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Arelis Moore de Peralta
Clemson University, ared@clemson.edu

Bonnie Holaday
Clemson University

Ida Mikisa Hadoto
Clemson University

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Cues to Cervical Cancer Screening among U.S.-Hispanic Women

Moore de Peralta, A., Holaday, B., & Hadoto, I. M.

Arelis Moore de Peralta, MD, PhD, MPH, MEd.; Assistant Professor
Clemson University, Department of Youth, Family and Community Studies; Department of
Languages, Email: ared@clemson.edu

Bonnie Holaday, RN, PhD; Emeritus Professor
Clemson University, Department of Youth, Family and Community Studies

Ida Mikisa Hadoto, DipEd, PGDRD, MscAgricDevp, Graduate Student Doctoral Program in
International Family and Community Studies

Abstract

Introduction: Hispanic women's cervical cancer rates are disproportionately high. Cues to cervical cancer screening (Cues to Action) are strategies to activate the decision-making process to get screened for cervical cancer. This study used the health belief model to examine which cues prompt Hispanic women to undergo cervical cancer screening and how perceptions could be potentiated by cues to cervical cancer screening. **Method:** A cross-sectional survey was conducted among Hispanic women 18 to 65 years old (n=220). Generalized linear modeling was used. **Results:** Spanish media and reminders by mother and doctors were relevant cues. Generalized linear modeling showed cues to action modified significantly the predictive effect of Perceived Threats (i.e., Susceptibility, Severity), benefits, barriers, and self-efficacy on Hispanic women's cervical cancer screening behavior. "Mother told me" and Spanish media messages were significant covariates. **Conclusion:** Cues to Action influenced Hispanic's women participation in cervical cancer screening. Cues to Action increased the strength of the health belief model as an explanatory model, and must be considered in designing culturally appropriate cervical cancer screening interventions.

Keywords: cervical cancer screening, Pap test, health belief model, cues to action, Hispanic women, cervical cancer

Statement of the Problem

Cervical cancer is one of the most common reproductive cancers among women in the United States, and is the second most common cancer among women worldwide (American Cancer Society [ACS], 2012). Persistent infection with high-risk HPV is the most important risk factor for cervical cancer precursors and invasive cervical cancer (Hariri, Dunne, Saraiya, Unger,

& Markowitz, 2011). Regular use of Pap and HPV tests followed by appropriate and timely treatment reduces deaths from cervical cancer (ACS, 2012).

Every year 530,000 women develop cervical cancer worldwide, and more than half of them die (Bray, Ren, Masuyer & Ferlay, 2013). Low income countries have higher prevalence rates compared to high income countries. For instance, while the USA prevalence rate is eight cases per 100,000, with a mortality rate of 2.4 % (Kesic, Polsak, & Rogovskaya, 2012); the prevalence rate in Southern African countries is 35 cases per 100,000, with a mortality rate of 23% (HPV Information Center, 2016). Disparity in incidence rates between high- and low-income countries is due primarily to differential access to effective screening and precancer or preventive treatment and similar disparities also exist within countries (Tsu & Jerónimo, 2016).

While persistent infection with high-risk types of HPV is considered necessary for the development of cervical cancer, it is not sufficient because the vast majority of women with high-risk HPV infection do not develop cancer (Hariri, Dunne, Saraiya, Unger, & Markowitz, 2011). Specific factors have been found to increase HPV infected women's risk for progression to cancer. Among U.S. Hispanic women these factors include age, education, income, immigrant status, acculturation, cultural beliefs about modesty and sexual behavior, family-centered values, and existing social networks (Program for Appropriate Technology in Health, 2010).

Promoting cancer prevention and control in the Hispanic community is more important than ever because Hispanics are the largest and fastest growing minority population in the United States. By 2050, approximately 30% of all Americans will be Hispanics (Pew Hispanic Center, 2011). Hispanic women's age-adjusted cervical cancer incidence rates in 2012 (9.5 per 100,000), were significantly higher than for US Non-Hispanic (7.1 per 100,000), and slightly higher than African Americans (9.0 per 100,000) (U.S. Cancer Statistics Working Group, 2015). Poverty and

reduced access to medical services have been mentioned as factors that determine this increased incidence among Hispanics (ACS, 2012).

