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Understanding Cervical Cancer Screening among Latinas through the Lens of Structure, Culture, Psychology and Communication

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Abstract

This study explored how structural and cultural forces work together with psychological and communication factors in influencing Pap test compliance among Latinas in Los Angeles County, a group who face health disparities related to cervical cancer screening, incidence and mortality. By adopting a multilevel approach to obtain a grounded understanding of this issue, this work revealed that structural barriers, fatalism, religious service attendance, perceived susceptibility, perceived costs, and cues to action from health care providers are all associated with Pap test compliance. Financial barriers also influence compliance, with underinsurance having a stronger negative impact compared to no insurance at all. These findings provide insights into how communication efforts can be strategically designed to address both individual- and system-level barriers to promote health-seeking behaviors among Latinas, and potentially among other population groups experiencing health disparities due to similar reasons.

Keywords

Latinas; Pap test; structural barriers; culture; patient-provider communication

There is increasing interest in understanding how structural and cultural forces work in tandem with intrapersonal factors in shaping health behaviors, especially among ethnic minorities who encounter greater structural and cultural barriers in accessing health care

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(Betancourt, Green, & Carrillo, 2002; Betancourt, Green, Carrillo, & Ananeh-Firempong, 2003; Dutta, 2011; Moran et al., 2016). However, communication as a predictor of health behavior has not been adequately explored in research on how multilevel factors work together to shape health outcomes, with studies on communication challenges arising from linguistic and cultural differences between patients and providers being one notable exception (Schouten & Meeuwesen, 2006). Furthermore, there is insufficient discussion on how communication efforts can be strategically designed to address system-level barriers to health care. This study thus aims to extend current literature in these areas.

Acknowledging the peril of overgeneralization when it comes to investigation into culture and structure, this study focuses on a certain ethnic group (i.e., Latinas) in a specific geographical context (i.e., Los Angeles County) in relation to a particular health behavior (i.e., Pap test). Nonetheless, the study's findings are generative for further research with other ethnic groups, geographical areas and health behaviors. These findings are also informative for developing practical strategies to address cervical cancer-related health disparities.

Pap Test and Latinas in Los Angeles

The Pap test looks for precancerous or cancerous cells on the cervix. Early detection of these cells can lead to effective prevention or treatment of cervical cancer. However, Latinas have not benefited from the Pap test as much as other ethnic groups. Compared to Non-Hispanic Whites and Blacks, Hispanic women are less likely to be screened for cervical cancer throughout the United States (White et al., 2017) and in Los Angeles (Los Angeles County Department of Public Health, 2017). The lower screening rate among Hispanic women is detrimental to prevention and early diagnosis of cervical cancer, and this is reflected in Latinas' higher incidence of and mortality from cervical cancer compared to Anglo women nationally (Centers for Disease Control and Prevention, 2017) and in Los Angeles (Los Angeles County Department of Public Health, 2017). Given these health disparities, it is a public health priority to investigate factors that influence Latinas' compliance with the current screening recommendation (i.e., women between 21-65 years of age should have a Pap test every three years) (U.S. Preventive Services Task Force, 2012). Existing literature has shed light on many of these factors, including structural factors, cultural values, psychological beliefs and communication variables.

Structural Factors

Individuals face an array of structural barriers in accessing health care in the US. Some researchers define structural barriers as insufficiency of resources at the community, programmatic and individual levels that prevent individuals from accessing health care (Strickland & Strickland, 1996). For example, the lack of health care facilities in a geographical area is considered a structural barrier at the community level. Limited availability of certain types of care (e.g., obstetrical care) and providers who can offer culturally appropriate care are barriers at the programmatic level. At the individual level, structural barriers can include inability to find transportation, time, childcare and other resources that enable access to health services, as well as inability to pay for these services.

