysis was performed to determine if any demographic characteristic, environmental resource or client professional interaction factors were related to utilization of services or adherence to screening guideline. Overall, there were no significant effects of these measures and outcomes ($\chi^2=14.39$, $df=7$, $p=0.072$).

An alternative analysis characterized the women who met adherence guidelines. Most women who were adherent were married; more than one third had a high school education or greater; and most demonstrated a moderate affinity for cultural and gender related beliefs. Sixty-four percent were of childbearing age (20-39); 89.6% were uninsured; and 52.2 % reported incomes of less than \$10,000 per year. Fatalism related to cancer in general was low. They expressed a moderate degree of trust in their provider and perceived their provider's communication abilities as very good.

Discussion

Compared to national reports (CDC, 2012b), the women in this study demonstrated a higher adherence rate to cervical cancer screening guidelines (90.5%), despite their low acculturation level, low income, educational attainment, and insurance status. Previous research has indicated that Mexican-born women are the least likely to be screened for cervical cancer (received a Pap exam at least once in previous three years) and had the lowest percentage of adherence to cervical cancer screening recommendations when compared to U.S. - born Mexican women, Hispanic/Latino subgroups and the overall U. S. female population (CDC, 2012b; Flores & Bencomo, 2009). However, the finding is consistent with reports that Mexican origin women have lower rates than other Latinas (Cokkinides et al., 2012) and that Latina women have higher pap smear rates than non-Hispanic white women (Suneja, Diaz, Roberts, & Rakowski, 2013).

Previous researchers have reported adherence rates that exceed the CDC adherence rate (2012b), indicating that 77.5% to 79% of Mexican born women demonstrated adherence to cervical cancer screening guidelines (Lawsin et al., 2011; Luque et al., 2011; Shelton, Jandorf, King, Thelemaque, & Erwin, 2012). Participants in those studies shared similar characteristics to the current study including low socioeconomic status and limited education. Thus, these studies demonstrate similar context and findings to the current study. Previous studies identified that positive associations for adherence to cervical cancer

screening guidelines include marital status (married) (Luque et al.; Shelton et al.); length of residence in the U.S. (≥ 6 years) (Luque et al.); and age (≥ 41 years of age) (Shelton et al.).

As noted above, previous research findings and the current study indicate a higher adherence rate to cervical cancer screening compared to the national report. An explanation for these differences may be related to four areas. The current and previous studies recruited participants from faith-based organizations; community, mobile, and faith-based clinics; and through outreach in cancer screening education. The participants in these studies may have been more inclined to seeking preventive health care services. This sample is of younger women, who have lived in the U.S. for several years; these women may have more knowledge of available types of health care. Spanish language and Hispanic investigators familiar to the community collected data, which may have allowed trust and understanding (Percarc-Lima et. al., 2010; Smith, Wilson, Arians, & Byrd, 2013), resulting in more accurate responses to questions. Last, these women indicated trust and very good communication with their providers, which has been associated with higher cervical cancer screening and diagnostic testing and follow-up (Percarc-Lima et. al., 2010; Suneja et al.; 2013; White et al., 2012).

Limitations

Limitations to this study include the following: This study employed a cross-sectional design with a convenience sample; thus, causality cannot be inferred. The study findings cannot be generalized beyond the convenience sample of Mexican-born women who participated in this study. Women who had not seen a healthcare provider at least once in the previous three years were excluded from this study. Finally, all of the information was based on self-report.

Implications

Three important implications for public health nursing have emerged. First, more than half of the women in this study reported having an annual Pap exam, which, based on updated United States Preventive Task Force (Moyer, 2012) and American Cancer Society (2012) recommendations, may constitute an overuse of services. The new guidelines recommend that cervical cancer screening should begin at 21 years of age, that HPV testing should be performed as an addition to Pap testing for women between the ages of 30 and 65 (ACOG, 2012), and that a decrease in frequency of cervical cancer screening exams may be indicated based on exam findings. The rationale underlying these changes include the concern that Pap exam screening beyond the newest recommendations may result in greater expense, unnecessary treatment and potential consequences related to overtreatment (Moyer). Public health nurses have a vital role in educating all women, including Mexican-born women, about the new cervical cancer screening recommendations in a culturally congruent manner. Public health nurses should emphasize that the decreased frequency in cervical cancer screening does *not* replace the value of the annual well-women exam (ACOG, 2012). In addition, family history and behavioral risks are important to discuss with a provider before making decisions about timing and intervals for screenings.

