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Cultural and emotional determinants of cervical cancer screening among older Hispanic women

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Researchers indicate that the global burden of cancer continues to increase, with an expected 19.3 million new cancer cases by 2025. In 2012 (the most recent data available), 14.1 million individuals were diagnosed with cancer, while 8.2 million people died from cancer, making cancer the leading cause of death in Western countries (Centers for Disease Control, 2012; Jemal et al., 2012). Cervical cancer is the fourth most common cancer in the world affecting women, with 528,000 women diagnosed in 2012, and 266,000 deaths accounting for 7.5% of all female cancer deaths. (Globocan, 2012).

Cervical cancer is a public health issue, particularly for older Hispanic women. Hispanics are expected to be the largest group of older ethnic minority adults in the United States in 2050 (Federal Interagency Forum on Aging-Related Statistics, 2012) and are expected to experience higher cervical cancer health rates than non-Hispanic White (NHW) women. Researchers indicate that Hispanic women were 50% more likely to die of cervical cancer than NHW women, and 35% of Hispanic women over age 65 diagnosed with cervical cancer died of the cancer (American Cancer Society [ACS], 2015). Researchers also suggest these rates are due, in part, to lower participation in cancer screening procedures and delayed cancer treatment (Siegel, Naishadham, & Jemal 2013). Furthermore, researchers suggest that understanding patients' perspectives on participating in cancer screening procedures is critical to reducing cancer rates between Hispanics and NHWs (Carillo et al., 2011; Hawley et al., 2012). In fact, women over the age of 65 may perceive their cervical cancer risk and

subsequent need for screening as low (ACS, 2016). This perception could result in higher mortality rates because cervical cancer is preventable through screening. The five year survival rates for women who receive a cervical cancer diagnosis are higher for localized cervical cancer diagnoses (92%) as compared to women who receive regional stage (57%) or distant stage (17%) diagnoses (ACS, 2016).

Researchers confirm that systemic, provider, and patient factors are contributors to cancer screening disparities. These factors include socioeconomic factors, clinical uncertainty when interacting with minorities, and health literacy (Burgess, 2011; IOM, 2003; Nuño et al., 2011; Tian, Goovaerts, Zhan, Chow, & Wilson, 2012). Although cancer screening guidelines recommend that women 65 and older who have adequate prior screening should not continue to screen; Hispanic women aged 65 and older are less likely than NHWs to have had adequate screening and/or have never been screened (Reyes-Ortiz & Markides, 2010; Wu, Black, Freeman, & Markides, 2001). Little attention has been paid to the cultural and emotional determinants of cervical cancer screening for older Hispanic women.

Cultural determinants

Cultural determinants are often unvoiced and unconscious ways of responding to one's circumstances (Hall, 1976; Hofstede, 2001; Kluckhohn & Strodtbeck, 1961). Individuals from different cultures learn prescribed emotional reactions and the culturally 'proper' behavioral responses to various circumstances that can develop and change over time due to life experiences (Hofstede, 1991; Rokeach, 1979). Due to the complexity of culture, the concept of culture cannot be measured as a single factor, but as multiple determinants that affect all aspects of an individual's experience (Kleinman & Benson, 2006). Researchers suggest that culture, therefore, is not synonymous with race, ethnicity, nationality, or language (Kleinman & Benson, 2006; Steele-Moses, Russell, Kreuter, Monahan, Bourff, & Champion, 2009). Instead, researchers indicate that these determinants are part of an individual's experience.

Researchers suggest that patients hold varied perspectives based on their culture. These perspectives influence their recognition of symptoms and thresholds for seeking care, and communicating symptoms with health care providers. In addition, patients' expectations for care, their treatment preferences, and participation in preventative screening procedures, such as pap smears, may be affected by their culture (Arrendondo, Pollak, & Costanzo, 2008; IOM, 2003; Jimenez, Xie, Goldstein, & Chalas, 2011; Steele-Moses et al., 2009). Specifically, Arrendondo et al. (2008) found that cultural determinants, such as machismo and fatalism, are strong predictors of Latinas' cervical cancer screening behaviors; those who believe in machismo (behavioral expectations for those who identify as male) and fatalism (belief that events are predetermined or caused by external forces and that little, or nothing, can be done to change their course) were less likely to participate in cervical cancer screening services.

Emotional determinants

Researchers also confirm that emotional determinants are contributors to cancer screening (Authors, 2016; Consedine, Magai, & Neugut, 2004; Magai, Consedine, Neugut, & Hershman, 2007). Specifically, Magai et al. (2007) indicated that affect, anxiety, and fear are likely to influence health behaviors, such as cancer screenings, with anxiety generally related to increased likelihood of screening, but feelings such as embarrassment associated with a decreased likelihood of screening. In addition, Consedine et al. (2004), reported that anxiety generally appears to facilitate screening adherence. In contrast, negative affect has been associated with poor screening adherence (Courneya, Friedenreich, Sela, Quinney, Rhodes, & Jones, 2004).

Purpose of the study

Despite the ongoing national conversations regarding cancer screening, researchers suggest the continuing need to better understand the factors that may contribute to cancer screening participation. In particular, researchers indicate the need to understand the importance of the combined role of cultural and emotional determinants for older Hispanic women in this process. Instead of examining cultural, emotional, and demographic determinants individually, researchers suggest that culture influences emotions, which has accounted for differences in cancer screening among NHW and Hispanic women (Arrendondo et al., 2008; Foxall, Barron, & Houfek, 2001; Barron, Foxall, & Houfek, 2005; Farmer, Reddick, D'Agostino, & Jackson 2007; Flynn, Betancourt, & Ormseth, 2011; Gao et al., 2009; Magai et al., 2007; Masterson, Hopenhayn, & Christian, 2010). If we examine these determinants in combination, we may gain a deeper understanding, which may inform interventions designed to reduce cancer screening disparities (Carillo et al., 2011). Our aim of this exploratory investigation is to examine the cultural and emotional determinants that influence older Hispanic women's participation in cervical cancer screenings.