Other investigators have separated financial barriers from structural barriers (Cooper, Hill, & Powe, 2002; Institute of Medicine, 1993). For example, the Institute of Medicine (IOM) (1993) defines structural barriers as the configuration of health care-related resources that restricts individuals' access to services beside the direct costs of a clinical visit. Examples of such barriers include the scarcity of care facilities or professionals in a local community, lack of culturally competent medical practitioners even in areas with high provider-to-population ratios, and challenges associated with traveling to a health facility.

Financial barriers, on the other hand, are understood as hurdles that inhibit patients' ability to pay for services or that discourage providers from treating them. Researchers suggest that while the lack of insurance is the most frequently discussed financial hurdle in health care, underinsurance or inadequate benefits and reimbursements provided by one's coverage also deter many from seeking health services (Institute of Medicine, 1993; Larkey, Hecht, Miller, & Alatorre, 2001).

While structural and financial barriers to health care impact many underserved populations, their detrimental effects are especially pronounced among ethnic minorities (Betancourt et al., 2002; Betancourt et al., 2003; Garcés, Scarinci, & Harrison, 2006). Based on previous research, this study hypothesizes that:

H1: Latinas facing greater (1) structural, and (2) financial barriers are less likely to comply with the Pap test recommendation.

Cultural Factors

A number of cultural values have been identified as key to understanding the health behaviors of Latinx¹ (Larkey et al., 2001). Among these, fatalismo, or fatalism, is considered a dominant cultural value that shapes preventive and early detection behaviors, such as cancer screening (Chavez, Hubbell, Mishra, & Valdez, 1997; Pérez-Stable, Sabogal, Otero-Sabogal, Hiatt, & McPhee, 1992). Fatalism refers to the belief that an individual's fate is predetermined and cannot be changed (Abraído-Lanza et al., 2007). When applied to cancer, it translates into the conviction that individuals are unable to avoid cancer if they are meant to have it, or cancer will certainly lead to death when it appears (Chavez et al., 1997; Powe & Finnie, 2003).

Fatalism was originally understood as a pessimistic outlook found more frequently among Latinx and African Americans, and it was considered a deterrence to health-seeking behaviors among these groups (Powe & Finnie, 2003). However, research has produced mixed results regarding the prevalence of fatalistic orientation among Latinx. Some studies indicate that, controlling for sociodemographic variables, Latinas are more likely to believe that there is little one can do to prevent cancer, and cancer is like a death sentence, compared to Anglo women (Pérez-Stable et al., 1992). However, other studies found no difference between Latinas and Anglos in their belief that early detection of cancer can lead to a cure, and in their willingness to undergo unpleasant treatment to enhance survival time (Hubbell, Chavez, Mishra, & Burciaga-Valdez, 1996a, 1996b). Research findings on the effects of

¹When referring to all Latino individuals, the term Latinx is used to be gender inclusive.

fatalism on cancer screening behaviors are equally inconclusive. While many studies found a negative association between fatalism and cancer screening (Espinosa de los Monteros & Gallo, 2011; Harmon, Castro, & Coe, 1997; Otero-Sabogal, Stewart, Sabogal, Brown, & Pérez-Stable, 2003), others found no association after controlling for sociodemographic characteristics (Laws & Mayo, 1998; Ramirez, Suarez, Laufman, Barroso, & Chalela, 2000; Randolph, Freeman, & Freeman, 2002). Given inconsistent findings from existing research, this study explores:

RQ1: Is fatalism associated with Pap test compliance among Latinas?

Religiosity is another cultural factor found to be associated with health-seeking behaviors among Latinx. More than 80% of Latinx have a religious affiliation, among whom most are Catholic (Pew Research Center, 2014). Defined as “the belief in, practice of, or participation in the rituals and activities of an organized religion” (Leyva, Nguyen, Allen, Taplin, & Moser, 2015, p. 999), research demonstrates that religiosity can have both positive and negative consequences on cancer screening behaviors. In general, attendance at religious services and involvement with church activities tend to encourage preventive behaviors through the mechanisms of church-based social support and social norms (Allen, Pérez, Pischke, et al., 2014; Benjamins, Ellison, Krause, & Marcum, 2011; Holt, Wynn, & Darrington, 2009). However, greater religiosity can be associated with a more external health locus of control (i.e., believing that one’s health is at God’s will), thus leading to reduced engagement with cancer screening (Allen, Pérez, Pischke, et al., 2014). Given the limited availability of data for the current study, our investigation focuses on religious service attendance as one dimension of religiosity and predicts:

H2: Religious service attendance increases Pap test compliance among Latinas.

