Validation of the Spanish Version of the Mammography-Specific Self-Efficacy Scale

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Purpose/Objectives: To consider psychometric estimates of the validity and reliability of the Spanish translation of a mammography-specific self-efficacy scale.

Design: A cross-sectional study.

Setting: Three primarily Hispanic churches and a Hispanic community center in a low-income urban area of New Jersey.

Sample: 153 low-income Hispanic women aged 40–85 years.

Methods: The translated scale was administered to participants during a six-month period. Internal consistency, reliability, and construct and predictive validity were assessed.

Main Research Variables: Demographic variables included income and insurance status. Outcome variables included total mammography-specific self-efficacy and having had a mammogram within the past two years.

Findings: Preliminary evidence of reliability and validity were found, and predictive validity was demonstrated.

Conclusions: The health needs of specific populations can be addressed only when research instruments have been appropriately validated and all relevant factors are considered. Diverse groups of low-income women face similar challenges and barriers in their efforts to get screened.

Implications for Nursing: Nurses are in an ideal position to help women with preventive care decision making (e.g., screening for breast cancer). Understanding how a woman's level of self-efficacy affects her decision making should be considered when counseling a client.

Key Words: breast cancer; Hispanic women; validation; self-efficacy; mammography

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About 17,100 Hispanic women living in the United States were diagnosed with breast cancer in 2012 (American Cancer Society [ACS], 2012). Although Hispanic women are less likely to be diagnosed with breast cancer than non-Hispanic Caucasian and African American women, they are more often diagnosed at a later stage and with more negative prognostic features (e.g., greater tumor size, higher-grade tumors) than non-Hispanic Caucasian women in the United States (ACS, 2012; Hill et al., 2010). Breast cancer is the most frequently diagnosed cancer and the greatest cause of cancer death in Hispanic women (Centers for Disease Control and Prevention [CDC], 2014a).

Breast cancer screening using mammography is one of the most effective means of identifying breast cancer at an early stage. In 2012, a national survey found that about 67% of women aged 40 years and older and of all races and ethnicities reported having had a mammogram in the past two years (CDC, 2014a). Rates were fairly consistent across race and ethnicity, with about 67% of non-Hispanic Caucasian women, 68% of African American women, and 64% of Hispanic women, all aged 40 years and older, reporting a screening in the past two years (National Center for Health Statistics [NCHS], 2014). These rates dropped precipitously for uninsured women (36%) and women with less than a high school education (53%) (NCHS, 2014).

Studies have found insurance status to be a primary predictor of cancer screening across ethnicities (Henry et al., 2011; Nuño, Castle, Harris, Estrada, & Garcia, 2011). Removing financial and access barriers to screening has not provided sufficient incentive to increase screening rates in low-income women (Terán, Baezconde-Garbanati, Márquez, Castellanos, & Belkic, 2007). As the United States reaches full implementation of the Patient Protection and Affordable Care Act (ACA), more than 10 million Hispanic citizens will either purchase health insurance or receive benefits from the expanded Medicaid program (Levy, Bruen, & Ku, 2012). In addition, nearly all insured women will be entitled to a breast cancer screening using mammography without cost sharing (U.S. Department of Health and Human Services, 2014). Whether this increase in benefits will result in an increase in adherence to screening guidelines is unclear. A CDC report on breast cancer screening services cited low self-efficacy as a cause of poor adherence to mammography guidelines;

it is a barrier that is likely to continue to impede breast cancer screening using mammography, even after full implementation of the ACA (CDC, n.d.).

Research Instrument

Self-efficacy describes the confidence one feels about undertaking a certain behavior and achieving the expected outcome. An individual with a higher level of self-efficacy would have the confidence to overcome barriers and take necessary action. Bandura (1997) based self-efficacy on social cognitive theory, which explains how people develop certain behavioral patterns. Perceived self-efficacy has been widely used to predict and explain health-seeking behaviors. Self-efficacy is considered to be domain specific in that an individual's level of self-efficacy is specifically related to the task at hand (Bandura, 1997).