Second, public health nurses may lead community outreach initiatives to inform Mexican-born women about available resources such as those provided through the Breast and Cervical Cancer Mortality Prevention Act of 1990 (Public Law 101-354). This law established the Centers for Disease Control and Prevention's National Breast and Cervical Cancer Early Detection Program and provides breast and cervical cancer screening exams to underserved women, including those who are older, have low incomes, or are members of racial and ethnic minority groups (CDC, 2012c). This resource may be underutilized, as more than 34% of eligible women did not receive a Pap test through this service (Tangka, O'Hara, Gardner, Turner, Royalty et al., 2010). Younger women and those with minimal documentation may not be eligible or knowledgeable, lack childcare and transportation, and lack language proficiency to access the services and require education and other assistance (Gonzalez et al., 2012; Nuño, Gerald, Harris, Martinez, Estrada, & Garci, 2012; White et al, 2012).

Finally, the majority of women in this study received their Pap exams from public health departments and community clinics. Deteriorating funding for the public health system could jeopardize availability of these services to low-income persons (Institute of Medicine [IOM], 2012a). While the Affordable Care Act (2012) may provide health insurance to low-income persons, it does not guarantee that recipients will have a usual source of care or medical home and, even with full implementation, many people may remain uninsured (IOM, 2012b). Experts warn, "provision of an insurance card without system improvement of primary care infrastructure will do little to improve access" (Carrasquillo & Betancourt, 2010, p. 1267). Through policy development, collaboration with key stakeholders, and community involvement, community health nurses must advocate for continued public health funding. Solutions for sustainable funding and provision of care to disparate populations are addressed in key reports such as *For the public's health: Investing in a Healthier Future* (IOM, 2012a), *The HHS Action Plan to Reduce Racial and Ethnic Health Disparities* (U.S. Department of Health and Human Services, 2011), and the *CDC Health Inequities Report* (2013).

Recommendations for Future Research

Mexican families are immigrating directly to the southeastern U.S. and other new growth communities where resources and health infrastructures may be less established and may impede access to quality care services. Diverse Hispanic subgroups may follow different cultural practices, such as dietary customs, distinctive Spanish vernaculars, and differing histories of migration that may provide different health beliefs and behaviors related to cervical cancer screening (Andes et al., 2012). Accordingly, research that focuses on a single Latino ethnic group may provide a basis for culturally competent and linguistically appropriate healthcare for that population (Cokkinides et al., 2012; Hispanic Health Coalition of Georgia, 2012). This is true especially for various socioeconomic groups of Latinas (Gonzalez et al., 2012), women from rural areas (Nuño et al, 2012), and persons from non-border states with emerging communities, such as the group in this sample (Moore dePeralta et al., 2014).

Future research should explore additional factors that may be associated with utilization and adherence to preventive cervical cancer screenings among Mexican-born women living in new-growth communities in the southeastern U.S. This knowledge may verify or dispute the findings from this study. In addition, studies that more clearly determine source and payment of care for Mexican-born women will provide a foundation on which to base nursing practice, policy development, resource allocation, and care delivery decisions for cervical cancer screening, diagnosis and treatment.

Summary

This study examined Mexican-born women's utilization and adherence to cervical cancer screening recommendations. Mexican-born women living in the U.S. suffer a disproportionate burden of cervical cancer. However, the findings of this study revealed higher than expected adherence to cervical cancer screening. Mexican-born women should understand and obtain cervical cancer screening tests based on the new national recommendations. Community health nurses play a key role in educating Mexican-born woman about cervical cancer screening exams, referring uninsured or underinsured women to programs that provide these exams, and advocating for health policies that support continued funding for these services.

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