PAP SMEAR GUIDELINE ADHERENCE AMONG NON-IMMIGRANT HISPANIC WOMEN OF MEXICAN ORIGIN

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Pap Smear Guideline Adherence Among Non-Immigrant Hispanic Women of Mexican Origin

Thesis directed by Associate Professor Paul Cook

ABSTRACT

The purpose of this study was to add to the body of knowledge about the high rates of cervical cancer among non-immigrant Hispanic women of Mexican origin (NIHWMO). This problem was studied by investigating predictors of Pap smear guideline adherence. The specific aims of this study were to 1) to investigate the effect of acculturation, familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level on Pap smear guideline adherence, 2) investigate the moderating effects of acculturation on familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level on Pap smear guideline adherence, 3) examine the characteristics of women who have had an abnormal Pap smear result and did not receive the recommended follow-up care, and 4) test the construct of cultural congruence and how it relates to the established construct of provider trust. Logistic regression was used to analyze the results of this descriptive correlational research study. Results of the analysis revealed none of the hypothesized predictor variables had a significant effect on guideline adherence.

The form and content of this abstract are approved. I recommend its publication.

Approved: Paul Cook

DEDICATION

The effort and fortitude necessary for this project are dedicated to my dad and bonus mother, friends, family, faculty members, students, coworkers, and running partners. Special mention must be made to the heartfelt support shown to me by Dr. Paul Cook, Dr. Roxie Foster, Dr. Kathleen Magilvy, Dr. Eileen Thomas, Dr. Martha Levine, Maria Acosta, and Barbara Lonergan. Without their kindness and support (however minor but significant), I would have been lost to the wiles of difficult projects and doubt. For those who are not mentioned specifically, I hope that my constant thankfulness and appreciation let you know that your encouragement can be found in the midst of the following pages. Lastly, special devotion must be made towards two teachers who helped to shape my path substantially. They showed me the power of self, pluck, and creativity. To the late Mr. Curtis and Mr. Gatto, your legacies are mythical and I am forever grateful.

PREFACE

Emically and etically, female pelvic examinations are often perceived to be embarrassing. Feelings of embarrassment may lead women to avoid screening, particularly when the patient does not feel comfortable or understood by a health care provider. This is complicated by sentiments that Pap examinations are considered bodily experiences associated with an admission of immoral acts and behaviors. Among all Hispanic women of Mexican origin, the situation may be exacerbated because data shows that Hispanic women consistently have poorer health-promoting behaviors than White women, regardless of their employment and ability to pay for services (Bzostek, Goldman, & Pebley, 2007; Chavez, McMullin, Mishra, & Hubbell, 2001; Duffy, Rossow & Hernandez, 1996; Jones, Cason & Bond, 2002). While the focus of this research is directed toward cultural predictors of cervical cancer screening among non-immigrant Hispanic women of Mexican origin, I was cognizant that issues transcending cultural values may play a large role in Pap smear guideline follow-up adherence.

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CHAPTER I

INTRODUCTION

The cervical cancer rate among Hispanic women of Mexican origin (HWMO) is a critical challenge facing United States (US) healthcare professionals and the Hispanic community (Douglas, 2009; Krainovich-Miller et al., 2008). As a whole, "Hispanic women experience the highest cervical cancer incidence rates of any racial or ethnic group in every region of the US" (American Cancer Society, 2012). This rate may have the biggest impact on persons of Mexican origin, who comprise the largest segment of the US Hispanic population. While time and attention have been devoted to the cervical cancer screening behaviors of immigrant Hispanic women, no researchers have articulated the nuances of Pap smear guideline adherence or the generational differences among non-immigrant Hispanic women of Mexican origin (NIHWMO). This is important because NIHWMO, also known as Mexicans or Mexican-Americans, have a unique amalgamation of Mexican and American values that may affect their cervical cancer screening follow-up adherence (Elderkin-Thompson et al., 2001; Institute of Medicine et al., 2012; Jennings-Dozier, 2000; Lee et al., 2002; Maltby, 1999; Mazor et al., 2002; Woloshin et al., 1995).

In this study, NIHWMO was used to describe women who were born in the US, currently live in the US, and self-identify as having a Mexican lineage (Table 1). Defining Hispanic women by their culture of origin, rather than the broad terms Hispanic or Latino, can allow subtle cultural preferences to be studied and analyzed with more depth and clarity. This definition will generate research specific to the largest subculture of Hispanics and Latinos in the United States.

Historically, persons of Mexican origin have lacked specific cultural representation within the US health care system and associated research studies (Hulme et al., 2003). This indicates a potential for cultural and linguistic barriers that may negatively influence adherence to preventive health care screening guidelines (Hulme et al., 2003). To address this problem, this research addressed covert cultural differences affecting Pap smear guideline adherence. This research fulfilled a critical gap in the nursing literature about socio-cultural issues affecting cervical cancer screening adherence among NIHWMO (Idestrom, Milsom, & Andersson-Ellstrom, 2003).

Research Purpose and Specific Aims

The purpose of this study was to add to the body of knowledge about the high rates of cervical cancer among NIHWMO. This problem was studied by investigating the predictors of Pap smear guideline adherence. Understanding the predictors, including acculturation, cultural attributes, knowledge of cervical cancer, provider trust, and cultural congruence, can facilitate the development of culturally-appropriate care, may decrease cervical cancer screening disparities, and may ultimately improve cervical cancer outcomes (Coronado et al., 2004; Wallace et al., 2010). This research was necessary to allow health care providers to address the values and perceptions that influence cervical cancer screening with a culturally-pragmatic approach. This investigation was aligned with the Healthy People 2020 goal, and illuminated the importance of examining culturally-mediated healthcare disparities.

The specific aims of this study were to 1) to investigate the effect of acculturation, familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level on Pap smear guideline adherence, 2) investigate the moderating effects of acculturation on familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level

on Pap smear guideline adherence, 3) examine the characteristics of women who have had an abnormal Pap smear result and did not receive the recommended follow-up care, and 4) test the construct of cultural congruence and how it relates to the established construct of provider trust.

Rationale for Study

In order to develop strategies that could reduce the cervical cancer screening disparity among the growing population of NIHWMO, foundational research about cervical cancer screening behaviors and follow-up adherence was determined to be necessary (Novello et al., 1991; Porter and Villarruel, 1993).The goal of this research was to provide a pragmatic link between Pap smear guideline adherence and cultural values among NIHWMO (Ackerson & Gretebeck, 2007; Behbakht et al.2004; Campesino et al. 2009; Creswell, 2007; Creswell, 2009; Markowitz et al. 2009).

Data indicate that less-acculturated HWMO have higher rates of cervical cancer and lower rates of cervical cancer screening (Coronado et al., 2004; Elderkin-Thompson et al., 2001; Jennings-Dozier, 2000; Lee et al., 2002; Maltby, 1999; Mazor et al., 2002; Reynolds, 2004 ; Woloshin et al., 1995). The literature indicates that a critical evaluation of additional factors, such as generation level, fatalism, marianism, familism, respect, and dignity (Table 1) may lead to a better understanding of factors affecting treatment and follow-up adherence (Boyer, Williams, Callister, & Marshall, 2001; D'Alonzo, 2012;. Edwards et al., 2008; Gonzalez-Castro, Stein, & Bentler, 2009; Hansen et al., 2005; Quiñones-May & Resnick, 1996; Roncancio, Ward, & Berenson, 2000; Stevens, 1973).

Table 1

Cultural Terms and Definitions

Terms	Definition
Fatalism	Perception of predestined illness is thought to play a major role in care adherence; inability to influence the future.
Marianism	Aspiring to the status of the virgin Mary; obedient; caregiving.
Familism	Connectedness with family; family centric decision making, collectivist responsibility to one's family.
Respect	Expectation of high respect from health care providers.
Dignity	Preservation of modesty and respect for dignity; expectation of graceful treatment.

Source: Boyer et al., 2001; D'Alonzo, 2012;. Edwards et al., 2008; Gonzalez-Castro, Stein, & Bentler, 2009; Hansen et al., 2005; Quiñones-May & Resnick, 1996; Roncancio, Ward, & Berenson, 2000; Stevens, 1973.

Additional factors, such as being uninsured, are also known to have negative effects on preventive health care services among this population. For example, 26.4% of US Hispanics lack health insurance, and 36% of those are Hispanics of Mexican origin (Office of Minority Health, 2012; US Census Bureau, 2011). This is crucial to understanding Pap smear follow-up adherence because uninsured persons generally have less access to preventive screening examinations and poorer follow-up adherence (Office of Minority Health, 2012; US Census Bureau, 2011). A general lack of cultural competence is another factor known to affect diverse cultural groups. In fact, the Office of Minority Health (2004) and the American Academy of Nursing recommend that research about the health of specific ethnic groups be conducted as a means to address glaring health care disparities (Eggleston et al., 2007).

The paucity of research that is specific to NIHWMO represents a gap in the knowledge that health care providers need to deliver culturally competent care. Existing research findings about Hispanics have unintentionally produced generic recommendations with limited applicability to specific cultural groups. This has resulted in a paradox in which the abundance of information about Hispanic persons has minimal utility towards the improvement of health outcomes among NIHWMO. Assuming that persons of Mexican, Cuban, Puerto Rican, and Honduran lineage (i.e., Hispanics) have the same cultural traits because of a shared language is limiting and potentially damaging to attempts at creating culturally competent health care milieu. Specifically, this means that health care providers have been given knowledge about Hispanics that is not culturally tailored.

Theoretical Framework and Conceptual Model

Theoretical frameworks are used to develop ideas and guide the formation of knowledge, research questions, and hypotheses (Leininger, 2002; Wallace et al., 2010). Multiple theories about culture, generation levels, and decision-making were explored for this study. Segmented Assimilation Theory and the Theory of Transcultural Research were chosen because of their applicability to understanding potential predictor variables on relationships with cervical cancer screening behavior among NIHWMO. Both theories served as a foundation for this study.

Segmented Assimilation Theory was based on the assumption that modern immigrant patterns are influenced by urban diversity and low socioeconomic communities (Xie & Greenman, 2005). Alongside Leininger's Theory of Transcultural Research, Segmented Assimilation Theory was used to explain the generational behavioral patterns of ethnic populations (Xie & Greenman, 2005; Zhou, 1997). Segmented Assimilation Theory also helped to describe the undercurrent of sociocultural and political indicators affecting Pap smear follow-

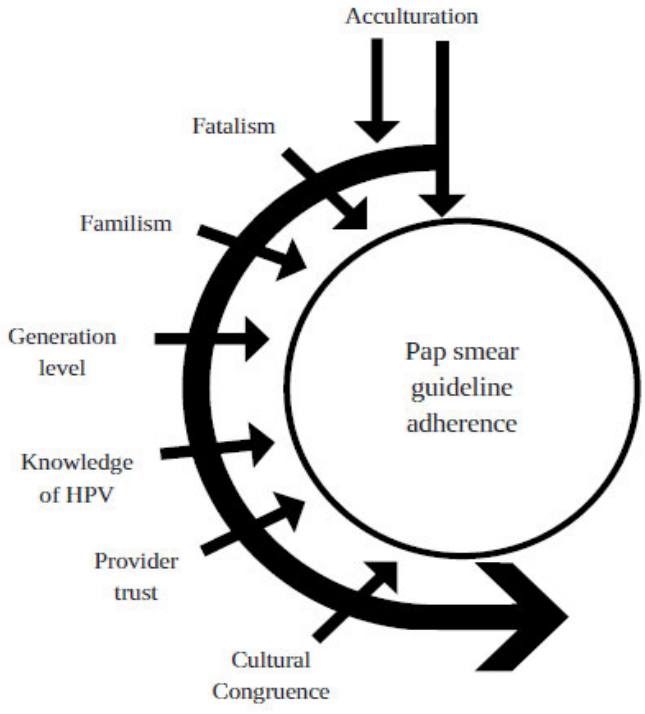
up adherence. Based on these theories, a synthesis using the components of the study were developed into the conceptual model shown in figure 1.

Study Aims and Research Questions

To address the effects of the predictor variables in specific aim 1, the following questions were investigated: 1) What is the relationship of acculturation to Pap smear guideline adherence? 2) What is the relationship of familism to Pap smear guideline adherence? 3) What is the relationship of fatalism to Pap smear guideline adherence? 4) What is the relationship of provider trust to Pap smear guideline adherence? 5) What is the relationship of knowledge of HPV risk and cervical cancer to Pap smear guideline adherence? 6) What is the relationship of generational level to Pap smear guideline adherence? 7) What is the relationship of cultural congruence to Pap smear guideline adherence?

To address the moderating effects of acculturation on the relationships of the predictor variables in specific aim 2, the following questions were investigated: 1): Does acculturation moderate the effect of familism on Pap smear guideline adherence? 2) Does acculturation moderate the effect of fatalism on Pap smear guideline adherence? 3) Does acculturation moderate the effect of provider trust on

Figure 1
Pap Smear Guideline Adherence



Pap smear guideline adherence? 4) Does acculturation moderate the effect of HPV knowledge on Pap smear guideline adherence? 5) Does acculturation moderate the effect of generational level on Pap smear guideline adherence? 6) Does acculturation moderate the effect of cultural congruence on Pap smear guideline adherence?

Definitions

Pap Smear Guideline Adherence

Pap smear guideline adherence refers to a woman's Pap smear screening behaviors and the care that a woman receives after having an abnormal cervical cancer screening or Pap smear. Cervical Cancer Screening, or a Pap smear, is recommended every 2-3 years starting at age 21. It is the only way to detect the early signs of cervical cancer and the presence of Human papilloma Virus (HPV). HPV is known as the causative pathogen of cervical cancer. Through the use of a speculum and internal pelvic examination, cervical cells are collected via a small spatula or broom. Both of these devices are similar in shape and size to a drinking straw. However, screening is only one element of cervical cancer prevention.

Acculturation

Acculturation assesses the degree to which a person has adapted or assimilated into a host culture. Acculturation measurements are used to describe language preference, cultural attitudes, and values (Hansen et al., 2005). They are also used to measure a person's cultural allegiance to their country of origin. Within health care, acculturation measurements can help health care providers understand health practices and behaviors (Dana, 2006). For example, clients who are less acculturated, or have stronger cultural identities to their country of family origin, tend to exhibit fatalistic beliefs and an external locus of control. External locus of control refers to the idea that individuals do not have control over their health status and outcomes. Wallston &

Wallston (1978) note that external factors believed to influence care include "things such as luck, fate, chance, or powerful others" (p.160). Researchers suggest that utilizing culturally authentic interventions, adapted toward behaviors such as familism, mariansim, and an external locus of control, may enhance follow-up adherence. Acculturation can be used to create culturally tailored care and guide the cultural modification of patient education. This type of patient care involves the cognizant inclusion of ethnic world views, health, and linguistic differences that are thought to enhance adherence to care (Ackerson & Gretebeck, 2007; Behbakht et al.2004; Byrd et al., 2004; Campesino et al. 2009; Coronado et al., 2004; Eggleston et al., 2007; Jibaja-Weiss et.al., 2003; Kim et al., 2008; Markowitz et al. 2009).

Fatalism

Fatalism is defined as having the perception of predestined illness. This concept is thought to play a major role in care adherence due to the idea that one is unable to influence their future (Boyer et al., 2001; D'Alonzo, 2012;. Edwards et al.,2008; Gonzalez-Castro, Stein, & Bentler, 2009; Hansen et al., 2005; Quiñones-May & Resnick, 1996; Roncancio, Ward, & Berenson, 2000; Stevens, 1973).

Familism

Familism describes the intense connectedness of family members with one another. Cultures with a strong sense of familism have family-centric decision making and a collectivist responsibility to one's family (Boyer et al., 2001; D'Alonzo, 2012;. Edwards et al.,2008; Gonzalez-Castro, Stein, & Bentler, 2009; Hansen et al., 2005; Quiñones-May & Resnick, 1996; Roncancio, Ward, & Berenson, 2000; Stevens, 1973).

Generation Level

Generation level indicates birthplace and generation in relation to one's parents' birth place. First generation immigrants are individuals who were born in a different county and now live in a host country (Haskins, 2007). Second generation is used to describe individuals who were born in a country to which their parents immigrated. For example, the parents of second-generation NIHWMO were born in Mexico. Third generation is used to describe individuals who have foreign-born grandparents. Persons referred to as second and third generation have at least one or more parents and grandparents born in another country different from their country of birth. A non-immigrant is a person born in their country of residence regardless of their generational status.

Knowledge of Human Papilloma Virus (HPV) and Cervical Cancer

Knowledge of human papilloma virus (HPV) and cervical cancer is defined as the amount of knowledge that a person possesses about the relationship between HPV and cervical cancer. Research has demonstrated that knowledge of HPV and cervical cancer has been limited among NIHWMO (Mosavel & El-Shaarawi, 2007). This is unfortunate because HPV is linked to nearly all cases of cervical cancer and a lack of knowledge may hinder efforts to educate women about cervical cancer prevention (Moreira et al., 2006, US Department of Health and Human Services, 2010). Although the HPV vaccination is widely administered to women of reproductive age, education about cervical cancer prevention and screening is limited (Driscoll, Brindis, Biggs, & Valderamma, 2004; Flores & Bencomo, 2009; Mosavel & El-Shaarawi, 2007; Office of Minority Health, 2004). Female groups with risky sexual behaviors (early age of sexual debut, multiple partners, and low rate of condom use) have the highest risk for HPV transmission and

cervical cancer (Office of Minority Health, 2004). In addition, this group tends to be less compliant with vaccination series completion (Dorell et al., 2012).

