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Mexican Immigrant Women and Cervical Cancer Screening Beliefs and the Pap Test – A Look  
at Spousal Support

A dissertation submitted in partial satisfaction of the  
requirements for the degree Doctor of Philosophy  
in Nursing

by

Susan Vargas

2023

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## ABSTRACT OF THE DISSERTATION

Mexican Immigrant Women and Cervical Cancer Screening Beliefs and the Pap Test –  
A Look at Spousal Support

by

Susan Vargas

Doctor of Philosophy in Nursing

University of California, Los Angeles, 2023

Professor Eunice Eunkyung Lee, Chair

Cervical cancer (CC), although preventable, is a significant cause of deaths among Mexican Immigrant Women (MIW). This study applied the Health Belief Model to MIW and their husbands to (a) explore support provided to MIW from their husbands with varying degrees of CC knowledge, awareness, and understanding of Pap testing; and (b) determine the relationship between MIW's knowledge and health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy) and their screening behaviors. A sample of 110 married couples including MIW were recruited from 2 public community centers. Questionnaires in English and Spanish were administered, including the HPV/Cervical Cancer and Screening Knowledge Scale, Cervical Cancer Screening Self-Efficacy Scale, the Bi-Dimensional Acculturation Scale, and the Spousal Support Scale. It was hypothesized that husbands' support for their wives, and MIW's knowledge, health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy), and perceived spousal support would be positively related to MIW's screening behaviors. However,

only MIW's health beliefs of susceptibility and benefits were related to screening behavior in logistic regression analyses. The sample, recruited from community centers that had unusually good services for encouraging health care, may not have been representative of the broad MIW population. On the other hand, the findings added to an understanding of the often complex relationships between perceptions of husbands' support and their wives' CC screening behaviors. The findings also supported the benefits of local well established and resourced community centers. It is hoped that these insights can help shape future research and practice in this vitally important field.

The dissertation of Susan Vargas is approved.

MarySue V. Heilemann

Mary-Lynn Brecht

Sharon J. Traweek

Eunice Eunkyung Lee, Committee Chair

University of California, Los Angeles

2023

## Dedication

For my parents, who raised me to be strong and to never give up in my accomplishing my goals and dreams. Thank you for sacrificing so much for our family.

For my children, you are my heart, happiness and sunshine to my cloudiest days. I hope to inspire both of you to pursue your goals and dreams.

For my Husband, thank you for always believing in me throughout this journey. I could not have done this without you, I am forever grateful for your love and support.

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## Vita

SUSAN VARGAS MSN, RN

### PROFESSIONAL SUMMARY

Forward-thinking, highly skilled and enthusiastic professional with more than 20 years of experience managing operations in patient-centric medical offices and hospitals. Extensive knowledge of inpatient and ambulatory care with particular emphasis on building strong, effective, and cohesive teams.

### WORK EXPERIENCE

Downey Medical Center, Downey CA

House Supervisor- All inpatient units (8/6/12-present)

- Manage off hours and weekend patient care and nursing services activities
- Ensure staff provides the highest quality of care and in compliance with the Nurse Practice Act, TJC, federal, state, and local requirements
- Coordinate and monitors staffing for all shifts, maintaining appropriate staffing levels and skill mix
- Participate in developing, reviewing, and updating departmental policies and procedures
- Identify and implement best practices to provide improved quality care and services
- Follow up on all clinical issues
- Monitor quality of care delivered
- Supervise staff, assess their needs, and identify educational opportunities
- Collaborate with all departments throughout the medical center
- Assist in monitoring and maintaining budget
- Manage and resolve human resource, employee, department safety, and risk management issues

Kaiser Permanente, Cudahy Medical Office Building, Cudahy, CA

Department Administrator – Family Medicine, Pediatrics, OBGYN (10/08/08-7/6/12)

- Budget planning and preparation
- Oversight of daily staffing, motivation, counseling and supervising
- Performance evaluations
- Develop processes to screen, interview, hire, train, and maintain the competency of all department staff
- Lead in strategic initiatives; workflows and operations assessment; Personal Access, Proactive Office Encounters, operational efficiency improvement, problem troubleshooting
- Work very closely with department chiefs in order to provide a cohesive, collaborative work environment and facilitate department operations
- Member of multiple committees

Kaiser Permanente Bellflower, Downey, CA

Assistant Department Administrator – Internal Medicine (08/15/05-10/1/08)

- Responsible for the operational management of multiple modules (47 providers, 110 employees, & 137,885 office visits in 2007)
- Lead in many strategic initiatives; implementation of Health Connect, Personal Access, Proactive Office Encounters
- Manage daily operations and maintain clinical practice standards and staff development
- Develop processes to screen, interview, hire, train, and maintain the competency of all department staff
- Partnered with union leaders in initiatives such as Unit Based Teams, Workplace Safety, disaster and attendance committee's
- Assist DA in managing Internal Medicine's budget
- Coordinated ancillary staff to attend LMP classes and Service Recovery
- Active member of the Lab Access Committee
- Served as a member of the Safety Observations Committee
- Coordinated multiple projects; departmental workflows and policies and procedures
- Manage and resolve human resource, labor relations, employee and department safety, and risk management issues

College Hospital - Cerritos CA

Charge Nurse in Gero/Psych unit & Relief House Supervisor (06/98-2006)

- Provide total patient care in a Gero/Psych facility
- Relief House Supervisor
- Oversee hospital operations of multiple departments (ICU, GICU, DDMI etc.)
- Lobby evaluations for 5150's
- Medical clearances for patient admissions
- Ancillary staffing
- Manage and resolve human resource and employee issues
- Clinical Trials/Research Medication studies for Psychiatric patients

#### EDUCATION

- University of California Los Angeles- MSN degree- specialty in Nursing Administration-2005
- California State University Dominguez Hills - BSN degree-2003
- Cerritos Community College - Associates Degree in Nursing-1998

#### LICENSURES AND CERTIFICATES

- California Registered Nurse License # 557066
- Peri-operative certificate
- CPR certificate
- Management of Assaultive Behavior certificate
- LPS Designation (ability to place patients on 5150 status)

#### LANGUAGES AND SKILLS

- Fluent in Spanish: conversation, reading, writing
- Computer skills: Microsoft Office including Excel, PowerPoint, Word, Lotus Notes

## CHAPTER 1

Cervical cancer (CC) is extremely preventable in most Western countries because of readily available screening tests such as the Papanicolaou (Pap) test and a vaccine to prevent human papilloma virus (HPV) infections (American Cancer Society [ACS], 2014, 2020a, 2023a; Centers for Disease Control [CDC], 2014b, 2020a, 2023). When cervical cancer is found early, it is highly treatable and associated with long survival and good quality of life (ACS, 2014, 2023a; CDC, 2014b, 2023). However, data continue to show significant numbers of cases and deaths due to CC, particularly among Mexican Immigrant Women (MIW) (National Cancer Institute [NCI], 2013, 2023). Hispanics are not a homogeneous group; they come from different nationalities and unique traditions. The findings discussed below support the importance and relevance of understanding this population's understanding of CC and how culture affects CC screening among them (Pew Hispanic Center, 2006).

This study's population of interest is MIW. Since the term Hispanic is often used to refer to persons of Mexican, Cuban, Puerto Rican, South or Central American, or other people of Spanish descent (U.S. Census Bureau, n.d.b), when data is not available for MIW specifically, data of Hispanic women that includes Mexican women are used.

### **Cervical Cancer in Hispanic and Mexican Women**

**CC incidence and mortality in Hispanic and MIW.** According to the most recent data reported by the ACS (2023a), Hispanic women in the United States (U.S.) have had the second highest rate of CC incidence (9.7 per 100,000 women), after only American Indian/Alaska Native (10.9/100,000 women), followed by Black women (8.8/100,000 women), non-Hispanic white (NHW) women (7.2/100,000 women), and Asian/Pacific Islander women (6.1/100,000

women). Similarly, Hispanic women have the third-highest CC mortality rate (2.5/100,000) among the five ethnic/racial groups according to the ACS (2023a), following Black (3.3/100,000) and American Indian/Alaska Native groups. Specifically, the CC mortality rate among Hispanic women is much higher than that of 2.0 per 100,000 for non-Hispanic white women (ACS, 2023a). The CDC, using slightly different classifications, reported that “Hispanic women have the highest rate of getting cervical cancer. Hispanic women have the second highest rate of dying from cervical cancer, after non-Hispanic Black women” (CDC, 2023, p. 1). Further, Mexican women, as a sub-group of Hispanic women, had significantly higher CC incidence (16.9/100,000) and mortality (11.9/100,000) rates within that Hispanic group, which is alarming (Siegel et al., 2012).

**Human Papilloma Virus.** HPV is a small, double-stranded Deoxyribonucleic acid (DNA) virus, primarily spread through vaginal or anal sex (CDC, 2014b, 2022b). It is estimated that about 79 million Americans are currently infected with HPV (CDC, 2022b). More than 14 million people become newly infected annually, the bulk of which occur in people ages 15–24 (CDC, 2014a, 2022b). Most of the time, HPV is fought off naturally by the immune system and does not cause health problems. It is only when HPV remains in the cervical cells for many years that it can cause CC (ACS, 2014, 2023b; CDC, 2014b, 2022a).

Women can become infected even when their partners have no signs or symptoms. The most consistent risk factors for acquiring HPV are multiple sexual partners, age of first sexual intercourse, and a partner infected with HPV (ACS, 2023b; CDC, 2014b, 2022b; Fernandez et al., 2009a; Siegel et al., 2012). On average, over 11,000 new cases of HPV-related CCs are diagnosed in the U.S. each year (ACS, 2014, 2023a; CDC, 2022a, 2023; Siegel et al., 2012). While HPV is the most common sexually transmitted infection in women worldwide, HPV types

16 and 18 are believed to be leading causes of CC and are believed to cause 70% of CCs (ACS, 2014, 2023b; CDC, 2022a, 2023). HPV is a critical element for the development of pre-invasive and invasive cervical lesions (ACS, 2014, 2023b; CDC, 2022a, 2023). In conjunction with identifying precancerous lesions, screening detects cancer in its early stages, when treatment is most effective.

HPV infection is measured by HPV DNA detection in cervical cells (CDC, 2022b). There are no currently recommended screening methods similar to a Pap testing for detecting cell changes caused by HPV infection in anal, vulvar, vaginal, penile, or oropharyngeal tissues (CDC, 2014b). Since specific types of HPV cause virtually all cases of CC, and HPV-16 and HPV-18 cause about 70% of CC worldwide, HPV data was gathered with CC incidence and mortality (ACS, 2014, 2023a; CDC, 2022a, 2023).

The relatively high CC-related incidence and death rates in Mexican women is also likely due to their higher rates of infection with HPV compared to non-Hispanic women (NHW) in the U.S. (ACS, 2014, 2023a; Siegel et al., 2012; NCI, 2023). Currently, the U.S. HPV incidence rate of CC in Hispanic women is 9.7 out of 100,000 women, whereas the rate is 7.2 per 100,000 for NHW women (CDC, 2023). There is no specific data on HPV-related CC in Mexican-Americans.

Notably, another possible reason for the relatively high CC incidence among Hispanic women in US could be due to the fact that the CC incidence rate among Mexican women in Mexico (23.7 per 100,000 women) is much higher than the rate among women in the U.S. (16.9/100,000 women) (Bruni et al., 2016). Migration of Mexican women from Mexico to US could have resulted in the high CC incidence among Mexican/Hispanic women in US. When those immigrant women who are at risk for developing CC, eventually migrate to the U.S., the



disparity in incidence between the U.S. and developing countries is attributed in part to poor access to screening and treatment programs in the developing countries (Bruni et al., 2016).