Psychological Factors

Intrapersonal factors work in conjunction with structural and cultural forces in shaping health behaviors (Sallis, Owen, & Fisher, 2008). One of the most prominent theoretical frameworks for understanding these factors is the Health Belief Model (HBM), which was developed to understand the predictors of preventive behaviors, such as the Pap test (Rosenstock, 1966, 1974). This model postulates that individuals are motivated to adopt a behavior when they consider the health problem in question serious (perceived severity), feel themselves to be at risk (perceived susceptibility), and believe that the recommended behavior is effective (perceived benefits) but not too costly (perceived costs).

Research demonstrates that the predictive power of each HBM variable varies according to the type of health behavior studied, such as prevention versus treatment behavior (Carpenter, 2010; Janz & Becker, 1984; Weinstein, 1993). Regarding cervical cancer screening among Latinas, studies indicate that perceived benefits and perceived costs, especially in terms of the embarrassment and physical discomfort associated with the procedure, constitute the strongest behavioral predictors (Calvo et al., 2012; Corcoran & Crowley, 2014; Tanner-Smith & Brown, 2010). On the other hand, research findings on the predictive power of perceived susceptibility and perceived severity are less consistent (Austin, Ahmad, McNally, & Stewart, 2002; Tanner-Smith & Brown, 2010). Therefore, this study explores:

RQ2: Is Pap test compliance among Latinas associated with (1) perceived severity, (2) perceived susceptibility, (3) perceived benefits, and (4) perceived costs?

Communication Factors

HBM also posits that cues to action are important for driving health behavior, and these cues often take the form of interpersonal communication with family, friends or health care providers (Rimer & Glanz, 2005; Rosenstock, Strecher, & Becker, 1988), or mass communication from the media (Chen & Murphy, 2011). However, not all cues are equal when it comes to cancer screening among Latinx. Research indicates that communication from medical providers is one of the strongest predictors of screening behavior in this population (Austin et al., 2002; Guerra, Dominguez, & Shea, 2005). Thomson and Hoffman-Goetz (2010) suggest that personalized care and communication from health professionals are closely aligned with the Latinx cultural value of personalismo, making this an especially effective cue to action.

On the other hand, the relationship between media messages and cancer screening is less well established (Austin et al., 2002). Vellozzi, Romans, and Rothenberg (1996) suggest that mediated health messages are likely to shape attitudes and behaviors only when they are delivered in a culturally meaningful and sensitive manner. However, there is no way to guarantee this with media coverage of cervical cancer screening in lieu of a tailored and well publicized media campaign to encourage such behavior among Latinas. Furthermore, there is always a possibility that mass mediated cues are misperceived by the audience, thus leading to inaction (Ogata Jones, Denham, & Springston, 2006). Subsequently, the following propositions are investigated:

H3: Pap test compliance is positively related to cues to action from health care providers.

RQ3: Is Pap test compliance associated with cues to action from the mass media?

Methods

Participants and Procedures

As part of a larger study (Authors, blinded for peer-review), face-to-face surveys were conducted in either English or Spanish with 1,632 Latinas recruited from clinics and community sites in Los Angeles between April 2012 and December 2013. To qualify for the study, participants had to be between 21 to 50 years of age and without a medical condition that might influence compliance with the Pap test (e.g., pregnancy, hysterectomy, or cervical cancer). Each participant received a \$20 incentive for completing the survey. Key characteristics of the survey respondents are presented in Table 1.