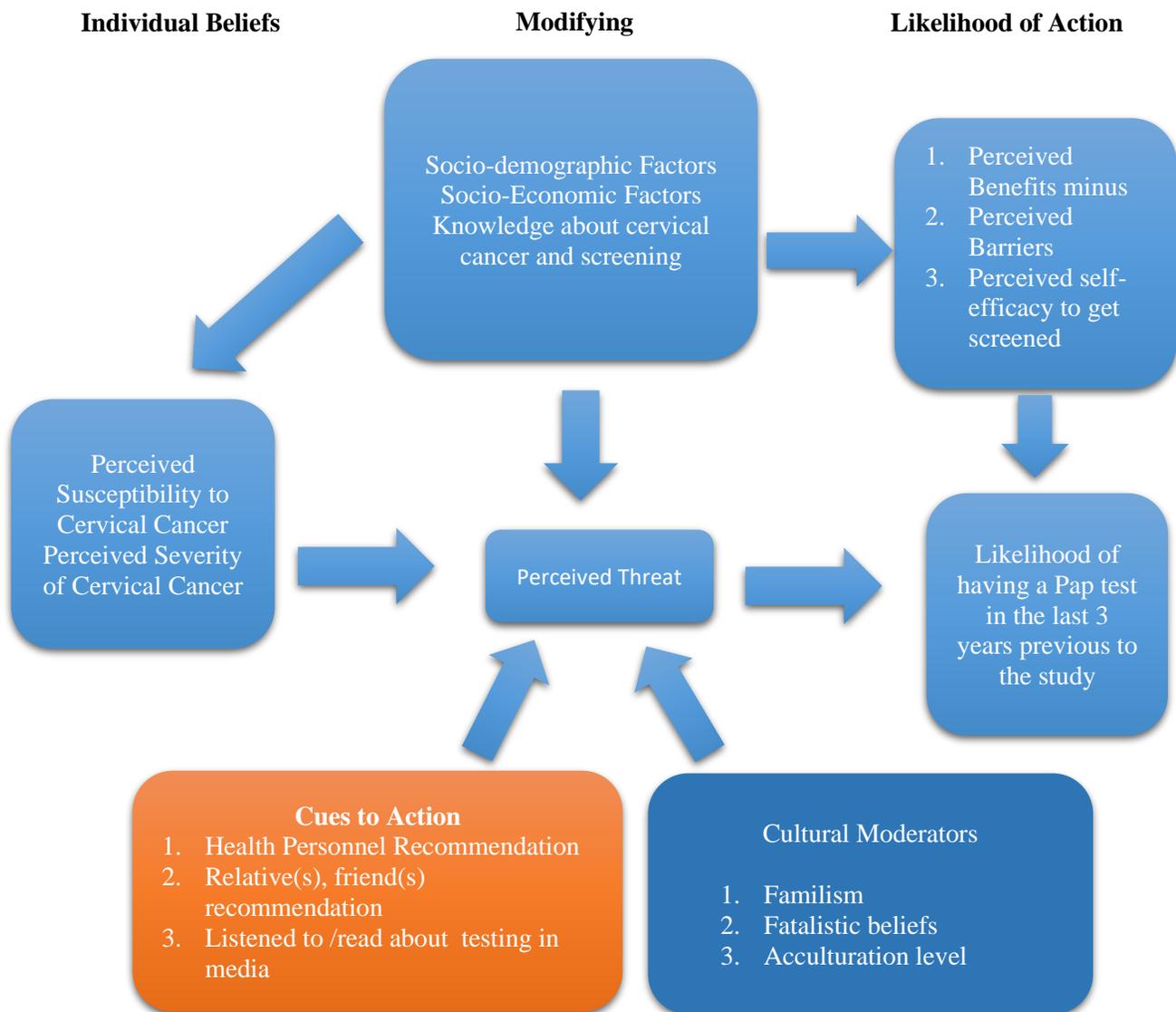
Regular screening for cervical cancer with the Pap test can detect cancer precursor lesions early. Abnormal Pap test results (i.e., repeated ASC-US, ASC-US with positive HPV test, or more severe abnormality) require a woman to be evaluated further with colposcopic examination of the cervix (Hariri, Dunne, Saraiya, Unger, & Markowitz, 2011). Cervical cancer screening recommendations for the detection of cervical cancer and precancerous lesions were updated by ACS in 2010. These guidelines recommend that for women at average risk, screening should begin at age 21 and continue at regular intervals through at least age 65 (ACS, 2012). Increasing Hispanic women's compliance with Pap test is of utmost importance as Hispanics have lower cancer screening rates than other race ethnicities in the US (Ries, et al., 2008). A systematic review of the literature conducted by Sohl and Moyer (2007), showed that strategies to promote screening that are based on the Health Belief Model (HBM), including a physician recommendation, had the strongest effects in promoting compliance to screening.