Mexico, with a population of 44.89 million women aged 15 years or older (Bruni et al., 2016), ranked CC the second most frequent cancer among women in all age groups and number one frequent cancer in women aged 15 to 44 years. In Mexico, the CC-related mortality rate is 8.1 per 100,000 women (Bruni et al., 2016), much higher than the rate of 2.2 per 100,000 for non-Hispanic white women. Although the introduction of the Pap test significantly decreased the incidence of CC by more than 70% over the past five decades, Hispanic women continue to have a high incidence of CC (9.7 per 100,000 women) and mortality rate (2.5 per 100,000 women) among ethnic/racial groups (ACS, 2014, 2023a; Gregg et al., 2011; Siegel et al., 2012).

There are many underlying factors causing this disparity: Hispanic immigrants have rather low levels of awareness of HPV and have a higher than normal HPV rates. They also have limited knowledge on sexually transmitted infection risks and Mexican women may not understand or have limited knowledge on the importance of testing because it is not be the norm in Mexico (ACS, 2014, 2020a; CDC, 2014b; Drewry et al., 2010; Fernandez, et al., 2009a; Jemal et al., 2013; Luque et al., 2018; McMullen et al., 2005; Owusu et al., 2005; Scarinci et al., 2003; Seigel et al., 2012).

### **Risk Factors for CC**

There are general risk factors for CC that affect all women such as smoking, long-term oral contraceptive use, co-infection with other sexually transmitted infections and having multiple sexual partners, increasing the risk of HPV (ACS, 2020b). Among women who smoke, the carcinogens in cigarettes can cause damage to the cervical cells, possibly leading to CC. Studies have shown that smoking can accelerate the cervical damage caused by HPV (ACS,

2020b). Smoking also makes the immune system less effective in fighting HPV infections, the precursor to CC. These reasons are the most recognized co-factors likely to influence the risk of progression from cervical HPV infection to high-grade intraepithelial lesions and invasive CC (ACS, 2014; Castellsague et al., 2002; CDC, 2014a, 2022b; NCI, 2013,2023; Siegel et al., 2012). Additionally, if a mother or sister had CC, chances of developing the disease are 2 to 3 times higher than if no one in the family had it (ACS, 2014, 2020b).

Infection with HPV has been established as the main etiologic agent for CC. The high prevalence and mortality related to CC in MIW can be mostly attributed to high parity (when a woman carries the pregnancies to a viable gestational age), poverty and a higher incidence of HPV related CC (ACS, 2023b). Living below the federal poverty line is one of the risk factors for CC (ACS, 2023b). Women with low incomes do not have access to adequate health care services, including Pap tests (ACS, 2023b). Hispanic women are more than twice as likely as NHW women to live in poverty (MPI, 2015, 2022). In general, Mexican immigrants are much more likely to experience poverty than immigrants from other countries and U.S. natives (The Migration Policy Institute (MPI), 2022). In 2014, 28% of Mexican immigrant families lived in poverty, compared to 18% of all immigrant families and 10% of native-born families (MPI, 2015). Women from Mexico, who make up more than a quarter of all female immigrants, made the least amount of income of all female immigrant groups in 2018, with an annual median income of \$20,000 (American Immigration Council, 2020).

### **CC Screening in Hispanic and Mexican Women**

Early cancer detection can result in prompt and effective treatment and subsequently decrease cancer related mortality and morbidity (ACS, 2014, 2020b, 2023; CDC, 2014a, 2023). Women who are diagnosed early have a 91% chance of surviving 5 years after diagnosis (ACS,

2014, 2023a; CDC, 2014a, 2023). Of the women diagnosed in the U.S., 50% have never had Pap testing and an additional 10% have not been screened in the previous 5 years (ACS, 2023a).

Although CC is virtually 100% preventable, Hispanic women continue to suffer and die from the disease (ACS, 2014, 2020a, 2023a). Despite medical advances, immigrants from Latin America continue to experience CC disparities (Siegel et al., 2012): This immigrant population is more likely to present with advanced-stage CC and have a worse prognosis such as invasive or metastatic CC compared to white women (CDC, 2014a, 2023; Moore-Monroy et al., 2013; Scarinci et al., 2010; Siegel et al., 2012).

Despite the wide availability of Pap tests through many federally funded programs and free clinics, the number of Hispanic women obtaining preventive measures is minimal (Scarinci et al., 2003; Siegel et al., 2012). In a study by Gregg et al. (2011), only 77.4% of Hispanic women report Pap screening for CC within the last three years, compared to 83.4% of NHW women. This study included a high percentage of new immigrants from Mexico (70%), who already are at a much higher risk of CC. The study found that only 30% of MIW from rural Mexico have ever been screened for CC. According to the National Health Interview Survey (CDC, 2010), Hispanic women reported a 78.7% screening rate, including Puerto Rican women (85.5%), Mexican American women who are born in the U.S. (80.1%), Central and South American women (79.8%), and MIW (75.0%). The lowest CC screening rates of any racial and ethnic group in the U.S. comes from MIW (ACS, 2014, 2020a; Bocanegra et al., 2009; Byrd et al., 2013).

### **Increasing Number of Latino and Mexican Immigrants**

In 2012, the Hispanic population was 50.5 million, 16.3% of the total U.S. population, which was a little over 312 million. The Hispanic population is expected to make up 29% of the

U.S. population by 2050. The number of Hispanic population in 2050 would be nearly six times higher than the number in the 1970s (Pew, 2006). These sharp increases have made the Hispanic population one of the largest and fastest growing minority groups in America.

To date, 11.4 million are Mexican immigrants, making them the single largest country of origin group by far among the nation's 40 million immigrants (MPI, 2015, 2022; U.S. Census Bureau, 2014). California is the state with the largest Mexican immigrant numbers, at 4 million. Additionally, the ten largest counties containing the largest Hispanic populations are all located in the state of California (MPI, 2015, 2022; U.S. Census Bureau, 2014). The increased Hispanic immigration to the U.S., especially the Mexican population, and the high CC prevalence in Mexico (ACS, 2012, 2020a, 2023; MPI, 2015, 2022; Scarinci et al., 2010; U.S. Census, 2013) could result in a continuous increase of CC incidence rates Mexican women in the U.S.

### **Factors Related to CC Screening in Hispanic and Mexican Women**

There is no doubt that these low rates of CC screening continue to greatly affect Hispanic women. Individual and structural factors are attributed to these low numbers including commonly reported barriers to screening. These individual factors include individual and cultural beliefs and the level of knowledge about CC and screening. Spousal influence on Hispanic women also appears to be related to the women's CC behaviors.

**Individual levels.** Health behavior is determined by personal belief or perception; this is the fundamental idea of the health belief model (HBM) (Glanz et al., 2002). The literature has described individual barriers such as lack of knowledge, embarrassment, pain, fear of results, previous bad experiences, lack of time, and fear of deportation as common reasons for not screening (Byrd et al., 2007, 2013; Fernandez & Morales, 2007; Gregg et al., 2011; Scarinci et al., 2003, 2010; Moore-Monroy et al., 2012; Warda, 2000).

*Knowledge about CC and screening.* Perceived susceptibility is the individual's assessment of the probability of contracting a particular disease or condition. It is one of the more influential perceptions in stimulating healthier behaviors (Glanz et al., 2002). Lack of knowledge about cancer signs, causes, and treatment effectiveness among Hispanic women has been described at length (Byrd et al., 2007; Corcoran & Crowley, 2014; Fernandez et al., 2009a; Scarinci et al., 2003, 2010). It is reasonably possible that this lack of information hinders women's perceived susceptibility. In some instances, Hispanic women have been known to associate needing a Pap test and developing CC with women with high-risk sexual behaviors and for that reason feel that screening is not applicable to them (Fernandez et al., 2009a; Gregg et al., 2011; Seal et al., 2012). Others are simply not aware that the Pap test exists or that it is a screening tool for CC (Byrd et al., 2007; Corcoran & Crowley, 2014; Fernandez et al., 2009a; Scarinci et al., 2003, 2010).

*Individual beliefs.* The health belief model (HBM) was developed in the 1950s to predict whether individuals would participate in disease prevention programs (Glanz et al., 2002). The HBM consists of key concepts: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and perceived self-efficacy. All were assumed to influence the likelihood that a person would engage in a health behavior in order to avoid a negative health outcome (Glanz et al., 2002). Generally, people will adopt healthier habits if they believe the newly acquired behavior will reduce the likelihood of developing a condition or disease (Glanz et al., 2002). Some perceived benefits of screening noted among Hispanic women were finding cancer early and feeling good about taking care of their health (Byrd et al., 2007).

Perceived barriers are also believed to be one of the most significant concepts in influencing behavior changes (Glanz et al., 2002). In order to adopt a new behavior a person

must believe the advantages or benefits of the new behavior outweigh the negative effects of continuing the old behavior. Personal barriers among Hispanic women to having the screening test for CC include: embarrassment, fear, and pain. Several studies have reported women feeling more embarrassed if examined by a male physician and many women felt a male provider would be an even stronger barrier for older women (Byrd et al., 2007, 2013; Fernandez et al., 2009a; 2014; Gregg et al., 2011; Scarinci et al., 2003, 2010; Moore-Monroy et al., 2012; Warda, 2000). Although many women describe the pain associated with the Pap test as bearable, most were afraid of discovering they had cancer or something else (Byrd et al., 2007, 2013; Fernandez & Morales, 2007; Gregg et al., 2011; Scarinci et al., 2003, 2010; Moore-Monroy et al., 2012; Warda, 2000). The HBM will be discussed in greater detail in chapter 3.

*Cultural beliefs.* Cultural beliefs related to sexuality, gender, and disease may be associated with this population's increased risk of CC (Fernandez et al., 2009a; Scarinci et al., 2003). Scholars have documented how Hispanics' ideas on gender roles, machismo, and fatalism in relation to cancer can affect the desire to be screened for CC and affect treatment-seeking behaviors (Fernandez et al. 2009a; Scarinci et al., 2003).

The traditional gender roles and "machismo," the patriarchal relationships and dominant roles of men in traditional Hispanic communities, influence Mexican men and could potentially influence MIW's screening behaviors (Fernandez et al., 2009a; Gregg et al., 2011; Philip et al., 2012). *Machismo* in English is defined as manliness or being a tough guy (Getrich et al., 2012; Sobralske, 2006). It is used to characterize a set of attitudes and identities coupled with the Mexican concept of masculinity (Getrich et al., 2012; Sobralske, 2006). A traditional Mexican man should be strong, brave, intelligent, virile, head of the family, loyal, an authority figure, and

wise. He should be confident in his decision making, be the protector of his family, and knowledgeable in sexual matters (Getrich et al., 2012; Sobralske, 2006).

Hispanic culture emphasizes cultural values of sexual modesty for women, and knowing too much about one's body, particularly one's sexuality, is considered culturally inappropriate (Flanagan, 2014). The belief that a good woman must be uncorrupted and ingenuous about sexual matters is valued (Seal et al., 2012). Just as in *machismo*, a man is supposed to be knowledgeable in sexual matters (Sobralske, 2006); a woman on the other hand may be viewed as bad or loose if she is exceedingly knowledgeable and experienced in sexual matters (Martinez et al., 1997). Knowledge, cultural beliefs, gender, and values are all intertwined, creating pockets of oppression and marginalization that affect and influence these ethnic minority women's beliefs about cancer and screening (Flanagan, 2014). Many foreign-born Hispanic women also tend to display more of a fatalistic attitude and hopelessness about a cancer diagnosis than white women (Fernandez et al., 2009a; Owuso et al., 2005). Some literature describes *fatalismo* or *fatalism* as the tendency to believe that adverse life events are predestined by an unseen power such as fate (Leyva et al., 2014; Scarinci et al., 2010). This cultural trait influences Hispanics' health behaviors and cancer screening practices (Fernandez et al., 2009a). CC is viewed as uncontrollable and unavoidable, causing screening to be seen as unnecessary. Because of this belief structure, many foreign-born Hispanic women would prefer not knowing if they have CC.