The concept of self-efficacy has been used in diverse populations to predict an individual's likelihood of participating in cancer screening. Measures of self-efficacy tend to vary widely in these studies. Cronan et al. (2008) used three 10-point response scale questions in a sample of African American, Mexican American, and Caucasian women to assess the women's confidence regarding the ability of breast cancer screening using mammography to prevent cancer, detect cancer, and optimize the likelihood of a cure for cancer that is diagnosed early. Self-efficacy was found to be significant in the Caucasian and Mexican American samples, but not in the African American women. Palmer, Fernandez, Tortolero-Luna, Gonzalez, and Dolan Mullen (2005) used a 12-item Likert-type scale to measure self-efficacy in a sample of female Hispanic farmworkers in the Lower Rio Grande Valley in Texas. These authors suggested that, given the cultural factors, low literacy levels, and language barriers found in their sample, high levels of mammography-specific self-efficacy were likely necessary to navigate the logistical steps (e.g., obtaining a referral, scheduling an appointment) required to undergo screening.

Champion, Skinner, and Menon (2005) developed and tested the validity of the mammography-specific self-efficacy scale (MSSES) in a population of African American and Caucasian women to predict or explain a woman's decision to have a mammogram. The MSSES is a tool with which to measure self-efficacy specifically as it relates to breast cancer screening using mammography. Basing this scale on Bandura's (1997) conceptualization of self-efficacy, Champion et al. (2005) developed items to measure the perceived efficacy a woman would need to accomplish a number of steps associated with the process of having a mammogram (e.g., making an appointment, finding transportation, taking action even if worried). Individuals with higher self-efficacy were more likely to express the intention to have a mammogram and to follow through with the screening (Champion et al., 2005). In a study involving a Caucasian and African American sample, Menon et al. (2007) found that self-efficacy can play a significant role in moving women from just thinking about mammography to actually getting screened.

While the construct of self-efficacy has been used to predict or explain health-seeking behavior in samples of Hispanic women (Cronan et al., 2008; Palmer et al., 2005), the MSSES has not been studied in this population. The need to identify valid and reliable measures, specific to race and ethnicity, of women's health-seeking behavior is essential to eliminate disparities in cancer care (Champion et al., 2008). This may be particularly crucial for the non-English speaking population of the United States; language barriers in instrument development may preclude their involvement in research, resulting in findings that are not broadly representative of the national population (Li, McCardle, Clark, Kinsella, & Berch, 2001).

Research among non-English speakers in the United States is constrained by the lack of culturally appropriate and language-specific research tools (Medina-Shepherd & Kleier, 2010). The Hispanic population in the United States is large and growing rapidly; a significant segment of this population consists of individuals who are primarily Spanish speakers (Taylor, Lopez, Martínez, & Velasco, 2012). Because many research instruments have not been translated and validated in this population, the health needs of the Hispanic population cannot be adequately addressed (Medina-Shepherd & Kleier, 2010). Nurses working with Spanish-speaking populations in the United States and internationally could benefit from using a validated Spanish translation of the MSSES as they advise women about the need for regular breast cancer screening using mammography.

The primary purpose of this study was to validate the translated MSSES in a sample of low-income Hispanic women. If the MSSES is predictive of mammogram use in this population, as it has been in samples of low-income African American and Caucasian women, researchers may find that diverse groups of low-income women face similar challenges and barriers in the effort to get screened. This evidence could allow for the development of interventions that cross race and ethnicity and provide the opportunity for broader outreach efforts in cancer screening.

Methods

Sample

The current study was conducted during six months in 2013 in three primarily Hispanic churches and a Hispanic community center in Camden, New Jersey,

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a low-income urban area. The eligibility criteria for participation were literacy in Spanish, aged 40 years or older (ACS [2014] recommends that screening begin at age 40 years), and no prior history of breast cancer. For surveys obtained at the churches, one of the current authors spoke to parishioners about the study during a Sunday Mass; the study was conducted immediately after the service on the church grounds. Any woman who was interested in participating and met the eligibility criteria was given a consent form. Following the return receipt of a signed consent form, women were given the surveys. The women received $5 gift cards for their effort. The researchers and a bilingual church representative were available to answer questions and assist women with completing the survey. At the community center, the family success manager (bilingual in Spanish and English) was trained to assist with data collection. This study was approved by the Institutional Review Board at Rutgers University.