Purpose of the Study

The purpose of this study was to examine the role that internal and external Cues to Action play in prompting Hispanic women to obtain a cervical cancer screening test. The Health Belief Model (Rosenstock, Strecher, & Becker, 1988) guided this research. The HBM model was modified for the purpose of this study by selecting specific modifiers including cultural-related variables (Figure 1). This study incorporated a "Cues to Action" measurement developed by Urrutia (2009) to assess Hispanic women's report about Cues to Action and their relationship to their cancer screening behaviors (Urrutia & Hall, 2013). Based on the review of the literature, the following Cues to Action were incorporated into the HBM as modifying factors: physician recommendation (Ackerson, 2010), nurses recommendation (Ackerson, 2010), family and

friends recommendations (Burton, 2002), educational materials (Snider et al., 1996), and exposure to media (Radio/TV) messages about cervical cancer and cervical cancer screening (O'Malley et al., 2009).

Figure 1. A Modified Health Belief Model: Cues to Cervical Cancer Screening



Source: Reproduced and modified from Janz, Champion and Strecher (2002). Used with permission.

This study was guided by the question: What role do internal and external Cues to Action play in prompting Upstate Hispanic women to obtain a cervical cancer screening test? We hypothesized that Hispanic women's degree of agreement to cervical cancer screening cues (Cues to Action) modified significantly the predictive effect of Perceived Threats (i.e. Susceptibility, Severity), Benefits, Barriers and Self-efficacy on their cervical cancer screening behavior. Few studies have examined the role of Cues to Action related to cervical cancer screening in women. To our knowledge, no study has explicitly examined the relationship between Cues to Action and cervical cancer screening in Hispanic women.

Health Belief Model: Cues to Action

The HBM posits that the likelihood of engaging in health behaviors depends on the interaction among Perceived Susceptibility, Severity, Benefits, Barriers, Self-efficacy, Cues to Action and other modifying factors. Rosenstock and colleagues (1988) proposed that modifying factors such as age, gender, education and culture influence the appraisal of risk or Perceived Threat (i.e., perceptions of susceptibility and severity of the person). A change in behavior depends on the balance of the benefits and barriers of taking action, and on the presence of cues (internal and external prompts) that trigger action (See figure 1). Self-efficacy was integrated into the HBM in 1988 (Rosenstock, Strecher, & Becker, 1988). A major concept in the HBM, Cues to Action refers to internal and external prompts that activate the readiness of health behavior (Rosenstock, 1966). Cues to Action are strategies to activate the decision-making process or health behavior. According to this concept, readiness to take action could be potentiated by other factors such as bodily events (sign or symptoms) or environmental events (media publicity or health warning labels on a product) (Hayden, 2009).

Cues to Action are the specific stimuli needed to trigger a health behavior such as cervical cancer screening (Glanz, Rimer, & Lewis, 2002). These cues may be internal such as personal symptoms, family history of cancer or personal knowledge about cervical cancer and screening; or external such as mass media (television, radio, print, internet) or a recommendation from a health care provider or family member (Hayden, 2009; Absetz, Aro & Sutton, 2003). Internal cues are associated with intrapersonal issues such as cognition, perception, and signs of illness, while external cues are associated with the interpersonal and communication. Both of these types of cues create awareness of a health threat (Janz & Becker, 1984). Important positive cues to cancer screening reported by Hispanic women include physician and lay health workers' recommendation (Watts, et al., 2009); written materials and media (Austin, Ahmad, McNally, & Stewart, 2002; Watts, et al., 2009); support from family/friends (Watts, et al., 2009).