Provider Trust

Provider trust is another construct that has been shown to affect patient outcomes. The construct is based in the finding that when a patient has a trusting relationship with their health care provider, they are more likely to have better health outcomes and satisfaction (Bova et.al., 2012). Factors beyond honesty and clear communication may play a role in the level of provider trust among all patients, but there is a lack of studies exploring cultural mediators of provider trust among diverse populations. Therefore, more research investigating the role of cultural congruence on provider trust is needed so that the full scope of provider trust can be understood.

Cultural Congruence

Cultural congruence is a concept that has been thoroughly documented throughout the literature as a contributing factor in follow-up adherence. Cultural congruence describes the cultural similarities between the client and the provider, and should not be confused with cultural competency. Cultural congruence might be one reason for differences in health outcomes among diverse women. Such differences can result in the decreased use of health care procedures, preventive care, and an increased morbidity and mortality across the health care spectrum (AHRQ, 2008; AHRQ, 2012).

Marianism

Marianism is the idea that one should aspire to the martyr like status of the Virgin Mary. Often overt, yet unarticulated, women with a strong sense of Marianism are usually commended and respected for their unwavering traits of male obedience and family caregiving (Boyer et al., 2001; D'Alonzo, 2012; Edwards et al.,2008; Gonzalez-Castro, Stein, & Bentler, 2009; Hansen et

al., 2005; Quiñones-May & Resnick, 1996; Roncancio, Ward, & Berenson, 2000; Stevens, 1973).

Pelvic Examinations

Pelvic examinations are performed as a means to assess for changes related to reproductive changes, pregnancy, abnormalities, and cancer. Pelvic examinations are defined as an inspection of the female reproductive organs. In the United States, pelvic exams are commonly performed in the lithotomy position (Barr, 2006). In the lithotomy position, patients are positioned flat on their backs with their buttocks on the end of the examination table and their feet in stirrups. The lithotomy position facilitates speculum and examiners' hand insertion into the vaginal vault. Typically, this includes an examination of the external genitalia, the use of a speculum, and bi-manual palpation of the internal organs (Pitkin, Peattie, Magowan, 2003; Seidel, Ball, Dains, & Benedict, 2003). Because of the intimate nature of the exam, the pelvic experience sometimes becomes an intense bodily experience that is accompanied by shame, embarrassment, and a fear of the unknown (Seidel, Ball, Dains, & Benedict, 2003).

CHAPTER II

REVIEW OF THE LITERATURE

Regular health care screenings and wellness are goals for everyone. This is particularly true for those who may be at a higher risk for preventable illnesses and cancers. Nonetheless, screenings are often underutilized among minority populations and the poor, resulting in health care disparities that are disproportionally alarming (Ackerson & Gretebeck, 2007; Sambamoorthi & McAlpine, 2003). This is because missed screenings delay opportunities for early diagnosis and treatment.

Compared to white women, the rates of cervical cancer in HWMO are high and largely attributable to infrequent screening and poor adherence to Pap guidelines (Ackerson & Gretebeck, 2007; Flores & Bencomo, 2002). While the motivators and barriers to screening among Hispanic women have been widely explored, researchers have focused on Latina or Hispanic immigrants. Less attention has been devoted to follow-up adherence, and no existing studies about Pap smear follow-up adherence among non-immigrant English-speaking HWMO could be found.

Confounding issues related to Pap guideline adherence may be related to the type of follow-up examinations that are required. For example, during a colposcopy, or "colpo," women are required to remain in the lithotomy position for an extended time. In this position, the examiner performs diagnostic tests and a detailed visual examination that is sometimes projected onto a screen for the patient to view. Much like the Pap smear, the positioning and vulnerability of this exam provokes fear and anxiety.

Incidence Rates of Cervical Cancer

Compared to non-Hispanic white women, researchers found that HWMO have 70% higher cervical cancer incidence rates and 50% higher cervical cancer mortality rates (Ackerson & Gretebeck, 2007; Flores & Bencomo, 2002). However, these findings did not distinguish between immigrant and non-immigrant Hispanic women (Ackerson & Gretebeck, 2007; Flores & Bencomo, 2002). A review of the literature revealed that sporadic or absent cervical cancer screenings play a major factor in the diagnosis of invasive cervical dysplasia among Hispanic women. Regular screening, early detection, and treatment are the only ways that cervical cancer morbidity and mortality rates can be reduced (Eggleston et al., 2007; Flores & Bencomo, 2002). While mutual monogamy is another method that decreases the spread of HPV-related cervical cancer, it is unrealistic to only focus on a behavior limited by a stable partnership and a partner's choices. Nonetheless, confusion regarding the nature and frequency of screenings exists because of screening recommendations that vary according to agency policy, patients' ages, and individual risk factors.

Socioeconomic factors, cultural differences, and a lack of regular cervical cancer screenings are important issues surrounding cervical cancer in HWMO. According to the Centers for Disease Control and Prevention (2011), regular screening for cervical cancer strongly enhances prevention of cervical cancer. Nonetheless, Hispanic women have the second highest death rates from cervical cancer (Centers for Disease Control and Prevention, 2011). In addition, a 2011 investigation found that "Hispanic women experience the highest cervical cancer incidence rates of any racial/ethnic group in every region of the US" (American Cancer Society, 2012).

Pap Smear Guideline Adherence and Cervical Cancer

Among young women with particularly robust immune systems, cervical cancer screenings are no longer recommended. However, many Pap smears continue to be performed outside of practice guidelines (American College of Obstetricians and Gynecologists, 2012; American College of Obstetricians and Gynecologists, 2009). In general, cervical cancer prevention and screenings are targeted toward women aged 21 and older (American College of Obstetricians and Gynecologists, 2012; American College of Obstetricians and Gynecologists, 2009).

The treatment pathway for cervical cancer typically begins with an abnormal Pap smear finding but may also begin with a positive HPV diagnosis. An abnormal Pap smear result may indicate the presence of abnormal cervical cells, but not all abnormal Pap smear results lead to cervical cancer. Depending on the results of the initial Pap smear, a health care provider may choose to retest at a later time or move forward with additional diagnostic methods to determine the presence and severity of cervical dysplasia (Massad et. al., 2013).

Abnormal Pap Smear Follow-up

There are many types of abnormal Pap smears that require follow-up care (Table 2). Different factors, such as the presence of HPV, the level of cervical dysplasia, and the diagnosis of carcinoma in situ, influence whether a woman is asked to return within weeks or months (Massad et. al., 2013). In addition, with a normal Pap smear and a negative HPV test, a follow-up appointment might not be recommended for 1-5 years (Massad et. al., 2013). As a result, women and healthcare practitioners often find the frequency for follow-up care to be confusing and inconsistent, and a request to return for follow-up care may not be fully understood. This can be particularly confusing when the urgency to return for follow-up care suddenly changes from a

yearly visit to an immediate one requiring invasive tests such as colposcopy. To lay the groundwork for this study, the next section of this literature review details barriers and motivators for cervical cancer screening.

Table 2

Abnormal Pap Smear Types

Name	Relevance	Management	Prognosis	Frequency
ASCUS (atypical squamous cells of undetermined significance)	Inflammatory change	Repeat Pap smear	Related to presence and type of HPV	3-5% of all Pap smears
HPV + (human papilloma virus)	Causative agent for cervical dysplasia	Depends on the Pap smear results	Related to the age of the client, and type of Pap	Linked to nearly all cases of cervical cancer
AGC (atypical glandular cells)	Probability of carcinoma	Colposcopy	Progression to advanced dysplasia without treatment	0.2%-0.4% of all Pap smears
LSIL (Low Grade Squamous Intraepithelial Lesion)	Inflammatory changes related to probably carcinoma	Colposcopy and repeat Pap smear	Progression to advanced dysplasia without treatment	<5% of all Pap smears
HSIL (High Grade Squamous Intraepithelial Lesion)	Invasive cervical carcinoma	Colposcopy and cone biopsy; cryotherapy or electrocautery, loop excision, laser ablation	Progression to advanced dysplasia without treatment	2% of all Pap smears
Cervical Intraepithelial Neoplasia (CIN1, 2, or 3)	Invasive carcinoma within 12-86 months for 15%-40% of patients	Colposcopy, biopsy, cutterage	Progression to advanced dysplasia without treatment	<2% of all Pap smears

Source: Adapted from Agency for Healthcare Research and Quality, 2010; American Society for Colposcopy and Cervical Pathology, 2013; Moreira et al., 2006; Smith, 2002; US Department of Health and Human Services, 2010.

Motivators for Screening and Follow-up Care Adherence

The science of US Hispanic women's preventive health care has many deficits in theory and practice, particularly among NIHWMO. Research on this population has not been able to keep pace with its need, largely due to high levels of immigration, political conflicts, and cultural differences (Williams, 2002; Pelner-Cozman, 2005). While much is known about issues like barriers to care, limited English proficiency, and the impact of cultural dissimilarities on care seeking, less is known about motivators for preventive care measures like Pap smears. (Ackerson & Gretebeck, 2007; Boyer et al., 2001; Jones, Cason, & Bond, 2002; Sambamoorthi & McAlpine, 2003; Scarinci, Beech, Kovach, & Bailey, 2003).

Hispanic women's knowledge and beliefs that adversely affect cervical cancer screening has been well documented, but little research has focused on how Hispanic women make decisions to seek screening (Ackerson & Gretebeck, 2007; Boyer et al., 2001; Jones, Cason, & Bond, 2002; Sambamoorthi & McAlpine, 2003; Scarinci, Beech, Kovach, & Bailey, 2003). An exhaustive search of the cervical cancer screening literature revealed little discussion pertaining to NIHWMO and only a few articles about motivation to seek care.

The available research shows that a woman's culture and acculturation level are most likely to determine the use of cervical cancer screening services (Boyer et al., 2001). Additional studies have indicated that when the purpose and importance of Pap screening exams are explained in the context of a woman's familial health, there is an increase in cervical cancer screening among Latina women (Jones, Bond, Gardner, Hernandez, 2002; Peragallo, Alba, Tow, 1997). Scarinci, Beech, Kovach, and Bailey (2003) focused on how cervical cancer screenings are approached and perceived, and found that cervical cancer is perceived within a framework of familism and hygiene. Specifically, Scarinci, Beech, Kovach, and Bailey (2003) concluded that

the motivators for cervical cancer screening among participants in their study was related to the idea that personal health was strongly related to one's own personal gynecologic cleanliness and the overall health of each woman's entire family.

An additional investigation by Garces, Scarinici, and Harrison (2006) found many positive behaviors related to health care seeking and cervical cancer screening among NIHWMO. Specifically, they observed that Mexican-American women place a high emphasis on health. When given opportunities to understand how certain behaviors like cervical cancer screening fit within a paradigm of "healthy" living, and how it might impact their family health, women expressed a better understanding of the importance of Pap exams. This data can be used to create meaningful conversations between healthcare providers and NIHWMO about the importance of Pap smear guideline adherence.

Notification of Abnormal Pap Smear Results

Typically, women are notified of Pap smear results outside of a face-to-face clinic setting. While time efficient methods, such as letters and phone calls, are used to notify women of abnormal Pap smear results and treatment plans, the impersonal method of delivering this news can lead to undue alarm and anxiety, particularly among those within the Hispanic community. A personalized approach, in which a woman can have her questions answered when she receives her results, might be more culturally aligned and increase follow-up adherence. In a 2002 study involving a randomized, controlled trial of 1574 subjects, Jibaja-Weiss, Volk, Kingery, Smith, & Holcomb (2003) found an inverse relationship in screening among low income minority women who were sent personalized cancer risk letters.

Although the information gleaned from this single study is limited, it provides clues about how to approach notifications about the need for cervical cancer screening and follow-up

care recommendations. For the purpose of this research study, this information was used to guide the selection of instruments and questions measuring health care provider trust and provider cultural congruence. With the intent of understanding factors related to improving culturally acceptable information, measuring the relationship between health care provider trust and cultural congruence can help to understand the relationship of provider trust and cultural congruence on Pap smear guideline adherence.

Acculturation

Among immigrant populations, there is a natural absorption of the host culture over time. This process, often described as acculturation, has been used to explain health disparities, the cultural adaptation process, and disease prevalence among immigrants (Dana, 2006). Acculturation is used to understand the intricacies of immigrant health practices and behaviors and can be used to measure a person's alignment to their country of origin through factors such as language preference and birthplace (Hansen et al., 2005).

Attention to this phenomenon among Hispanics is important because 47% are foreign-born with 29% of those having been born in Mexico (US Census Bureau, 2011; US Census Bureau, 2012). For Hispanics born within the US, attention to their respective cultural characteristics plays an important role in understanding their social and behavior health needs. Even though US born Hispanics are raised among the influences of American culture, they are known to be heavily influenced by their native cultural practices and perspectives (American Cancer Society, 2008; Leyva, M. et al., 2006; Markowitz, Sternberg, & Dunne et al., 2007). This effect is seen in data illustrating that women who are less acculturated have higher cervical cancer incidence rates (Akers, Newmann, & Smith, 2007; Reynolds, 2004).

Specific data on the incidence rate for Hispanic women, not just those who are less acculturated, indicate that they have a 70% higher cervical cancer incidence rate and 50% higher cervical cancer mortality rate that is related to poor screening (Ackerson & Gretebeck, 2007; Coronado et al., 2004; Flores & Bencomo, 2002). Knowledge gleaned from this data can be used to integrate bicultural values, traits, and beliefs into clinically useful preventive health measures for NIHWMO (Mendelson, 2002; Mendelson, 2003).

Additionally, a key characteristic among less acculturated Hispanic persons of Mexican origin is the evidence of culturally-defined values such as fatalism, marianism, and familial focused care (Austin, Ahmad, McNally, & Stewart, 2002; Behbakht & Lynch, 2004). Relative to preventive health care screenings, these characteristics may manifest as passivity, non-compliance, and disinterest in health care practices. Compounded with the limited English proficiency of many HWMO and the limited Spanish language skills of many healthcare professionals, cultural barriers may be exacerbated.

A review of the acculturation literature revealed five tools commonly used to measure acculturation among Hispanic persons of Mexican origin (Table 3). The cultural adaptation of American culture is measured in scales ranging from 4 to 48 questions. Because acculturation only measures cultural preferences and adaptation to the new culture, acculturation should be considered in conjunction with a comparative theory that guides nursing practice. Theories such as Transcultural Nursing Theory and Segmented Assimilation Theory can be used to explain factors influencing care among diverse populations (Leininger, 2002, p. 190; Walker & Avant, 2005). Measurements of acculturation alongside relevant theoretical frameworks can provide useful information needed to tailor health care in culturally and linguistically appropriate ways (Leininger, 2002; Wallace et al., 2010).

Within the literature, there seems to be little consistency about which acculturation tools should used in clinical and research settings. While the purpose of this review is limited to addressing the broad topic of cervical cancer screening among HWMO and how it relates to NIHWMO, it is important to understand the behavioral characteristics related to their immigrant status, familial beliefs, and cultural preferences. Therefore, it is my belief that education targeting NIHWMO should be tailored to a client's acculturation level, whenever possible, knowing that HWMO with lower acculturation levels often have higher rates of cervical cancer due to poorer rates of cervical cancer screening and follow-up care (Akers, Newmann, & Smith, 2007; Reynolds, 2004). Through an understanding of acculturation, culturally appropriate care and education about cervical cancer screening and follow-up adherence among NIHWMO can be developed (Coronado et al., 2004; Wallace et al., 2010).