Conceptual Framework

Based upon previous empirical investigations examining cancer screening participation (Browne & Chan, 2011; Flynn et al., 2011; Gao et al., 2009; Kiviniemi, Bennett, Zaiter, & Marshall, 2010; Stoll et al., 2015), this study is guided by an integrated theoretical framework of key constructs from the Social Ecological Model (Rimer, Glanz, & National Cancer Institute, 2005) and the Cultural Dimensions Theory (Hofstede, 2001), to better understand the cultural and emotional determinants of older Hispanic women's cervical cancer screening behaviors.

Social Ecological Model

The Social Ecological Model (SEM) is a framework that explains individuals' health behaviors, such as cervical cancer screening participation, within the context of their environments. The SEM proposes that individual behavior affects and is affected by the social environment, and that behavior both shapes and is shaped by multiple levels of influence (Rimer, Glanz, & National Cancer Institute, 2005). McLaren & Hawe (2005) suggest the following levels of influence: intrapersonal determinants (individual attitudes,

behaviors, knowledge, and skills); interpersonal processes (social networks including family or friends or colleagues that provide support for or against a behavior); institutional determinants (formal or informal organizations which may have rules or expectations which impact health behaviors); community determinants (formal or informal networks and norms among individuals, or groups/organizations); and public policy (such as local, state, and federal laws or regulations which support or impede health practices) (Gregson et al., 2001; Robinson, 2008).

The Cultural Dimensions Theory

Hofstede (2001) defines culture through the Cultural Dimensions Theory (CDT) utilizing five dimensions. The five dimensions include time orientation, uncertainty avoidance, power distance, individualism and collectivism, and masculinity and femininity. Time orientation is the extent to which a society places importance on the future instead of the past and present. Future-time oriented cultures value actions that focus on the future. Present-time oriented cultures place importance on actions that focus on the past or the present (Hofstede, 2001). Uncertainty avoidance is a culture's ability to deal with uncertainty and ambiguity (Maramaldi, Berkman, & Barusch, 2005). Low uncertainty avoidance cultures do not seek to limit or control their future. They are comfortable with the progress of their lives. High uncertainty avoidance cultures will find ambiguity uncomfortable and will try to limit or control the uncertainty with regulations and procedures. Power distance (the interpersonal authority or influence that exists between two individuals); individualism and collectivism (the extent to which a society emphasizes individual versus group goals and values); and masculinity and femininity (the extent to which a society differentiates between gender roles) are the other dimensions that also can define culture (Benavides, Bonazzo, & Torres, 2006; Bhagat, Baliga, Moustafa, & Krishnan, 2003; Hofstede, 2001); however these constructs (power distance; individualism and collectivism; masculinity and femininity) were not available in the data used for this study. Furthermore, we think that these three constructs potentially account for a relationship with another individual instead of the focal individual. We are interested in the focal individual. Researchers utilized CDT and/or its dimensions (Gao et al., 2009; Steele-Moses et al., 2009) to increase their knowledge of the influence of cultural determinants beyond race, ethnicity, nationality, or language on cancer screening. Furthermore, researchers have found that the constructs of CDT may explain the cultural tendencies of populations (Hofstede, 2001; Romero, 2004), and cancer screening is a population-level topic.

Researchers suggest that more immediate determinants, such as intrapersonal and institutional determinants, are important to encourage preventative health behaviors such as cancer screening participation (Abernathy et al., 2005; Fort, 2007). The intrapersonal determinants included culture (time orientation and uncertainty avoidance) and emotions (anxiety, positive affect, negative affect) (Allicock, Sandelowski, DeVellis, & Campbell, 2008; Borrayo, Buki, & Feigal 2005; Fatone & Jandorf, 2009; Kressin et al., 2010; Nuño et al., 2011; Ryff & Singer, 2000; Stoll et al., 2015) along with demographics (immigration status, marital status, self-reported health rating, health status, age, and language) and an institutional determinant (health insurance). These intrapersonal (demographic) and institutional determinants are widely recognized as influencing cancer screening

participation (ACS, 2015; Mitchell, 2011). Due to limitations in the data, we did not assess for interpersonal processes, community, or public policy determinants in the current study. Therefore, we posit that the premise of this investigation, utilizing two aspects of SEM (intrapersonal (culture, emotions, and demographics) and institutional determinants 1. will influence cervical cancer screening participation among older Hispanic women. Furthermore, we incorporated two dimensions of CDT (time orientation and uncertainty avoidance) to hypothesize that older Hispanic women's cervical cancer screening participation is influenced by intrapersonal and institutional determinants. See Figure 1.

Institutional Review Board approval was obtained for this study.