*Spousal influence on screening.* Men, especially in rural areas, have a limited understanding of female reproductive organs and related diseases, let alone awareness of the devastating effects CC can have on entire families (Bingham et al., 2003). Studies of CC knowledge in Hispanic men are scarce due to mainly CC and HPV awareness efforts focus on women. Two studies that were found noted men to have lower CC and HPV knowledge

compared to women (Colon-Lopez et al., 2010; Fernandez et al., 2009a). Since many men have inaccurate knowledge and stigmatizing beliefs about CC, Hispanic women tend to be fearful about receiving screening and explaining the results of these tests to their husbands and consequently may decide not to be screened (Bingham et al., 2003). Byrd et al. (2007) reported Hispanic women's husbands' attitudes could keep women from seeking screening because husbands could be jealous of male physicians doing their wives' screening, making it difficult for the woman to receive care. It is also not uncommon for Hispanic women to have to obtain permission from a spouse for medical care, yet another reason why CC screening education would be of value to the spouse (Romero-Gutierrez et al., 2007).

Men may not recognize it, but just as they play an essential role in the swaying of CC screening in Hispanic women, the opposite can be theorized: a spouse can positively sway a woman's decision to screen if he had accurate information on CC and HPV. Colon-Lopez et al. (2010) reported that men showed interest in learning about HPV and CC, not only for their own health, but that of their partners as well (Colon-Lopez et al., 2010, Fernandez et al., 2009a).

Having a deeper understanding of how Hispanic men influence their wives' CC screening utilization is needed to improve their misconceptions about HPV transmission and Pap testing and to increase spousal support provided for their wives. Korean Immigrants and Mammography: Culture-Specific Health Intervention (KIM-CHI), a successful program in improving mammography uptake among non-adherent Korean American women, confirmed the importance of including husbands when educating women (Lee, et al., 2014). The authors theorized that spousal support encouraged women to learn about cancer screening, aided them in overcoming difficulties, or perhaps changed their opinions of susceptibility, seriousness, benefits, barriers of screening (Lee et al., 2014). There could be many advantages of including



Hispanic males in their wives' health education. It would acknowledge the male role in family decision-making and could improve knowledge of health behaviors and diseases while highlighting the necessity of keeping women healthy, which eventually is beneficial for the entire household (Erwin et al., 2007; Fernandez et al., 2009a; Philip et al., 2012).

**Structural barriers.** Structural barriers, including access to healthcare, are clear factors among the 14,000 newly diagnosed cases of CC in the U.S. (ACS, 2021). Access barriers include lack of health insurance, lack of a regular health care provider, cost, and long wait times in busy low-cost clinics (Byrd et al., 2007, 2013; Gregg et al., 2011; Scarinci et al., 2003, 2010). These CC disparities are also partially due to lack of access to accurate information that is ethnically, linguistically, and culturally appropriate, and written at suitable literacy levels for each ethnic group (Moore-Monroy et al., 2012; Warda, 2000). Other factors also include lack of transportation and lack of childcare (Byrd et al., 2007, 2013; Gregg et al., 2011; Scarinci et al., 2003, 2010). Also, women who are awaiting legal status report feeling or believing they cannot use federal services and risk deportation if they do. Some women avoid, all together, such services for fear of accidentally using one that is federally funded (Byrd et al., 2007, 2013; Fernandez & Morales, 2007; Gregg et al., 2011; Scarinci et al., 2003, 2010; Moore-Monroy et al., 2012; Warda, 2000).

### **Statement of Problem**

MIW are at risk of dying of CC because of a lack of screening utilization in this population. Limited information is available about the reasons for the low utilization of CC screening services among this population. Having an in depth understanding of how women perceive and cope with the health risks associated with CC plays a critical role in planning health efforts to improve CC screening. Numerous programs have been developed and implemented to

increase Pap testing among Hispanic women (Byrd et al., 2013; Corcoran et al., 2012; Moore-Monroy et al., 2013). Despite these efforts, CC screening rates among MIW remain low. The high prevalence of HPV and CC, the high CC related mortality rates, culture specific beliefs about CC and screening, and the magnitude of the expected growth in this population all make it imperative to increase Pap testing among this population.

Until now, much research has focused on the woman and not enough attention has been given to the influence a husband can have on his wife's Pap screening practices among MIW. A husband's influence could motivate his wife, by providing support, encouragement, or perhaps a gentle reminder that they are due for Pap testing. When women feel supported by their husbands, this could conceivably allow them to make medical decisions and potentially receive CC screening services. The mechanism of how a husband's support or influence translates into action (such as obtaining a Pap test) by the wife is not well understood. There have not been any studies conducted specifically on the influence of MIW's husbands on the women's beliefs and Pap screening practices. This is a gap in the present knowledge.

Early CC detection could greatly reduce the morbidity and mortality rates of this disease (CDC, 2014a). This is especially true among MIW who report much lower rates of Pap tests than the general population (Gregg et al., 2011). Lack of knowledge may be a contributing factor (Scarinci et al., 2010), but less well known is the influence a Mexican husband can potentially have on his wife with regard to Pap testing. If husbands' influence and support are in fact related to wives' likelihood of being tested, one approach to improving the rate of screening would be to educate the husbands on its importance and enlist their support in encouraging their wives to get screened.

## **Purpose of the Study**

This study has two purposes (a) to explore support provided to MIW from their husbands, with varying degrees of CC knowledge, awareness, and understanding of Pap testing; and (b) to determine the relationship between MIW's knowledge and health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy) and their screening behaviors. This study will be helpful in revealing connections between Mexican immigrant men and their spouses' support provided, and how they influence Pap testing utilization in women in the context of culture specific beliefs about gender roles, masculinity, and fatalism. The information obtained from the study can be used to generate tailored interventions to improve MIW's CC screening utilization behaviors. Educational programs specifically including men can also be developed in local Hispanic communities. Results may stimulate a larger-scale study that could help establish a causal connection between males' knowledge and support provided for their wives and rates of CC screening among the wives.

This study is guided by the HBM and was conducted with 110 Mexican immigrant couples recruited from two community centers in Southern California.

## **Specific Aims**

**Specific Aim 1:** Examine the relationship between MIW's husbands' knowledge, spousal support provided for their wives, and the women's screening behavior. (Accomplished via survey from 110 couples.)

**Null Hypothesis 1a.** There is not a statistically significant correlation between husbands' knowledge about CC screening and MIW's CC screening behavior.

**Alternative Hypothesis 1a.** There is a statistically significant correlation between husbands' knowledge about CC screening and MIW's CC screening behavior.

**Null Hypothesis 1b.** There is not a statistically significant correlation between husbands' support provided for their wives about CC screening and MIW's CC screening behavior.

**Alternative Hypothesis 1b.** There is a statistically significant correlation between husbands' support provided for their wives about CC screening and MIW's CC screening behavior.

**Specific Aim 2:** Determine the relationship between MIW's knowledge, health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy), and perceived spousal support received from their spouses and their screening behaviors. (Accomplished via survey from 110 wives.)

**Null Hypothesis 2a.** There is not a statistically significant positive association, between MIW's levels of knowledge and their CC screening behavior.

**Alternative Hypothesis 2a.** There is a statistically significant positive association between MIW's levels of knowledge and their CC screening behavior, such that higher knowledge is associated with compliant CC screening behavior.

**Null Hypothesis 2b.** There is not a statistically significant association between any of the MIW's levels health beliefs of (a) susceptibility, (b) severity, (c) benefits, and/or (d) barriers and their CC screening behavior.

**Alternative Hypothesis 2b.** There is a statistically significant association between at least one of the MIW's levels health beliefs of (a) susceptibility, (b) severity, (c) benefits, and/or (d) barriers and their CC screening behavior.

**Null Hypothesis 2c.** There is not a statistically significant association between MIW's perception of spousal support received from their husbands about CC screening and their CC screening behavior.

**Alternative Hypothesis 2c.** There is a statistically significant association between MIW's perception of spousal support received from their husbands about CC screening and their CC screening behavior.

### **Significance of the Study**

MIW's lack of CC screening and access to preventive care is complex. Migrating from another country, they are often challenged with language and cultural barriers and struggle navigating U.S. healthcare systems. MIW are vulnerable to being uninsured, lacking a continuous source of healthcare, and experiencing financial hardships or living below the poverty line (ACS, 2021; MPI, 2015, 2022). These barriers to care can delay access to preventive screening, such as Pap testing, until it is too late. Further, every culture has norms, accepted practices, values, and beliefs that are the foundation for behavior (Flanagan, 2014). It has been argued that health behavior is significantly influenced by culture and its specific beliefs as well as support provided by spouses to their wives (Hayden, 2009; Flanagan, 2014; Moore De Peralta, 2015; Lee et al., 2014).

Nurses are at the front line of care for women in clinics, emergency departments, and other community health outlets. Developing an enhanced understanding of women's culture specific perspectives on Pap testing as well as their husbands' influence will equip nurses and healthcare providers to effectively reach this population with culturally appropriate prevention interventions and care. This study's potential long-term benefit is to decrease CC related mortality and morbidity among MIW. The research findings can help guide the development of new screening tools or improvement of existing screening tools. The findings could also contribute to the development of interventions for this vulnerable population. This might include suggestions for interventions among husbands of MIW if present research had suggested

relationships between husbands' beliefs and opinions and wives' practices. The findings might also have implications for policy makers in planning and allocation of resources, with the potential to create future interventions for other vulnerable populations of American women. Although Hispanic women may be somewhat more influenced by their husbands than women in other ethnic groups, it is likely that many women could benefit from an understanding of the husband's role in CC prevention.

In addition to the obvious direct practical benefits of determining whether husbands' support influence their wives' CC screening utilization, there may be theoretical benefits to the study. Most cancer screening studies have focused on examining individual factors, but findings from this study could change the paradigm that incorporates interpersonal context. Results should add to knowledge of how men in general influence women's CC screening behaviors. It is quite possible that men influence women's other health behaviors as well, and that by reaching men, the health of women in general could improve in areas such as smoking cessation, exercise, and getting regular physical exams. CC is preventable, but without an increase in awareness regarding CC prevention and access to services, the CC disparity among MIW will undoubtedly continue to grow (Moore-Monroy et al., 2013).

## Chapter 2 Literature Review

This literature review focuses on understanding reasons Mexican immigrant women (MIW) are less likely to get cervical cancer (CC) screening than other women of different nationalities and/or ethnicities. It also focuses on presenting culture specific factors that may influence MIW's CC screening utilization (gender roles, masculinity, and fatalism) and husbands' role in MIW's CC screening utilization, and discussing major gaps in knowledge that need to be filled. The literature review begins with the definition of terms in this population, why MIW are at an increased risk of dying from CC, review of cancer screening guidelines, causes influencing Hispanic women and MIW to screen, spousal support influencing MIW screening, a gap in the literature, and summary. Database articles and research studies published between 2000-2016 and 2016-2022 from PubMed, CINAHL, and PsychINFO and ranging from health sciences, social sciences, and education were synthesized and analyzed to develop this literature review that was guided by the research aims of this study.

### Definition of Population

**Definition of terms.** Cervical cancer (CC): A disease in which malignant cells form in the tissues of the cervix (American Cancer Society, 2020).

Dysplasia: A non-cancerous condition that occurs when normal cells are replaced by a layer of abnormal cells. Dysplasia can be mild, moderate, or severe (American College of Obstetricians and Gynecologists [ACOG], 2020).