Table 3

Commonly Used Acculturation Scales

Scale name	Purpose	Type of scale	Strengths	Limitations
The Acculturation Rating Scale for Mexican Americans-II (ARSMA-II)	To measure cultural orientation to Mexican and American culture.	48 question multidimensional two-subscale tool using a 5-point Likert scale	Cronbach's alpha coefficient = .86 and .88). Revised scale: Pearson correlation coefficient of .89 with the original scale	The length of the scale may contribute to respondent fatigue
A Simple Language Based Acculturation Scale for Mexican Americans	To examine the relationship between acculturation level and health behaviors.	4 questions about language use	Reported as being reliable and valid	Psychometrics not reported
The Los Angeles Epidemiologic Catchment Area (*LAECA*) *Acculturation* Scale	To understand the psychological dimension of acculturation.	26-item scale	Reported as being reliable and valid with high internal consistency, and construct validity.	Scale only represents a unidimensional measure of acculturation
H-HANES Acculturation Measure for Mexican Americans	To understand language, ethnicity, and generational adaptation.	8 questions	Reported as being reliable and valid	Missed cultural nuances that are captured in longer scales. Psychometrics not reported
Short Acculturation Scale for Mexican-American Populations (SASMAP)	To create a brief measure of acculturation.	4 questions (reduced from 8)	Reported as having strong internal and external validity	Does not measure cultural preference Psychometrics not reported

Source: Burnam et al., 1987a; Burnam et al., 1987b; Coronado et al., 2005; Cuellar et al., Deyo et al., 1995; Wallace et al., 2010

Familism

In Hispanic cultures, a known and documented cultural trait is familism. Familism involves intense connectedness of family members, loyalty, and deference to family-centric decision-making, and it has a significant impact on health care decision-making. With a collectivist responsibility to one's family, decisions that may seem simple are not condoned by family members when made in a solitary manner (Boyer et al., 2001; D'Alonzo, 2012; Edwards et al.,2008; Gonzalez-Castro, Stein, & Bentler, 2009; Hansen et al., 2005; Quiñones-May & Resnick, 1996; Roncancio, Ward, & Berenson, 2000; Stevens, 1973). Compounded with other factors such as fatalism, provider mistrust, cultural differences, and low health care literacy, familism has significant implications on adherence to regular screening exams, particularly where there are no overt symptoms of illness. As such, strong familism seems to have a relationship with the decision to have health care screenings.

Fatalism

Fatalism, or perception of predestined illness, is thought to play a major role in care adherence (Roncanero, Ward, & Berenson, 2000). This belief can lead to the assumption that there are no preventive measures or behaviors for cervical cancer. Additionally, HWMO may believe that their sexual behavior and activity, not HPV and lack of preventive screening, leads to cervical cancer (McMullin et al., 2005). This is different from White women who do not believe that fate or personal behaviors contribute to cervical cancer (Kim et al., 2008; McMullin et al., 2005).

Aligned with fatalism, marianism may be used as a complementary explanation for poor follow-up adherence. Characterized by passive behaviors and predetermined will, marianism and fatalism may play a role in behaviors that lead to an increased risk for HPV transmission and

poor cervical cancer screening. Marianism, modeled after the traits of the religious Christian figure Mary, the mother of Jesus, is characterized by docile, nondominant, passive actions in which individual needs and autonomy are often ignored or viewed as less important (D'Alonzo, 2012; Quiñones-May & Resnick, 1996). Additionally, women with high marianism have a less egalitarian approach toward sex roles and talk about sex less than other groups (Phinney & Flores, 2002; Allen, Svetaz, Hardeman, & Resnick, 2008). The deficit of an egalitarian approach is thought to translate into passive behavior among females, such as limited condom use and engaging in partnerships with non-monogamous male partners, which in turn facilitates the spread of HPV and increased transmission of HPV related cervical dysplasia (Allen, Svetaz, Hardeman, & Resnick, 2008).

Health Care Literacy and Generation Levels

Health literacy includes the process of "cultural and conceptual knowledge" developed through "listening and speaking" (Institute of Medicine et al. 2012). Members of fast-growing immigrant groups, such as Hispanics, have a low level of health literacy (Institute of Medicine et al., 2012). Several studies have shown that language barriers among Hispanic patients have resulted in low levels of patient satisfaction and follow-up care (Elderkin-Thompson et al., 2001; Jennings-Dozier, 2000; Lee et al., 2002; Maltby, 1999; Mazor et al., 2002; Woloshin et al., 1995). Knowledge gained from research in this area provides powerful information for directing further investigations and practical interventions among clinicians and health care organizations (Abraido-Lanza, Chao, & Gammom, 2004; Blewett, Casey, & Thiede, 2004; Brown et al., 2000; Campesino et al., 2009; Cheng, Chen, & Cunningham, 2007; Giger et al., 2007; Jones, Cason, & Bond, 2002b).

Meeting the language needs of all persons is essential to provide excellent clinical and culturally-relevant care (American Association of Colleges of Nursing, 2008; Campinha-Bacote, 2003; Douglas et al., 2009; Krainovich-Miller et al., 2008; Maltby, 1999). The language of the United States population is shifting with the influx of immigrants, many of whom are not proficient in the English language (Hebert, 2006; Maltby, 1999; Moreno et al., 2007; Neff, 2008). According to the 2000 US census, 47 million people do not use English as their primary language (US Census Bureau, 2003), and the largest non-English speaking group is comprised of Spanish speakers (US Census Bureau, 2003; US Census Bureau, 2008). This is relevant because children of immigrants, particularly those among larger immigrant groups who may live in neighborhoods in which their native tongue is spoken, may not develop a strong proficiency in English language and related US health care perspectives and practices.

Limited English speaking abilities impacts preventive care in a variety of ways. For example, Hispanic women tend to remain monolingual Spanish speakers until they are second or third generation. Limited English proficiency is strong indicator of poor cervical cancer screening and poor follow-up adherence (Abraido-Lanza, Chao, & Gammom, 2004; Blewett, Casey, & Thiede, 2004; Brown et al., 2000; Campesino et al., 2009; Cheng, Chen, Cunningham, 2007; Giger et al., 2007; Jones, Cason, and Bond, 2002). While much of the existing research has focused on immigrant women, it is important to understand the findings of the research and how it impacts NIHWMO origin.

Knowledge of HPV and Cervical Cancer

The human papilloma virus (HPV) is linked to nearly all cases of cervical cancer (Agency for Healthcare Research and Quality, 2010; Moreira et al., 2006, US Department of Health and Human Services, 2010). Among Hispanic women living in the US, those born and

raised in Mexico have a higher mortality rate of cervical cancer- 14.7 per 100,000 women compared to US women with a mortality rate of 2.7 per 100,00 (American Cancer Society, 2008; Leyva, M. et al., 2006; Markowitz, Sternberg, & Dunne et al., 2007, p. 14). Markowitz and colleagues (2009) note that the incidence of cervical cancer is higher due to low rates of screening and not genetics, race, or ethnicity (Flores & Bencomo, 2009; Markowitz et al., 2009).

Although the human papilloma Virus (HPV) vaccination is widely administered to women of reproductive age, education about cervical cancer prevention is not widely disseminated and screening is underused (Driscoll, Brindis, Biggs, & Valderamma, 2004; Flores & Bencomo, 2009; Mosavel & El-Shaarawi, 2007; Office of Minority Health, 2004). In addition to the HPV vaccination, the American College of Gynecologists and Obstetricians (2009) recommends the initiation of regular cervical cancer screenings at age 21. This delay in screening has resulted in missed education opportunities. Unless health promotion efforts are targeted toward pre-screening aged females, such as young female Mexican-Americans, those within high-risk groups will enter the age when cervical cancer screening is recommended lacking the knowledge needed to prevent cervical cancer in adulthood (Mosavel & El-Shaarawi, 2007).

In some age groups there is a distinct knowledge deficit about HPV. In particular, Hispanic female adolescents have little to no knowledge of cervical cancer or knowledge about the cervix and its relation to HPV (Mosavel & El-Shaarawi, 2007). For example, Mosavel & El-Shaarawi (2007) described adolescent responses about cervical cancer knowledge. Their knowledge deficit is highlighted best by their responses of cervical cancer originating in areas such as the lungs and elbow (p. 714). This is concerning because there is potential for this group to enter into the screening age range without the requisite knowledge necessary for preventive

screening. In subgroups with the highest cervical cancer rates, such as women of Mexican origin, this finding is especially alarming. Findings from Driscoll, Brindis, Biggs, & Valderamma (2004) and the Office of Minority Health (2004) found that Mexican-American adolescents have high rates of unprotected intercourse that allows for the transmission of the virus (HPV) that causes cervical cancer. Female groups with risky sexual behaviors (early age of sexual debut, multiple partners, and low rates of condom use) have the highest risk for developing cervical cancer (Office of Minority Health, 2004).

Cultural Congruence

As a protective response against a dominant culture, members of low socioeconomic groups, including Mexicans or Mexican-Americans, may reveal little about their culture to non-members. This behavior, while culturally self-protective, may in turn hinder opportunities for dialogue about health care and follow-up adherence among members outside of a cultural group. To communicate with members outside of their cultural group, Mckeever & Klineberg (1999) note that individuals perceive that they must assimilate with the dominate white culture and reject their own beliefs.

Often, the word Hispanic is used as an etic descriptor to categorize people who have dark hair, dark skin, and look as though they speak Spanish; it is rarely used to describe one's own ethnicity. This assumption is substantiated among scholars analyzing concepts surrounding the word Hispanic (Espino & Franz, 2002; Hayes-Bautista & Chapa, 1987; Hulme et al., 2003; Siatkowski, 2007; US Census Bureau, 2003; US Census Bureau, 2008). However, it is important to note that informal assessments, observed through my professional nursing practice, have revealed that the use of the term Hispanic is an immediate indicator used by Mexican and Mexican-American people to determine the cultural astuteness of a provider.

As a nurse practitioner and researcher of a culturally-focused research study, it is important for me to declare my preference of the term "Mexican" to describe my ethnicity. I do not associate with or favor the term Hispanic. As a second generation person of Mexican origin from Southern California, my belief is that the word Hispanic is used as a catch-all term that limits the acknowledgement of subculture caveats and strengths. My experience is that the term Hispanic is limiting and reinforces narrow stereotypes based on a catch-all term that generalizes values, attributes, and identity to all with a shared legacy of speaking Spanish. While well meaning, healthcare providers that generalize cultural attributes through a knowledge of Hispanic culture, may inadvertently damage therapeutic relationships in their attempt to be culturally sensitive."

In summary, using culturally-appropriate terms that reflect the emic perspective of the population being cared for is important. The term Hispanic, while used with the best intentions, is not specific and remains a source of confusion among nurses, health care providers, authors, and researchers in a manner akin to the word "white." Cultural reflexivity will inform the development of Pap smear screening interventions, align with the National Culturally and Linguistically Appropriate Services (CLAS) standards, and promote efforts to eliminate health care disparities through culturally appropriate care (US Department of Health and Human Services, 2013).

Cervical Cancer Screening

Since the 1980's, research about Hispanic and Mexican women's preventive behaviors has continued to increase. Many researchers addressed sociocultural variables, factors, and indicators related to the preventative care of reproductive organs. This literature review focused on health-promoting behaviors, factors affecting return health care visits, personal and cultural

ideas of health, access to care, and health care (Duffy, Rossow, & Hernandez, 1996; Jones, Cason, & Bond, 2002; Mendelson, 2002; Jibaja-Weiss et al., 2003; Mendelson, 2003c; Sambamoorthi & McAlpine; 2003d, Abraido-Lanza, Chao, & Gammom, 2004; Blewett, Casey, & Thiede, 2004; Facione & Facione, 2007; DuBard & Gizlice, 2008; Zarate-Abbott, Etnyre, Gilliand, Mahon, Allwein, Cook, Mikan, Rauschhuber, Sethness, Munoz, Lowry, & Jones, 2008e). Acculturation and an attempt to understand the level of US cultural adaptation were themes noted throughout much of the literature detailing examinations of Hispanic women's health care practices.

The literature review also demonstrated that language barriers are often viewed as a contributing factor in understanding and using preventive healthcare services. This is important because it shows that the delivery of patient education, but not necessarily the patient education content, is at the root of poor Pap screening and the cervical cancer incidence. More language barrier-focused research may direct practical interventions among clinicians and health care organizations seeking to increase screening and decrease the cervical cancer rate (Abraido-Lanza, Chao, & Gammom, 2004; Blewett, Casey, & Thiede, 2004; Brown et al., 2000; Campesino et al., 2009; Cheng, Chen, Cunningham, 2007; Giger et al., 2007; Jones, Cason, and Bond, 2002).

Personal Relationship with the Topic of Inquiry

In scholarly research, scientists are encouraged to have a contextual relationship with their data. This relationship can be within the tapestry of qualitative research or within the pragmatic approach that quantitative research provides. Nonetheless, a cursory understanding of critical reflexivity and bracketing can help to critically choose the appropriate theoretical, philosophical, and methodological frameworks for a research trajectory when positioned in an

objective framework. Understanding my role within and outside of my data has helped me develop a topic of inquiry that moved beyond my own experiences, assumptions, and life experiences (Beech, 1999).

For example, I am cognizant that I could qualify for my own study. I recognize that my personal and professional biases as a Mexican woman needed to be considered. This consideration was at the front of my consciousness during the development of the research survey used for this study on Pap smear guideline adherence. There are also a number of considerations and biases that, without reflection and declaration, could negatively influence the direction and selection of my research methodology. I grew up in a neighborhood with an abundant Mexican cultural influence, many of my family members are monolingual Spanish speakers, and all of my maternal relatives have a strong affinity for our Mexican heritage and culture. Although I am a patriotic and bicultural United States citizen, I have always identified as Mexican. My personal culture clash has both contributed to my interest in cultural research as much as it has complicated my relationship with interpreting the existing data. As an outsider within, I am transparent and reflexive within my research trajectory. As a measure to balance the influence of my perceptions, I have used members of my committee to review and critique all phases and aspects of this proposal for bias.

Furthermore, I am knowledgeable about acculturation scales, my own acculturation level, health care systems, and the clinical management of abnormal Pap smear results. As a nursing professional and women's health nurse practitioner, I have performed Pap smears, provided education about the purpose of Pap smears, and participated in the delivery of abnormal results. My professional experiences also include provider-provider discussions about Pap smears, cervical cancer, treatment, ideas about follow-up, and attendance at women's health-

focused conferences. As a result, I have been cautious in the design of the study and survey that used for data collection.

Summary of Cervical Cancer Screening Literature Review

In this literature review, cervical cancer was examined through the lens of culturally mediated factors thought to affect follow-up care. Based on the state of the science, more investigations by nurse scientists on cultural nuances within the Mexican culture are needed to improve rates of Pap smear guideline adherence. A variety of theories, such as Leininger's transcultural theory and Humanistic theory, were considered in the model for this study as a result of this literature review. While many theories approached alignment for the theoretical basis for the study (detailed in chapter 3), they did not focus on the emic perspective on multigenerational patterns of immigrant cultural adaptation.

Consequently, Segmented Assimilation Theory (SAT) was chosen to guide the study and inform the research methodology. SAT focuses on generational acculturation among the children of "contemporary immigrants" in the US (Zhou, 1997, p. 975). In this approach, historical immigration patterns, the sociocultural context of the subject, and cultural factors are understood to be uniquely related to emerging immigration patterns. Additionally, SAT reflects the idea that in contemporary immigrant generations, acculturation is shaped by depressed socioeconomic factors, established poverty, and expectations of ethnic discrimination.

In addition to Segmented Assimilation theory, salient aspects of Leininger's theory of Transcultural Nursing will be used to construct a pathway to disseminate new information about Pap smear guideline adherence to the target population. My intent is to better elucidate how acculturation, generational level, and other cultural factors affect transcultural care. In the next chapter, a research study examining the relationships among acculturation, fatalism, HPV

knowledge risk, provider trust, cultural congruence, and Pap smear guideline adherence among NIHWMO will be presented.

CHAPTER III

RESEARCH DESIGN AND METHOD

Research Aims

The following aims were investigated in this study:

Specific Aim 1

To investigate the relationships of acculturation, familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level to Pap smear guideline adherence.

Specific Aim 2

To investigate the moderating effect of acculturation on the relationships of familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level to Pap smear guideline adherence.

Specific Aim 3

To examine the demographic characteristics of women who have an abnormal Pap smear result and do not receive the recommended follow-up care.

Specific Aim 4

To test the construct of cultural congruence and how it is related to the established construct of provider trust.

Research Design

For this project, I conducted a descriptive, correlational research study using survey methods. The purpose of this study was to evaluate the relationships between Pap smear guideline adherence and a variety of variables from a segmented assimilation theory perspective. Another purpose of this study was to test a new theory for approaching generational differences for women with Mexican values across the acculturation spectrum. A quantitative research

design was used so that constructs proposed by the theory could be evaluated through objective measures and be subject to statistical analysis (Portney & Watkins, 2009). Because the relationships between and among the variables of this study were unknown, a descriptive correlational research design was used to measure the relationship associations among variables (Portney & Watkins, 2009). The moderating effects of acculturation on Pap smear guideline adherence was evaluated for each of the variables through logistic regression tests.

This study addressed a range of variables related to Pap smear guideline adherence. In this study, the independent (predictive) variables were familism, fatalism, acculturation, generational level, knowledge of HPV & cervical cancer, provider trust, and cultural congruence. The dependent (outcome) variable was adherence to recommended Pap smear screening guidelines. Factors that have been found in the literature to influence Pap smear guideline adherence among Hispanic women (such as language preference, history of cervical cancer, educational level, demographic region, and income) were included as covariates (control variables) to determine their influence on the participants' reports of Pap smear guideline adherence. Familism, fatalism, generation level, knowledge, provider trust, and cultural congruence were analyzed as predictors of follow-up adherence; acculturation was examined as a possible moderator of each of these relationships in addition to being analyzed as a direct predictor of Pap smear guideline adherence.