Measures

The MSSES is a 10-item self-report scale that measures the perceived self-efficacy and is expected to predict or explain a woman's decision to undergo breast cancer screening using mammography (Champion et al., 2005). This scale includes 10 five-point Likert-type scale items ranging from 1 (strongly disagree) to 5 (strongly agree). The composite score ranges from 10–50. The Cronbach alpha for this scale in the initial testing of the original English version was 0.87 (Champion et al., 2005). In addition to the MSSES, the current authors included a 10-item demographics survey, which had two questions regarding mammogram use. This demographics survey has been used in previous studies involving similar samples of women (Jerome-D'Emilia & Suplee, 2014). The answers to this survey were not included in the scoring of the MSSES. Following the procedure suggested by Medina-Shepherd and Kleier (2010), the entire survey was translated into Spanish by a professional translator and backtranslated into English by a second translator who was blind to the English version. All discrepancies between the original and the backtranslated version were resolved to ensure equivalence. Scale items were changed to first person from third person, as was suggested by Deavenport, Modeste, Marshak, and Neish (2011), who used a focus group of 20 Hispanic women to examine content validity of the scale prior to using the MSSES in conjunction with other health belief model scales in a post-test–only control group study. The survey administered for the purposes of the current article took the women about 15 minutes to complete, but less literate women who required assistance took as long as 30 minutes to complete the task. The current authors were not aware of whether women in the sample were bilingual or primarily English speakers.

Data Analysis

Univariate statistics were generated to describe the sample demographics. Bivariate analyses using chi-square and t tests examined any associations among the demographic variables, the outcome variable "mammogram in the past two years," and the total MSSES score. The internal consistency reliability of the MSSES was evaluated using the Cronbach alpha coefficient and corrected item-total correlation for the overall scale. Construct validity was examined with exploratory factor analysis. In the initial psychometric analysis of the MSSES, Champion et al. (2005) found that the scale was unidimensional, suggesting that a one-factor solution would be found for this sample data.

Test-retest reliability was evaluated by choosing a random sample of 25 participants (including women recruited at the church and the community center) who were asked to complete a second survey and return it by mail within a two-week time frame. Participating women were given this second survey and a self-addressed, stamped envelope.

To evaluate the ability of the scale to distinguish between known groups (i.e., whether participants with high self-efficacy [above the median] would be more likely to have had a mammogram in the past two years than participants with low self-efficacy), an a priori power analysis was conducted. In a sample of at least 130 participants (assuming that 64% of the women with low self-efficacy will have had a screening, based on screening estimates in the Hispanic population [ACS, 2012]), 80% power was used to detect a difference as low as 21% among the groups that would be statistically significant at the 0.05 level. The sample of 146 (using only those women aged 42 years or older) was adequate for the proposed analysis.

Predictive validity for the composite MSSES score was assessed using the dichotomous outcome variable of whether the participant had had a mammogram within the past two years. The current authors hypothesized that women with a higher score on the MSSES would be more likely to have had a mammogram in the past two years—a hypothesis that follows from the tool's original psychometric testing (Champion et al., 2005). Logistic regression models for the outcome variable "mammogram within the past two years" were developed and either adjusted or not adjusted for the other model covariates.

The area under the curve (AUC) receiver operating characteristic (ROC) was used to examine the ability of the MSSES to predict or explain mammography decision making in this sample of women. The AUC provides a measure of a test's diagnostic ability to discriminate between two groups: women who have had a mammogram in the past two years and women who have not. The AUC is equal to 0.5 when the ROC

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Table 1. Sample Characteristics (N = 153)

Characteristic	n	%
Age (years)		
40–50	57	37
51–60	58	38
61–70	25	16
71 or older	11	7
No response	2	1
Education		
Less than high school	45	29
High school graduate	56	37
More than high school	51	33
No response	1	1
Annual family income ($)		
9,999 or less	59	39
10,000–24,999	43	28
25,000–49,999	28	18
50,000 or greater	14	9
No response	9	6
Citizen of the United States		
Yes	118	77
No	35	23
Insurance status		
Private insurance	55	36
Uninsured	46	30
Medicaid	40	26
Medicare	12	8
Mammogram history		
Have had at least one mammogram	140	92
Have had mammogram in the past two years	112	73
Marital status		
Single	39	25
Married or in domestic partnership	57	37
Divorced or separated	34	22
Widowed	19	12
No response	4	3
Place of origin		
Central America	11	7
Continental United States	13	8
Dominican Republic	54	35
Mexico	11	7
Puerto Rico	61	40
South America	2	1
No response	1	1

Note. Because of rounding, percentages may not total 100.

curve is the result of random chance and 1 when the model predicts the outcome with perfect accuracy (Zhou, O'Malley, & Mauri, 2007). The current authors compared the Akaike information criteria (AIC) fit index and the AUC for the logistic regression models to determine the best fit with the data. Data were analyzed with STATA®, version 13. All tests of significance were two-tailed, and the alpha level was set at 0.05.