Study Design and Methods

The authors conducted a secondary analysis of data from the Health and Retirement Study (HRS). The Institute for Social Research (ISR) at the University of Michigan and sponsored by the National Institute on Aging (NIA grant number U01AG009740) administers the HRS. In 2006 and 2008, ISR added psychosocial questions to the HRS core questions due to increasing recognition that aspects of personality, self-related beliefs, and personal relationships uniquely predict significant life and health outcomes during mid-life and old age. The Institute for Social Research included psychosocial content with the HRS interviews as a self-administered questionnaire to a random half of the sample in 2006. In 2008, the remaining 50% of the sample received the questionnaire. Interested researchers can obtain the publicly available HRS data at <http://hrsonline.isr.umich.edu>. For further information about the HRS protocol, instrumentation, sampling strategy, statistical weighting procedures, and psychosocial content, see Wallace & Herzog (1995) and HRS (2009).

Weighting

Due to the complex sample design, HRS investigators recommend the use of weights to ensure that findings from statistical analyses are representative of the U.S. population over the age of 50. Therefore, the psychosocial weight was utilized in the statistical analyses because not all HRS respondents were asked to complete a psychosocial questionnaire. We report all results using the weighted sample.

Health and Retirement Study Sample

Twelve waves of the HRS data collected from 1992 to 2012 permit cohort trends, cross-sectional, and longitudinal analyses. In 1992, a cohort (N=12,652) ages 51-61 and their spouses or partners of any age initiated the study with a response rate of 81%. In 1993, the Asset and Health Dynamics Among the Oldest Old (AHEAD), a cohort of individuals (N=8,222) ages 70 and older and their spouses or partners of any age, were added to the study with a response rate of 80%. In 1998, the HRS and the AHEAD were integrated to fully represent the American population over the age of 50. Baseline interviews with existing birth cohorts were conducted in 1992, 1993, 1998, 2004, and 2010. Every six years, the HRS enrolls a new birth cohort in order to maintain representation of the U.S. population over the age of 50. The study oversamples African Americans by 1.86:1; Hispanics by

1.72:1; and Florida residents by 2:1. Study respondents include age-eligible individuals and their spouses or partners. Participants are followed through their life course with biennial surveys and supplemental data collections. Both spouses are followed if the couple separates. New spouses or partners are interviewed during the wave in which the new spouse or partner is identified.

Study Sample

The authors used data from the 2008 wave of HRS because this wave contains data for the culture and emotion determinants, and cervical cancer screening participation. The 2006 wave only contained culture and emotion determinants. To be included in the analytic sample for this study, respondents were required to be 1) female and 54 years; 2) identify as Hispanic; 3) respond to the cervical cancer screening question, and 4) respond to the culture and emotion determinant questions. The age of 54 was selected based on previous research (Lee et al., 2008; Ostbye et al., 2003). We were not able to include previous cervical cancer diagnoses and history of hysterectomy because they are not available as items to examine in the public HRS dataset. The final unweighted analytic sample, is $n=243$, and the weighted sample is 2,018,617 Hispanic women at or over the age of 54 years.

Measures

We obtained all measures from the 2008 HRS Core Survey and the RAND HRS dataset. The RAND data file is a cleaned, easy-to-use version of measures across HRS waves produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration (RAND Center for the Study of Aging, 2013). Specifically, we utilized all variables are from the HRS core survey with the exception of health status, which is from the RAND HRS dataset.

Although the new cervical cancer screening guidelines in the United States indicate that women do not need to be screened every two years, HRS measured the outcome of interest as the reported receipt of a pap smear in the past two years. We discuss this as a limitation. Based on the conceptual framework, the authors examined the following culture and emotion determinants, time orientation, uncertainty avoidance, anxiety, positive affect, and negative affect to understand their influence on cervical cancer screening in older Hispanic women.

We measured anxiety using five items (I had fear of the worst happening; I was nervous; I felt my hands trembling; I had a fear of dying; and I felt faint), measured on a 4 point Likert scale (from 1=never to 4=most of the time), from the Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988). Researchers indicate that the Beck Anxiety Inventory distinguishes symptoms of anxiety from depression and is valid for use in older minority populations (Cronbach's $\alpha=0.81$, Beck, Epstein, Brown, & Steer, 1988; Wetherell & Areán, 1997). We averaged the scores across the five items created an index of anxiety, ranging from 1 - 4, with the higher number indicating greater anxiety.

We measured positive affect using 13 questions measured on a 5 point Likert scale (from 1=very much to 5=not at all) from the Midlife Development in the United States Survey (Cronbach's $\alpha=0.92$, Brim et al., 1996). Mroczek & Kolarz (1998) validated this scale

with older adults. The 13 questions were: During the last 30 days, to what degree did you feel (determined, enthusiastic, active, proud, interested, happy, attentive, content, inspired, hopeful, alert, calm, excited)? We reverse-coded the items and created an average of the scores for the 13 items for an index of positive affect, ranging from 1 - 5, with the higher number indicating greater positive affect.

We measured negative affect using 12 questions measured on a 5 point Likert scale (from 1=very much to 5=not at all) from the Midlife Development in the United States Survey (Cronbach's $\alpha=0.92$, Brim et al., 1996). Mroczek & Kolarz (1998) validated this scale with older adults. The 11 questions were: During the last 30 days, to what degree did you feel: (afraid, upset, guilty, scared, frustrated, bored, hostile, jittery, ashamed, nervous, sad, distressed)? We reverse-coded the items and created an average of the scores for the 12 items for an index of negative affect, ranging from 1 - 5. The higher score indicated greater negative affect.