Methods and procedures

The purpose of this cross-sectional survey was to examine selected cervical cancer and cervical cancer screening beliefs and actions among Hispanic women, 18 to 65 years old, who at the time of the survey resided in or near seven cities in the Upstate of South Carolina. These seven cities were selected by convenience. To participate in the study, a woman had to be between the ages of 18 and 65 years and self-identified as being of Hispanic/Latino origin. For this study, Hispanic/Latino origin referred to women by birth or descent from or related to any Latin American or Caribbean country, or Puerto Rico (Pew Hispanic Center, 2007). Female participants had to reside in or near selected counties for the study. The decision to include women 18 to 65 years of age was made based on current U.S. Preventive Task Force guidelines (2003). Sample selection was based on non-probabilistic sampling methods, as the sample was drawn by convenience. Power analysis indicated that 173 respondents were needed to achieve a reliable sample. A total of 250 questionnaires from Hispanic women ages 18 to 65 were

collected. Of these, in 220 (88%) questionnaires participants answered all the items of the CPC-28 scale and represented the final sample (Urrutia, 2009; Urrutia & Hall, 2013). The study was approved by Clemson's Institutional Review Board (IRB).

The questionnaire was comprised of nine sections and included a total of 124 questions. An investigator's request for a waiver of written consent was approved by Clemson University's IRB. All questionnaires were completed and returned on site. No identifiers were obtained. Four of the six scales used were available from the original authors in both English and Spanish. The women's cervical cancer and screening beliefs were assessed using the Beliefs, Papanicolaou, Cancer – 28/ "Creencias, Papanicolaou, Cancer – 28" [CPC-28] scale (Urrutia, 2009). Familism was measured using the Attitudinal Familism Scale (AFS) created by Lugo-Steidel and Contreras (2003). A modified version of the Cervical Cancer Screening Self-Efficacy Scale (CCSSE) developed by Fernandez et al. (2009) was used.

SPSS 17.0 was used for data analysis. Hypotheses were tested within a generalized linear model (GLM) framework. This approach allowed the investigator to model non-normal distributions and to select the method of linearizing the relationship between the independent variables (IVs) and the dependent variable (DV). The DV variable (Having obtained a Pap test in the past three years: every year, twice, once, ever had, never had) had an ordinal distribution.

Results

Characteristics of the Participants

The total sample size was 220 Hispanic women between the ages of 18 and 65 years. The mean age of the participants was 38.21 years of age, with a standard deviation of 10.96 years. More than half of the women were married or partnered (75%). Ninety-six percent of the participants were born in a Latin American country, including Puerto Rico. The majority of these women (54.6%) were born in Mexico and 28.7% were born in South America. Forty-one percent

of the participants had resided in the U.S. for 6 to 10 years. More than half of the participants reported that they spoke English poorly to very poorly (55.9%). More than half of the participants scored as low-acculturated (59%) on the Bi-dimensional Acculturation Scale (BAS) (Marin & Gamba, 1996), with just more than one third (39%) having scores indicating being bicultural. Sixty-one percent of participants achieved only a high school diploma or less, and 35% of this group reported not graduating from high school. Fifty-five percent had a yearly family income of \$19,999.00 or less. Only 24% of the participants reported having health insurance at the time of the survey. Eighteen percent of the participants reported they either never had a Pap smear test (5%) or had been tested just once in their life (13%). Almost half of the participants (46%) reported they had a Pap test every year in the last three years.

Cues to cervical cancer screening

Internal Cues to Action are personal symptoms, personal knowledge or family history of cervical cancer (Absetz, Aro & Sutton, 2003). In this study only 4% of participants reported having had been diagnosed with some type of cancer other than cervical cancer; and 40% reported having a relative with cancer. Participants reported limited knowledge about cervical cancer, Pap testing and the Human Papilloma Virus (HPV). Responses to the items related to knowledge about HPV and its role in cervical cancer showed that although three-quarters of the participants (75%) recognized HPV as a cause of cervical cancer; they had very little knowledge about how it was diagnosed (9.1%), or how to interpret negative Pap test results (23%). The most important internal cues to cervical cancer screening reported by participants was their perception that having the Pap smear was important to take care of their health (96%). External cues reported including having read or watched messages about cervical cancer and the Pap test in the newspaper, radio, or television (67%), as well as being told by their mothers to get screened (63%) were reported by two-thirds of the participants as important cues. More than half (56%)

reported being told by a doctor to get screened as an important cue to get their Pap test. Only one-third (33%) mentioned being told by a nurse to get screened.