Hispanic: The U.S. Census Bureau states that *Hispanic* refers to region, not race, and uses the term to describe any person, regardless of race, creed, or color, whose origins are of Mexican, Puerto Rican, Cuban, Central or South American, or some other Hispanic origin.

Hispanic refers to language. A person is considered Hispanic if they or their ancestors came from a country where they spoke Spanish (U.S. Census Bureau, n.d.b).

HPV test: Human papillomavirus (HPV) tests detect the presence of the HPV virus. This virus can lead to the development of genital warts, abnormalities in cervical cells, or CC. Cancers caused by HPV include those in the vulva, vagina, anus, penis, and oropharynx. A doctor may suggest this test if a Pap test was abnormal and if the woman is 30 years of age or older. If both tests (Pap and HPV) are negative, the risk for CC is very low and women can wait five years before another screening (ACOG, 2020; ACS, 2020b).

Invasive CC: CC is assumed to be invasive if the abnormal mucous membrane cells have spread from the uppermost cell layer to the tissue below it (ACS, 2020b).

Pap smear testing: A screening test for pre-cancerous and cancerous cells on the cervix, performed during a routine pelvic exam. It includes scraping cells from the cervix with a wooden or plastic scraper or a cervical brush. It is then prepared for Pap analysis either by a conventional Pap test in which the specimen is placed on a glass microscope slide and a fixative is added, or an automated liquid-based Pap cytology test. In this test, cervical cells collected with a brush or other instrument are placed in a vial of liquid preservative. The slide or vial is then sent to a laboratory for analysis. In the U.S. automated liquid-based Pap cytology testing has essentially replaced conventional Pap tests because of its advantages. One advantage of liquid-based testing is that the same cell sample can also be tested for the presence of high-risk types of human papillomavirus (HPV), a process known as Pap and HPV co-testing. Furthermore, liquid-based cytology appears to reduce the likelihood of an inadequate specimen (ACOG, 2020).



Latino/a: This term refers to people of Latin American geographic origin and is used interchangeably with Hispanic (U.S. Census Bureau, n.d.b). Latina is the more common and most appropriate term for women of Mexican descent and for this dissertation.

Mexican immigrant women (MIW): Foreign-born individuals are persons residing in the U.S. who had no U.S. citizenship at birth. Foreign-born and immigrant are used interchangeably. The foreign-born population includes naturalized citizens, lawful permanent residents, refugees and asylees, legal nonimmigrants (including those on student, work, or other temporary visas), and persons residing in the country illegally (Migration Policy Institute, 2015). For the purpose of this paper, MIW refers to foreign-born women from Mexico.

**Description of cervical cancer.** During 2019, there were an estimated 295,382 women living with CC in the United States (Surveillance, Epidemiology, and End Results [SEER], 2019). CC is the second most common cancer in females globally, while its incidence is more than 80% higher in developing countries than the rate in developed countries (National Cancer Institute, 2013, 2023; Scarinci et al., 2010). CC begins in the cells lining the cervix. There are two types of cells covering the cervix: squamous cells and glandular cells, but most CC originates in the cells in the transformation zone (ACS, 2020b). These cells do not suddenly change into cancer but rather gradually develop pre-cancerous changes that turn into cancer. These changes can be identified during a routine exam and Pap test, which may be combined with a test for HPV if the woman is 30 years or older (ACS, 2020b). Treating pre-cervical cancers can prevent almost all cervical cancers (ACS, 2020b). Women with early CC and pre-cancers usually have no symptoms. Typically, symptoms do not begin until the cancer becomes invasive and grows into nearby tissue. Once this occurs, symptoms can include: abnormal vaginal bleeding, bleeding after vaginal intercourse or after menopause, spotting between

periods, painful intercourse, and having menstrual cycles that are longer or heavier than normal. Also, vaginal discharge containing blood may occur between periods or after menopause (ACS, 2020b). Being alert to the signs and symptoms of CC can help prevent needless delays in diagnosis. Early detection significantly improves the chances of successful treatment and prevents early cervical cell changes from becoming cancerous (ACS, 2020b).

Staging is the process of discovering how far the cancer has spread. Most deaths from CC occur among women diagnosed at late stage II-IV, whereas women with cervical cancers diagnosed at Stage I (the early stage) have a 90% five-year survival rate (ACS, 2020b). Information from exams and diagnostic tests are used in determining the size of a tumor, how deep it has invaded tissues in and around the cervix, and if the cancer has spread to the lymph nodes or other organs. The stage of the cancer is key in selecting the right treatment plan (ACS, 2020b; ACOG, 2020).

There are two systems for staging CC, those of the International Federation of Gynecology and Obstetrics (FIGO) and American Joint Committee on Cancer (AJCC). Both the AJCC and FIGO system use three factors to classify CC: the extent of the tumor (T), whether the cancer has spread to the lymph nodes (N), and if the cancer has spread to distant sites (M) (ACS, 2020b; ACOG, 2020). Once a person's T, N, and M categories have been determined, this information is combined in a process called stage grouping to assign an overall stage. FIGO stages are the same as AJCC stages. Both systems classify CC in stages from 0 thru IV and is based on clinical instead of surgical findings. Stage 0 is called noninvasive CC or carcinoma in situ. In this stage, cancer cells are present on the top layer of the cervix only; they have not gone into deeper layers of the cervical tissue or other organs. The remaining stages I-IV are called invasive cancer, meaning the cancer has invaded into deeper layers of the cervix (ACOG,

2020). If surgery is performed and reveals that cancer has spread further than initially thought, this changes the treatment plan of action but not the stage.

### **Cervical Cancer Screening**

**Cervical cancer screening methods: Pap smear.** Invasive CC is when the abnormal mucous membrane cells have spread from the top cell layers to the tissue below it, and it can be avoided through regular screening using the Pap test. Pap testing identifies abnormal cell growth and pre-cancerous conditions. If discovered early, CC is curable (ACS, 2020b; Byrd et al., 2007, 2013).

In order to find pre-cancer and cancer cells, a procedure known as a Pap smear is performed. Cells from the cervix are collected so that a provider can inspect them under a microscope. A metal or plastic speculum is placed inside the vagina, which keeps the vagina open so that the cervix can be seen clearly. Next, using a small spatula, a sample of cells and mucus is lightly scraped from the exocervix, the protective mucous membrane on the exterior of the cervix. A small brush or a cotton-tipped swab is then inserted into the opening of the cervix to take a sample from the endocervix, the mucous membrane of the cervical canal (ACS, 2020b). These cell samples are then prepared either by conventional cytology or liquid based cytology, and examined under a microscope in the lab. Most cervical pre-cancers develop over a period of 10 to 20 years, so nearly all cases could be prevented with regular screening (ACOG, 2020).

**CC screening guidelines.** Consistent with the American Cancer Society and U.S. Public Health Service screening recommendations for cervical cancer, the American College of Obstetricians and Gynecologists (ACOG) issued the recommendation that cervical cytology screenings (Pap tests) begin at age 21, regardless of the age of commencement of sexual activity (ACOG, 2020). These recommendations were based on growing evidence that HPV infections,

although highly frequent among adolescents, are often short-lived and that cervical dysplasia frequently reverts to normal without intervention in younger individuals (Moore et al., 2013; Moscicki et al., 2010; Soren et al., 2009). Therefore, it is believed that if younger women were tested before the age of 21, unnecessary treatments would be given. Also, it is rare for women younger than 21 to develop CC.

ACOG guidelines also recommend women to be screened for CC by way of a Pap test no more often than once every three to five years. In addition to extending the interval between Pap tests, co-testing with the Pap test and the human papillomavirus (HPV) test is preferred to the Pap test alone but should be limited to women age 30 and older and used only once every five years (ACOG, 2020). For women ages 30–65 who have negative test results, the preferred screening strategy is now co-testing with the Pap test (using the conventional Pap or liquid-based method) combined with HPV testing once every five years. The rationale for this is since the majority of truly pre-cancerous cervical cells take many years to develop into invasive cervical cancer, less frequent CC screening is justified. Co-testing screening every five years provides an excellent balance between reaching extremely low cancer rates while avoiding the potential harms of unnecessary interventions. A Pap test alone (without HPV co-testing) once every three years is acceptable for women in this age group if HPV testing is not available (ACOG, 2020).

Over the years, Pap testing guidelines have evolved and have made significant improvements to Pap cytology testing. Pap testing is imperative for all women but especially MIW who have much higher risks. CC is one of the most preventable diseases and one of the most frequently funded programs in high-risk communities (ACS, 2020a). In order to prevent CC, it is crucial that educational programs focusing on this population's needs are developed.

**Cervical cancer screening and late diagnosis.** Alarming, only 77.4% of Hispanic women report having been screened with a Pap test for CC within the last three years, compared to 83.4% of non-Hispanic white women (Gregg et al., 2011; Seeff & McKenna, 2003). Since MIW have a higher prevalence of human papilloma- virus (HPV), a known risk factor for CC, Pap testing is imperative (ACS, 2020b; CDC, 2023). According to the CDC (2014b), HPV incidence in Hispanic women is 11.3 out of 100,000 females in the U.S. Many MIW do not seek medical attention unless there are symptoms and as previously mentioned, early CC and pre-cancers usually have no symptoms. Usually, symptoms do not begin until the cancer becomes invasive and grows into nearby tissue (stages 2-4). This may prevent women from practicing early detection and prevention (e.g., getting Pap tests) for cancer. Foreign born Hispanic women were significantly more likely than US born Hispanics to have late stage diagnosis. (ACS, 2020a; CDC, 2023; Montealegre et al., 2013). The stage of cancer at the time of diagnosis represents one of the most important predictors of cancer morbidity and long-term survival (ACS, 2020b). According to SEER (2019), ethnic variations in stage distribution of diagnosis for CC exist. Between 1988 and 2008, there were 9,164 cases of invasive cervical cancer among Hispanic women. Overall, foreign-born women accounted for 5,011 of the 9,164 cases (54.7%) of invasive cervical cancer. Almost 47% of cases overall were late-stage diagnoses (i.e., regional or distant), with a significantly greater prevalence of late-stage diagnosis among foreign-born versus U.S. born cases (50.3% and 42.8%, respectively,  $p$ -value <0.001) (Montealegre et al., 2013). Failure to participate in or inadequate Pap testing is the primary reasons for CC to be diagnosed at a late stage (CDC, 2023).

Routine CC screening is not the norm in Mexico, leaving Mexican women at higher risk for developing CC (Bruni et al., 2016). MIW may not understand the importance of routine Pap

screening and may have pre-conceived beliefs, attitudes, and past negative experiences about the Pap test. Therefore, when they enter the U.S., their health behaviors, perceptions, and fears travel with them, continuing their inadequate and underutilized cancer screening practices, which further places them at risk (Bruni et al., 2016).

### **Influences on Hispanic Women and Mexican Immigrant Women's CC Screening**

Current literature has documented numerous barriers to CC screening for Hispanic women and many seem to have consistent themes (Byrd et al., 2007; Corcoran & Crowley, 2014; Drewry et al., 2010; Fernandez et al., 2009a; Mc Daniel et al., 2021; McMullin et al., 2005; Scarinci et al., 2003). In order to understand the reasons behind Hispanic women's low CC screening rates in obtaining a Pap test, certain characteristics such as socio-demographic factors, individual knowledge, individual beliefs, and other cultural beliefs these women share must be understood.

**Socio-demographics and acculturation.** The socio-demographic variables that will be briefly discussed include: women's age, number of children, education, work status, income, marital status, and health insurance.