Results

In all, 153 women completed the survey (see Table 1). Ages of the respondents ranged from 40–85 years; the average age was 55 years (SD = 10). Respondents had lived in the continental United States, on average, for 29 years (SD = 15). Bivariate analyses were used to identify associations among the covariates. An association was found between education level and income; women with the lowest income were likely to have reported the least amount of schooling ($p = 0.001$). Women with the lowest income were also most likely to receive Medicaid or to be uninsured ($p < 0.001$). Low-income women (i.e., with an annual family income of less than $25,000) tended to be slightly older (56.7 years as compared to 51.8 years, $p = 0.007$), were more likely to have had lower total scores on the MSSES ($p = 0.03$), and were less likely to have had a mammogram in the past two years ($p = 0.011$). Women who had had a mammogram within the past two years were more likely to be insured regardless of type of insurance ($p < 0.001$). No other significant associations were found among the covariates and the outcome variables.

The a priori power analysis followed from the assumption that 64% of the women with low self-efficacy (less than the median of 40 on the scale) would have been screened. In this sample, in which 62% of the women (aged 42 years or older) with low self-efficacy reported having been screened in the past two years, the sample of 146 women had 81% power to detect a difference as low as 21% among the groups that would be statistically significant at the 0.05 level.

Reliability

To evaluate internal consistency reliability, the Cronbach alpha was calculated. The Cronbach alpha for this scale was 0.94. To identify poorly functioning items, item-total correlations were assessed. A correlation of item and total score of less than 0.3 is consistent with a poorly functioning item. Significant bivariate correlations were detected between and among the 10 items of the MSSES, with correlations ranging from 0.73–0.91; therefore, no items were eliminated.

The analysis of reliability over time with the use of the test-retest procedure was not performed. A random sample of 25 participants were provided with a second survey and a self-addressed, stamped envelope and asked to return the second survey within two weeks of the initial survey. Only five participants returned the second survey; this was a number too small for analysis. In the initial psychometric testing of the scale, Champion et al. (2005) found a test-retest reliability of 0.52 ($p < 0.001$) using the Pearson correlation.

Construct Validity

To examine the construct validity, exploratory factor analysis was employed. A principal component analysis with an unrotated solution was used. The Kaiser criterion suggests that those factors with eigenvalues equal to or higher than 1 should be retained; the eigenvalue for factor one was 6.9. All items loaded to factor

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one, with factor loadings ranging from 0.68–0.92. Factor one accounted for 96% of the total variance. This unidimensionality reflects the theoretical underpinning of the scale (see Table 2 for the factor matrix, as well as reliability testing data). The uniqueness values reflect the variance that is unique to each variable and not shared with other variables. The greater uniqueness of a variable reflects the lower relevance of that variable. The uniqueness values ranged from 0.13–0.48.

Predictive Validity

The scale successfully distinguished among known groups. Among the women aged 42 years and older who had had a mammogram within the past two years, the average composite self-efficacy score was 42.6 (SD = 10.7, 95% confidence interval [CI] [39.9, 44]). Among the women who did not have a mammogram in the past two years, the average score was 33.4 (SD = 13.7, 95% CI [28.9, 37.9]). Predictive validity of the scale was evaluated with a logistic regression estimating the probability of "had a mammogram in the past two years" for the sample of 146 women who were aged 42 years and older. For the average woman in the study sample, a one-unit increase in her self-efficacy score would result in an increase of 1.06 times the probability of having had a mammogram in the past two years ($p < 0.001$). In the expanded model controlling for age, citizenship status, income, and insurance, the odds ratio (OR) dropped to 1.05 ($p = 0.009$). For the unadjusted logistic regression model, the AUC was 0.69. In the model that included covariates, the AUC was increased to 0.8 (see Table 3). In a model controlling for covariates but with binary versions of insurance (yes or no) and income ($24,999 or less, $25,000 or greater) the OR was consistent (OR = 1.05, $p = 0.012$), and the socioeconomic variables were significant. Insurance was found to be related to screening (OR = 3.3, $p = 0.036$), as was higher income (OR = 5, $p = 0.025$). The AUC for this model was 0.81. The AIC, although still relatively high, was lowest for this model (152.8). The p values for categorical variables were calculated with the likelihood ratio test.

Discussion

In this study, the authors tested a survey tool originally developed and validated in a sample of Caucasian and African American women with a sample of Hispanic women from a low-income urban area of New Jersey. Preliminary evidence of reliability and validity were found, and predictive validity was demonstrated.