Measures

Pap test compliance.—Following Torres, Erwin, Treviño, and Jandorf (2013), respondents who reported having had a Pap test within the past 36 months were coded as 1 or “compliant” (70.5%). Those whose most recent test took place more than 36 months ago, and those who never had a Pap test, were coded as 0 or “non-compliant” (29.5%).

Structural and financial predictors.—In line with the Institute of Medicine (1993)'s conceptualization, structural barriers and financial barriers were analyzed separately. Structural barriers were assessed using seven items pertaining to community, programmatic and individual level barriers. Respondents were asked to indicate if any one of the following has ever prevented them from getting medical care: (1) your usual place for medical care was no longer available, (2) you had to wait too long at the clinic to be seen by a doctor, (3) you could not find a doctor who speaks your language, (4) you had no way to get to the clinic or doctor's office, (5) you did not have anyone to take care of your children, (6) you could not miss work, and (7) you had too many other things to deal with. Affirmative answers were coded as 1, and negative answers were coded as 0. An additive score was computed for each respondent to indicate the extent to which they have experienced structural barriers to health care ($M= 2.05$, $SD= 1.87$).

Financial barriers were assessed using two items: (1) health insurance status, and (2) ability to pay for medical care. To combine these two items, individuals without any type of health care coverage were coded as 1 or "uninsured" (44.3%). Respondents with health care coverage but who reported having avoided seeing a provider because they did not have enough money to pay for medical visits were coded as 2 or "underinsured" (28.3%). Latinas with health care coverage who did not report having ever been deterred from seeking health care because they did not have enough money to pay for medical visits were coded as 3 or "adequately insured" (27.4%).

Cultural predictors.—Acknowledging the different ways in which fatalism has been conceptualized and operationalized, this study utilized Powe's definition of fatalism "as the belief that death is inevitable when cancer is present" (Powe, 1995, p. 385) and measured the construct with a single item. Respondents rated how treatable they consider cervical cancer to be if caught early on a scale of four, 1 being "never treatable," and 4 being "always treatable" ($M= 3.18$, $SD= .79$). A lower score suggests a more fatalistic approach to cervical cancer.

Religious service attendance was assessed on a five-point scale. Participants reported the frequency of their attendance, 1 being "never" and 5 being "more than once a week" ($M= 2.30$, $SD= 1.81$).

Psychological predictors.—Perceived susceptibility was assessed on a ten-point scale that asked respondents to rate their chances of getting cervical cancer in their lifetime (1 = "will certainly not get it," 10 = "will certainly get it") ($M= 5.15$, $SD= 2.68$).

Perceived severity was measured on a ten-point scale on which respondents rated the impact cervical cancer would have on their life, 1 being "having no impact," and 10 meaning "having a severe impact" ($M= 9.30$, $SD= 1.60$).

Perceived costs were assessed by three items addressing the psychological and physical costs of the Pap test (i.e., perceived levels of physical pain, embarrassment, and scariness associated with the test). For each item, participants indicated their perceptions on a ten-point scale, 1 being "not embarrassing/ painful/ scary at all," and 10 being "extremely

embarrassing/ painful/ scary.” An average score was subsequently computed for each participant ($M = 5.30$, $SD = 2.43$).

Perceived benefits were measured by a 10-point item that asked how effective participants consider the Pap test to be in preventing cervical cancer, 1 being “not effective at all,” and 10 meaning “extremely effective” ($M = 9.28$, $SD = 1.23$).

Communication predictors.—Cues to action from health care providers were assessed by a question that inquired if participants have discussed the Pap test with a doctor, nurse or other health care provider. Affirmative answers were coded as 1 (71.1%), and negative responses were coded as 0 (28.9%).

Cues to action from mass media were measured by asking respondents how frequently they have seen or heard information about the Pap test in the media during the past 30 days on a four-point scale, 1 being “not at all” and 4 meaning “more than once per week” ($M = 1.69$, $SD = 1.03$).