We measured time orientation using seven items (I enjoy making plans for the future and working to make them a reality; My daily activities often seem trivial and unimportant to me; I am an active person in carrying out the plans I set for myself; I don't have a good sense of what it is I am trying to accomplish in life; I sometimes feel as if I've done all there is to do in life; I live life one day at a time and don't really think about the future; I have a sense of direction and purpose in my life), on a 6 point Likert scale (from 1=strongly disagree to 6=strongly agree), from the Ryff Measures of Psychological Well-Being (Ryff, 1989). Researchers indicate this scale is valid with older minority adults (Cronbach's $\alpha=.74$, Ryff, 1989). We reverse-coded the negatively phrased items and created an average of the seven items for an index of time orientation, ranging from 1 - 6, with a lower number indicating a present-time orientation and a higher number indicating a future-time orientation.

Researchers (Barron et al., 2005; Beckjord & Klassen, 2008) have suggested that proxy measures such as dispositional optimism, pessimism, and hopelessness may be used to assess uncertainty avoidance. Therefore, we measured uncertainty avoidance with three dispositional optimism, three pessimism, and four hopelessness items. We measured dispositional optimism using three items (I'm always optimistic about my future; In uncertain times, I usually expect the best; Overall, I expect more good things to happen to me than bad), on a 6 point Likert scale (1=strongly disagree to 6=strongly agree), from the Life Orientation Scale (Cronbach's $\alpha=.80$, Scheier, Carver, & Bridges, 1994). Marquine et al. (2015) validated this scale with Hispanic populations. The average of the three dispositional optimism items created an index of uncertainty avoidance-optimism, ranging from 1 - 6, with a higher number indicating low uncertainty avoidance. Pessimism was measured using three items (If something can go wrong for me it will; I hardly ever expect things to go my way; I rarely count on good things happening to me), measured on a 6 point Likert scale (1=strongly disagree to 6=strongly agree), from the Life Orientation Scale (Cronbach's $\alpha=.77$, Scheier, Carver, & Bridges, 1994). Glaesmer (2012) validated this scale with Hispanic populations. We reverse-coded the negatively phrased items and created an average of the three pessimism items for an index of uncertainty avoidance-pessimism, ranging from 1 - 6, with the higher number indicating high uncertainty avoidance. We

measured hopelessness using four items (I feel it is impossible for me to reach the goals that I would like to strive for; The future seems hopeless to me and I can't believe that things are changing for the better; I don't expect to get what I really want; There's no use in really trying to get something I want because I probably won't get it), on a 6 point Likert scale (1=strongly disagree to 6=strongly agree), from the Hopelessness Scale (Cronbach's alpha=.86, Beck, Weissman, Lester, & Trexler, 1974; Everson, Kaplan, Goldberg, Salonen, & Salonen, 1997). Satorres et al. (2016) validated this scale with Hispanic populations. We reverse-coded the negatively phrased items and created an average of the four items for an index of uncertainty avoidance-hopelessness, ranging from 1 - 6, with the higher number indicating high uncertainty avoidance.

Consistent with previous investigations and our conceptual framework (Ajzen & Fishbein, 1980; Kressin et al., 2010; Nuño et al., 2011), we included the following intrapersonal (demographic) and institutional determinants were also included as covariates: immigration status (born in the US yes vs. no), marital status (married, separated/divorced, widowed, or never married), self-reported health rating (excellent, very good, good, fair, or poor), health status (sum of self-reported chronic health problems including high blood pressure or hypertension; diabetes or blood sugar; cancer; lung disease; heart condition; congestive heart failure; arthritis), education (No degree, GED/High School, Some college/college degree, and Master's/Professional degree), language (language in which the respondent completed the HRS, English vs. Spanish) and age (55-64, 65-74, 75-84, and 85+ years) and health insurance (Medicare, none). Due to the large amount of missing data for Medicaid and private insurance, we only used Medicare. We discuss this as a limitation. We used education as a proxy measure for socio-economic status (Grzywacz, Almeida, Neupert, & Ettner, 2004). In addition, although screening guidelines recommend discontinuing cervical cancer screening at the age of 65, we chose to include respondents over the age of 65 because of the underutilization of cancer screening in the Hispanic population and to potentially offer evidence that can better assist providers in their discussions to help women consider participating in cervical cancer screening initiatives.

Analysis

Accounting for the complex sample design of HRS, the authors conducted descriptive and multivariate analyses utilizing SPSS 21. In Tables 1 and 2, we present the intrapersonal (culture, emotion, demographic) and institutional determinants as percentages and means in relation to cervical cancer screening participation. We conducted a hierarchical regression analysis for the sample of Hispanic women in order to first estimate the intrapersonal (demographic) and institutional determinants (Model 1), and to understand how the intrapersonal (demographic) and institutional determinants influenced cervical cancer screening participation alone. Second, we estimated the intrapersonal (culture and emotion) determinants (Model 2) as independent predictors of the cervical cancer screening outcome to understand how these determinants influenced cervical cancer screening participation prior to the inclusion of the other intrapersonal (demographic) and the institutional determinants. In Model 1, we found that education was highly correlated with language and dropped education from further analyses. We included the remaining intrapersonal (immigration status, marital status, self-reported health rating, health status, language, and

age) and institutional determinants (health insurance) in the final model (Model 3). In Model 2, we found the intrapersonal determinants, uncertainty avoidance-pessimism ($p = .14$), anxiety ($p = .99$), and positive affect ($p = .94$) were highly insignificant and we dropped these determinants from further analysis. We included the remaining intrapersonal determinants (time orientation, uncertainty avoidance-hopelessness, uncertainty avoidance-optimism, negative affect) in the final model (Model 3). Thus, the final model included the intrapersonal (time orientation, uncertainty avoidance, anxiety, positive affect, negative affect, immigration status, marital status, self-reported health rating, health status, language, and age) and the institutional (health insurance) determinants expected to influence cervical cancer screening participation allowing us to understand which determinants specifically affect the behavior of older Hispanic women's cervical cancer screening participation. We provide odds-ratios for the final model and provide three models in Table 3. We report the findings for Model 1 for intrapersonal (demographic) and institutional determinants only; Model 2 for intrapersonal (culture and emotions only); and Model 3 for intrapersonal (culture, emotions, demographic) and institutional determinants combined.