Theoretical Framework

Segmented Assimilation Theory and Leininger's theory of Transcultural Nursing was used to inform this study of Pap smear guideline adherence among NIHWMO. As a means to clarify the complex ideas surrounding culturally mediated interactions, these theories helped to guide an investigation of potential differences among the NIHWMO examined in this study.

Given that the women in this study were NIHWMO of varying acculturation levels, Leninger's theory was used to shed light on the acculturation dimension of these women's experiences, while Segmented Assimilation Theory helped to explain the separate, but likely, related effect of generational level differences.

Sample

For this study, the original goal was for 250 English-speaking NIHWMO to be recruited. Due to limitations surrounding the response rate to study participation, the actual number of participants was limited to 137 women. Participants in the study self-identified as Mexican or Mexican-American, were US born, resided in the US, had a personal email address, and had access to a personal computer, tablet, or smart phone for the on-line survey. NIHWMO aged 21-51 years who have had a Pap smear any time in the past were eligible because of the congruence between their age, cervical cancer screening recommendations, and the cervical cancer incidence rate (American College of Obstetricians and Gynecologists, 2012; American College of Obstetricians and Gynecologists, 2009; US Cancer Statistics Working Group, 2010).

Children and adolescents were excluded from this study because they are not within the age range for current cervical cancer screening guidelines (American College of Obstetricians and Gynecologists, 2012; American College of Obstetricians and Gynecologists, 2009). Decisionally challenged women and prisoners were excluded so that subjects may provide consent independent of other people and agencies. Women unable to speak English were excluded because of the focus on examining women who are likely to be NIHWMO with varying acculturation levels. Keeping all documents in English eliminated the need to coordinate with translators for back and forward translation of study-related documents. Older women and those with a history of hysterectomy, current or past history of breast, uterine, or cervical cancer

were excluded to limit bias between the changes in reproductive cancer screenings and current Pap smear frequency recommendations. Detailed inclusion and exclusion criteria are listed in Table 4.

In the US, the Hispanic population is increasing substantially. US Census Bureau projections estimated that the Hispanic population will triple by 2023 and may grow exponentially by 2025 (US Census Bureau, 2008). Nationally and within Colorado, persons of Mexican origin represent the largest subgroup of Hispanics (64%) and have been estimated to comprise 20 percent of the US population (Carter-Pokras et al., 2008; Office of Minority Health, 2012; US Census Bureau, 2009). However, Hispanics are not a homogenous group of people. While the term Hispanic is used to represent persons who have ties to Spanish-speaking countries, the term does not represent the ethnically-derived cultural nuances and related health behaviors found among each subgroup (Table 2) (Hulme et al., 2003; US Census Bureau, 2010; Comas-Diaz, 2001). Geographically, Spanish speakers come from various parts of the globe, including countries such as Mexico, Spain, Honduras, Puerto Rico, and Cuba (Hulme, 2003; US Census Bureau, 2008). Therefore, the term Hispanic, analogous to the word White, is an ethnic label that can lead to unintentional offense and misdirected health care interventions.

In addition, assumptions that all Hispanic persons speak Spanish, have the same values, and are of Latin decent do not facilitate culturally acceptable care. In fact, stereotypes based on Hispanic attributes or self-identification may damage the therapeutic relationship (Novello, Wise, & Kleinman, 1991). Generic labeling can harm cultural identity, negatively impact health outcomes, and may diminish the respect and kindness that are essential to building meaningful nurse-client relationships regardless of ethnicity (Novello, Wise, & Kleinman, 1991). Because Hispanic is too broad a term, this study focused specifically on NIHWMO through their self-

identification as Mexican or Mexican-American. I intended that this approach would lend cultural authenticity to the health care disparity research and highlight cultural variations among the NIHWMO ethnic subgroup in regards to Pap smear guideline follow-up adherence

Recruitment

A non-probability sampling method was used for participant recruitment. Specifically, convenience sampling, using volunteers, was used because of its ability to recruit participants quickly (Portney & Watkins, 2009). Limitations of this method were related to representation of the targeted population. I carefully examined the demographic characteristics of participants and compared them to national statistics about HWMO to determine the generalizability of the findings. In order to approach a representative sample, participants were recruited from multiple locations.

Participants were recruited via postings in community locations such as schools, colleges, churches, laundromats, Hispanic newspapers, Hispanic businesses, internet postings, a Facebook page (Cervical Cancer Research Survey), the ResearchMatch database, and university email research recruitment listservs. Through personal contact, emails, and telephone calls to community organizations, I attempted to communicate detailed information about the study purpose, benefit to the Hispanic community, and participation criteria. The organizations and participants were provided with a website link with consent information that contained a link to the survey managed via REDCap. To identify organizations that I chose to target, I used Google to search with terms such as “Hispanic cultural centers,” “Hispanic churches,” “Mexican-American organizations,” “Latino centers,” as a means to find organizations with links to participants eligible for this study.

Specifically, I sent emails and made phone calls to Servicios De La Raza in Denver, The Latin American Educational Foundation, La Casa, Latino Cultural Center at Indiana University, the Colorado Latino Forum (CLF), National Council of La Raza, the Colorado Latino leadership, advocacy, and research organization, the Latino Cultural Center at Purdue University, UIC Latino Cultural Center, Center for Religion & Civic Culture in Los Angeles, California, UCLA University Catholic Center, Faith street Los Angeles, MIT Latino Cultural Center in Cambridge, the Latino Coalition for a Healthy California, the Archdiocese of Denver, the Denver Community Church, the International Latino Cultural Center of Chicago, and La Voz, a Hispanic newspaper, in Denver, Colorado. However, I got very few direct responses to my emails or follow-up phone calls and messages. I distributed flyers and cards with the study link and QR code to friends, family, and colleagues that worked in areas that had high concentrations of HWMO. I also made an in person presentation to students at the Cesar Chavez Cultural Center in Greeley, Colorado and distributed flyers.

Table 4

Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
21-51 years old	Current treatment for breast, uterine, or cervical cancer
Access to a personal computer, tablet, or smart phone	
Self-identify as Mexican or Mexican-American	History of hysterectomy
English speaking	Current or past history of breast, uterine, or cervical cancer
Reside in the US	Decisionally challenged
US born	Age <21
Email address	Prisoners
History of a Pap smear anytime in the past	Non-English Speaking

Setting

Primary recruitment efforts occurred in the largest metropolitan area of Colorado, the metro-Denver area. The metro-Denver area in Colorado was selected because of this city's broad ethnic/racial distribution of the desired study sample. The metro-Denver area has a population of 2,109,282 of whom 18% are Hispanic/Latino (U. S. Census Bureau, 2002). Given that the survey was conducted online, residing outside the Denver area did not exclude participants from the study.

Data Collection

Study data were collected and managed using REDCap electronic data capture tools hosted at The University of Colorado. REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies, providing 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources. To enhance study feasibility, the online electronic survey was limited to a format without open-ended questions.

The survey was created through a process involving an expansive search of the literature, expert knowledge, and the integration of previously validated surveys. The survey was designed by the researcher and adapted from previously validated instruments when possible. Skip logic was used to control what questions a participant could answer based on how they answered the previous question. For example, if participants said that they had an abnormal Pap smear, the questions about recommended follow-up care were asked. To minimize missing data, participants were not allowed to skip questions in any particular section before moving on to the

next one. To check the validity of this study, basic psychometrics were calculated after data collection. In addition to using demographic questions, the survey included existing instruments that were consistent with the research hypotheses and study aims.

The specific instruments incorporated into the survey were the 8-item Short Acculturation Scale for Mexican-American Populations (SASMAP) (Coronado et al., 2005), the 5-item Pan-Hispanic Familism Scale (Villarreal et al., 2005), the 15-item Powe Fatalism Inventory (MPFI) (Powe, 1997), an 11-item Assessment of HPV knowledge (Ragin et al., 2009), and the 13-item Health Care Relationship Trust Scale (Bova et al., 2012). Additionally, 4 questions developed for this study were used to measure the construct of cultural congruence. The psychometrics of each instrument are detailed below and summarized in Table 5.

Table 5

Measures Table

Construct	Author	Scale	Validity & Reliability	Reason Selected
Familism	Villarreal et.al., 2005	Pan Hispanic Familism Scale (PHFS)	Psychometric evaluation demonstrated a good fit for the data and reliability (coefficient alpha of .82) across Hispanic country of origin.	Robust psychometric testing that will facilitate the construct of familism in this population.
Fatalism	Powe, 1997; Powe & Finnie, 2003	Powe Fatalism Inventory (MPFI)	Demonstrates consistent validity and reliability with use in different studies. Reliability coefficient of 0.84. All items load on single factor of fatalism (eigenvalues >0.30).	This inventory is one of the most commonly used fatalism scales. It is based on Pender's Health Promotion Model. It incorporates the cognitive-perceptual and demographic factors on cancer fatalism and related health behaviors.
Provider Trust	Bova et. al, 2012	Health Care Relationship Trust Scale	The HCR Trust Scale has demonstrated reliability coefficients ranging from .76 in patients with diabetes (Mancuso, 2010) to .92 in patients with HIV infection (Bova et al., 2006).	This scale measures health care provider trust in an effort to develop a better understanding of health care behaviors.
Acculturation	Coronado et al., 2005	Short Acculturation Scale for Mexican-American Populations (SASMAP)	The SASMAP has strong internal and external validity (Cronbach alpha of 0.92 and high Pearson correlation coefficients). The SASMAP and the ARSMA-II have high construct validity.	The SASMAP is a multidimensional and shortened adaptation of the ARSMA-II and is validated for this specific population.
Knowledge of HPV and cervical cancer	Ragin et al., 2009	Assessment of HPV knowledge (Ragin et al., 2009)	The questionnaire used in this study was for a preliminary content assessment. No psychometric data was published.	This questionnaire was developed using clear and simple language. It was created from a literature review, a research hypothesis, and content assessment.
Provider cultural congruence	Warren, 2015	4 questions	Four questions were developed for this study and did not have preexisting psychometric data.	This construct was assessed through the use of 4 questions with a Likert-scale format.

Measures

Along with capturing adherence to Pap smear guidelines and the generational level of participants, the survey for this study included the constructs of acculturation, fatalism, familism, HPV knowledge, provider trust, and cultural congruence, each measured through existing instruments plus 4 questions created for this study. A series of demographic questions were also included in the survey. The demographic questions were designed to align with the aims of this research proposal and the 6 independent variables. The specific questions were about ethnicity, country of birth, age, language use, income, education, employment, health insurance, health care provider consistency, marital status, number of family members in household, and type of health care service used (private clinic, hospital, or public health clinic).

Pap Smear Guideline Adherence

The dependent variable for this study was adherence to Pap smear screening guidelines. This was measured by the use of three self-report questions designed for this study. The questions-- asking about an abnormal result, follow-up care, and type of follow-up care--were aligned with the research questions and specific aims, but were not based on psychometrically tested instruments. A complete list of questions used in the survey are listed in Appendix B under the heading “Research Instrument.”

While self-reports can be limited by memory recall and bias, it was the most practical method for data collection. The alternative method of data collection, via medical records, was not feasible, as the survey participants came from a variety of clinics throughout many geographic areas within Colorado and outside of Colorado. The questions were designed so that they would elicit basic data about Pap smear follow-up care that mirror US National Cancer Institute questions about interactions within the clinical milieu between patients and their

healthcare providers (Pap test every 3 years beginning at age 21, Pap testing with and HPV test every 5 years, or a Pap test alone every 3 years, or more frequent screening as needed for additional risk factors) (US National Cancer Institute, 2012).

Acculturation

Acculturation was measured by the use of 4 questions from the Short Acculturation Scale for Mexican-American Populations (SASMAP) (Coronado et al. 2005). While a wide variety of acculturation measurements exist, few are as succinct and psychometrically sound as the SASMAP. Originally, the SASMAP was 8 items and was created in 2005 for the purpose of developing a brief, yet valid, way of assessing acculturation, and was adapted from the Acculturation Rating Scale for Mexican-Americans II (ARSMA-II) (Cuellar et al., 1995). According to Coronado et al., it was "adapted from the ARSMA-II because existing acculturation measures were lengthy and contained extraneous questions not germane to assessing cultural adaptation or adjustment" (p. 56, 2005). After a factor analysis, the instrument was limited to just 4 items.

The SASMAP was created during the study of a Mexican-American population living in an agricultural community of Washington State as part of a community intervention measuring the relationship between acculturation and cancer prevention. Coronado et al. (2005) selected this particular population of Mexican-Americans because of their recent immigration to the area. Another rationale for the selection of the study site was the fact that over 50% of the community population was Hispanic.

Through the process of principal components analysis, Coronado et al. (2005) evaluated the total variance, eigenvectors, and the correlation of the principal component to subsets of acculturation measures. After the instrument was reduced from 8 questions to 4, the "dominant

first principal component was found to account for 66% of the model variance" (p. 59). As such, the SASMAP has a high estimate of internal consistency reliability (Cronbach's alpha coefficient of 0.92) and good test-retest reliability when just four questions were used; demonstrating that an 8-item scale wasn't necessary to measure acculturation level (Pearson correlation coefficients .79-1.0 with related measures). The results also showed a high level of external validity that was demonstrated by strong relationships between acculturation scores and demographic characteristics such as education, age, and time in the US.

A higher score on this instrument means that a participant is more acculturated. This scale included the following 4 questions: 1) What language do you mostly think in? 2) What language would you say you speak most of the time? 3) Of the following, how do you most identify yourself? 4) Where were you born? Following the procedure of the instrument developers, I excluded responses labeled ''Don't know'' and "Refused" or those which had any variation of ''Other'' (''Other,'' ''Mostly in another language,'' "About the same in English and the other language''). The highest score possible for the 4-item SASMAP is 4. Only the following answers were given a single point value and counted in the final score: participants who think mostly in English, participants who speak in English most of the time, participants who identified as Mexican-American, and participants born in the US. All other answers were scored as zero. There was no reverse scoring.

Familism

The 5-item Pan-Hispanic Familism scale was created as a means to clarify the familial attitudes of Hispanic subgroups. While there are a variety of Hispanic subgroups, there is a demonstrated commonality in that these groups share a strong attitude about the importance of family that is different from other cultural groups (Villareal et al., 2005). The 5 questions chosen

for the scale reflected beliefs about family and were adapted from 2 existing familism scales. The original validation study was conducted over the phone with 762 participants who self-identified as Hispanic/Latino and had ties to a Spanish-speaking country of origin. Participants were chosen through randomly generated phone calls in geographic areas known to have a large Hispanic population (Villareal et al., 2005).

To evaluate the psychometrics of this scale, Villareal et al., 2005 used confirmatory factor analysis "to evaluate the validity and invariance of the scale across individuals from different countries of origin (i.e., United States, Mexico, and Latin America) and language preference for the study interview (Spanish and English)" (Villareal et al., 2005, p. 412-413). An evaluation of content validity was not noted. The Satorra-Bentler scaled chi-square statistic (p = .349), the root mean square error of approximation (.009), and the Tucker-Lewis Index (.999) demonstrated that the researcher's model designed to test the specific aims (p. 14) provided a good fit for the data. Reliability was determined through a test of internal consistency (coefficient alpha of .82) (Villareal et al., 2005) and strong factorial invariance to illustrate that Hispanic familism is a unique and stable construct "regardless of one's country of origin or language preference" (Villareal et al., 2005, p. 421). A higher score on this survey indicates a higher affinity toward familial beliefs. Item responses were measured on a 5-point scale, with responses at the high end representing a greater degree of familism. The highest score possible for the familism scale is 25.

Fatalism

The 15-item Powe Fatalism Inventory was developed to assess cancer fatalism, or the belief that death is inevitable when cancer is present. The tool was constructed through qualitative interviews tested on African-American patients with colorectal cancer. Content

validity was not described by the inventory author. Powe notes that construct validity was established using exploratory factor analysis, and reliability was assessed based on stability and internal consistency. Specific test-retest information was not reported. Factor analysis resulted in all items loading on one factor. Cronbach's reliability coefficient for the scale, with no subscales, was .84 (Powe, 1997, p. 139). A yes or no format was used to gather participant responses. A high score indicates a high degree of cancer fatalism. The highest score possible for the fatalism inventory is 15.

Assessment of HPV Knowledge.

The 11-item assessment of HPV knowledge survey was completed by 202 participants, ages 18 and over, from Pittsburg, Pennsylvania and Hampton, Virginia. Complete psychometric data for the assessment of HPV knowledge was not detailed. Content assessment was limited to a member check by survey participants who helped develop the questions and by an additional unknown group (Ragin et al., 2009). In addition, the questions for the survey were developed through an examination of the existing literature. While the assessment tool lacks data about psychometric properties, it has been used to collect data in three separate studies and was designed for the purpose of capturing HPV knowledge among US participants in a brief format. This tool was selected because an exhaustive search of the literature revealed that existing tools regarding HPV are limited to questions about vaccine acceptability of mothers who are considering vaccinations, and that all of these tools have limited to no psychometric data available.