Controls.—Age, personal history with cancer, family history with cancer, marital status, acculturation, annual household income and education attainment served as control variables in the analysis. Acculturation was measured using the bidimensional scale developed by Marin and Gamba (1996). Following these researchers’ recommendation, individuals with a score of 2.5 or higher was considered to have a high level of acculturation in a particular cultural domain (i.e., non-Hispanic or Hispanic), and those with a score of 2.5 or more on both cultural subscales were classified as biculturally acculturated. In subsequent analysis, individuals highly acculturated to the non-Hispanic domain only served as the reference category and were compared to individuals with a high level of acculturation to the Hispanic domain only, and biculturally acculturated individuals. None of the participants was acculturated to neither domain.

Analysis

Stepwise logistic regression analysis was performed, with predictor variables entered in four blocks (i.e., first block of controls, second block of structural and financial factors, third block of cultural variables, and fourth block of psychological and communication components as specified by the HBM). The significance level for all statistical tests was set at $p < .05$, and all adjusted odds ratios (AORs) were presented to enable comparison. The R -squared statistics indicating the amount of variance in the outcome variable explained by the regression were inspected, so were results from *chi*-square tests that demonstrated if each block represented a significant improvement from the previous model.

Results

The AORs for the four consecutive models from the stepwise logistic regression analysis are available in Table 2. The Nagelkerke’s R^2 indicated that the final model including all blocks explained about 23% of the variance in Pap test compliance ($\chi^2 = 248.81$, $p < .001$, $df = 23$). Every block represented a significant improvement from the previous model. While the

AORs for some predictors varied slightly across the models, the statistical significance of these variables did not change except for family cancer history.

Model 1 accounted for 7% of the variance in Pap test compliance, with age, having a family member who has had cancer, and acculturation being significant predictors. Compliance increased with age (AOR = 1.02, $p = .003$). Compared to those with family cancer history, those without were less likely to be compliant (AOR = .72, $p = .004$). Regarding acculturation, those highly acculturated to the non-Hispanic domain only were less likely to be compliant than biculturally acculturated respondents (AOR = 1.60, $p = .001$), but there was no difference between individuals with a high level of acculturation to either the non-Hispanic domain only or the Hispanic domain only.

In Model 2, the amount of variance explained substantially improved to 16%. Structural and financial barriers both made a significant contribution to prediction, thus providing support to H1. Individuals facing greater structural barriers (AOR = .76, $p < .001$) were less likely to be compliant. Compared to uninsured participants, those who are underinsured were even more prone to non-compliance (AOR = .72, $p = .021$), whereas those who are adequately insured were more likely to be compliant (AOR = 1.27, $p < .001$).

In Model 3, the addition of cultural factors increased the amount of variance explained slightly to 17%. Both fatalism (RQ1) and religious service attendance (H2) made a significant contribution. Individuals scoring lower on fatalism were more likely to be compliant (AOR = 1.19, $p = .021$), so were individuals who attended religious services more frequently (AOR = 1.07, $p = .041$).

In Model 4, HBM variables increased the variance explained to 23%. In relation to RQ2, perceived susceptibility (AOR = 1.12, $p < .001$) and perceived costs (AOR = .91, $p < .001$) were both significant predictors, whereas perceived benefits and perceived severity were not. H3 was supported, such that compared to individuals who have discussed the Pap test with their providers, those who did not were less likely to be compliant (AOR = .43, $p < .001$). However, cues to action from the mass media did not make a significant contribution to predicting compliance (RQ3). Furthermore, in this final step, the contribution of family cancer history to the model was no longer significant.