Findings

The descriptive results for the intrapersonal (demographic) and institutional determinants of the Hispanic women who responded to the cervical cancer screening variable ($n = 2,018,618$ weighted) in 2008 are shown in Table 1. Overall, 42% of Hispanic women reported not receiving a cervical cancer screening in the previous two years. Almost half (45%) of the respondents were born outside of the US and 37% were older than 65 years of age. Most respondents were married (43%). Only 19% reported their health as excellent or very good. Slightly more than half of the respondents did not have a high-school degree (53%) and 64% spoke English. More than two-thirds (70%) of respondents had Medicare. As presented in Table 2, on a scale of 1-6 with the higher number indicating future-time orientation, Hispanic women tended to be future-time oriented ($M = 4.0$) and had low uncertainty avoidance in all three measures: uncertainty avoidance-hopelessness ($M = 2.5$); uncertainty avoidance-optimism ($M = 4.2$); and uncertainty avoidance-pessimism ($M = 2.0$). On a scale of 1 – 4, with 4 indicating greater anxiety, Hispanic women reported low anxiety ($M = 1.7$). On the scale of 1 – 5, with 5 indicating greater negative affect, Hispanic women have low negative affect ($M = 1.6$) and higher than average positive affect ($M = 2.8$).

Multivariate Analyses

Model 1—Intrapersonal (demographic) and institutional determinants. We found that self-reported health rating and health insurance were significant ($p < .05$). In addition, our findings indicate that marital status approached significance ($p = .07$), while immigration status, age, health conditions, language were not significant ($p > .05$). Based on these findings, we suggest the possibility that the intrapersonal determinant, self-reported health rating and the institutional determinant, health insurance are potential influences to cervical cancer screening participation among older Hispanic women.

Model 2—Intrapersonal determinants (culture and emotion). We found that time orientation and uncertainty avoidance-hopelessness were significant ($p < .05$). Our results indicated that

anxiety, positive affect, negative affect, uncertainty-avoidance optimism, and uncertainty avoidance-pessimism were not significant ($p > .05$). Based on these findings, we suggest that culture potentially plays a larger role influencing cervical cancer screening participation than emotions.

Model 3—Intrapersonal (culture, emotion, demographic) and institutional determinants. We found that the intrapersonal determinants, age and time orientation, and the institutional determinant, health insurance were significant predictors ($p < .05$) for cervical cancer screening participation among older Hispanic women. Our results indicated that the intrapersonal determinants, marital status, and language, were marginally significant ($p = .06$) while the intrapersonal (demographic) determinants, immigration status, self-reported health rating, health status, were not significant ($p > .05$). Specifically, for the intrapersonal (demographic) determinant, age, our findings suggest that while controlling for all other factors, Hispanic women 65 – 74 years of age were 2.5 (OR=2.5) times more likely than Hispanic women ages 85 years and older to participate in cervical cancer screening services. Hispanic women 75- 84 years of age were 1.7 (OR=1.7) times more likely than Hispanic women ages 85 years and older to participate in cervical cancer screening services. For the institutional determinant, health insurance, our findings indicate that Hispanic women without health insurance were 66% (OR=.34) less likely to participate in cervical cancer screening services. Our findings suggest that the intrapersonal (culture) determinants, uncertainty avoidance-hopelessness, uncertainty avoidance-optimism and the intrapersonal (emotion) determinant, negative affect, were not significant ($p > .05$). Specifically, for the time orientation, we found that for each one point increase towards future time orientation, Hispanic women are 1.4 times more likely to participate in cervical cancer screening services.

Discussion

We conducted the current study, guided by elements of the SEM and CDT, to understand the intrapersonal (culture: time orientation, and uncertainty avoidance; emotion: anxiety, positive affect, negative affect; demographic: immigration status, marital status, self-reported health rating, health status, age, language) and institutional determinants (health insurance) that influenced cervical cancer screening participation among older US Hispanic women. Our conceptual framework posited that older Hispanic women's cervical cancer screening participation is influenced and effected by multiple levels of influence; in this case, the intrapersonal and institutional determinants. Our hypothesis was partially supported.

Overall, we found that intrapersonal and institutional determinants influenced older Hispanic women's cervical cancer screening participation. Specifically, our findings indicate that age (demographic), health insurance (institutional), and time orientation (culture) were the only significant determinants associated with older Hispanic women's cervical cancer screening participation. Therefore, we suggest that some combination of intrapersonal and institutional determinants accounted for older Hispanic women's participation in cervical cancer screening.

Our findings suggest that women older than the age of 65 are less likely to participate in cervical cancer screening initiatives. The authors suggest that this finding aligns with the screening guidelines that recommend that women stop screening after the age of 65. In fact, our results indicate a decline in screening as age increases. While we did not examine the quality of the patient-provider relationship, we suggest that perhaps this finding results from a discussion between providers and patients about stopping cervical cancer screenings informed by national guidelines. In general, researchers suggest that intrapersonal determinants such as demographics influence cervical cancer screening participation, so it was surprising that immigration status, marital status, self-reported health, health status, and language were not significantly associated with the cervical cancer screening behaviors of older Hispanic women.