Table 1 includes results of the generalized linear model analysis of the HBM perceptions after the inclusion of cues to cervical cancer (i.e., a composite variable resulting for combining a selected group of cues to cervical cancer screening) as a covariate. Although approaching significance, there was a non-significant covariate effect of the latent variable “Cues to Action” in the model (Wald’s $X^2 = 3.774$, $p = 0.052$). However, after cues to cervical cancer inclusion as a covariate, the overall model continued to be significant ($X^2 = 55.688$, $p = 0.000$). Perceived Threats of cervical cancer (Wald’s $X^2 = 4.152$, $p = 0.042$) and Self-efficacy to screening (Wald’s $X^2 = 8.774$, $p = 0.003$) continued to be significant predictors as well. As the level of Pap test compliance increased, the β also increased. From never had a Pap test ($\beta = -10.990$) to obtaining a Pap test twice in the past three years ($\beta = -7.173$).

Table 1. Moderating Effects of Cues to Cervical Cancer Screening as a latent variable on Hispanic Women's Perceptions of Cervical Cancer and Pap Smear Test: Tests of Model Effects and Parameter Estimates.

Tests of model effects		χ^2	df	p
Predictors	Benefits	.004	1	.949
	Barriers	1.070	2	.586
	Threats	4.152	1	.042
	Self-efficacy	8.774	1	.003
Covariates	Cues to action	3.774	1	.052
	regular medical care	14.898	1	.000
	Familism	6.619	1	.010
	relative with cancer	6.428	1	.011
Interactions	benefit * barrier	6.153	2	.046
	cues to action* relativewithcanc	6.543	1	.011

Parameter estimates			b	SE b	Wald's X^2	df	p	Exp b
Criterion	Compliance	Never	-10.99	1.9566	31.549	1	.000	.000
		At least once in lifetime	-9.277	1.9037	23.748	1	.000	.000
		Once in past 3 yrs.	-8.389	1.8808	19.894	1	.000	.000
		Twice in past 3 yrs.	-7.173	1.8548	14.957	1	.000	.001
		Every year past 3 yrs.	<i>Reference category</i>					
Predictors	Benefits	Low-mod low	.990	.5196	3.628	1	.057	2.691
	Barriers	Low	.369	.4831	.585	1	.445	1.447
		Mod low	.521	.4145	1.582	1	.209	1.684
	Threats	Low-mod low	-.638	.3130	4.152	1	.042	.528
Covariates	Self-efficacy	Low-mod low	-.858	.2895	8.774	1	.003	.424
		Cues to action	-1.056	.5437	3.774	1	.052	.348
		regular med. care	-1.385	.3589	14.898	1	.000	.250
		familism	-.310	.1204	6.619	1	.010	.734
Interactions	relative w. cancer	benefit * barrier	-2.201	.8680	6.428	1	.011	.111
		benefit * barrier	-1.102	.7329	2.262	1	.133	.332
		cues* relativeCa. Low-mod low*low	-1.805	.7400	5.950	1	.015	.164
Test					χ^2	df	p	
Model χ^2					55.688	12	0.000	
Goodness-of-fit = .977								

Regular medical care, familism, and having a relative with cancer were included as covariates into the model, under the assumption that a woman who reported higher values on these predictors might have had a greater likelihood of having been in contact with information about cervical and other cancers. These three factors had a significant covariate effect as follows: Regular medical care (Wald's $X^2 = 14.898$, $p = 0.000$), familism (Wald's $X^2 = 6.619$, $p = 0.010$), and having a relative with cancer (Wald's $X^2 = 6.428$, $p = 0.011$).

Table 2 includes results of testing the HBM by incorporating separately cues to cervical cancer screening as opposed to a composite or latent variable. Two external cues to cervical cancer screening showed a significant effect, “mother spoke to me about Pap Test” (Wald’s $X^2 = 5.982$, $p = 0.014$) and “having listened about pap Test in Spanish news/TV/radio” (Wald’s $X^2 = 7.034$, $p = 0.008$). The overall model continued to be significant ($X^2 = 46.429$, $p = 0.000$) as well. Perceived Threats of cervical cancer was no longer significant as a covariate (Wald’s $X^2 = 3.221$, $p = 0.073$). However, Self-efficacy to Pap test screening continued to be a significant predictor (Wald’s $X^2 = 10.411$, $p = 0.001$).

Table 2. Moderating Effects of Selected Cues to Cervical Cancer Screening on Hispanic Women's Perceptions of Cervical Cancer and Pap Smear Test: Tests of Model Effects and Parameter Estimates.