Internal consistency reliability was also demonstrated. In the current study, a Cronbach alpha of 0.94 was found, as compared to an alpha of 0.87 found by Champion et al. (2005). The item total correlations were high—higher than those found in the original validation of the scale—and consistent with the results from the psychometric evaluation of the MSSES translated into Turkish (Secginli, 2012). The MSSES is closely tied to the knowledge, intention, and practice of having a mammogram, and each question is a very narrow slice of the breast cancer screening using mammography experience. This high Cronbach alpha score is appropriate for a scale that assesses domain-specific self-efficacy.

Exploratory factor analysis supported the theoretical construct of the scale (i.e., that all 10 items reflected various aspects of self-efficacy). The 10 items that suggest various barriers to screening (e.g., worry, not knowing where to obtain the test, lack of transportation) reiterated a higher level of self-efficacy's being consistent with the ability to overcome barriers and take action. Bandura (1997) discovered that the higher an individual's self-efficacy, the more determined that individual will be to overcome obstacles to achieve a goal. The low levels of uniqueness found in these variables

Table 2. Reliability Testing and FOL for the Mammography-Specific Self-Efficacy Scale (N = 153)

Item	n	$\bar{X}$	SD	ITC	FOL	U
I can						
Arrange my schedule for a mammogram.	152	4.05	1.48	0.8	0.78	0.32
Find a means of transportation to get a mammogram.	152	3.78	1.67	0.73	0.68	0.48
Find a place to get a mammogram.	148	4.11	1.4	0.83	0.82	0.32
Find a way to pay for a mammogram.	151	3.63	1.61	0.76	0.73	0.47
Get a mammogram even if I am worried.	152	4.11	1.45	0.85	0.85	0.27
Get a mammogram even if I do not know what is expected.	153	4.15	1.36	0.91	0.92	0.16
Make an appointment for a mammogram.	152	4.22	1.34	0.9	0.92	0.13
Talk to people at the facility about my concerns.	153	3.96	1.52	0.8	0.77	0.32
I know						
For sure that I can get a mammogram if I really want one.	153	4.13	1.4	0.85	0.85	0.25
What I have to do to get a mammogram.	153	4.11	1.43	0.85	0.84	0.28

FOL—factor one loading; ITC—item total correlations; U—uniqueness

Note. Regarding reliability testing, the overall alpha was 0.94, whereas the scale mean was 40, and the standard deviation was 11.9. Skewness was zero. The theoretical scale range was 5–50, and the actual scale range was 10–50.

Note. Regarding FOLs, the eigenvalue was 6.9, and the percentage of variance was 96.

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demonstrate the relevance that these variables have to self-efficacy.

The logistic regression found that women with a higher level of self-efficacy were more likely to have been screened in the past two years. The OR was such that for every point increase in total score, a woman was 1.06 times (6%) more likely to have had a mammogram in the past two years. This finding is similar to results reported by Champion et al. (2005) in the original testing in which every point increase in the self-efficacy score resulted in a 9% increase in the odds of having a mammogram. The model that fit binary versions of insurance and income was likely the best model for this sample based on fit indices, AUC, and confirmation with the literature. The current authors' findings on insurance and income are robust; these relationships have consistently been found in the Hispanic population and for most groups of low-income women in relation to breast cancer screening using mammography (Jerome-D'Emilia, 2015).

The percentage of women in the current study who reported ever having had a mammogram (92%) and the percentage who reported having been screened in the past two years (73%) were higher than expected based on findings from national surveys (ACS, 2012; CDC, 2014a). These relatively high rates may be related to the presence of a local National Breast and Cervical Cancer Early Detection Program (NBCCEDP) site. NBCCEDP is a federally financed program that provides free or low-cost mammograms to women who are uninsured or underinsured and have family incomes at or below 250% of the federal poverty level (CDC, 2014b). From 2009–2013, 26,281 women received mammograms at NBCCEDP sites in New Jersey (CDC, 2014c). Insured women (70% of the survey respondents) who do not qualify for NBCCEDP services can be screened in the same facility that provides the NBCCEDP screenings.