A higher score on HPV knowledge survey indicates a higher level of knowledge about HPV and cervical cancer knowledge. The highest score possible for this assessment is 11. Scores were calculated based on correct answers to each of the questions. For questions, 1, 2, 3, 4, 6, 7,

8, 9, 10, & 11, a point was given for each answer of "true" and for question 5, a point was given for the answer of "both men and women."

Provider Trust

The 13-item Health Care Relationship Trust Scale (HCR) was developed through a rigorous and multiphase instrument development process to evaluate three concepts of patient trust. Developed with adult HIV patients, the HCR was tested for internal consistency, test–retest reliability (.59 with $p < .01$), and construct validity. Over 2 separate tests, the Cronbach alpha coefficient were .92 and .95. Three factors explained 69% of the variance. The subscales had high internal consistency reliability, with Cronbach's alphas of .81, .85, and .89 respectively. (Powe, 1997, p. 486). The three themes found in the construct of provider trust were 1) Interpersonal connection, 2) Respectful communication, and 3) Professional partnering. Overall, the HCR Scale demonstrated good psychometric properties and alignment with the construct of provider trust. The HCR score was measured through a 5-point Likert response scale. The highest score possible for the HCR is 52. Reverse scoring was required for item 12.

In this study, exploratory factor analysis was used as a means to evaluate the HCR as a measure of the independent variable construct of provider trust. In addition to using the complete scale, 4 additional Likert scale questions, intended to measure cultural congruence, were developed to deepen the understanding of Pap smear guideline adherence. The 4 questions were: 1) the health care provider that does my Pap smear(s) is the same culture as me, 2) the healthcare provider that does my Pap smear(s) is the same sex as me, 3) the healthcare provider that does my Pap smear(s) looks like me, and 4) the healthcare provider that did my Pap smear(s) understands my culture). After data collection, the 4 cultural congruence questions were

analyzed to determine if they were related to the construct of provider trust or whether cultural congruence represented a distinct construct.

Analysis

The original plan was for data analysis to be completed through the use of Structural Equation Modeling (SEM). While logistic regression was the approach used for the final analysis, detailed information on why SEM would have been used is discussed here. SEM was the best fit for this study because it allows a comprehensive view of how acculturation, familism, fatalism, provider congruence, HPV knowledge, and generational level effect Pap smear guideline adherence. Furthermore, SEM permits an evaluation of the moderating effects of acculturation on familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level effect and Pap smear guideline adherence. SEM could have allowed an overall view of the relationships that may have existed among the variables and their respective strengths. In addition to providing an overall test of the proposed set of relationships among constructs (a structural model), SEM would have provided a test of the loading of survey items on latent constructs (a measurement model). This feature of SEM would have been particularly important for Aim 4, which involved a test of the new proposed "cultural congruence" construct to determine whether it is a unitary entity and whether it loaded on the same latent variable as the more well-established construct of provider trust.

Consistent with the standards of SEM, data from at least 200 (minimum) subjects would have been needed for the final analysis with this method. SEM would have allowed a better understanding of the underlying factors, measured variables, and causal factors related to Pap smear guideline adherence among US born NIHWMO (Grimm & Yarnold, 2000). Furthermore, SEM could have revealed the strengths of any relationships that were found and would have

permitted testing acculturation as a possible moderator of other variables' relationships with adherence as predicted in the hypotheses. Psychometric properties of the instruments as applied to the new population of NIHWMO could have been tested and the instruments refined as part of the measurement modeling step of SEM, prior to testing relationships between variables in a full structural model.

SEM was considered because it can be used to evaluate nominal-level criterion variables by using a weighted least-squares estimator instead of maximum likelihood estimation. SEM also provides a flexible approach to handle any missing data that may occur in a large sample, using maximum likelihood estimation, as long as the rate of missing data is less than 30% and the cause of missingness is random (MAR) or completely random (MCAR). The relationships could be shown to be either inversely or positively correlated and could provide new information about the role of acculturation, familism, fatalism, generation level, knowledge of HPV and cervical cancer, provider trust, and cultural congruence on Pap smear guideline adherence. SEM requires an $n < 200$, however. Logistic regression is a method that should be used in the event that recruitment is limited or difficult. A detailed power analysis is presented in the following paragraph.

Logistic regression, in SPSS, was used for the final data analysis. The power analysis for aim 1 was based on a comprehensive search of published peer-reviewed research by Eggleston et.al. (2007), in which 26 studies about barriers for adherence to follow-up care for abnormal Pap tests were reviewed. Their article was chosen because of the alignment with their literature review and the aims of this study. In their article, they describe using peer-reviewed articles of original quantitative research that were conducted in the United States between 1990-2005. In all, they reviewed 14 analytical and 12 experimental studies that had a focus of adherence to

recommended follow-up care for abnormal Pap tests. Each study used for their review had to be evidence based, follow women prospectively or retrospectively after having abnormal Pap smear results.

The estimates for p1 and p2 were based on the lowest range (27%) and averages from all the abnormal Pap follow-up adherence rates identified in the Eggleston et.al. (2007) publication (analytical: 27%-90% and experimental: 40%-93%). Based on the assumptions that an average base rate of abnormal Pap smear follow-up adherence is 62.5% (average between all of the studies evaluated by Eggleston et.al., 2007), people with poor acculturation have follow-up adherence of 27% or less, a minimum of 98 completed surveys were required to attain an alpha of .01 (Bonferroni correction to address inflated type I error for running 5 tests) with a power of .80. For this research study, 112 surveys were completed and used for the final data analysis, surpassing the 98 required by the power analysis.

Different analytic approaches were taken for aims 2, 3, and 4. For aim 2, which was to test the moderating effects of acculturation on familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level, I planned to test for the interaction effects between moderators. For aim 3, which examined the characteristics of women who have an abnormal Pap smear result and do not receive the recommended follow-up care, I conducted the analysis using descriptive statistics. This approach allowed for summaries about the sample and survey results. For aim 4, testing for the construct of cultural congruence and how it was related to the established construct of provider trust, I analyzed the 4 new survey questions to examine the correlation between them and the existing HCR scale.

Additionally, the analysis included a control for familism and for demographic variables. In the analysis of each predictor variable's effect on adherence, familism was controlled because

it has been widely documented as a known predictor of cervical cancer screening behavior, including Pap smear guideline adherence. In the analysis, there was also a control for income, education, and location of healthcare in the analysis of predictor variables on adherence.

Protection of Human Subjects

The Colorado Multiple Institutional Review Board (COMIRB) at the University of Colorado Denver reviewed and approved all aspects of the study prior to starting participant recruitment and data collection. All participants provided informed consent by clicking on an "agree" button prior to completing the study questions. Although the possibility of an adverse event occurring as a result of participating in this study was remote, I had a plan to report any adverse events to COMIRB within 5 days. During the study, no adverse events occurred.

All research subjects were assigned an ID number that was used for de-identification. Names and contact information were removed once data collection was complete. Data, including demographic information, was stored on password-protected computers with access only to specific members (PI and, sponsors) of the research team. Backup data was saved on the REDCap data collection server that participants accessed for survey completion.

CHAPTER IV

RESULTS

Cervical cancer rates among Hispanic women are higher than for any other racial or ethnic group in the United States (American Cancer Society, 2012). This may impact Mexican-American women the most because persons of Mexican origin comprise the largest segment of the US Hispanic population. The purpose of this study was to understand more about cervical cancer screening behavior among non-immigrant Hispanic women of Mexican origin (NIHWMO). I specifically investigated the predictors of Pap smear guideline adherence. By understanding the predictors, including acculturation, cultural attributes, knowledge of cervical cancer, provider trust, and cultural congruence, health care professionals can facilitate culturally-appropriate care that may decrease cervical cancer screening disparities and ultimately improve cervical cancer outcomes (Coronado et al., 2004; Wallace et al., 2010).

Specific Aim 1

To investigate the relationships of acculturation, familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level to Pap smear guideline adherence.

Specific Aim 2

To investigate the moderating effect of acculturation on the other constructs' relationships to Pap smear guideline adherence.

Specific Aim 3

To examine the characteristics of women who have an abnormal Pap smear result and do not receive the recommended follow-up care.

Specific Aim 4

To test the construct of cultural congruence and how it is related to the established construct of provider trust.

Sample Characteristics and Recruitment

In total, 137 participants consented to the study. Nineteen of the 137 were not eligible to complete the study due to being born outside of the United States, were out of the age range for eligibility, did not identify as Mexican or Mexican-American, or had never had a Pap smear. Six potential participants consented to the study but did not answer all of the questions. At the completion of data collection for this study, there was a total of 112 completed surveys. Eligibility criteria for this study included US Hispanic female participants who self-identified as Mexican or Mexican-American. In this study, 8 (7.1%) of participants self-identified as Mexican and the remainder, 104 (92.9%), self-identified as Mexican-American. Exclusion criteria was for women born in Mexico, those who self-identified as "other" than Mexican or Mexican-American, and those outside of the age range of 21-53

The original study enrollment goal was to recruit up to 250 participants throughout the United States, with Denver as the primary area of recruitment. After approximately 7 months of recruitment efforts via postings in community locations such as schools, colleges, churches, laundromats, Hispanic newspapers, Hispanic businesses, internet postings, a Facebook page (Cervical Cancer Research Survey), the ResearchMatch database, and university email research recruitment listservs., the study was closed. The most successful method of recruitment for this study was via ResearchMatch. ResearchMatch is a national health volunteer registry created by several academic institutions and supported by the US National Institutes of Health as part of the Clinical Translational Science Award (CTSA) program. ResearchMatch has a large population of volunteers who have consented to being contacted by researchers about health studies for which

they may be eligible. Prior to using this database, only 27 surveys had been completed over a 5-month period.

Most of the participants had health care insurance (94%). Sixty-nine percent of the 112 participants had health care insurance through their work, 4% had insurance they bought on their own, 7% had Medicaid, 6% had Medicare, and 11% had health care insurance through their spouse's plan or their school. Participants in this study had a mean income ($49,000) above the national average ($39,000) for Hispanics in the US. The age of participants was most predominate in the categories of 24-27 (20.5%) and 41-50 (18.8%) years old. The mean age of participants was 31-33 years old. The rest of the age ranges are as follows: 12.5% were 21-23 years old; 11.6% were 28-30 years old; 13.4% were 31-33 years old; 15.2% were 34-37 years old and 8% were 38-40 years old.

Additionally, 41% of participants were married, 34% were single, 6% were divorced, 5% were never married, 1% was separated, and 1% was widowed. The education level of the participants in this study did not include any women with less than a high school diploma or GED. In this study, 6% of participants had at least a high school diploma or GED, 27% had some college, 16% had an associate degree, 31% had a bachelor's degree, 16% had a master's degree, and 2% reported having a doctorate degree.

Participants of this study were mostly second generation (35.7%) and above. This means that all participants likely had exposure to both American and Mexican cultural values. Participants who were second generation had at least one parent that was born in another country. Approximately 19 % of participants were third generation (both parents were born in the USA, and all grandparents were born in Mexico or another country), 31.3% identified as fourth generation (both of their parents were born in the USA, and at least one grandparent was

born in Mexico or another country), and 14.3% identified as fifth generation (both parents were born in the USA, and all grandparents were born in the USA). Additional demographic details can be found in table 6.

Table 6

Demographic Characteristics of All Participants

Characteristic	*n*	%
Have you had a pap test?		
Yes	112	100
No	0	0
When was your most recent Pap test?		
Less than 6 months ago	20	17.9
6 months to 1 year ago	28	25
1-2 years ago	39	34.8
2-3 years ago	17	15.2
4-5 years ago	8	7.1
5-6 years ago	0	0
6 years ago or more	0	0
don't know or don't remember	0	0
Was your last Pap test abnormal?		
Yes	12	10.7
No	96	85.7
don't know or don't remember	4	3.6
Was follow-up care recommended?		
Yes	9	8
No	100	89.3
don't know or don't remember	3	2.7
What care was recommended?		
Repeat Pap smear	3	2.7
Colposcopy	3	2.7
LEEP/LOOP/LLETZ	0	0
Cryosurgery	0	0
Laser surgery	0	0
Hysterectomy	1	0.9
Cone biopsy	0	0
Chemotherapy	0	0
Radiation therapy	0	0
Don’t know or don’t remember	3	2.7
Did you get the recommended care?		
Yes	8	7.1
No	1	0.9
Do you have health insurance?		
Yes	104	92.9

Demographic Characteristics of All Participants

Characteristic	*n*	%
No	8	7.1
What type of health insurance do you have?		
insurance plan through my work	69	61.9
insurance plan that I bought on my own	4	3.6
Medicaid	7	6.3
Medicare	6	5.4
Other	11	9.8
insurance plan through my school, college, or university	7	6.3
What is the highest degree or level of school you have completed? If currently enrolled, mark the highest degree received so far.		
No school	0	0
up to 8th grade	0	0
9th or 10th grade	0	0
11th or 12th grade	0	0
High school graduate or GED	7	6.3
Some college	31	27.7
Associate degree	18	16.1
Bachelor's degree	35	31.3
Master's degree	18	16.1
Doctorate degree (for example: PhD, EdD)	3	2.7
What is your marital status?		
Married	46	41.1
Single	39	34.8
Widowed	1	0.9
Divorced	7	6.3
Separated	2	1.8
Never married	6	5.4
Living with partner	11	9.8
What is your current employment status?		
Full-time	68	60.7
Part-time	9	8.0
Self-employed	4	3.6
Out of work and looking for work	4	3.6
Out of work but not currently looking for work	1	0.9
Homemaker	4	3.6
Student	15	13.4

Demographic Characteristics of All Participants

Characteristic	*n*	%
Retired	0	0
Unable to work	7	6.3
What is your total household income?		
Less than $10,000	8	7.1
$10,000 to $19,000	11	9.8
$20,000 to $29,000	9	8.0
$30,000 to $39,000	10	8.9
$40,000 to $49,000	24	21.4
$50,000 to $59,000	12	10.7
$60,000 to $69,000	6	5.4
$70,000 to $ 79,000	10	8.9
$80,000 to $89,000	7	6.3
$90,000 to $99,000	4	3.6
$100,000 to $149,000	7	6.3
$150,000 or more	4	3.6
How old are you?		
21-23	14	12.5
24-27	23	20.5
28-30	13	11.6
31-33	15	13.4
34-37	17	15.2
38-40	9	8.0
41-50	21	18.8
Of the following, how do you most identify yourself?		
Mexican	8	7.1
Mexican-American	104	92.9
How many family members live in your home?		
0	14	12.5
1	18	16.1
2	28	25.0
3-4	36	32.1
5-6	11	9.8
7-8	5	4.5
9 or more	0	0
Do you have a child or children?		
Yes	48	42.9
No	64	57.1

Demographic Characteristics of All Participants

Characteristic	*n*	%
My generation level is:		
2nd generation=I was born in the USA. At least one of my parents was born in another country.	40	35.7
3rd generation=I was born in the USA, both of my parents were born in the USA, and all of my grandparents were born in Mexico or another country.	21	18.8
4th generation= I was born in the USA, both of my parents were born in the USA, and at least one grandparent was born in Mexico or another country with the rest born in the USA.	35	31.3
5th generation= I was born in the USA, both of my parents were born in the USA, and all of my grandparents were born in the USA.	16	14.3

Note: n=112

Instrument Scores and Reliability

For this study, the mean scores for each instrument was calculated for all 112 participants, with the standard deviations. The mean scores, with the standard deviations, were also calculated for the 6 participants who had abnormal Pap smears and were adherent to Pap smear follow-up care. The mean scores were used to summarize and describe the data because it represents the most common score, is the most stable of central tendency measures, and produces the lowest amount of prediction error (Portney and Watkins, 2009). The standard deviation for each score was calculated so that an understanding of the variability of scores for each test could be interpreted for the final data analysis regarding generalizability.

The mean scores for all 112 participants reflected that 99% of values for fatalism, acculturation, HPV knowledge, generation level, and cultural congruence were within three standard deviations from the mean. This means that the scores were approximately normally distributed. However, for familism and provider trust, the results might be less generalizable because of the size of the standard deviation. Specifically, the standard deviation for provider

trust was over 11 and reflects wide variability among participant scores indicating that the mean may not be representative of the actual scores for all participants in this study. Familism, on the other hand, had a standard deviation of 3.499. While this standard deviation is still considered dispersed and less generalizable, it can be used with caution for this standard parametric analysis.

For the 6 participants who had abnormal Pap smears and were adherent to Pap smear follow-up care, 99% of the values for fatalism, familism, acculturation, HPV knowledge, generation level, and cultural congruence were within approximately three standard deviations from the mean. However, despite the approximately normal distributions of scores, some of the variables' standard deviations were again large and therefore the means may not be a good representation of scores for the target population. None the less, for provider trust, the standard deviation would be less generalizable because of the variability demonstrated in the value of the standard deviation. Specifically, the standard deviation for provider trust was over 11 and reflects wide variability among participant scores indicating that the mean does not represent the average scores. These data, along with reliability statistics are reported in table 7.

Table 7

Mean Scores of Instruments and Standard Deviations for All Participants, Had Abnormal Pap Smear and Were Not Adherent to Pap Smear Follow-Up (n = 0), and Had Abnormal Pap Smear and Were Adherent to Pap Smear Follow-up Care (n = 6). Reliability Statistics Evaluated for All Participants (n=112).