Tests of model effects		χ^2	df	p				
Predictors	Benefits	.119	1	.730				
	Barriers	1.370	2	.504				
	Threats	3.221	1	.073				
	Self-efficacy	10.411	1	.001				
Covariates	Nurse told me	1.628	1	.202				
	Doctor told me	.019	1	.891				
	Mother spoke to me	5.982	1	.014				
	Friends spoke to me	.062	1	.803				
	Family told me to	3.039	1	.081				
	News/TV/radio	7.034	1	.008				
Interactions	benefit * barrier	9.687	2	.008				
Parameter estimates			b	SE b	Wald's X^2	df	p	Exp b
Criterion	Compliance	Never	-2.902	.5821	24.852	1	.000	.055
		At least once in lifetime	-1.238	.5022	6.078	1	.014	.290
		Once in past 3 yrs.	-.340	.4915	.479	1	.489	.712
		Twice in past 3 yrs.	-.782	.4946	2.502	1	.114	2.187
		Every year past 3 yrs.	<i>Reference category</i>					
Predictors	Benefits	Low-mod low	.776	.4958	2.451	1	.117	2.173
	Barriers	Low- Mod low	.305	.4842	.396	1	.529	1.356
	Threats	Low-mod low	-.561	.3125	3.221	1	.073	.571
	Self-efficacy	Low-mod low	-.9380 ^a	.2908	10.411	1	.001	.391
Covariates	Nurse told me		-.206	.1613	1.638	1	.202	.814
	Doctor told me		.021	.1546	.019	1	.891	1.021
	Mother spoke		.422	.1726	5.982	1	.014	1.525
	Friends spoke		-.052	.2098	.062	1	.803	.949
	Family told me to		-.320	.1834	3.039	1	.081	.726
	Spanish		.425	.1603	7.034	1	.008	1.530
Interactions	benefit * barrier		-.509	.7263	.491	1	.484	.601
Test					χ^2	df	p	
Model χ^2					46.429	13	0.000	
Goodness-of-fit = .972								

After the inclusion of selected cues to cervical cancer as covariates, the linear combination of cervical cancer and Pap test perceptions continued to significantly increase the likelihood of Hispanic women having had a Pap test in the last three years ($X^2 = 46.429$, $p = 0.000$). As the level of Pap test compliance increased, the β also increased. Participants' odds of having had a

Pap test in the last three year increased as compared with the model that only included a composite or latent summary measure of cues to action as a covariate. From never had a Pap test (Exp $\beta = 0.55$) to obtaining a Pap test twice in the past three years (Exp $\beta = 2.187$).

Discussion

In this study we sought to examine the idea that Cues to Action are an important component of the HBM, and also influential in initiating health behavior, such as obtaining a Pap smear, in U.S. Hispanic women. Overall, findings supported accepting the stated study hypothesis. The inclusion of individual Cues to Action as covariates increased the predictive effect of perceptions on participants' cervical cancer screening behavior. Considering the existing relatively low rates in HPV vaccine use in the U.S. (Tsu & Jerónimo, 2016), promoting cervical cancer screening and preventive treatment continues to be a priority; particularly among minority groups. Results of this study provide support on the importance of Cues to Action in initiating a self-care behavior such as obtaining a Pap smear.

Although personal symptoms (an internal cue), can prompt women to take action, they do not occur until later stages of cervical cancer. Perceived vulnerability, in the other hand, is believed to be related to screening participation, including having a family history of cancer. In this study family history of cancer had a significant covariate effect in the GLM analysis. Research showed that women who have been informed about breast cancer through the experience of a family member have a greater perception of their own risk (Absetz, Aro & Sutton, 2003). In this study participants reported, both accurate and inaccurate knowledge about cervical cancer and screening and the role of HPV in the etiology of this disease. This knowledge is internalized by the individual and is part of the cognitive appraisal process. Given the strong evidence about cervical cancer being primarily a sexually transmitted disease, health education

should emphasize the nature of HPV transmission and the role of this virus in the etiology of cervical cancer (McMullin, De Alba, Chavez, & Hubbell, 2005)

The most important and internal cue identified as motivation to get screened in this study was “to take care of my health”. Recognition that cervical cancer screening was an important way to maintain health had been identified as a cue to cervical cancer screening in previous research (Boyer, Williams, Callister, & Marshall, 2001). In this study, participants were self-motivated to make a decision to get screened. In addition, self-motivation to obtain screening reflects participant’s high sense of cervical cancer screening Self-efficacy. Self-efficacy was identified in this study as one of the strongest predictors of participants’ cervical cancer screening compliance.