Discussion

This study explored how structural and cultural forces work in tandem with psychological and communication factors in influencing Pap test compliance among Latinas in Los Angeles County. Consistent with previous work, structural and financial barriers both hinder compliance. Individuals facing more structural barriers to health care – such as the lack of time or transportation to get to a clinic and the inability to find a linguistically competent provider – are less likely to be compliant. In addition, compared to Latinas who are uninsured, those who are underinsured are even less likely to be compliant, whereas those who are adequately insured are more likely to follow the Pap test recommendation. These results illuminate an often overlooked issue – the peril of underinsurance – in health care debate. The current study's findings might be partially explained by the possibility that some

uninsured individuals are receiving free or low-cost services from community health centers or public health clinics, whereas people with coverage that comes with a high level of co-pays and low level of reimbursements are hesitant to seek care. Such behavioral patterns defeat the purpose of health care coverage, as funds are being spent to pay for coverage without the subscribers actually using it. This is an issue that requires urgent attention from researchers and policymakers.

While the national health coverage policy is beyond the control of individual health care organizations, they can play a role in addressing some of the structural barriers that prevent Latinas and other ethnic minorities from accessing medical care. For example, flexibility in hours and locations of operation can help reduce barriers to care (e.g., hospitals can operate mobile clinics and offer services on some evenings). Hospitals and clinics can also adopt best practices and develop innovative strategies to become more culturally and linguistically competent. Communication is key to achieving this competence, as health organizations should not only provide language assistance to its clients but also engage in regular conversations with diverse stakeholders to ensure that their evolving needs for equitable care are identified and met in a timely manner (U.S. Department of Health and Human Services Office of Minority Health, 2001).

Regarding cultural factors, this study found a negative association between fatalism and Pap test compliance, whereas religious service attendance was positively related to compliance. In order to encourage Latinas with a more fatalistic attitude to be screened regularly, health communication efforts can tap into other cultural values that have strong influence over health and social behaviors within the Latinx community (Flores, 2000). For example, in situations where fatalism might interfere with health-seeking behaviors, providers and health communicators can turn to the cultural value of “familismo” (i.e., a strong loyalty to the family that sometimes outranks the needs of the individual) and encourage individuals to engage with these behaviors so they can be there for their family for years to come (Flores, 2000). Furthermore, health interventions involving Latinas might do well by partnering with churches and other religious organizations in strengthening social norms and peer support germane to health-enhancing behaviors (Allen, Pérez, Tom, et al., 2014).

In relation to psychological beliefs, Latinas reporting higher levels of perceived susceptibility to cervical cancer are more likely to follow the Pap test recommendation, whereas those who consider the test to cause greater psychological and physical distress are less likely to be compliant. Informed by these findings, health messages seeking to encourage cervical cancer screening among Latinas can become more effective by highlighting the higher disease incidence among Latinas compared to other ethnic groups, and by addressing concerns over the psychological and physical costs of the Pap test. A theoretical framework that might be useful in designing such messages is the Extended Parallel Process Model (Witte, Meyer, & Martell, 2001), which considers how factors in the HBM can be tapped into to produce the optimal level of motivation for health behavior change. Research indicates that such messages might work especially well when delivered through a narrative format incorporating humor that helps ease worries about the cancer screening (Baezconde-Garbanati et al., 2014).

While literature on the influence of structural and cultural factors on health behaviors has largely understood communication from the angle of communication challenges arising from linguistic and cultural differences (Schouten & Meeuwesen, 2006), this study demonstrates the potential of patient-provider communication in promoting health-seeking behaviors. Consistent with previous research based on the HBM (Austin et al., 2002), cues to action in the form of discussion with a health care provider about the Pap test is associated with compliance. It is therefore important for providers to find opportunities to put the Pap test on the radar of their clients. On the other hand, cues to action in the form of mass mediated messages were not found to relate to compliance in this study. Mediated health messages are likely to shape attitudes and behaviors only when they are delivered in a culturally meaningful and sensitive manner (Vellozzi et al., 1996), and this might not currently be the case with media coverage of cervical cancer screening among Latinas. Thus, greater tailoring is required if mass mediated cues are to facilitate Latinas' Pap test compliance. Research suggests that such tailoring should take into consideration not only the linguistic and cultural preferences of the audience but also the availability of local resources in a geographical area (Wilkin, 2013; Wilkin & Ball-Rokeach, 2006). An example of such tailoring would be culturally sensitive bilingual media messages about cervical cancer screening that identify local clinics offering the service at low or no cost.