It is not clear why immigration status did not affect older Hispanics' cervical cancer screening behaviors. Perhaps, if we had specifically examined the intrapersonal determinant, acculturation instead of immigration status, we would have different results. Due to limitations in the dataset, this investigation did not examine acculturation. Our findings indicated that marital status was not significant suggesting that the influence of a partner or not was not relevant in this population of women. In some ways, we can consider marital status as a form of social support and when considered among other determinants, marital status was less relevant, especially since our results indicated that younger women were more likely to participate in cervical cancer screening versus older women regardless of marital status. We anticipated that the language of the interview would have also produced different results. However, similar to our discussion on immigration status, perhaps it is more than whether respondents speak English or Spanish that contributes to their cervical cancer screening participation. For example, our findings confirmed that health insurance may be a larger barrier for this population than language.

Interestingly, we note that self-rated health and health status may provide some insight into beliefs about older Hispanic's cancer screening participation. More than half of the women in this investigation rated their health as fair or poor. Women who perceive their health to be poor may not believe they would need cervical cancer screening because they do not think they are at risk for cervical cancer. Women may believe their other health concerns are more of a priority. Alternatively, for those women who rate their health as poor, fatalism may play a role in determining whether to obtain cancer screening as women may believe that their cancer risk and outcome is predetermined and unlikely to change even with treatment. Furthermore, researchers indicate clinical bias from providers when interacting with minorities and Hispanic women may not receive recommendations for cervical cancer screening. Therefore, these women may be less knowledgeable about the cervical cancer and cervical cancer screening. Moreover, if women do not experience physical symptoms, they may not see the need to take any action such as cervical cancer screening. This represents aspects of present time orientation. We found that time orientation was significantly related to cervical cancer screening. While we cannot generalize to all Hispanic populations, previous researchers (Marin & Marin, 1991) have suggested that present time oriented populations focus on the here and now. We suggest that Hispanic women in this sample would be less likely to participate in cervical cancer screening initiatives. This is supported

by our findings, which indicate that women in this study were more likely to participate in cervical cancer screenings if they exhibited future time orientation.

Researchers indicate that culture is dynamic and so it is also difficult to measure accurately and comprehensively. We conducted this exploratory investigation to attempt to identify factors that are considered dimensions of culture, including time orientation, and uncertainty avoidance. What is interesting about the use of CDT with SEM is that the cultural dimensions of CDT can be used globally with many populations. In fact, CDT was developed and tested with employees of International Business Machines (IBM) from more than 70 countries to demonstrate its cross-national capability (Hofstede, 2001).

We were surprised by the fact that time orientation was the only predictor of participation in cervical cancer screening by older Hispanic women. Previously, researchers indicated that intrapersonal determinants such as culture and emotion (anxiety, positive affect, time orientation, and uncertainty avoidance-optimism) were significant predictors of cancer screening when examined singularly (Foxall, Barron, & Houfek, 2001; Authors, 2017; Authors, 2016). However, when combined utilizing the conceptual framework, the intrapersonal determinants, anxiety, negative affect, positive affect, time orientation, uncertainty avoidance-hopelessness, uncertainty avoidance-pessimism, and uncertainty avoidance-optimism, were not significant. Furthermore, the intrapersonal determinants (demographics), immigration status, marital status, self-reported health rating, health status, and language were also insignificant. When interpreting the findings through the conceptual framework, we suggest that together, the intrapersonal and the institutional determinants would influence cervical cancer screening. There are several reasons why this may not have occurred. Perhaps, there are other ways to measure these determinants. Specifically, we used proxies for uncertainty avoidance that were empirically supported. However, we can also view these determinants as states of well-being. It is possible that the intrapersonal determinants that we measured using culture overly influenced the intrapersonal determinants of emotion and demographics or this population (De Leersnyder, Boiger, & Mesquita, 2013; Ford & Mauss, 2015). We suggest that the intrapersonal determinant, time orientation, had more influence with the other intrapersonal determinants – the other measures of culture as well as emotion and demographics. While beyond the scope of this study, we suggest that one possible reason why the other determinants were not significant may be that the intrapersonal determinants measured as emotion were mediators between the culture and cervical cancer screening participation (Betancourt, Flynn, & Ormseth, 2011; Flynn, Betancourt, & Ormseth, 2011). Consistent with previous investigations, in the current study, we examined the direct relationship of intrapersonal determinants (culture, emotional, and demographic) (Carillo et al., 2011). However, it is possible that the intrapersonal determinants measured as emotions are, in part, a function of the cultural determinants (Wong, Bond, & Mosquera, 2008).

We suggest that the three significant determinants (age, time orientation, health insurance) potentially represent a condensed version of the conceptual framework guiding this study for which we can gain insight for further research, practice, and policy. Furthermore, we also recognized the importance that the other determinants while not significant in the present study may be informative for further research and certainly in practice. The intrapersonal

determinants measured as culture, emotion, and demographics that were not significant should not be ignored. We may find that these determinants are significant for different populations. We believe that it is important to test and evaluate these determinants with different definitions. We argue that it is and remains essential to continue exploring these relationships to gain an understanding of how the combination of the intrapersonal (culture, emotion, demographic) determinants provide a comprehensive perspective on how to best engage older women. We suggest that qualitative methods can help achieve this comprehensive view. However, we suggest that further research is still needed to better understand the mechanisms by which these determinants interact with one another to influence cancer screening behaviors.