*Woman's age and number of children.* There are several reasons for the differential patterns of CC screening compliance between younger and older women. Generally, use of CC screening tests such as the Pap decreases with age in women. Studies among older Hispanic women indicate statistically lower rates of CC screening than their non-Hispanic counterparts. Some reported rates by age groups were: 67% of women aged 18-44 years reported having had a Pap smear in the past 2 years, but only 56% and 51% of women aged 45-60 and 60 years and older reported having had a Pap smear test in the past 2 years (Bazargan et al., 2004; Ostbye et al., 2003). This higher compliance among younger Mexican women, when it is compared with

older women, could be mainly attributed to the increased opportunities for health screening due to gynecological care needs such as during pregnancies (Fernandez-Esquer et al., 2003).

Researchers propose the development of programs that reinforce CC screening after Latinas end their prenatal care (Arredondo et al., 2008).

*Education.* The ACS (2020b) describes MIW as having lower levels of education than other U.S. residents. In 2013, 57% of MIW aged 25 and older did not have a high school diploma or General Education Development (GED) certificate (MPI, 2015). Education seems to be a good predictor of good health; the higher the level, the greater the employment opportunities, income, and ultimately health status (Hayden, 2009). Some studies reported that women who followed current CC screening recommendations tended to have at least a high school education or higher (Boyer et al., 2000; Scarinci et al., 2003; Wu et al., 2001). Nonetheless, the authors state that further study of the relationship among education, culture and CC screening is required.

*Work status, income, and health insurance.* Women without permanent jobs or with low incomes do not have access to adequate health care services, including CC screening. Boyer et al. (2000) found that Hispanic women who have an annual income of less than \$10,000 were less likely to have ever had a Pap test. MIW were found to be more than twice as likely as NHW women to live in poverty (MPI, 2015, 2022). Competing priorities such as food, shelter, and clothing among these low-income women have been documented as major barriers of obtaining CC screening among Hispanic women (Owusu et al., 2005). Women from Mexico, who make up more than a quarter of all female immigrants, made the least amount of revenue of all female immigrant groups in 2018, with an annual median income of \$20,000 (MPI, 2022). Not having health insurance could be another important factor why Hispanic women were less likely to partake in CC screening programs.

*Marital status.* There have been mixed findings concerning marital status, CC screening, and Hispanic women. The literature has reported that Hispanic women's husbands' attitudes could keep women from seeking screening, making it challenging for these married women to obtain care. According to Byrd et al. (2007), a barrier raised by every focus group in their study was the woman's perception of her partner's feelings about CC screening. Many women felt that men did not want their partners to go for screening. The consensus was that "some men feel jealous and don't want another man looking at his partner down there" (Byrd et al., 2007, p. 132). Some participants commented that they would not let a husband or boyfriend deter them from screening (Byrd et al., 2007) However, some studies report that men would convey a willingness to support their spouse and become better informed as well as understand that they could potentially provide better support to their partners, if they knew more about female cancers (Bocanegra et al., 2009; Fernandez et al., 2009a).

In a multivariable analysis by Shelton et al. (2012), there were different correlates of Pap test adherence for each country of origin. For example, out of  $n = 1305$  participants, Mexican women who were married/partnered were more likely to be adherent to Pap screening than those who were not married/partnered (OR: 3.43; CI: 95%: 1.82 - 6.44;  $P = .0001$ ).

According to another study, being married along with education, financial status and acculturation have been found to be significantly associated with adherence to CC screening in Hispanic women (Fernandez-Esquer et al., 2003). Adherence was defined in this study as having received at least 2 Pap smears within the 5 years prior to data collection. Other studies have shown that having a male partner who is supportive of CC screening was also a significant predictor of women's participation in CC screening among Hispanic women (Bocanegra et al., 2009). With this knowledge, health care providers can target MIW with focused interventions,



such as including their spouses, to increase adherence to CC screening recommendations.

*Acculturation.* People who immigrate to the US leave behind family, social networks, and community ties but Latinos maintain cultural traits and ethnic identification even as they appear to acculturate, for example through language (Ramirez, 2013). Marin & Gamba (1996) described acculturation as a long-term process through which individuals simultaneously discover and adjust certain characteristics of a new culture and their culture of origin (Marin & Gamba, 1996). Researchers have found a connection amongst acculturation, CC screening, and Hispanic women. Commonly, more acculturated women were more likely to obtain a Pap smear than those with low levels of acculturation, which suggests these less acculturated women may have other barriers such as language, in accessing or utilizing Pap screening (Arredondo et al., 2009; Shah et al., 2005; Wu et al., 2001).

Marin and Gamba (1996) found high reliability and validity in three language-related dimensions: language use, linguistic proficiency, and preferred language use when using electronic media with Hispanics from Mexico and Central America. They reported an average alpha coefficient reliability score of .90 for all the items with Hispanics.

Acculturation as a predictor of CC screening among Hispanic women was found to be influenced by their educational level, length of residence in the U.S., and language preference. Hispanic women's educational level may also play a role in their CC screening behaviors, as more highly acculturated Hispanic women were more likely to have achieved higher levels of education (Wu et al., 2001).

Researchers have used the Bi-dimensional Acculturation Scale (BAS) as a reliable and valid measure of acculturation of Hispanics (Fernandez et al., 2009b; Lara et al., 2015; Moore De Peralta et al., 2015). Fernandez et al. (2009b) used the Spanish version of BAS (Marin &

Gamba, 1996) to assess the level of acculturation in their study to evaluate the effectiveness of lay health worker intervention to increase breast and cervical cancer screening among low-income Hispanic women. The study concluded that both, bicultural women as well as those with low levels of acculturation benefited equally from the intervention. Hence, acculturation did not have an effect on intervention effectiveness (Fernandez et al., 2009b).

Moore De Peralta et al. (2015) also used the English version BAS (Marin & Gamba, 1996) to assess levels of acculturation in conjunction with familism and fatalism in their study evaluating South Carolina Upstate Hispanic women's CC screening behavior. Familism, fatalism and acculturation were used as cultural modifiers (Moore De Peralta et al., 2015). The study demonstrated that the construct of acculturation is multifaceted and emphasizes that one should not assume low levels of acculturation would be indicative of low levels of Pap test compliance.

Another cross-sectional study that used the Spanish BAS (Marin & Gamba, 1996) was Lara et al. (2015). It examined relationships between acculturation, access to and utilization of health-care services, and colorectal cancer screening (CRCS) in low-income Mexicans. Acculturation continued to be significantly associated with CRCS after adjusting for income, educational attainment, and commonly reported access related screening barriers, including physician recommendation and insurance status. The authors stated more research is needed to understand barriers and facilitating factors related to CRCS behaviors in this growing population (Lara et al., 2015).

Comparably, Watts et al. (2009) found that Hispanic women living in the U.S. less than five years and who preferred to communicate in Spanish were also less likely to be screened for

CC than their counterparts, suggesting these results might be associated with lower levels of acculturation in this group.

**Individual knowledge.** According to the ACS (2020a), 69% of Mexican immigrants who are five years of age or older in the United States are Limited to English Proficient (LEP). Considering these low levels of education and the higher proportion of LEP among Mexican immigrants in the U.S., it is not surprising that Mexican women in general lack knowledge about CC screening and CC causes such as HPV and have many misconceptions about the causes of CC (Byrd et al., 2007; Corcoran & Crowley, 2014; Drewry et al., 2010; Fernandez et al., 2009b; McMullin et al., 2005; Scarinci et al., 2003).

Several qualitative studies examined knowledge about CC in MIW through data from face-to-face interviews (McMullin et al., 2005) and focus groups (Byrd et al., 2007; Fernandez et al., 2009b; Scarinci et al., 2003). Byrd et al. (2007), McMillan et al. (2005), and Scarinci et al. (2003) found that most of the MIW had no or inaccurate knowledge about CC and referred to their knowledge about general cancer when discussing CC. MIW in the studies used personal experiences and stories that they had heard throughout their lives to describe CC and used body part terms such as *uterus*, *ovaries*, *cysts*, and *tumors* to refer to CC. The lack of knowledge of the specific origination of CC suggests that these women do not have CC specific knowledge and refer to CC to represent cancers in any area in a woman's reproductive system. The most commonly stated misinformation about CC was that vaginal infections cause CC. None of the groups mentioned HPV or even a virus as the cause of CC although beginning sexual activity at an early age, having multiple partners, and having a family history of CC were mentioned as risk factors for CC (Byrd et al., 2007).

In addition to the focus groups, Scarinci et al. (2003) collected survey data from 225 low-income women comparing CC screening knowledge between MIW ( $n = 114$ ) and non-MIW ( $n = 111$ ) who were between 18 and 42 years of age. During Phase 1 of the study, the participants were given true or false questions related to CC screening. On the item “Women who are 18 years of age or older need a Pap test even when they have not had sexual intercourse,” 99.1% of the non-Latinas indicated that a Pap test was needed at their age in comparison to only 92.1% of the MIW. On the item “If CC is detected early what is a person’s chance of surviving?” 81.1% of the non-Latinas indicated good/excellent compared to only 19.5% of MIW. Findings from the study are very similar to the findings from the focus groups, which suggest MIW’s knowledge of CC screening is lacking or inaccurate.

Literature has also indicated that Hispanic women’s knowledge of HPV and its relationship to CC is low because awareness of HPV is almost non-existent and many myths exist about its transmission and consequences of infection. These myths or misconceptions include specific sexual behaviors such as abortion, poor hygiene, vaginal infections, intrauterine devices, having sexual intercourse too near to childbirth, and sex during menstruation (Byrd et al., 2007; Corcoran & Crowley, 2014; McMillan et al., 2005; Scarinci et al., 2003). It was also noted that participants in the studies associated the aforementioned behaviors or habits, such as having poor hygiene, with acquiring infections, which then may lead to contracting CC. The participants also did not refer to HPV as the cancer-causing agent, which is another consistency throughout the studies reviewed (McMillan et al., 2005). In a randomized intervention study with 543 Hispanic women aged 19-50 years old, 88.6% ( $n = 481$ ) were MIW (7.4% of the participants were from South America and 4% of them were from Caribbean), only less than half of these participants ( $n = 254$ , 47%) were aware of HPV at baseline (Drewry et al., 2010). Those

254 women who were aware of HPV scored significantly higher ( $p < .05$ ; mean 7 out of 11 questions answered correctly) in the knowledge section than those participants who were not aware of HPV (the percentage of questions answered correctly in this group was not stated in the article). Despite the higher scores on the knowledge section among those women who were aware of HPV, only 39% of them ( $n = 100$ ) knew that HPV vaccines existed and only 6% ( $n = 16$ ) knew that the virus could spontaneously clear without treatment. A noteworthy finding from this study was that women who had a Pap test within the last year were more likely to be aware of HPV than women without a Pap test within the last year (odds ratio (OR): 1.82, confidence interval (CI): 95% 1.14 – 2.90). This result could be attributed to establishing routine Pap testing and creating the opportunity to discuss HPV-related concerns with a health care professional.

The studies mentioned above clearly present Hispanic/Mexican women's marked deficiencies in knowledge about CC screening and HPV awareness, and misconceptions regarding HPV transmission and causes of CC. These findings underscore the need to better understand the disparities in health outcomes within the Hispanic community. Each study examined slightly different predictor variables and the various ethnic backgrounds of the participants further complicated the generalizability of the findings to any one particular sub-ethnic population.

**Individual beliefs and the health belief model (HBM).** Individual and cultural beliefs are intertwined and could have some overlap in other cultural beliefs not only in MIW but also in all ethnic groups. In order to increase CC screening in MIW, clinicians must understand this population's distinctive belief system. Based on the HBM (Stretcher & Rosenstock, 1997), knowledge, attitudes, and beliefs can play an important role in the decision-making process related to CC screening utilization. The HBM addresses an individual's willingness to take

action in regard to a particular health condition such as CC. The HBM theorizes that individuals will take action to prevent or control illness if they believe they are susceptible to a disease and believe the disease is serious enough that taking action would be beneficial in averting or controlling this disease. It also posits that one would take action if he or she believes that the barriers to taking action would be outweighed by the benefits. This model has been widely used in many health-screening behaviors (Byrd et al., 2004; Croyle, 2005; Glanz et al., 2002).