Furthermore, this study found age to be positively associated with compliance so more targeted effort is needed to communicate the importance of cervical cancer screening to younger Latinas. Additionally, compared with Latinas who are highly acculturated in a single cultural domain only, Latinas with a high level of acculturation to both the non-Hispanic and Hispanic domains are more likely to follow the Pap test recommendation. This highlights the possibility that certain Latinx cultural values work in conjunction with English proficiency and familiarity with the mainstream culture in the US to promote health-seeking behaviors. Future investigation should delve deeper into how cultural resources from both the Hispanic and non-Hispanic domains synergize to promote health.

Conclusion

This study relied on self-reported data, which is a potential limitation. For example, respondents were asked to identify if any one of the seven structural barriers has ever prevented them from seeking health care. However, reported shortage of health care-related resources (e.g., facilities, linguistically competent providers, transportation) could result from either unequal and inadequate supply of such resources, or from research participants' lack of awareness about these resources in their local communities. Triangulating self-reported data with records that list the health and public services available in a geographical area could be one strategy to address this limitation. However, it is important to recognize the value of self-reported data, in the sense that individuals can live in the same geographical community but feel differently constrained by local resources or the lack thereof. For example, scarcity of public transportation would not deter individuals from seeking health care if they had access to a car or could walk to a clinic. However, even among individuals living within walking distance to a clinic, some might have mobility problems and cannot make their way to the facility. How to define structural barriers, and in relation to which population, therefore deserves more scholarly attention.

Additionally, this work focused on a specific population (i.e., Latinas) in a certain geographical area (i.e., Los Angeles County) regarding a particular health behavior (i.e., Pap test compliance). A relatively large portion of the Latinas surveyed are socioeconomically disadvantaged, uninsured or underinsured, and acculturated to the Hispanic domain only. Thus, results from this study may not be generalizable, but they provide insights into a population group at greater risk for not receiving health care. Such insights are critical for addressing the challenges associated health disparities.

Despite these limitations, the current study's findings are similar to those from many other investigations into predictors of Pap test compliance among Latinas in the US and Canada (Austin et al., 2002). Furthermore, this work responds to the call to use ecological approaches to understand cancer screening behaviors in a more culturally grounded and contextualized manner (Pasick & Burke, 2008). By looking at the influence of both higher-level forces (i.e., structural and cultural factors) and individual-level predictors (i.e., HBM variables) simultaneously, this study sought to understand factors associated with cervical cancer screening at multiple levels. It is thus able to offer recommendations on what policymakers, health care organizations, media organizations, individual medical providers, and health communicators can each do to facilitate health-seeking behaviors among Latinas, and potentially among other populations facing similar challenges. By considering and implementing such recommendations, institutional, organizational and individual actors can all play a part in reducing health disparities.

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Table 1.

Characteristics of Sample (N = 1,632)

Characteristics	n (%) / <i>M (SD)</i>
Age	37.25 (8.67)
Has personal cancer history	30 (1.8%)
Has family cancer history	649 (39.8%)
Married	565 (34.6%)
Acculturation	
Non-Hispanic acculturation	65 (4%)
Hispanic acculturation	961 (58.9%)
Bicultural acculturation	606 (37.1%)
Annual household income	
\$10,000 or less	534 (32.7%)
\$10,001 - \$20,000	685 (42%)
\$20,001 - \$30,000	226 (13.8%)
More than \$30,000	187 (11.5%)
Education	
8th grade or less	482 (29.5%)
Some high school	385 (23.6%)
High school graduate	419 (25.7%)
Some college or college degree	346 (21.2%)

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Table 2.