External cues such as communication with a physician or family member and mass media messages to obtain screening leads an individual to evaluate their personal situation. In this study, personal communication with family members, friends and physicians were very effective in prompting women to obtain a Pap smear. The second most important and external cue to obtain the Pap test reported by participants was having heard, read or watched messages about cervical cancer and the Pap test in the newspaper, radio, or television. Research portrayed that media, in particular the Spanish media, has an important role to play in motivating Hispanic women to get screened for cervical cancer (Austin, Ahmad, McNally, & Stewart, 2002; Corcoran & Crowley, 2014). Media communication was important, however, the results also suggested participants did not rely only on media campaigns, but also placed equal emphasis on health behavior counseling shared by other family members and friends. A mother’s recommendation for screening was also an important cue to get screened reported by participants, and a significant modifier in the model. The importance of close family relationships was found to be a relevant

motivator of health-seeking behaviors for these participants. This finding was consistent with the significant covariate effect of familism found in the predictive model.

Participants reported that a physician's recommendation was a positive cue to obtain cervical cancer screening. These results were consistent with the findings of Austin and colleagues (2002) who reported that a physician's recommendation was one of the most important cues to cancer screening among Hispanics. A recommendation by a nurse was the least reported cue to cervical cancer screening by participants. Nurses are in an advantageous position to deliver educational messages to patients because they tend to spend more time with patients (Urrutia, 2009). Therefore, it is important to reconsider nurses' role in recommending the Pap test to Hispanic women during their health encounters. This recommendation is particularly important for low resourced women who may be getting health care through free clinics or centers where nurses and nurse practitioners do most of the health screening. Therefore, the possibility also exists that participants have categorized nurse practitioners as doctors in this study.

Our results support Mattson's (1999) proposal that Cues to Action be repositioned to the center of the HBM. The current HBM (Janz & Becker, 1984) conceptualizes Cues to Action as a mediator when given only the Perceived Threat of the condition. Mattson argued that Cues to Action should be viewed as the central hub that mediates the influence of the modifying factors, and perceptions. This study had some limitations including a cross-sectional design with data collection at one point in time. Therefore, assessment of the temporal relationships among variables could not be examined. The researcher's reliance on self-reports about participant's perceptions and beliefs may have underestimated the real frequency of cancer screening and over-estimated participants' intentions and beliefs about cancer and cancer screening. It was possible that self-report was biased and influenced by a cultural inclination to appear

cooperative, or “*simpatia*”, which has been described as a characteristic of Hispanics (Marin & Triandis, 1985). Researcher tried to minimize this bias through questionnaire self-completion. Most participants were recruited at community-based organizations (CBOs) such as community centers, ESL schools, and churches. Therefore, the sample may have been represented by Hispanic women who were more affiliated or engaged with community institutions, and may have been more aware or informed of the issues covered by the survey, and more prone to seek help through organizations they trusted. These results may not be able to be used to make inferences to the entire population of US Hispanics.

Conclusions

By 2050, approximately 30% of all Americans will be Hispanic, which means that more new cancer patients will be Hispanic (Pew Hispanic Center, 2011). In the meantime, The Affordable Care Act could contribute to challenge some of the traditional barriers faced by Hispanic women to access health care services (Stanley, Thomas, King, & Richardson, 2014). Particularly, as the USPSTF recommended provision of cervical cancer screening at no cost for insured women (Moyer, 2012). In this new era of cervical cancer prevention that includes HPV testing, Pap smears and HPV immunization, health care providers need to assure that Hispanic women receive information from trusted, culturally preferred sources which highlight both benefits and threats as well as where to access care.

Findings from this study showed the need of educating Hispanic women about the most recent cervical cancer screening guidelines, HPV and its role as the main risk factor for cervical cancer. A comprehensive approach that combines access to regular health care, community outreach, innovative media communication strategies, and clear and culturally adapted information about cervical cancer, HPV and cervical cancer screening is highly recommended to

trigger action and motivate Hispanic women to comply with cervical cancer screening guidelines. Findings of this study pointed to the need of further exploring role of physicians' attitude and role of nurses on Hispanic women's motivation to obtain screening. In particular, incorporating family oriented and family inclusive strategies to benefit of the important role familism play in Hispanic women's compliance to screening. Further research merits incorporation of Hispanic women's migration experience as a component of the conceptual framework and analysis. In addition, longitudinal studies are needed to examine the sequencing of events that lead to a cervical cancer screening follow-up according to recommended guidelines.

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