Instrument or construct	Highest score possible	All Participants (n=112)		Had abnormal Pap (n=6)		Cronbach's alpha coefficient for all participant scores (n=112)
		Range	M	SD	M	SD	α
1. Fatalism	15	.759	3.63	2.889	4.17	3.061	.798
2. Provider Trust	52	1.018	38.56	11.638	43.17	11.053	.940
3. Acculturation	4	.036	3.82	.541	4	0	.634
4. HPV Knowledge	11	.857	7.31	2.123	7.67	1.751	.679
5. Familism		.482	22.03	3.499	22	3.033	.877
6. Generation level	5	n/a	3.24	1.093	3.5	1.049	n/a
7. Cultural Congruence	16	2.554	5.74	2.792	5.83	1.835	.481

Note: For acculturation, the question "where were you born?" had zero variance and was removed from the scale for reliability testing. Reliability statistics for generation level were not created for this assessment because the question was limited to one answer.

Fatalism

In this study, the mean score for the Powe Fatalism Inventory for all 112 participants was 3.63 with a standard deviation of 2.889. This indicates that the participants in this study were not very fatalistic. The reliability statistic for the 15-item Powe Fatalism Inventory among participants in this study was α=.798.

Provider Trust

In this study, the mean score for the Health Care Relationship Trust Scale (HCR) for all 112 participants was 38.56 with a standard deviation of 11.638. This indicates that the participants in this study had various and inconsistent levels of provider trust. The reliability statistic for the 13-item HCR among participants in this study was α=.940.

Acculturation

In this study, the mean score for the Short Acculturation Scale for Mexican-American Populations (SASMAP) for all 112 participants was 3.82 with a standard deviation of .541. This indicates that the participants in this study were highly acculturated. The reliability statistic for the 4-item acculturation questions among participants in this study was α=.634. This score may be due to the limitation in the amount of questions asked and because the questions were not in a Likert scale format (Tavakol & Dennick, 2011). Lastly, because there was no variance in the question about place of birth, the question was removed from the scale for reliability testing in SPSS.

HPV Knowledge

The mean score of the HPV knowledge survey for all 112 participants was 7.31 with a standard deviation of 2.123. This indicates that the participants in this study may not have a strong knowledge of HPV and cervical cancer. The reliability statistic for the 11-item HPV knowledge survey among participants in this study was α=.679.

Familism

In this study, the mean score of the Pan-Hispanic Familism scale for all 112 participants was 22.03 with a standard deviation of 3.499. This indicates that the participants in this study

had strong familial tendencies. The reliability statistic for the 5-item Pan-Hispanic Familism scale among participants in this study was shown to be highly reliable α=.877.

Generation Level

In this study, the mean generation level for all 112 participants was 3.24 with a standard deviation of 1.093. This indicates that the participants in this study were mostly third generation US citizens. A reliability statistic for generation level was not created for this assessment because the question was limited to one answer.

Cultural Congruence

In this study, the mean score of cultural congruence for all 112 participants was 5.74 with a standard deviation of 2.792. This indicates that the participants in this study did not have care with providers who were culturally similar. The reliability statistic for the 4 items designed to assess cultural congruence among participants in this study was α=.481. This may be due to the limitation in the amount of questions asked.

Correlations were performed to identify statistically significant predictors of Pap smear follow-up adherence and the analysis is detailed in specific aim 1. Before the analysis was completed, an analysis for missing data and tests for correlations were performed on all variables to determine how they related to each other. For the final data analysis, there were 112 anonymously completed surveys that had no missing data.

The intercorrelations used to predict Pap smear guideline adherence were tested in SPSS and are shown in Table 8. Given that the variables of familism and provider trust were not normally distributed, the Spearman rank-order correlation were used to measure the association between variables. These data indicate that low correlations exist between the separate subscales of familism and provider trust (.341; $p < .000$); generational level and acculturation (.240; $p <$

.011); familism and HPV knowledge (.236; $p < .012$); and generational level and HPV knowledge (.247; $p < .009$).

Table 8

Intercorrelations Among Seven Constructs Used to Predict Pap Smear Guideline Adherence

Instrument Construct	Fatalism	Provider Trust	Acculturation	HPV Knowledge	Familism	Generation level	Cultural Congruence
1. Fatalism	-						
2. Provider Trust	-.020 *p*<.*833*	-					
3. Acculturation	.044 *P*<.646	.048 *p*<.617	-				
4. HPV Knowledge	-.076 *p*<.428	.117 *p*<.219	.033 *p*<.731	-			
5. Familism	-.036 *p*<.708	**.341** ***p*<.000**	.044 *p*<.646	**.236** ***p*<.012**	-		
6. Generation level	.163 *p*<.086	.061 *p*<.522	**.240** ***p*<.011**	**.247** ***p*<.009**	0.38 *p*<.693	-	
7. Cultural Congruence	.026 *p*<.789	.278 *p*<.003	-0.45 *p*<.635	-.184 *p*<.053	-.060 *p*<.532	0.009 *p*<.928	-

Note: Correlations in bold are significant at the 0.05 level (2-tailed)

Research Question Results

Specific Aim 1

Specific aim 1 was designed to investigate the relationships of acculturation, familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level to Pap smear guideline adherence. Bivariate logistic regression was used to test each predictor variable on the dependent variable of Pap smear guideline adherence. In line with the specific aims and model created for this study, it was my intention to test the independent effects of each predictor variable on Pap smear guideline adherence and not to test the predictor variables as a group. In future studies with a larger sample, structural equation modeling would be used to test all of the predictor variables as a group to see their combined and individual effects on the dependent variable of Pap smear guideline adherence. For this analysis, logistic regression was used to test

whether there was a statistically significant difference in acculturation, familism, fatalism, provider trust, cultural congruence, HPV knowledge, and/or generational level to Pap smear guideline adherence between participants who had Pap tests within 1-2 years (n = 25 non-adherent and n = 87) and participants who had Pap tests within 2-3 years (n = 8 non-adherent and n = 104 adherent).

The two different tests were run because the guidelines for Pap smear frequencies have changed over recent years. In an attempt to capture the most recent examinations, Pap smears completed under the last 3 years were analyzed. Either way the dependent variable was dichotomized, there were highly unequal sample sizes between patients who were adherent and those who were not adherent. This is a limitation for this logistic regression analysis, because unequal group sizes have the effect of reducing the power for analysis.

Additionally, as described in Chapter III, the power analysis for logistic regression was based on an assumption of 27% adherence or less, but even under the more restrictive 1-2 year assumption about Pap smear timing, over 77% of participants were adherent. This trend further limited power and may have reduced my ability to detect the predictor variables' effects on Pap smear guideline adherence. Although neither of the results were significant, the results for both regressions are summarized below and are detailed in tables 9 and 10.

Table 9

Summary of Logistic Regression Analysis Predicting Pap Smear Guideline Adherence for Recent Pap Test within 1-2 years

Variable	***B***	SE	df	Wald statistic	*p*
1. Fatalism	.042	.081	1	.272	.602
2. Provider Trust	.030	.019	1	2.449	.118
3. Acculturation	-.6	.614	1	.987	.321
4. HPV Knowledge	-.038	.111	1	.117	.732
5. Familism	-.059	.073	1	.637	.943
6. Generation level	-.172	.209	1	.683	.409
7. Cultural Congruence	.037	.083	1	.203	.652

Note: n = 25 non-adherent and n = 87 adherent

Table 10

Summary of Logistic Regression Analysis Predicting Pap Smear Guideline Adherence for Recent Pap Test within 2-3 years

Variable	***B***	SE	df	Wald statistic	*p*
1. Fatalism	.070	.138	1	.258	.611
2. Provider Trust	.040	.029	1	1.900	.168
3. Acculturation	-17.46	7893.7	1	.000	.998
4. HPV Knowledge	-.082	.190	1	.188	.665
5. Familism	.023	.099	1	.054	.816
6. Generation level	-.350	.343	1	1.042	.307
7. Cultural Congruence	.071	.137	1	.269	.604

Note: n = 8 non-adherent and n = 104 adherent

Question 1: What is the relationship of acculturation to Pap smear guideline adherence?

The effect on acculturation and Pap smear guideline adherence was not significant for persons who had a Pap smear within 1-2 years, p = .321, nor for those who had a Pap within 2-3 years, p = .321.

Question 2: What is the relationship of familism to Pap smear guideline adherence?

The relationship between familism and Pap smear guideline adherence was not significant for persons who had a Pap smear within 1-2 years, p = .943, nor for those who had a Pap within 2-3 years, p = .816.

Question 3: What is the relationship of fatalism to Pap smear guideline adherence?

The relationship between fatalism and Pap smear guideline adherence was not significant for persons who had a Pap smear within 1-2 years, $p = .602$, nor for those who had a Pap within 2-3 years, $p = .611$.

Question 4: What is the relationship of provider trust to Pap smear guideline adherence?

The relationship between provider trust and Pap smear guideline adherence was not significant for persons who had a Pap smear within 1-2 years, $p = .118$, nor for those who had a Pap within 2-3 years, $p = .168$.

Question 5: What is the relationship of knowledge of HPV risk and cervical cancer to Pap smear guideline adherence?

The relationship between knowledge of HPV risk and cervical cancer and Pap smear guideline adherence was not significant for persons who had a Pap smear within 1-2 years ($p = .732$) nor for those who had a Pap within 2-3 years, $p = .665$.

Question 6: What is the difference between generations in terms of Pap smear guideline adherence?

The relationship between different generations and Pap smear guideline adherence was not significant for persons who had a Pap smear within 1-2 years, $p = .409$, nor for those who had a Pap within 2-3 years, $p = .307$.

Question 7: What is the relationship of cultural congruence to Pap smear guideline adherence?

The relationship between cultural congruence and Pap smear guideline adherence was not significant for persons who had a Pap smear within 1-2 years, $p = .652$, nor for those who had a Pap within 2-3 years ($p = .604$).

Exploratory analyses were conducted with demographic variables (table 11). The demographic variables of education level, income, health insurance (does or does not have), age, marital status (married or unmarried), children, and number of family members in the home were explored. Of these, only income had a significant effect, $p = .034$. Using the scale in my survey, these data indicate that for one incremental increase on the scale (i.e., $40,000 to $49,000 and $50,000 to $59,000), participants were 20% more likely to get Pap smear screening [OR = 1.2]. Income was then included as a covariate in the model and a logistic regression analysis predicting Pap smear guideline adherence for recent Pap rest within 1-2 years (within the guidelines) was completed. The results revealed that none of the hypothesized predictor variables (fatalism, provider trust, acculturation, HPV knowledge, familism, generation level, or cultural congruence) were significant predictors of guideline adherence (see table 12).

Table 11

Summary of Logistic Regression Analysis Predicting Pap Smear Guideline Adherence for Recent Pap Test within 1-2 years from Other Exploratory Variables

Variable	***B***	SE	df	Wald statistic	*p*	Exp (B)
1. Education	.121	.179	1	.459	.498	n/a
2. **Income**	.182	.086	1	4.496	**.034**	**1.2**
3. Health insurance	1.374	.748	1	3.375	0.66	n/a
4. Age	-.219	.114	1	3.685	0.55	n/a
5. Married	.274	.470	1	.341	.559	n/a
6. Children	.368	.469	1	.614	.433	n/a
7. Family members in home	.121	.174	1	.484	.487	n/a

Note: $n = 25$ non-adherent and $n = 87$ adherent

Table 12

Summary of Logistic Regression Analysis Predicting Pap Smear Guideline Adherence for Recent Pap Test within 1-2 years: Adjusted Results After Controlling for Income

Variable	***B***	SE	df	Wald statistic	*p*
1. Fatalism	.066	.086	1	.594	.441
2. Provider Trust	.025	.020	1	1.573	.210
3. Acculturation	-.525	.616	1	.728	.393
4. HPV Knowledge	-.070	.114	1	.374	.541
5. Familism	-.120	.081	1	2.203	.138
6. Generation level	-.173	.214	1	.650	.420
7. Cultural Congruence	0.032	.082	1	.150	.699

Note: n = 25 non-adherent and n = 87 adherent

Specific Aim 2

Specific aim 2 was designed to investigate the moderating relationships of acculturation on familism, fatalism, provider trust, cultural congruence, HPV knowledge, and generational level on Pap smear guideline adherence. Logistic regression revealed that neither acculturation nor the other hypothesized predictor variables had significant relationships to Pap smear guideline adherence. Therefore, no tests were conducted on the potential effect of acculturation as a moderator of the other constructs' effects on guideline adherence.

Specific Aim 3

Specific aim 3 was to describe the characteristics of participants who have had an abnormal Pap smear result and did not receive the recommended follow-up care. However, all of the participants with abnormal Pap smears who remembered whether follow-up care was recommended did receive care. This would leave specific aim 3 limited to describing the demographic characteristics of one participant with an abnormal result who did not get the recommended care. Therefore, as a means to expand upon the known data collected in this study,

specific aim three was modified to describe the demographic characteristics of the 12 women who had abnormal Pap smear results (Appendix B).

Of the 112 participants, 12 women indicated that they have had an abnormal Pap smear in the past. Three of the participants with abnormal Pap smears did not remember if follow-up care was recommended and an additional 3 participants reported that no follow-up care was recommended. Six of the 12 participants with abnormal Pap smears got the recommended follow-up care. Of the six participants who reported that they got the recommended follow-up care, 1 had a colposcopy and a repeat Pap smear, 2 had just colposcopies, 2 had just repeat Pap smears, and 1 had a hysterectomy. For participants who had an abnormal Pap smear result, the mean and standard deviations of the instrument scales measuring the constructs of fatalism, provider trust, acculturation, HPV knowledge, familism, generation level, and cultural congruence were compared to the mean and standard deviation among all 112 participants and are listed above in table 7.

Of the 12 women who had an abnormal Pap smear result (6 of which adhered to follow-up care instructions), 10 had health care insurance. Nine of the 112 participants had health care insurance through their work and 1 had insurance they bought on their own. Participants with abnormal Pap smears in this study had varying household income levels: 1 had an income between $10,000 to $19,000; 2 had incomes between $30,000 to $39,000; 2 had incomes between $40,000 and $59,000; 4 had incomes between $70,000 to $ 79,000; 1 had an income between $80,000 to $89,000; and 2 had incomes between $100,000 to $149,000. Regarding the age of participants with abnormal Pap smear results, 5 were between the ages of 41-50 years and 4 were between the ages of 31-37 years, which is not congruent with the median age of US

Hispanics (34 years) or the mean age of participants in this study (31-33 years old) (US Census Bureau, 2014).

Eleven of the 12 participants with abnormal Pap smears self-identified as Mexican-American. Additionally, the generational level of this group of participants varied. Two of the 12 participants were second generation, 4 were third generation, 4 were fourth generation, and 2 were fifth generation. Nine of the 12 participants with abnormal Pap smears were married and 9 of the 12 participants with abnormal Pap smears were employed full-time. Lastly, 11 of these participants had their last Pap smear within the last 6 months to 2 years and 1 had her last Pap smear 2-3 years ago.

Specific Aim 4

Specific aim 4 was to test the construct of cultural congruence and how it is related to the established construct of provider trust. To complete this aim, an exploratory factor analysis was conducted on the variables used to measure cultural congruence and provider trust (Table 13, Table 14, Table 15). Four questions were developed by the researcher for this study for the purpose of understanding cultural congruence between a minority client and his or her health care provider and all 13 items on the provider trust scale were drawn from a previously validated scale. My intent was to determine whether the 4 new items and the 13 existing items loaded together (suggesting a single construct) or onto two different subscales (suggesting that provider trust and congruence are distinct). This is because no known instruments are available for assessing this construct. Varimax rotation was used to obtain factor loadings, and revealed that 2 components explained most of the variance (R-squared = 49.082 and 10.362). The rotated component matrix showed that three of the 4 variables developed for the construct of cultural congruence loaded on cultural congruence (.813 — the health care provider that does my Pap

smear(s) is the same culture as me; .459 — the healthcare provider that does my Pap smear(s) is the same sex as me; .800 —the healthcare provider that does my Pap smear(s) looks like me). Conversely, one variable for the construct of cultural congruence loaded on the construct of provider trust (.379 — the healthcare provider that did my Pap smear(s) understands my culture).

The meaning of this factor analysis was that cultural congruence and health care provider trust were separate constructs but, ultimately only 3 of the 4 cultural congruence questions measured the construct of cultural congruence. When reliability was tested with all 4 questions, the scale had low reliability (4 items: α=.481). When limited to three questions, omitting the question that loaded on the HCR scale (the healthcare provider that did my Pap smear(s) understands my culture), the 3 question scale still had the same low reliability (3 items: α=.481). Because of this low reliability coefficient, the 3 questions on cultural congruence were of limited utility in the overall analysis. If these questions were uses for another research study, the poor internal consistency could lead to variable scores on the same instrument and provide inaccurate and non-generalizable results. Nonetheless, as a rudimentary start toward understanding the construct of cultural congruence, this analysis provides a cursory start to understanding the role of cultural congruence with Pap smear guideline adherence. Future development of a scale measuring cultural congruence with psychometric is warranted and will be a goal for my future research examining culturally tailored health care.