Table 3. Results of a Logistic Regression Identifying Predictors of Mammogram Within the Past Two Years (N = 146)

Variable	OR	95% CI	p
Age	1.02	[0.96, 1.08]	0.561
Citizen of the United States	0.85	[0.22, 3.3]	0.818
Education	–	–	0.689
Less than high school	–	–	–
High school graduate	1.1	[0.32, 4]	–
Some college	0.44	[0.07, 2.5]	–
College graduate	0.79	[0.18, 3.4]	–
Income ($)	–	–	–
25,000 or less	5	[1.2, 20.2]	0.25*
Insurance status	–	–	–
Insured	3.3	[1.1, 10.2]	0.36*
Marital status	–	–	0.168
Single	2.8	[0.71, 11.1]	–
Married	–	–	–
Divorced	1.8	[0.56, 5.6]	–
Widowed	1.5	[0.34, 6.7]	–
Place of origin	–	–	0.53
Central America	0.75	[0.05, 12.3]	–
Continental United States	–	–	–
Dominican Republic	1.8	[0.17, 19.5]	–
Mexico	0.59	[0.022, 16.4]	–
Puerto Rico	0.78	[0.1, 5.9]	–
Total MSSES	1.05	[1, 1.1]	0.012*
Years in the United States	1	[0.95, 1]	0.947

* Significant if $p < 0.05$ (area under the receiver operating characteristic curve = 0.81)

CI—confidence interval; MSSES—mammography-specific self-efficacy scale; OR—odds ratio

Limitations

The current study relied on a convenience sample and included a relatively small sample size. These results reflect the characteristics and concerns of a Hispanic population in an urban area of New Jersey; therefore, generalizations made to the larger population of Hispanic women in the United States may not be justified. The Hispanic population in the United States is large, growing rapidly, and highly diverse. Studies of Hispanic women, such as this one, tend to generalize among specific subpopulations. The Hispanic community is heterogeneous, and subpopulations may have different health issues and information needs (Aponte, 2009; Young, 2001).

The current study relied on a woman's self-report of mammogram use. To date, only one study has addressed the validity of self-reported mammograms in Hispanic women, finding that Hispanic women had a lower rate of agreement between self-report and medical record when compared to African American and non-Hispanic Caucasian women (Tumiel-Berhalter, Finney, & Jaén, 2004).

Implications for Nursing Practice

As more Hispanic women receive insurance because of the ACA and benefit from the resulting increased access to preventive services, facilitators and barriers to mammogram use, unrelated to the cost of the procedure, are likely to remain. Gaining insight into how women choose to use preventive services, by way of culturally appropriate tools, may provide nurses with the information they need to counsel women more effectively. Although women make decisions about preventive care based on their knowledge, perceived level of risk, fears, emotions, and other sociocultural factors, a higher level of self-efficacy may enable a woman to seek the care she needs, and

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Knowledge Translation

The Spanish version of the mammography-specific self-efficacy scale (MSSES) demonstrated acceptable values of validity and reliability in this sample of women.

The MSSES is an adequate measure of a women's self-efficacy regarding mammogram decision making. Efforts to increase a woman's self-efficacy may be the leverage that will improve her health in the future.

Insurance status and income level are structural barriers to breast cancer screening using mammography across race and ethnicity.

a lower level of self-efficacy may impede her access. Nurses should not underestimate the role they play in encouraging the use of preventive care, particularly for their most vulnerable clients. Efforts to increase a woman's level of self-efficacy may be the leverage that will improve her health in years to come.

Conclusion

Breast cancer screening using mammography is one of the most effective means of detecting early breast cancer in women who have no signs or symptoms of the disease. Although the rates have improved during the past few decades, poor and uninsured women still have lower rates of screening. The ACA will decrease the number of uninsured individuals in the United States, but foreign-born legal residents who have not been in the United States for five years, as well as the undocumented population, will remain uninsured. In the population of low-income Hispanic women, barriers, such as a lack of transportation, may remain.

Self-efficacy has been found to be a significant predictor of mammography in studies of Hispanic women, but the operationalization of the construct has varied widely (Cronan et al., 2008; Palmer et al., 2005). The MSSES was designed to be specific to mammography, including as scale items all of the steps required to make an appointment, get to the screening facility, and complete the screening, regardless of structural or individual barriers. The current study found preliminary evidence that the Spanish translation of the MSSES has internal consistency reliability and predictive validity in a sample of low-income Hispanic women, equivalent to that found in previous psychometric testing in a sample of African American and Caucasian women.

In addition, this study lends credence to the relevance of structural barriers to screening use and the similarities faced by diverse groups of low-income women. Even if a woman has Medicaid, she may not have access to a car; that lack of transportation may be the crucial determinant to prevent her from being screened. To evaluate the effects of structural barriers on mammogram use, future research should be conducted with larger samples of racially and ethnically diverse low-income women to observe for commonalities related to socioeconomics.

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