To assess beliefs, attitudes, and personal characteristics associated with self-report of CC screening, a cross sectional, face-to-face survey of Hispanic women ( $N = 189$ ) between 18-25 years old was conducted (Byrd et al., 2004). The authors found that participants understood the susceptibility (89.8%) they face in relation to CC. A large percentage (93.7%) of the respondents understood it is a serious disease and that screening is beneficial (98.4%) (Byrd et al., 2004). Embarrassment and pain were commonly mentioned barriers in the study. Items indicating embarrassment (39%), pain (32%), and others thinking a young woman might be having sex if she receives a Pap test (32%) had the highest percentage of agree and strongly agree responses. Nonetheless, only 61% agreed that most young unmarried women they know have Pap tests. Knowing other young women who have had a Pap test is associated with having had a Pap test. This makes sense as social norms influence many behaviors (Byrd et al., 2004). The study also found that women who are not sexually active might not perceive the need to test for CC; this was the case for younger women in this study, and consequently perceptions about Pap tests may pose barriers to undergoing screening.

To further understand women's perceptions about risks, benefits, and barriers of receiving a Pap test, based on the HBM, 13 focus groups ( $n = 84$ ) with Hispanic women of Mexican descent were conducted (Byrd et al., 2007). In the study, four groups were conducted

with women aged 18-25, four groups were with women aged 26-39, and five groups were with women aged 40-61 because the authors were interested in finding age differences on the health beliefs related to CC. They assumed the differences in age would be associated with different issues given their life stages and degrees of speaking more freely among women in their own age groups. However, the themes evaluated across all groups were not different by the age. The study revealed that perceptions of embarrassment, fear, pain, that the CC screening test is painful, and fear of results were a few of the most commonly mentioned individual barriers. Embarrassment was influenced greatly by the gender of the health care provider. Some of the younger participants also acknowledged that older women such as their mothers might be more embarrassed and highly discouraged by male providers.

In a quantitative study, statistically significant differences in Pap test screening beliefs were found among various age groups of Mexican American women (N = 1534) (Fernandez-Esquer et al., 2003). Women who were older than 40 years ( $n = 814$ ) were more likely to endorse inaccurate beliefs when compared to women younger than 40 years ( $n = 720$ ). Global cancer beliefs such as “If I had cancer, I would want to know” had the strongest statistical differences by age ( $p < .05$ ). These women were more likely to believe that cancer treatment is worse than the disease (55.1%), compared to only 37.7% in women younger than 40 years. Older women were more likely to believe that anything causes cancer (53.8%) compared to 42.1% in women younger than 40 years. Given the many factors associated with MIW, such as higher incidence of HPV, this is a substantial reason why it is important to examine older women as well. As demonstrated above, characteristics such as age continue to play a role as barriers or facilitators of screening behavior.

Lastly, a cross sectional survey with 205 Hispanic women ranging between 18 and 65 years of age (MIW = 114) was conducted to study the effects of HBM perceptions (perceived threats, barriers, and benefits) to examine women's decisions to obtain CC screening (Moore de Peralta et al., 2015). These participants reported high percentages of perceived susceptibility to CC at 75% ( $n = 165$ ); they either strongly agreed or agreed that they were at risk for developing CC. Also, 88% ( $n = 194$ ) of the participants indicated that CC is one of the most common cancers in women their age. Comparably, perceived-severity related items had high scores with more than 90% ( $n = 198$ ) of the participant sample reporting that CC is a serious illness, which could lead to death. High-perceived benefits from a Pap test were reported at 89% ( $n = 196$ ); the participants indicated a Pap test could save their lives. Lack of knowledge about when to obtain a Pap test was found to be a barrier with 18% ( $n = 40$ ) of the participants either strongly agreed or agreed that they did not get a Pap test because they did not know the appropriate age to begin screening or how often to get screened.

**Summary of articles on HBM.** To increase CC screening in MIW, clinicians must understand the distinctive belief system in this population. According to the HBM, individuals will act to prevent illness if they believe they are susceptible to it and it can have serious consequences (Stecher & Rosenstock, 1997). However, a number of studies have found only moderate support for this model. Typical results show that although a large percentage of MIW appreciate the seriousness of CC, recognize that they are at risk, and understand that it can be prevented, a significant fraction does not get Pap tests (Byrd et al., 2004; Fernandez-Esquer et al., 2003; Moore de Peralta et al., 2015).

Embarrassment, fear, pain, and fear of results were the most commonly mentioned individual barriers for both younger and older women. Embarrassment, and inaccurate beliefs



about CC, seemed to be more common among older women. Overall, few Hispanic women attributed CC to HPV and most lacked the knowledge of when to begin screening and how often they should be screened.

There continues to be a need to understand how the nuances of Hispanic cultures translate to opportunities to improve Pap screening, as well as barriers for access to CC screening. However, the HBM doesn't seem to be able to capture the whole culture-specific factors such as spousal support, which may also influence women's CC screening behaviors.

**Cultural beliefs.** Several authors argued that health behavior is significantly influenced by culture (Hayden, 2009; Flanagan, 2014; Moore De Peralta, 2015). Every culture has norms, accepted practices, values, and beliefs that are the foundation for behavior (Flanagan, 2014). Health and illness beliefs are influenced by a variety of historical, cultural, and geographical factors (Flanagan, 2014). Cultural beliefs, norms, values, and attitudes may play a major role in one's health-seeking behavior among MIW (Moore de Peralta et al., 2015) and can affect these ethnic minority women's beliefs about CC and screening. These beliefs have been found to be especially important among immigrant populations (Flanagan, 2014).

*Familism* has been referred to as one of the fundamental values of Hispanic culture whereby a strong connection to family subdues the needs and desires of its individual members (Keeler et al., 2014). The others core values are *simpatía* (sympathy), *respeto* (respect), and *machismo*. Only familism and machismo will be discussed as the other core values are not directly relevant to CC screening.

Familism is regarded as a cultural value that sets Hispanics apart from other cultural groups. Schwartz (2007) described familism as a hallmark of Hispanic culture. Familism is composed of multiple factors that may influence behaviors differently, such as familial

obligations and providing support. For individuals who embrace familism deeply, being part of a family encompasses the responsibility to support family members socially, emotionally, physically, and financially. This creates strong bonding to the entire family system, a sense of belonging, pride in one's family, and a strong awareness of family support (Keeler et al., 2014). Schwartz (2007) argued that familism stressed placing the family first over the individual needs or preferences, showing respect for elders, and honoring the family name.

As previously noted in chapter 1, cultural factors such as familism influence CC screening behaviors among Hispanic women. It is hypothesized that familism could have the potential to influence for or against Pap testing, because MIW do not want to create an environment of disrespect or disobedience to the family unit (Moore de Peralta et al., 2015). If a family is not supportive or feels it is unnecessary for a woman to obtain a Pap test, the family will likely show their disapproval in the woman's decision, which can play an enormous role in women's decision not to take action (Moore de Peralta et al., 2015). Familism can also lead to compliance. The study by Moore de Peralta et al. (2015) analyzed the effects of familism, fatalism, and acculturation in Hispanic women, but only familism (Wald's  $\chi^2 = 5.62, p = .018$ ) was a significant covariate, indicating that it was a strong predictor of Pap compliance in these women.

According to Byrd et al. (2007), focus group results suggest women recognized the importance of screening for themselves as well as for their families. Caring for oneself for the sake of the family may be positively associated with cervical cancer screening in Hispanic women. One participant said: "it's to prevent cancer, even more important if one has children" (Byrd et al., 2007, p. 131). These findings further demonstrate the complexity and the multidimensional nature of familism. They support the idea that CC screening prevention and

treatment among MIW needs to take into consideration the important role that family play in their lives. A concerted effort to actively involve family members such as a spouse is essential in recommending CC screening for Hispanic women.

Within the family dynamic, *machismo* is a term used to describe a set of attitudes and identities associated with the Hispanic concept of masculinity and manliness (Getrich et al., 2012; Sobralske, 2006). Machismo can include both negative and positive qualities on family dynamics. Machismo is related to the social control that men have over women, which contributes to discrimination against women. In general, boys are taught that they should be strong and could obtain their goals by being aggressive. They also learn that once they become adults they must be the protector of their wife and family (Nunez et al., 2016). In a *machista* society, a man is supposed to be strong and independent but is also polygamous, unfaithful, and sexually experienced. It is expected that these men have various sexual partners before and after marriage. On the contrary, a man who is machista expects a loving, submissive, and faithful woman to play a passive and dependent role in sexual matters. She must be able to work inside and outside of the home as he sees fit (Getrich et al., 2012; Nunez et al., 2016; Sobralske, 2006).

These characteristics of machismo (stated above) in relation to beliefs about disease and CC screening could increase the risk of acquiring HPV, deter women from disclosing their health status to their partners, and keep women from obtaining treatment. As described here some of the prime responsibilities of Hispanic men are of provider and primary decision maker for the family (Getrich et al., 2012; Sobralske, 2006). The dominant roles of men in traditional Hispanic communities and the influence of machismo create hierarchical power-focused behaviors that may alienate women from making decisions about their bodies. One prime example of this is when a woman must expose her genitals to a male physician during an examination: the male

may discourage the woman or may not permit her to follow through with the exam (Byrd et al., 2007; Phillip et al., 2012). Another example is partner permission or agreement with the Pap test has been frequently reported in studies with Hispanic women (Aguilar Perez et al., 2003; Bingham et al., 2003; Byrd et al., 2004; Koval et al., 2006). Some Hispanic men refer to the Pap test as *manoseo* (to handle or touch excessively) and do not want their women to be examined by a male physician. This also causes arguments between the couple as the men imply that the women enjoy their visits to the doctor (Wiesner-Ceballos et al., 2006).

These values have the potential to sway medical decision-making for women, especially newly immigrated women who are usually not the person in charge of making decisions and seldom perform independently of their family or husband (Philip et al., 2012). Although Mexican men's traditional cultural values may be changing as they adapt to mainstream society, machismo also enhances men's awareness of their own health because they have to be healthy to be good providers, fathers, husbands, and sons. Perhaps this same awareness can be harnessed and men can be educated not only on how to maintain their own health but also their spouses' health. There are many advantages of including Hispanic men in health education, including those that are aimed at women's health. Including men in an educational plan with their spouse can help display regard for the male role in the family concerning decision-making. It can also improve their own knowledge and acceptance of health behaviors and diseases, and highlight the necessity to keep women healthy which eventually is beneficial for the complete household (Philip et al., 2012).

Another cultural issue is *fatalism*. It is defined as the belief that one's fate is beyond his or her individual control and that adverse life events are predestined by an unseen power (Flanagan, 2014; Leyva et al., 2014; Powe & Finnie, 2003; Scarinci et al., 2010). Fatalism is usually

conceptualized as a set of pessimistic and negative beliefs and attitudes in relation to health-seeking behaviors, screening practices, and illness. Cancer fatalism has also been defined as the belief that cancer is unavoidable irrespective of personal actions or that death is certain when cancer appears (Leyva et al., 2014; Powe & Finnie, 2003).

A barrier to participation in CC screening, detection and treatment has been attributed to the belief that death is unavoidable when cancer is present. Fatalistic beliefs have been reported in several studies describing Hispanic women, stating they display more fatalistic beliefs regarding cancer and cancer screening as compared to non-Hispanic white women (Boyer, 2000; Espinosa de los Monteros & Gallo, 2010; Fernandez et al., 2009a; Leyva, 2014; Powe & Finnie, 2003).