Table 13

Rotated Component Matrix from Exploratory Factor Analysis

Component	1	2
How often does your health care provider discuss options and choices with you before health care decisions are made?	.721	-.008
My health care provider is committed to providing the best care possible.	.840	-.019
My health care provider is sincerely interested in me as a person.	.896	-.039
My health care provider is an excellent listener.	.890	.087
My health care provider accepts me for who I am.	.841	.156
My health care provider tells me the complete truth about my health-related problems.	.767	.104
My health care provider treats me as an individual.	.847	.070
My health care provider makes me feel that I am worthy of his/her time and effort.	.908	.095
My health care provider takes the time to listen to me during each appointment	.892	.166
I feel comfortable talking to my health care provider about my personal issues.	.506	-.219
I feel better after seeing my health care provider.	.594	-.094
How often do you think about changing to a new health care provider?	.750	.152
How often does your health care provider consider your need for privacy?	.608	-.010
The healthcare provider that does my Pap smear(s) is the same culture as me.	-.039	.813
The healthcare provider that does my Pap smear(s) is the same sex as me.	.099	.459
The healthcare provider that does my Pap smear(s) looks like me.	-.068	.800
The healthcare provider that did my Pap smear(s) understands my culture.	.521	.379

Note: Factor Loadings From Principal Component Factor Analysis With Varimax Rotation for the 13 Question Health Care Relationship Trust Scale-Revised and the 4 Question Cultural Congruence Survey Items.

Table 14

Component Transformation Matrix

Component	1	2
1	.995	0.95
2.	0.95	.995

Note: Extraction method principant component analysis. Rotation method varimax with Kaiser normalization (rotation converged in 3 iterations).

Table 15

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Components	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	8.34	49.062	49.082	8.34	49.082	49.082	9.284	48.731	48.731
2	1.761	10.362	59.444	1.761	10.362	59.444	1.921	10.713	59.44
3	1.148	6.752	66.196						
4	1.025	6.028	72.224						
5	.736	4.332	76.556						
6	.671	3.950	80.505						
7	.624	3.670	84.175						
8	.558	3.284	87.460						
9	.438	2.574	90.034						
10	.405	2.382	92.416						
11	.347	2.042	94.547						
12	.216	1.270	95.728						
13	.193	1.135	96.863						
14	.172	1.013	97.876						
15	.152	.894	98.770						
16	.133	.781	99.551						
17	.076	.449	100.00						

Source: Extraction Method: principal component analysis

Summary of Findings

The data analysis for the specific aims was conducted as planned in the research proposal, using the backup logistic regression procedure because the sample size was not adequate for SEM. Each question associated with the specific aims was analyzed separately in SPSS. For specific aim 1, Pap smear guideline adherence for the participants in this study was not affected by the variables of acculturation, fatalism, provider trust, acculturation, HPV knowledge, familism, generation level, or cultural congruence. Because the results for specific aim 1 were not significant, tests were not conducted on the moderating effects of acculturation to address specific aim 2. However, exploratory analyses on demographic variables were run in SPSS (Table 11. Logistic Regression Exploratory Analysis). The demographic variable of income was controlled for and was found to be a significant predictor of Pap smear guideline

adherence. However, after controlling for income, which did have a significant impact on Pap smear guideline adherence, the variables of acculturation, fatalism, provider trust, acculturation, HPV knowledge, familism, generation level, and cultural congruence were still not significant predictors of Pap smear guideline adherence.

Because all of the participants with an abnormal Pap smear were compliant with treatment recommendations, specific aim 3 was modified to examine the characteristics of the 12 participants who reported having an abnormal Pap smear. Finally, specific aim 4 was achieved using exploratory factor analysis to assess the relationship of cultural congruence and provider trust. The factor analysis revealed that there were two separate constructs when one of the 4 cultural congruence questions was eliminated. The strengths, limitations, conclusions, and recommendations of the investigation are detailed in the following chapter.

CHAPTER V

SUMMARY OF STRENGTHS, LIMITATIONS, CONCLUSIONS, AND RECOMMENDATIONS

In spite of widespread cervical cancer screening availability and a cervical cancer vaccine, the incidence rate of cervical cancer among Hispanic women remains high. Compared to non-Hispanic white women, Hispanic women have a 70% higher cervical cancer incidence rate and 50% higher cervical cancer mortality rate (Ackerson & Gretebeck, 2007; Flores & Bencomo, 2002). This is unfortunate because with regular Pap smear screening, early detection and treatment, the morbidity and mortality rates of cervical cancer can be reduced (Eggleston et al., 2007; Flores & Bencomo, 2002). The purpose of this research study was to articulate cultural differences affecting Pap smear guideline adherence among non-immigrant Hispanic women of Mexican origin.

With special attention toward Mexican cultural attributes and generational level differences, the specific aims of this study were used to select predictor variables thought to affect Pap smear guideline adherence. To test these aims, a theoretical model was developed to test the effects of acculturation, fatalism, provider trust, HPV knowledge, familism, generation level, and cultural congruence on Pap smear guideline adherence. Unfortunately, this theoretical model was not supported. While none of the predictor variables had significant relationships with Pap smear guideline adherence, the information gleaned from this pilot study can be used to support existing clinical practice interventions and future research studies about NIHWMO.

Study Findings

The study was designed to test the conceptual model shown in figure 1. This model was derived from an exhaustive literature review about the predictor variables thought to have a

direct relationship with Pap smear guideline adherence. While many studies about HWMO found a relationship between each of the individual predictor variables and Pap smear guideline adherence, the results of the study, and the model, did not echo those findings among NIHWMO. Nonetheless, the data gained from the data collection survey, in its entirety, illuminated a great deal of information that can be used for future research and current clinical practice for NIHWMO.

The demographic findings of this study represent a sample of participants who align with an integrated assimilation pattern (Xie & Greenman, 2005; Zhou, 1997). Described by Zhou (1997) as "hyphenated Americans" (p. 1001), non-immigrants, such as the participants represented in this study, are more similar to those with mainstream American values than had been expected. This is evidenced by the results of this study that showed a dissimilarity between the study participants and immigrant Hispanic persons who typically have high levels of familism and fatalism and low levels of acculturation, poor Pap smear guideline adherence, high rates of cervical cancer and late stage diagnoses (Coronado et al., 2004; Reynolds, 2004).

The intercorrelations of the variables used to predict Pap smear guideline adherence showed some low correlations among variables and are detailed in table 8. While significant correlations were found to exist between predictor variables, they were all low. Furthermore, predictor variables were tested in separate models so multicollinearity was not a threat. Because the sum scores of familism and provider trust were not normally distributed, Spearman rank-order correlation was used to measure the association between variables.

The correlation between the subscales of familism and provider trust, while significant, was low and was not expected (.341; $p < .000$). This is because familism and provider trust are separate constructs. However, it is possible that a correlation exists because both instruments ask

questions about trust. A low correlation was also found among generational level and acculturation (.240; $p < .011$) and was expected. This is because data within the literature indicates that as a persons generation level increases, so does their acculturation level.

Familism and HPV knowledge also had a correlation (.236; $p < .012$). While also weak, it may indicate that people with more positive feelings about their family have more knowledge about their health. However, this correlation is low and conclusions about the meaning of the relationship are hard to deduce. Finally, generational level and HPV knowledge also had a low correlation (.247; $p < .009$). This correlation could indicate that as a persons generation level increases, so does knowledge about their health. This correlation could be due to greater health literacy among people whose families have been in the United States longer. Again, none of these correlations were large and none of the suggested explanations has implications for the theory underlying this study. Each predictor variable was tested separately in independent models, as described below, so multicollinearity between predictors was not a threat to interpretation.

The results from the logistic regression exploratory analysis detailed in table 9 and 10 show that participants with high levels of educational attainment, socioeconomic status, medical insurance, and acculturation, were not influenced by the predictor variables hypothesized to affect Pap smear guideline adherence. Furthermore, the characteristics of this sample did not represent those known to exist among the overall population of NIHWMO nor that of HWMO. For example, the high rate of Pap smear follow-up adherence in this sample was not congruent with the power analysis assumption that an average rate of follow-up adherence is 62.5% (Eggleston et.al., 2007). In contrast, all of the participants in this study reported having a Pap

smear within the last 6 months to 5 years, and only one did not go for the recommended follow-up after having an abnormal Pap smear.

Regarding generational levels, little is known about the stratification in the general US Hispanic population because data from nationwide surveys does not ask that question. No existing data can be used to compare the results of this sample to those of a nationwide sample. Data on this topic are limited to questions about years in the US and country of birth (foreign-born or US-born) (Brown & Patten, 2013).

Additionally, participants in this study had a higher level of educational attainment than the general Hispanic population and did not represent the educational diversity found among NIHWMO and HWMO. For example, 64% of US Hispanic persons have at least a high school education but only 13.8% have a bachelor's degree or higher (US Census Bureau, 2014). Among Hispanics of Mexican origin, bachelor's degree attainment is just at 10% (Brown & Patten, 2013). In contrast, all participants in this study had a high school degree. Additionally, 27.7% had some college, 16.1% had an associate degree, 31.3% had a bachelor's degree, 16.1% had a master's degree, and 2.7% had a doctoral degree. Also, participants had higher household incomes than those generally reported among Hispanic persons in the US. Compared to the median income of Hispanic households, participants in this study had a median income in the range of $40,000-$49,000 which ranks above the national average for all US citizens at $29,000 and the national average for Mexicans in the US at $20,000 (Brown & Patten, 2013; US Census Bureau, 2014).

The cultural attributes of NIHWMO were explored through instruments related to each predictor variable. These instruments were embedded into the survey and examined the constructs of acculturation, fatalism, provider trust, HPV knowledge, familism, generation level,

and cultural congruence. The results for all 112 participants indicated that the participants were highly acculturated, had strong familial tendencies, were not very fatalistic, had various and inconsistent levels of provider trust, did not have a strong knowledge of HPV and cervical cancer, were mostly comprised of third generation US citizens, and did not have care with providers who were culturally similar.

The findings of specific aim 4, to test the construct of cultural congruence, revealed that one of the items loaded onto the scale of provider trust. The item "the healthcare provider that did my Pap smear(s) understands my culture," was not found to be an independent assessment of cultural congruence. One explanation for this is that this question, in its nature, denoted an implicit trust between a client and a provider. In future instrumentation research about the construct of cultural congruence, it would be prudent to design additional questions that do not use words related to trust or empathy. Questions to measure the construct of cultural congruence should be limited to similarities between perceived similar ethnicity and shared language and avoid questions that have wording similar to the health care provider trust scale.

Study Limitations

The construct of marianism was not measured because no instruments, validated or otherwise, could be found. HPV knowledge was evaluated through the use of a tool that has been used in previous studies, though it lacked psychometric validation.

Another limitation of this study was that illiterate women and those without exposure to the online recruitment methods and survey did not have a voice. This was one of the most noteworthy limitations because HWMO with low literacy levels are less likely to have had a Pap test (Rudd, Kirsch, Yamamoto, 2004). Additionally, recall bias regarding the timing of the last Pap smear and treatment follow-up may have presented a problem with the accuracy of data

collection, particularly since the survey questions were about a sensitive subject that isn't widely discussed in public discourse (Portney & Watkins, 2009). Lastly, while a cross sectional study design was most suited to the purpose of this study, it did not permit me to infer causality.

The major limitation of this study involved the limited sample size that did not represent the demographic characteristic of the targeted population. Even though the requisite number of participants needed for logistic regression was attained, the sample did not represent the known demographic characteristics of the Mexican-American Hispanic population in the United States. This is a limitation because the sample in this study did not include the views of less acculturated, less educated non-immigrant, impoverished, uninsured Hispanic women who are known to have the highest incidence of cervical cancer (Brown & Patten, 2013; Coronado et al., 2004; Reynolds, 2004). This limitation a major problem because the sample participants did not align with the demographic characteristics commonly assumed to be part of the Mexican culture (i.e., poor Pap smear guideline adherence, poor abnormal Pap follow-up, uninsured, fatalistic, impoverished, poor knowledge of Pap tests) (Eggleston, et al., 2007).

In spite of recruitment efforts that organizations, targeted churches and community centers in Denver, Los Angeles, and Texas, there was a very low participant response rate before I began using ResearchMatch.org. This could be due to factors related to the marketing of the study or could be attributable to the lack of participation from the organizations themselves. I had very little response to emails and phone calls to organizations for which I requested assistance with participant recruitment.

Regarding the mismatched demographic characteristics, it is also possible that the use of ResearchMatch.org, where most of the participants for this study were derived, limited participation for those who are less acculturated, poor, and have less education. An investigation

into the demographic characteristics of ResearchMatch.org participants revealed that demographic data collection is limited to participant location, health conditions, medication use, gender, and ethnicity. The hypothesis that use of this recruitment method limited the sample's socioeconomic and cultural diversity therefore could not be tested directly.

To address the limitation of demographic representation in future research, there are a number of approaches that I would change. In an ideal setting, where funding to support additional personnel is available, I would have additional staff to support door-to-door recruitment efforts in areas known to have a high population of NIHWMO, such as California and Texas. For this study the pragmatic limitations of a single principal investigator limited the ability to recruit a diverse demographic that may have revealed different results.

Another tactic that I would have used to address the limitations of this study would have been to use paper surveys for door-to-door recruitment. While this approach was not feasible for the current study in terms of time, it is possible that door-to-door recruitment, combined with the option to complete the survey on a smart phone, PC, tablet, or on paper, might result in more access to the demographic groups that were not represented in this study.

Another limitation of this study may be attributed to the inability to use structural equation modeling due to the sample size being less than requisite 200. While a power analysis for logistic regression revealed that a sample size of 98 would be adequate for that method of analysis, it was not the first choice for testing this particular theoretical model. In addition, some of the assumptions made in the power analysis were not met. In particular, the literature-based assumption that no more than 27% of HWMO would be adherent to Pap screening recommendations was not met by the participants of this study. The much more limited rate of nonadherence and unequal group sizes between adherent and non-adherent participants had the

effect of limiting power for the logistic regression analyses. Had the sample been larger, structural equation modeling might have allowed for a comprehensive view of how all of the predictor variables interacted with the variable of Pap smear guideline adherence and have been able to better characterize the strength of any relationships.

Implications for Practice

The impetus for this research study was to collect new data that could be used to support targeted cervical cancer screening initiatives in the clinic setting and at large. Given that little to no clinical research or census data addresses generational differences among NIHWMO, it was hoped that this study would assess those differences in tandem with understanding cultural variables affecting Pap smear guideline adherence. While ultimately none of the hypothesized predictor variables had a significant effect on guideline adherence, the 112 participants who completed the survey were generally very adherent to the guidelines, which did allow me to draw some conclusions about current practice usefulness.

The implications of this study are that culturally tailored interventions may not be imperative for well acculturated, insured, educated, NIHWMO. All of the participants adhered to Pap smear guidelines recommended by the American Cancer Society and the American College of Gynecologists and Obstetricians for cervical cancer screening (American College of Obstetricians and Gynecologists, 2012). While it is impossible to know exactly why this group of women was compliant, perhaps the idea that individuals respond better to a provider who mirrors their image and culture is only relevant for those outside the mainstream societal demographic.

Another possibility might be that women who are more acculturated to American culture respond similarly to the current language of health care interventions. A third explanation might be that cultural congruence simply is not clearly articulated yet and that literature about cultural

congruence is foundational rather than complete. In any case, it seems that the care and clinical teaching received by women similar to the participants of this study is working. As a result, clinical visits incorporating cervical cancer screening in this population can focus on usual care and the specific needs articulated by each respective client without a change in clinical practice and provider-driven education.

Implications for Research

Future quantitative research should investigate the research aims among a larger population NIHWMO. To facilitate a more diverse sample that is more closely aligned with that of the known NIHWMO demographic, I would employ methods such as door-to-door recruitment in areas known to have more persons of lower socioeconomic status, in addition to methods such as ResearchMatch. I would also use a lay community advisory committee to facilitate recruitment and survey completion. The use of a lay advisory committee could also be used to address areas of research not considered by the researcher. With a focus of the existing conceptual model shown in figure 1 and the feedback gathered in guided focus groups among lay advisors, it is possible that new areas of exploration could be suggested and explored. The perspective of community members could also help me, as the principal investigator, to posit different methodological ideas to highlight conflicts with feasibility among all phases of the proposed research process.

Another tactic toward understanding the Pap smear guideline adherence among NIHWMO would be to conduct foundational qualitative research study. A phenomenological research study could be used to create a new theory for approaching Pap smear guideline adherence. The data collection activities could include multiple in-depth interviews and document collection, supplemented by a survey to understand the relationships between Pap

smear guideline adherence and acculturation, fatalism, provider trust, acculturation, HPV knowledge, familism, generation level, and cultural congruence. A phenomenological study could employ a mixed methods approach to gather qualitative and quantitative data collection while investigating the relationship of acculturation.