Overall, the conceptual framework provides clinicians multiple opportunities to promote conversations between providers and patients about screening recommendations and decisions to screen or not to screen. For example, our findings suggest that younger women were more likely than older women to participate in cervical cancer screening. We suggest that further research is needed to better understand screening decisions among women 65 years and older. Researchers suggest that women older than 65 years should follow the guidelines and discontinue screening. Based on our findings, it appears that the women 65 years and older are in fact getting screened less. It is important to develop and evaluate tools, such as decision aids, to assist patients in understanding the cost-benefits of participating in cancer screening based on information provided by their health care clinicians in addition to their personal values. It remains important for a health care provider to communicate effectively with patients, particularly older Hispanics to help to increase cervical cancer screening rates or to help older Hispanic women to make informed decisions about not to screen. Understanding screening decisions requires a provider willing to assess and engage older Hispanics' views utilizing the intrapersonal (culture, emotion demographic) and, institutional determinants represented in this investigation, particularly age, health insurance, and time orientation. When providers lack an awareness of the varying perspectives patients have towards cancer screening, the potential to unknowingly contribute to poor cancer outcomes occurs.

Our findings indicate that health insurance is a barrier for women, which is consistent with the previous research. Given the uncertainty of the continuation and coverage of the Affordable Care Act and Medicare in the United States, policymakers can use this formative data to demonstrate the continued need for insuring cervical cancer screening. Currently, Medicare insures for cervical cancer screening. However, some older Hispanic women may not be eligible for Medicare based on the requirements. We need to continue to advocate with our lawmakers to continue to include preventive care measures, such as cancer screening, in the new version of the Affordable Care Act. 2. Further, we need to continue to advocate for programs that provide free or low-cost cancer screening for uninsured women given the high uninsurance rates among Hispanic women that could potentially increase in the new version of the Affordable Care Act.

Limitations

We have identified several limitations to this investigation. First, we used secondary data and this use does not allow a focus on the other cultural dimensions of the CDT. Specifically, we only used time orientation and proxy variables for uncertainty avoidance. In addition, caution should be used when interpreting the results for all Hispanics. The HRS identifies participants as 'Mexicans,' 'Hispanic, type unknown,' or 'Other Hispanics.' The country of origin was not collected in HRS. However, the sample for this investigation was primarily composed of Mexicans (61%) compared to respondents who identified as 'Other Hispanics' (39%). We combined 'Hispanic, type unknown,' and 'Other Hispanics' into 'Other Hispanics.' Hispanics represent diverse populations from a range of countries including Mexico, the Dominican Republic, Puerto Rico, Cuba, and Central and South American countries (Escarce, Morales, & Rumbaut, 2006; Gonzalez, 2006). Therefore, it is important for providers to recognize the differences among and between these groups in terms of acculturation, assimilation, socioeconomic status, health knowledge, beliefs and behaviors, health status, and patterns of health services utilization. Researchers indicate that these differences impact Hispanics' views on illness prevention measures, creating even greater diversity within this population (Angel & Whitfield, 2007; Beyene, Becker, & Mayen, 2002; Gorin & Clark, 2006). In addition, women tend to over report cervical cancer screening, thinking that any bimanual exam is cervical cancer screening, thus a distinct definition between cervical cancer screening and bimanual exam is needed. Because of the large amount of missing data for health insurance, the sample was limited to those respondents who identified Medicare as their insurance provider. Therefore, we were not able to examine older Hispanic women who may not have Medicare because they are still working and are on private insurance; or 4. others who are on Medicaid alone and could have worse coverage than those on Medicare or not have any insurance at all.

Despite the new guidelines recommending that women over the age of 65 years of age discontinue screening for cervical cancer, we chose to include women over the age of 65. While our intent was to suggest that age did not influence cervical cancer screening participation, our findings suggest age was influential. 5. Our findings suggest that older women are participating less in cervical cancer screening. This may be due to providers not recommending screening due to the guidelines. However, this may also be because providers have not recommended screening at all to these women during their lifetimes and these women are not aware of the need to be or not to be screened. Since the guidelines do recommend that women over the age of 65 discontinue screening, there are challenges in promoting screening for this age group. Perhaps it is not the promotion of screening for this population, but encouraging providers to use these findings to establish a quality patient-provider relationship to help patients with other health concerns, since older minority patients indicate dissatisfaction with the patient-provider relationship. We chose this age group because increasing age is a risk factor for cancer and Hispanic women have higher cancer mortality rates than younger women in part because due to low screening participation. If the fact is that that these older women were not screened at a younger age, then screening promotion efforts may need to address this issue. We also note that at the time the data was collected that we used for this study, the guidelines were every two years for women over the age of 30, and for women over the age of 70, women could choose to

stop screening after 3 normal tests in a row in the past 10 years. Though the guidelines are different now, we suggest that findings from this investigation can help providers gain a different type of understanding about this population and cervical cancer screening participation in general. We conducted this study using a cross-sectional design and therefore we cannot infer causality. 3. Furthermore, it is important to note that researchers indicate that the scales used to measure the emotional determinants had not been validated specifically with Hispanics or in Spanish. Perhaps, our findings would have been significant in this area if the scales were validated among Hispanic populations. There are possible cultural differences that may exist for Hispanics and how they think about their emotions and mental health and developers of these scales may not have taken these cultural factors into consideration. Thus, our results may subsequently be skewed or incorrect. Furthermore, cultural and ethnic differences are thought to influence variations in results on measurement instruments. The reasons for this require further empirical investigation but are hypothesized to include cultural differences in the impetus for the rapidity, precision and accuracy in interpreting a given task and providing a required response acculturation level, and approaches and perspectives toward test taking, which consequently result in poorer performance (Ardila, 2013). Finally, while the 2012 HRS data is available, our goal for this study was to provide an initial contribution to the literature examining intrapersonal and institutional determinants measured as culture, emotional, and demographics, influencing cancer screening of older Hispanic since there is a dearth of empirical literature on older Hispanic women.