According to a qualitative study by Fernandez et al. (2009b), some women equated the diagnosis of HPV with a diagnosis of cancer. One woman remarked, ‘I hear cancer, I hear death’ (Fernandez et al., 2009b, p. 870). Another commented, “If a doctor tells me I have cancer, treatment does not matter, I am already dead. That is what I think. I am very scared” (Fernandez et al., 2009b, p. 870).

Espinosa de los Monteros and Gallo (2010) reviewed the empirical research on fatalism and Latinas’ involvement in cervical, breast, and colorectal cancer screening in an effort to determine whether fatalism predicts participation in cancer screening after accounting for structural barriers. Seven of the 11 studies reviewed suggested that after controlling for variables such as age, social economic status, and access to health care, fatalism may indeed act as a barrier to cancer screening.

A small qualitative descriptive study with 20 Hispanic participants with an age range of 18 to 65 reported specific cultural values such as fatalism as affecting CC screening behaviors

(Boyer et al., 2000). Having a present orientation related to fatalism and not being able to influence the future, was described. Women reported they endured symptoms until they could no longer tolerate them and then sought health care. The idea was, if one cannot influence the future, ‘why focus on it or try to change it?’ (Boyer et al., 2000). Fatalism as a cultural value can negatively impact these women and prevent health seeking behaviors such as Pap screening (Boyer et al., 2000). Understanding these values and how they play a role in MIW CC screening, is critical to establish culturally appropriate screening programs.

In a quantitative study, Arredondo et al. (2008) specifically examined whether psychosocial variables mediated the relationship between cultural factors and CC screening. Study participants ( $N = 178$ ), 18 years and older, were almost all born outside the U.S. with 77% born in Mexico. Face-to-face Spanish interviews were conducted because a large portion of study participants had limited literacy. Interviewers found that 80 had never had a Pap smear (45%), 53 had had infrequent Pap tests (30%), and 45 had had frequent Pap screenings (25 %, 2 or more in past 2 yrs.). They found Latinas who never had a Pap smear are more likely to support machismo, fatalismo, and familismo values compared with Latinas who obtain the procedure more frequently (OR = 5.60, 95% CI = 2.60-12.06,  $p < .001$ ). Also, Latinas who never had a Pap smear reported greater fear of finding CC (OR = 3.85, 95% CI = 1.41-10.53,  $p < .01$ ) compared with those who reported having more frequent Pap smears. These cultural beliefs can make these women less likely to seek out preventive care. This outlook could prevent Hispanic women from participating in CC screening because they may be unable to consider an outcome such as cancer that may be weeks, months, or years away as something they can control.

In contrast, disagreement exists in explaining health disparities experienced by disadvantaged populations such as MIW. Findings by Leyva et al. (2014) challenged the

assumption that fatalism is an overriding perspective among Hispanics. The authors noted that Catholic religious beliefs may contribute to positive health attitudes and behaviors. Eight semi-structured focus groups were conducted among 67 Hispanic Catholics over the age of 18. Each group included 8-10 participants and approximately equal numbers of males ( $n = 33$ ) and females ( $n = 34$ ) participated. Hispanics in this study expressed few fatalistic beliefs regarding cancer. The general belief was that cancer was preventable and that they had a personal responsibility to maintain their own health. They also held the belief that illness was due to unhealthy behaviors such as poor diet and lack of exercise. They placed emphasis on cancer screening, acknowledging its importance, and did not accept the belief that having cancer was an automatic death sentence.

Another differing perspective in the form of a commentary was offered by Abraido-Lanza et al. (2007) who contested the assumption that fatalism is a cultural trait among Hispanics. The researchers argued that it is necessary to conduct a comprehensive examination of different concepts included in the notion of fatalism, develop more complex, valid, and reliable measures to assess its effects, and more closely analyze how socioeconomic and other factors (e.g., oppression, racism, and limited access to healthcare) may be masked as fatalism. According to this commentary, evidence is incomplete to conclude that Latinos' beliefs concerning fatalism interfere with cancer screening behaviors. This commentary urges for more research to demonstrate that these beliefs deter individuals from engaging in health-promoting and early detection behaviors. Though there are many different perspectives on this topic, it appears imbalanced to categorize or assume a particular belief for Latinos' or other ethnic minorities without more concrete proof.

Luque et al. (2018) examined prevalence and correlates of cervical cancer screening utilization and adherence among 196 Hispanic immigrant women between the ages of 21 and 64 years residing in coastal South Carolina. Factors associated with not being up to date with screening included lack of insurance, not knowing where to go for screening, not having a regular provider, and psychosocial factors (attitudes toward screening results and self-efficacy).

Although the study suggest health insurance is an important predictor for adherence to cervical cancer screening because insurance offsets some screening costs, the results indicated having a regular provider and having a chronic medical condition were also significantly associated with recency of Pap test. Addressing these critical barriers and connecting patients with a medical home is a priority for uninsured, foreign-born patients, who often times cannot afford the treatment costs.

### **Spousal Support Influencing Mexican Immigrant Women's Screening**

**Males' perception on health issues.** Studies of HPV and CC knowledge as well as spousal support, in relation to CC in Hispanic men, are limited because awareness efforts have focused primarily on women. The following research focused on common male perceptions of female issues and actions that could potentially influence a woman's decision to screen.

Fernandez et al. (2009a) conducted five focus groups, three focus groups with Hispanic women only ( $n = 30$ ) between 20 and 74 years, and two focus groups with men only ( $n = 11$ ) between the ages of 19 and 76 years. Males shared the same lack of knowledge as females in relation to CC and HPV. This study discovered that both men and women had almost no knowledge or understanding of HPV and its role in CC. Since they were unfamiliar with HPV and its transmission, both men and women compared HPV to AIDS or other Sexually Transmitted Infections (STI's). Men were unaware that they could transmit the HPV virus to



their partners and that it could lead to CC in women. Men also believed that HPV could be caught from a contaminated toilet seat, poor genital hygiene and an unfaithful partner. Men's reactions differed from those of women in that they were not fatalistic, meaning they did not perceive a diagnosis of HPV as an imminent death sentence, whereas most women in this study imagined the diagnosis of HPV was comparable to a diagnosis of CC, and to them this meant death. The men were more concerned as to how to take control of the situation and manage HPV. Men reported their willingness to support their spouse and become better informed. This study found that men and women focused on different components of HPV transmission, consequences, and treatment, indicating the need for gender specific intervention approaches. The men's findings are encouraging, as this author believes that by involving men in their wives' CC education it is possible that men can influence women's other health behaviors as well, and that by reaching men, the health of women in general could improve.

Seven focus groups conducted by Bocanegra et al. (2009) explored male and female views on healthcare and cancer. It also examined the influence of partner communication on CC screening and the perceived and existing potential support from male partners in participating in wives' cancer screening. Out of the seven focus groups, there were two female-only, three male-only, and two couples groups, with 5-10 participants in each; all participants were born in Mexico with female ages ranging between 18-45 and male ages ranging between 25-62 years. They were recruited through Project Reach Youth, Inc. and the association Tepeyac de Nueva York. In regard to health care utilization, these men reported that they were less likely to seek preventive care than their female partners and children. They believed it did not make sense to pay money for screening activities to simply find out that nothing was wrong, although they would take their children for preventive care. The majority of these male participants did not

believe there was a need to go to the doctor if they felt healthy and symptom free. “I never go. We are irresponsible. When we are sick, we want to go, but the next day we wake up feeling better and don’t go” (Bocanegra et al., 2009, p. 330). It was noted that women were often the ones to encourage their partners to get regular check-ups. This author believes if men have a greater awareness of the types of preventive care available for the entire family, they may be more encouraging or helpful when their spouse needs preventative care such as the Pap.

In regard to general cancer beliefs, the majority of participants in three of the focus groups believed that CC was untreatable, hereditary, and in two of the focus groups the facilitators had to clarify where the cervix was located in a woman’s body. “Cervical cancer, is that something in the mouth? In the throat? How ignorant are we men?” (Bocanegra et al., 2009, p. 330). Most of the men and women were not aware of the CC screening guidelines.

In a study using focus groups with Mexican men and women (two female-only groups, three male-only, and two couples-only) they examined influence of partner communication on breast and CC screening (Bocanegra et al., 2009). Men sought out health advice exclusively from their spouse whereas women felt embarrassment when discussing sexual health issues such as CC or Pap smears. These women described what they believe exemplifies support such as wanting their partners to be more patient, understanding, willing to assist them in finding a medical provider or specialist, and helpful in reminding them to make or keep appointments. However, men believed that their primary role was to provide the financial means for doctors’ visits (Bocanegra et al., 2009). Lastly, the men in the focus groups indicated that they could provide better support to their partners, if they knew more about female cancers. “They (the women) want us to be more knowledgeable about this disease so that we can say no, this is severe, you have to get it looked at” (Bocanegra et al., 2009, p. 331). Clearly more research is

needed to explore partner influence in the form of emotional support and encouragement on healthcare decisions among diverse Hispanic women.

Another factor to consider is that it is not an uncommon practice for Hispanic women to have to obtain permission from their spouses for medical care or tests because most men are in charge of making household decisions including health related issues. In a cross-sectional study by Romero-Gutierrez et al. (2007) with 1,184 pregnant Mexican women, 1009 (85.2%) accepted HIV testing. Of the women who declined to be tested ( $n = 175$ ), 41 (23.5%) women said they did not have permission from their husbands to have the test. This could be associated with the husband's excessive authority or machismo.

Husbands play an integral role in women's lives and in the decisions they may or may not make in relation to their health and CC screening. Given the right educational information, men have the potential to greatly influence their spouse's health. Increasing males' CC knowledge, awareness, and understanding of Pap testing and including men in women's healthcare issues could potentially promote male involvement in actively supporting their partner's participation in CC screening.

### **Gap in Literature**

A review of literature pertaining to Pap screening among MIW identified a limitation in both men and women on CC knowledge, causes, and cultural specific factors affecting screening. The extent and mechanism of a husband's influence over his wife's Pap screening utilization is not well known. There have not been any studies conducted specifically on the influence (spousal support) of MIW's husbands on the women's beliefs and Pap screening practices. Research focusing on how MIW's spousal support increases Pap screening utilization needs to be developed with further research examining sub-ethnic group differences to enhance scientific

knowledge and pave the way for culturally specific intervention programs. Studies on MIW and CC that fail to stratify sub-ethnic groups within the Hispanic population are less useful to the scientific community interested in developing culture specific intervention studies for MIW. Many existing studies currently lump all Hispanic countries under one ethnic variable and do not distinguish one subgroup from another when reporting their findings. In addition, many studies only have a small percentage of the entire sample of their study as MIW, which makes it even more difficult to generalize the findings to the larger Mexican immigrant population.

### **Summary**

This chapter has provided an overview of a review of literature on CC incidence and mortality rates in MIW, has defined terms in this population, reviewed CC screening guidelines, examined why MIW are at a greater risk of dying from CC, presented factors influencing Hispanic women and MIW to screen, and discussed spousal support influencing MIW screening. It is a well-established fact that women diagnosed early have a very high chance of surviving five years after initial diagnosis (ACS, 2020b; CDC, 2014b, 2022b). The issue at hand remains that Hispanic women, specifically MIW, are not screening for CC regularly at a rate comparable to non-Hispanic women (Gregg et al., 2011; Seeff & McKenna, 2003), and are too often diagnosed at an advanced stage of the disease (CDC, 2014a, 2022b; Moore-Monroy et al., 2013; Scarinci et al., 2010; Siegel et al., 2012). In order to better address the needs of MIW, cultural differences must be appreciated. MIW's knowledge, individual beliefs, and cultural beliefs, must all be examined in order to see if there could be a link, influencing these women's beliefs about cancer and screening (Flanagan, 2014). The literature has reported that Hispanic women's husbands' attitudes could keep women from screening, making it difficult for these women to receive care (Byrd et al., 2007). Much research has focused on the woman and not enough

attention has been given to the influence a husband can have on his wife's Pap screening practices. Some work has been done in this area with focus groups (Bocanegra et al., 2009; Fernandez et al., 2009a), but this has only begun to explore spouses' potential impact on wives' health. Gaining insight into perceptions of how husbands influence their wives' CC screening behaviors in the context of cultural factors is needed.