As a whole, there are very few articles addressing marianism. In fact, the construct of marianism was not measured in this study because no instruments, validated or otherwise, could be found. So while it is a known covert emic concept among members of the Mexican cultural group, the variations of it's description and conceptualization made the creation and pilot-testing of items difficult. I determined that the measurements of marianism should be part of a future specific instrumentation study devoted only to that construct. As such, questions about marianism were not created for implementation within this study.

In future research, a specific instrumentation study, perhaps in tandem with a phenomenological study, could be used to elucidate the concepts related to marianism and further explore the concepts of cultural congruence on Pap smear guideline adherence. While it is arguably easier to expand upon cultural congruence because of the expansive knowledge about it that already exists in the literature, lay advisors and content experts could be employed to develop questions regarding the construct of marianism.

Conclusion

The rate of cervical cancer among vulnerable women remains high and can be attributable to many factors. This research study is a step in the direction of culturally-tailored research generated by a culturally diverse nurse researcher for a population that is largely underrepresented in the scientific literature. As the population of non-immigrant Hispanic women of Mexican origin women increases, it will become essential to understand the specific

cultural attributes and factors influencing these individuals' preventative health. In addition to the obvious benefit of preventing a reproductive cancer, the implications for this type of research are that it may help to understand cultural differences that may arise with the growing population of Mexican-American Hispanics.

Because there are still no known existing studies examining this topic and because there were no significant findings in this study, my conclusions from this experience are that more studies are still needed to collect data on NIHWMO before conclusions about culturally tailored interventions can be drawn. Additionally, studies regarding the cultural difference among NIHWMO and Pap guideline adherence can be used to develop effective interventions that inspire meaningful self-care and regular preventive screenings, as well as informing clinicians about how cultural variability does or does not affect patient care.

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APPDENDIX A

Commonly Used Terms to Describe Persons from Spanish-Speaking Countries

Term	Definitions
Hispanic	Created in 1970 to identify people of Spanish origin for the US Census. Refers to all Spanish speakers and infers a heritage from Spain.
Latino/ Latina	Persons having a heritage from Latin America; excluding persons from Spain and Native Americans.
Puerto Rican	Persons from the island of Puerto Rico. All Puerto Ricans are United States citizens.
Rican	Post first generation Puerto Ricans living in the continental United States. This term is also associated with persons acknowledging their Puerto Rican and African ancestry.
LatiNegro(a)	Persons with Caribbean, Central American, or South American ancestry who are perceived as Black.
Boricua	Persons from Puerto Rico. Before colonization, Puerto Rico was called Borinquen.
Nuyorican	Political term referring to persons of Puerto Rican descent who are born in the New York City area of the United States.
Caribeno(a)	Persons from Spanish speaking areas of the Caribbean such as Cuba, Dominica, and Puerto Rico.
Chicano(a)	Controversial term describing Mexican-Americans.
Mexican	Citizens of Mexico and often used to identify American citizens with Mexican ancestry.
Mexican-American	American citizens with Mexican ancestry.
Cuban	Citizens of Cuba and often used to identify American citizens with Cuban ancestry.
Cuban-American	American citizens with Cuban ancestry.
South American	Citizens of South American countries and often used to identify American citizens with South American ancestry.
Central American	Citizens of Central American countries and often used to identify Central American citizens with Mexican ancestry.
Dominican	Citizens of Dominica and often used to identify American citizens with Dominican ancestry.

Source: Comas-Dias, 2001; Morse, Hupcey, Mitcham, & Lenz, 1996; US Census, 2008; Zimmerman et al., 1994

APPDENDIX B

INFORMED CONSET

Pap Smear Guideline Adherence Among Non-Immigrant Hispanic Women of Mexican Origin

Response is only partial and is not complete. Response was added on 10/20/2014 4:21pm.

Study Title: Pap Smear Guideline Adherence Among Non-Immigrant Hispanic Women of Mexican Origin Principal Investigator: Dulce Mia Warren, MS, RNC, WHNP-BC COMIRB No: 14-1561 Version Date: v 9.22.2014 Dulce Mia Warren You may be eligible to be in this research study if you are English speaking, were born and currently live in the U.S., have had a pap smear, are between the ages 21-50 years old, and self-identify as Mexican or Mexican-American. If you join the study, you will spend 15-30 minutes completing an on-line survey. After completing this survey, you will have the option to enter in your name, email, and phone number for the chance to win one of 5 Ipod shuffles. Your participation in this study will help the researcher to understand more about cervical cancer prevention among Hispanic women who have Mexican and Mexican-American cultural values. The risks of this study are minimal and include a breach of confidentiality. The survey system will allow you to start the survey, stop the survey, and restart the study at your convenience. You may discontinue or quit participation in the study at any time. All efforts will be made to keep your survey private (confidential). Every effort will be made to protect your privacy and confidentiality by storing data on password-protected computers with access only to specific members (PI and, sponsors) of the research team. Backup data will be saved on a portable encrypted external hard drive and kept in a locked file cabinet in the designated research office, which is a HIPAA-compliant data storage facility. Names and contact information will not be collected as a requirement of this study. You have a choice about being in this study. You do not have to be in this study if you do not want to be. If you have questions, you can call Dulce Mia Warren at (720) 445-5623 You can text or call and ask questions at any time. You may have questions about your rights as someone in this study. If you have questions, you can call the COMIRB (the responsible Institutional Review Board). Their number is (303) 724-1055. By completing this survey, you are agreeing to participate in this research study.

○ Yes
○ No

RESEARCH INSTRUMENT

Of the following, how do you most identify yourself	◯ Mexican ◯ Mexican-American ◯ other
What language would you say you speak most of the time?	◯ Spanish ◯ English ◯ Other [NOTE LANGUAGE]: ◯ Don't know
What language do you mostly think in?	◯ Mostly in Spanish ◯ Mostly in English ◯ About the same in Spanish and English ◯ Mostly in another language [NOTE OTHER LANGUAGE]: ◯ About the same in English and another language ◯ Don't know
Where were you born?	◯ Mexico ◯ U.S. ◯ Other
Have you ever had a pap test?	◯ Yes ◯ No
How old are you?	◯ 13-20 ◯ 21-23 ◯ 24-27 ◯ 28-30 ◯ 31-33 ◯ 34-37 ◯ 38-40 ◯ 41-50 ◯ other
Do you have a child or children?	◯ Yes ◯ No
How many family members live in your home?	◯ 0 ◯ 1 ◯ 2 ◯ 3-4 ◯ 5-6 ◯ 7-8 ◯ 9 or more
Do you have health insurance?	◯ Yes ◯ No
Where do you usually get your healthcare?	◯ Public health clinic ◯ Private health clinic ◯ Hospital ◯ Other
What is the highest degree or level of school you have completed? If currently enrolled, mark the previous grade or highest degree received so far.	◯ No school ◯ up to 8th grade ◯ 9th or 10th grade ◯ 11th or 12th grade ◯ High school graduate or GED ◯ Some college ◯ Associate degree ◯ Bachelor's degree ◯ Master's degree ◯ Doctorate degree (for example: PhD, EdD)

What is your marital status?

- ◯ Married
- ◯ Single
- ◯ Widowed
- ◯ Divorced
- ◯ Separated
- ◯ Never married
- ◯ Living with partner

What is your current employment status?

- ◯ Full-time
- ◯ Part-time
- ◯ Self-employed
- ◯ Out of work and looking for work
- ◯ Out of work but not currently looking for work
- ◯ Homemaker
- ◯ Student
- ◯ Retired
- ◯ Unable to work

What is your total household income?

- ◯ Less than $10,000
- ◯ $10,000 to $19,999
- ◯ $20,000 to $29,999
- ◯ $30,000 to $39,999
- ◯ $40,000 to $49,999
- ◯ $50,000 to $59,999
- ◯ $60,000 to $69,999
- ◯ $70,000 to $79,999
- ◯ $80,000 to $89,999
- ◯ $90,000 to $99,999
- ◯ $100,000 to $149,999
- ◯ $150,000 or more

When was your most recent Pap test?

- ◯ Less than 6 months ago
- ◯ 6 months to 1 year ago
- ◯ 1-2 years ago
- ◯ 2-3 years ago
- ◯ 4-5 years ago
- ◯ 5-6 years ago
- ◯ 6 years ago or more
- ◯ don't know or don't remember

Was your last Pap test abnormal?

- ◯ yes
- ◯ no
- ◯ don't know or don't remember

Please answer the following question about your health care experiences.

How often does your health care provider discuss options and choices with you before health care decisions are made?
- ○ none of the time
- ○ some or a little of the time
- ○ occasionally or a moderate amount of the time
- ○ most of the time
- ○ all of the time

My health care provider is committed to providing the best care possible.
- ○ none of the time
- ○ some or a little of the time
- ○ occasionally or a moderate amount of the time
- ○ most of the time
- ○ all of the time

My health care provider is sincerely interested in me as a person.
- ○ none of the time
- ○ some or a little of the time
- ○ occasionally or a moderate amount of the time
- ○ most of the time
- ○ all of the time

My health care provider is an excellent listener.
- ○ none of the time
- ○ some or a little of the time
- ○ occasionally or a moderate amount of the time
- ○ most of the time
- ○ all of the time

My health care provider accepts me for who I am.
- ○ none of the time
- ○ some or a little of the time
- ○ occasionally or a moderate amount of the time
- ○ most of the time
- ○ all of the time

My health care provider tells me the complete truth about my health-related problems.
- ○ none of the time
- ○ some or a little of the time
- ○ occasionally or a moderate amount of the time
- ○ most of the time
- ○ all of the time

My health care provider treats me as an individual.
- ○ none of the time
- ○ some or a little of the time
- ○ occasionally or a moderate amount of the time
- ○ most of the time
- ○ all of the time

My health care provider makes me feel that I am worthy of his/her time and effort.
- ○ none of the time
- ○ some or a little of the time
- ○ occasionally or a moderate amount of the time
- ○ most of the time
- ○ all of the time

My health care provider takes the time to listen to me during each appointment
- ○ none of the time
- ○ some or a little of the time
- ○ occasionally or a moderate amount of the time
- ○ most of the time
- ○ all of the time

I feel comfortable talking to my health care provider about my personal issues.
- ○ none of the time
- ○ some or a little of the time
- ○ occasionally or a moderate amount of the time
- ○ most of the time
- ○ all of the time

Please answer the following question about your generational level.

My generation level is
- ○ 2nd generation = I was born in the USA. At least one of my parents was born in another country.
- ○ 3rd generation = I was born in the USA, both of my parents were born in the USA, and all of my grandparents were born in Mexico or another country.
- ○ 4th generation = I was born in the USA, both of my parents were born in the USA, and at least one grandparent was born in Mexico or another country with the rest born in the USA.
- ○ 5th generation = I was born in the USA, both of my parents were born in the USA, and all of my grandparents were born in the USA.

I feel better after seeing my health care provider.	○ none of the time ○ some or a little of the time ○ occasionally or a moderate amount of the time ○ most of the time ○ all of the time
How often do you think about changing to a new health care provider?	○ none of the time ○ some or a little of the time ○ occasionally or a moderate amount of the time ○ most of the time ○ all of the time
How often does your health care provider consider your need for privacy?	○ none of the time ○ some or a little of the time ○ occasionally or a moderate amount of the time ○ most of the time ○ all of the time

Please answer the following question about your family.

My family is always there for me in times of need.	○ strongly disagree ○ disagree ○ neutral ○ agree ○ strongly agree
I am proud of my family.	○ strongly disagree ○ disagree ○ neutral ○ agree ○ strongly agree
I cherish the time I spend with my family.	○ strongly disagree ○ disagree ○ neutral ○ agree ○ strongly agree
I know my family has my best interests in mind.	○ strongly disagree ○ disagree ○ neutral ○ agree ○ strongly agree
My family members and I share similar values and beliefs.	○ strongly disagree ○ disagree ○ neutral ○ agree ○ strongly agree

Please answer the following questions about your beliefs.

I believe if someone is meant to have cancer, it doesn't matter what they eat, they will get cancer anyway.	○ Yes ○ No
I believe if someone has cancer, it is already too late to do anything about it.	○ Yes ○ No
I believe someone can smoke all their life, and if they are not meant to get cancer, they won't get it.	○ Yes ○ No
I believe if someone is meant to get cancer, they will get it no matter what they do.	○ Yes ○ No
I believe if someone gets cancer, it was meant to be.	○ Yes ○ No
I believe if someone gets cancer, their time to die is near.	○ Yes ○ No
I believe if someone gets cancer, that's the way they were meant to die.	○ Yes ○ No
I believe getting checked for cancer makes people think about dying.	○ Yes ○ No
I believe if someone is meant to have cancer, they will have cancer.	○ Yes ○ No
I believe some people don't want to know if they have cancer because they don't want to know they may be dying from it.	○ Yes ○ No
I believe if someone gets cancer, it doesn't matter when they find out about it, they will still die from it.	○ Yes ○ No
I believe if someone gets cancer a lot of different treatments won't make any difference.	○ Yes ○ No
I believe if someone was meant to have cancer, it doesn't matter what the doctor tells them to do, they will get cancer anyway.	○ Yes ○ No
I believe if someone is meant to have cancer, it doesn't matter if they eat healthy foods, they will still get cancer.	○ Yes ○ No
I believe cancer will kill most people who get it.	○ Yes ○ No

Please answer the following question about your health care provider.

The healthcare provider that does my Pap smear(s) is the same culture as me.	◯ none of the time ◯ some or a little of the time ◯ occasionally or a moderate amount of the time ◯ most of the time ◯ all of the time
The healthcare provider that does my Pap smear(s) is the same sex as me.	◯ none of the time ◯ some or a little of the time ◯ occasionally or a moderate amount of the time ◯ most of the time ◯ all of the time
The healthcare provider that does my Pap smear(s) looks like me.	◯ none of the time ◯ some or a little of the time ◯ occasionally or a moderate amount of the time ◯ most of the time ◯ all of the time
The healthcare provider that did my Pap smear(s) understands my culture.	◯ none of the time ◯ some or a little of the time ◯ occasionally or a moderate amount of the time ◯ most of the time ◯ all of the time

Please answer the following question about human papilloma virus and cervical cancer.

Have you heard of the human papilloma virus (HPV)?	◯ Yes ◯ no ◯ don't know
HPV is not sexually transmitted	◯ True ◯ False ◯ Don't know
HPV infection is relatively uncommon	◯ True ◯ False ◯ Don't know
HPV causes cervical cancer	◯ True ◯ False ◯ Don't know
Who can become infected with HPV?	◯ Men ◯ women ◯ both men and women ◯ don't know
Both men and women can have cervical cancer	◯ True ◯ False ◯ Don't know
This incidence of HPV in women is highest among women in their 20s and 30s	◯ True ◯ False ◯ Don't know
Most people with genital HPV infections are symptomatic	◯ True ◯ False ◯ Don't know
HPV causes genital warts	◯ True ◯ False ◯ Don't know
Genital warts are caused by the same HPV types that cause cervical cancer	◯ True ◯ False ◯ Don't know
There is a cure for HPV infection	◯ True ◯ False ◯ Don't know

Please answer the following questions for a chance to win a prize.You are sharing this information for the chance to win one of 5 Ipod shuffles.

Your name Sharing this information is voluntary. You are sharing this information for the chance to win one of 5 Ipod shuffles.

_____
(You will not be contacted if you do not win. Your information will not be saved.)

Your email address Sharing this information is voluntary. You are sharing this information for the chance to win one of 5 Ipod shuffles.

_____
(You will not be contacted if you do not win. Your information will not be saved.)

Phone number Sharing this information is voluntary. You are sharing this information for the chance to win one of 5 Ipod shuffles.

_____
(You will not be contacted if you do not win. Your information will not be saved.)

APPDENDIX C

COMMUNITY ADVERTISEMENT

Community advertisement

Principal Investigator: Dulce Mia Warren, MS, RNC, WHNP-BC
COMIRB No: 14-1561

Would you like to volunteer for a research study?

You may be eligible to be in this research study if:
Were born and currently live in the U.S.
You are Mexican or Mexican-American
Have had a pap smear
Are 21-50 years old

How long will this study take?

This on-line survey will only take 10-20 to minutes to complete!
You can learn more about taking this survey by clicking this link
https://redcap.ucdenver.edu/surveys/?s=cUUebwpSXI

What is the study all about?

The researcher wants to learn more about how to prevent cervical cancer prevention among American women who have Mexican and Mexican-American cultural values. The researcher is a doctoral student at the University of Colorado at the College of Nursing.

Is this study private?

Names and contact information will not be collected as a requirement of this study. You have a choice about being in this study. You do not have to be in this study if you do not want to be.

If you have questions, you can call Dulce Mia Warren at You can text or call and ask questions at any time.

You may have questions about your rights as someone in this study. If you have questions, you can call the COMIRB (the Colorado Institutional Review Board). Their number is (303) 724-1055.

After completing this survey, you will have the option to enter in your name, email, and phone number for the chance to win one of 5 Ipod shuffles.