We suggest that findings from this investigation will contribute to the current body of research. Our future research will examine the interaction between the intrapersonal determinants of culture, emotions, and demographics (Kudadjie-Gyamfi, Consedine, Magai, Gillespie, & Pierre-Louis, 2005) as well as changes in cervical cancer screening over time and its relationship to cultural, emotional, institutional, and demographic determinants.

Conclusions and Implications

Despite the limitations, we suggest that this study advances knowledge by using a nationally representative sample to investigate the role of intrapersonal (culture, emotion, demographic) and institutional determinants and their influence on the cervical cancer screening behaviors of older Hispanic women. We investigated differences within the Hispanic populations instead of comparing the Hispanic population to the NHW population to begin understanding differences within populations instead of between populations (Brown et al., 2014). Furthermore, we examined factors within the same model that are often examined separately (Deshpande et al., 2009; Consedine et al., 2005). We found that our findings from this study are supported by previous investigations that suggest intrapersonal (culture, emotion, demographic) and institutional determinants may be more relevant to health behaviors, such as cervical cancer screening, than intrapersonal determinants, such as demographics alone, (Magai, Consedine, Conway, Neugut, & Culver, 2004).

Despite the ongoing national conversations regarding the effectiveness of screening for older women, we suggest providers need not only be aware of the significant findings from this investigation, but to remain cognizant that there are differences within populations, including

the population examined herein. Providers must remain attentive to the importance of full assessment and anticipate the need to engage older Hispanic women and other minorities in discussions about cervical cancer screenings as well as other preventative measures. The findings from this investigation can provide formative data for the development of interventions designed to reduce cancer screening disparities, morbidity, and mortality rates among older Hispanic women.

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Figure 1.
Conceptual Framework

Table 1

Demographic Factors of Older Hispanic Women Responding to the 2008 Cervical Cancer Screening Question
(n = 243 individuals unweighted, 2,018,618 individuals weighted)

Variable	%
Reported receipt of pap smear in past 2 years	
Yes	58
No	42
Immigration Status	
Born in the US	55
Born in a foreign country	45
Marital Status	
Married	43
Separated/Divorced	30
Widowed	24
Never Married	3
Self-Reported Health	
Excellent	5
Very good	14
Good	25
Fair	35
Poor	21
Language used to complete HRS	
English	64
Spanish	36
Age	
54-64	64
65-74	21
75-84	10
85+	6
Education	
No degree	53
GED/High School	36
Some college/college	8
Masters/Professional	3
Health insurance	
No	30
Yes	70
Health Status	

Variable	%
None or one condition	37
Two – three conditions	40
More than four conditions	23
<hr/>	
Hispanic ethnicity	
Mexican	61
Other Hispanic	39

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Table 2

Cultural and Emotional Factors of Older Hispanic Women Responding to the 2008 Cervical Cancer Screening Question (n = 243 individuals unweighted, 2,018,618 individuals weighted)

Factors	Scale	<i>M^e</i>
Cultural Factors	1-6 ^a	
Time orientation		3.9
Uncertainty avoidance	1-6	
Hopelessness ^b		2.5
Optimism ^c		4.2
Pessimism ^d		2.0
Emotional Factors		
Anxiety	1-4 ^e	1.7
Negative Affect	1-5	1.6
Positive Affect	1-5	2.8

^aHigh numbers indicates future time-orientation;

^bHigh numbers indicates high uncertainty avoidance;

^cHigh numbers indicates low uncertainty avoidance;

^dHigh numbers indicates high uncertainty avoidance;

^eHigher number indicates greater mental health factors;

^f*M* equals mean

Predictors of Older Hispanic Women Responding to the 2008 Cervical Cancer Screening Question (n = 243 (2,018,618 weighted))

Table 3

Cervical Cancer Screening									
		Model 1	Model 2	Final Model					
		p	p	OR ^b	CI ^c	p			
Immigration Status		.14				.12			
Born outside of US									
Born in US ^a									
Marital Status		.07				.06			
Married									
Separated/Divorced									
Widowed									
Single									
Health		.03 [*]				.33			
Excellent									
Very good									
Good									
Fair									
Poor									
Age		.20				.05 [*]			
55-64				6.9	.92 – 51.9				
65-74				2.5	.37 – 17.6				
75-84				1.7	.20 – 14.2				
85+ ^a									
Health conditions		.54				.32			
None - one									
Two – three									
Four or more									
Education		.49							

Cervical Cancer Screening			
	Model 1	Model 2	Final Model
	<i>p</i>	<i>p</i>	<i>OR^b</i> <i>CI^c</i> <i>p</i>
No degree			
GED/High School			
Some college/college			.34 .13–.89
Master' s/Professional			
Language	.50		1.4 1.00–1.87
English			
Spanish			
Health insurance	.02 [*]		.03 [*]
No			
Yes ^a		.05 [*]	.05 [*]
Time orientation			
Uncertainty avoidance			
Hopelessness		.02 [*]	.26
Optimism		.37	.34
Pessimism		.14	-
Negative affect		.17	.49
Positive affect		.94	-
Anxiety		.99	-

* p<.05

^aReference Group: No to cervical cancer screening;

^bOR equals odds-ratio;

^cCI equals confidence intervals