Predictors of Pap Test Compliance from Stepwise Logistic Regression Analysis (N = 1,632)

	Model			
	1	2	3	4
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
<i>Controls</i>				
Age	1.02 (1.01-1.04)***	1.02 (1.01-1.04)***	1.02 (1.00-1.03) *	1.02 (1.00-1.03) *
Personal history of cancer				
Has personal history (reference)				
Without personal history	0.34 (0.10-1.14)	0.44 (0.13-1.50)	0.45 (0.13-1.54)	.48 (0.14-1.64)
Family history of cancer				
Has family history (reference)				
Without family history	0.72 (0.57-0.90)**	0.74 (0.58-0.94) *	0.73 (0.58-0.93) *	0.79 (0.62-1.02)
Married	0.87 (0.67-1.11)	0.85 (0.66-1.11)	0.90 (0.69-1.17)	0.88 (0.67-1.16)
Acculturation				
Highly acculturated in non-Hispanic domain only (reference)				
Highly acculturated in Hispanic domain only	0.82 (0.49-1.40)	0.83 (0.48-1.44)	0.86 (0.50-1.50)	0.83 (0.47-1.48)
Highly acculturated in both domains	1.61 (1.21-2.11)***	1.77 (1.32-2.37)****	1.69 (1.26-2.27)***	1.72 (1.27-2.34)****
Education				
8th grade or less (reference)				
Some high school	1.28 (0.88-1.85)	1.35 (0.92-1.99)	1.35 (0.92-1.99)	1.41 (0.95-2.10)
High school graduate	1.12(0.79-1.58)	1.21(0.84-1.74)	1.21(0.84-1.74)	1.21(0.83-1.77)
Some college or college Degree	1.04 (0.76-1.43)	1.11 (0.80-1.54)	1.12 (0.81-1.55)	1.17 (0.83-1.64)
Annual household income				
\$10,000 or less (reference)				
\$10,001 - \$20,000	1.12 (0.76-1.65)	1.19 (0.80-1.79)	1.20 (0.80-1.80)	1.33 (0.87-2.01)
\$20,001 - \$30,000	1.20(0.83-1.74)	1.22 (0.83-1.80)	1.25 (0.85-1.84)	1.43 (0.96-2.13)
More than \$30,000	1.13 (0.73-1.74)	1.26 (0.80-1.97)	1.30 (0.83-2.04)	1.52 (0.95-2.43)
<i>Structural barriers</i>		0.76 (0.71-0.81)****	0.75 (0.71-0.80)****	0.77 (0.72-0.83)****
<i>Financial barriers</i>				
Uninsured (reference)				
Underinsured		0.72 (0.55-0.95) *	0.72 (0.55-0.95) *	0.73 (0.55-0.97) *
Adequately insured		2.27 (1.60-3.23)****	2.28 (1.60-3.25)****	2.33 (1.63-3.35)****
<i>Cultural factors</i>				
Non-fatalism			1.19 (1.03-1.38) *	1.17 (1.00-1.36) *
Attendance to religious Services			1.07 (1.00-1.14) *	1.07 (1.00-1.15) *
<i>Health Belief Model variables</i>				
Perceived susceptibility				1.12 (1.07-1.17)****
Perceived severity				1.03 (0.95-1.11)

	Model			
	1	2	3	4
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Perceived benefits				1.07 (0.98-1.18)
Perceived costs				0.91 (0.86-0.96) ***
Cues to action from health providers				
Has discussed the Pap test with providers (reference)				
Has not had such discussion				0.43 (0.33-0.55) ****
Cues to action from mass media				0.99 (0.88-1.12)
Model χ^2/df	76.99/12 ****	191.15/15 ****	200.76/17 ****	248.81/23 ****
Block χ^2/df	76.99/12 ****	114.16/3 ****	9.62/2 **	84.05/6 ****
Nagelkerke's R^2	.07	.16	.17	.23

* $p < .05$;

** $p < .01$;

*** $p < .005$;

**** $p < .001$