This study will be helpful in revealing connections between Mexican men and their spouses, and how their support and encouragement affects Pap screening in MIW. Behavior is considerably influenced by culture. In every culture there are norms, or expected, accepted practices, values, and beliefs that are the foundation for behavior (Hayden, 2009). Culture specific beliefs can be powerful forces that can affect our health. They can influence us to modify our behavior negatively or positively. Understanding culture specific beliefs and framing culturally relevant strategies around those specific beliefs can potentially influence and increase MIW's participation in CC screening and ultimately make an impactful difference in health outcomes. Finally, this chapter examined several studies that have explicitly or implicitly relied on the health behavior model (HBM) to determine potential cause-effect relationships between beliefs and knowledge, on the one hand, and likelihood of a woman getting Pap screening, on the other (Byrd et al., 2004; Fernandez-Esquer et al., 2003; Moore de Peralta et al., 2015). These studies suggest that many potential influences have not been explored. The present study focused on one important category of such influences: beliefs and knowledge of the husband.

## CHAPTER 3

### Theoretical Background

This chapter will discuss the theoretical framework chosen to guide the proposed study. The framework is based on the health belief model (HBM) and was chosen as the primary framework for the quantitative section of this study for its ability to explain health related behaviors.

**Importance of the HBM.** Throughout the years the HBM has been applied to a broad range of health behaviors and populations. Some of these include (a) preventive health behaviors (e.g., diet, exercise) and health-risk (e.g., smoking) behaviors; (b) vaccination and contraceptive practices; (c) sick role behaviors, which refer to compliance with recommended medical regimens following a medical diagnosis of an illness; and (d) clinic use, which includes physician visits for varied reasons (Kirscht, 1988). The HBM explains health related behavior, hence encourages health behavior changes among individuals such as in the Hispanic community, who place themselves at risk of developing unfavorable health outcomes. A clear understanding of cause is necessary for determining methods to influence health behavior in this population (ACS, 2020a; Castellsague et al., 2002; CDC, 2014b, 2023; NCI, 2013, 2023; Siegel et al., 2012).

The benefit of utilizing the HBM is in its ability to provide insight to why people behave in certain ways with regard to health-related issues. Theories explain or predict health behavior in a hypothetical world and the accuracy of these explanations and predictions is based on, and adjusted to, real-world observations. Theoretical frameworks guide health interventions because interventions based on a theoretical framework are often more successful than those lacking a theoretical foundation (Glanz & Bishop, 2010).

**Overview of the HBM.** The HBM has been one of the most commonly used theories in health education and promotion (Glanz et al., 2008). It was developed in the 1950's by social psychologists Godfrey Hochbaum, Irwin Rosenstock, and Stephen Kegels, who worked in the U.S. Public Health Services (Rosenstock, 1974; Steckler et al., 2010). The HBM arose from Hochbaum's landmark study with the U.S. Public Health Service in which he examined factors associated with participation in tuberculosis screening programs (Steckler et al., 2010). Its development was an attempt to explain the unwillingness of people to accept preventative and early screening detection of asymptomatic diseases (Glanz et al., 2008; Hochbaum, 1958; Rosenstock, 1974; Steckler et al., 2010). Hochbaum was one of the first social scientists hired by the U.S. Public Health Service as part of a new Behavioral Science Section, but most importantly, he laid the groundwork for many of the social-psychological theories that now underlie health behavior and health education research and practice (Steckler et al., 2010).

The HBM is a psychosocial model that focuses on patient compliance and preventive healthcare practices (Janz & Becker, 1984). The model has been well cited and utilized in nursing relating to compliance and preventive health practices. The HBM hypothesized that behavior depends on two variables, the value placed by an individual on a specific goal and the individual's assessment of the likelihood that a given action will accomplish that goal (Janz & Becker, 1984). The HBM makes the assumption that people are fundamentally reasonable in their thought processes and actions and that people will choose the best health option if they feel that it is possible to tackle a negative health issue, have an assertive belief that taking the proposed action will be effective in addressing the problem, and trust they are able to take the proposed action (Glanz et al., 2008).

**HBM constructs.** The HBM was first introduced with only four key constructs: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers (Rosenstock, 1974). These constructs influence a person's thinking before he or she makes a decision to take action promoting his or her state of health. Each construct can, individually or in conjunction with another construct, influence an individual's action (Steckler et al., 2010).

*Perceived susceptibility* is the individual's assessment of the probability of their contracting a particular disease or condition (Janz & Becker, 1984). It is one of the more influential perceptions in stimulating healthier behaviors (Janz & Becker, 1984). The idea behind this is that the greater the perceived risk, the greater the probability of participating in behaviors to reduce the risk. Individuals must believe their health is in a state of jeopardy and if no action is taken a possibility exists that their asymptomatic disease may become active (Glanz et al., 2008). Unfortunately, the opposite can also occur. If those affected do not believe they are at risk or have low risk of susceptibility, the chance of harmful behaviors can increase (Glanz et al., 2008).

*Perceived severity* is the individual's view of how harshly they would be impacted if they were affected by a disease or condition (Janz, Champion & Stretcher, 2002; Tanner-Smith & Brown, 2010). Death is the most severe health impact, followed by incapacitation and pain (Glanz et al., 2008). In this construct, the individual has to have the capacity to perceive the risk and consequences of their current behavior to be motivated to change. In studies with participants that were found to have high perceived severity, that perception was related to preventive behaviors such as immunizations and preventive dental visits (Janz, Champion & Stretcher, 2002; Tanner-Smith & Brown, 2010).



*Perceived benefits* are the individuals' view that actions would be beneficial in preventing or controlling an illness, yielding positive results. People will adopt healthier habits if they believe the newly acquired behavior will reduce the likelihood of developing a condition or disease (Glanz et al., 2008).

*Perceived barriers*, either physical or psychological, are the individual's perceptions of the problems they would encounter if they took the recommended actions. The results of the recommended actions can be perceived as negative, either physically or emotionally, that the participant anticipates feeling. Examples include a financial cost associated with the change, psychological or physical pain, or the inconvenience of lost work time. Perceived barriers are believed to be the most significant in influencing behavior changes (Janz et al., 2002). In order to adopt a new behavior a person must believe the advantages or benefits of the new behavior outweigh the negative effects of continuing the old behavior (Glanz et al., 2008).

During the 1980s, the HBM was expanded to include other concepts, such as cues to action and self-efficacy. These concepts further supplemented the HBM to explain preventative and health promotion behaviors as well as sick role behaviors (Janz et al., 2002).

*Cues to actions* were added to stimulate the decision-making process. These external variables may be people, events, or anything that triggers people to change their behavior. Illness of a family member, mass media communications, and health warning labels can also influence individuals to change behavior (Janz et al., 2002). It was additionally assumed that diverse demographics and structural variables might influence the individual's perceptions and indirectly influence health related behavior (Janz et al., 2002). Compared to the other factors in the model, cues to action have been found difficult to empirically evaluate and therefore are not

often included in research designs (Janz & Becker, 1984; Janz et al., 2002; Rosenstock et al., 1988).

Eventually in 1988, the HBM was slightly modified to incorporate Albert Bandura's social learning theory (Rosenstock et al., 1988). This was done to address the challenges of habitual unhealthy behaviors such as a sedentary lifestyle, smoking, poor diet, and lack of exercise (Glanz et al., 2008; Rosenstock et al., 1988). The original model's emphasis was on preventive actions; not until there was a need to describe and predict behaviors in individuals with complex chronic diseases did self-efficacy become important. Theorists recognized they were omitting a very important variable that could further help predict complex human behaviors (Glanz et al., 2008; Rosenstock et al., 1988).

*Self-efficacy* is defined as the belief that one can perform the behavior necessary to generate outcomes (Bandura, 1977). It is the individual's confidence and belief in their innate ability to take the learned action. For example, if they think they cannot accomplish what they learned or find it hard they may become reluctant to take action and will not change their behavior, even if they believe the action is necessary and valuable.

*Modifying variables* are characteristics that influence personal perceptions. Throughout the years they have been found to modify the four major constructs of the HBM. These include level of education, culture, experiences, and skills and motivation. These characteristics focus on external rather than internal factors, which influence an individual's feelings regarding outcomes, if he or she continues the same behavior (Janz & Becker, 1984).

The HBM model assumes causal links between its constructs and other factors. The probability of behavior change is greatly affected by the perceived threat from a disease. Perceived threats are then impacted by perceived susceptibility, seriousness, and cues to action.

Other factors such as age, sex, race, knowledge, etc. affect perceived threat, perceived susceptibility and seriousness, and perception of benefits vs. barriers.

**Criticisms the HBM has encountered.** There is lack of agreement over what really helps predict behavior. When the HBM was initially developed, it was designed to predict the likelihood of taking a preventive health action and tried to comprehend a person's motivation and decision-making about health services (Rosenstock, 1974). The HBM was based on the premise that health is a highly valued goal and that cues to action are widespread. When these conditions are not present the model is unlikely to be useful in predicting behavior (Janz & Becker, 1984).

This model has been critiqued in many ways, one being its emphasis on the rationality of patients' behavior. The fact is that not all behaviors are centered on reasonable or conscious choice as the HBM postulates (Glanz et al., 2008). Pender (1982) theorized that the HBM did not address positive actions to sustain or increase a person's level of health. She argued that a single act of compliance was insufficient to explain behavior directed toward health promotion. Yet another criticism has been that the model focuses on individual factors rather than socioeconomic and environmental factors (Croyle, 2005; Taylor et al., 2006) and neglects indirect social influences upon individual behavior. For example, it is debated that peers can influence individual decision making through positive and negative encouragement, which change an individual's assessment of the relative costs and benefits of a particular action. They can also influence how a person interprets and evaluates the anticipated consequences of behavior (Croyle, 2005; Taylor et al., 2006).

## **HBM and the Research Focus for the Present Study**

The HBM has been useful in explaining, predicting, and even modifying broad ranges of health behaviors in various populations since the 1950s (Glanz et al., 2008). The HBM is a suitable choice as the framework for the present study because it is aligned with the original model's purpose, which was to understand why people were not utilizing free public health services for screening and prevention of asymptomatic diseases. For the study, all five of the model's major constructs of perceived seriousness, susceptibility, barriers, benefits, and self-efficacy were examined to better understand the influences those variables have on MIW's likelihood of accepting the recommended preventive screening. Furthermore, modifying factors such as CC knowledge, cultural specific factors, spousal support, and gender roles were analyzed.

## **Theoretical Framework in the Present Study**

The present study is underpinned by the HBM. The HBM can be useful to guide the design and implementation of educational programs to promote behavior changes in relation to preventive screening (Byrd et al., 2007, 2013) The variables that were examined in the theoretical framework were susceptibility, severity, benefits, and barriers. According to Janz and Becker (1984), out of the four health beliefs, perceived barriers are the most significant in determining behavior change. The task of overcoming perceived barriers to adopting a new health behavior for MIW is further complicated by factors such as their inability to speak English, financial instabilities, and family and work obligations. These dynamics can greatly influence their decision to adopt a new health related behavior as it costs money and time away from family and work. If these barriers are perceived to be too difficult to overcome, then the likelihood of adopting the new recommended health behavior would not be high.

The modifying variables include CC knowledge, and spousal support. The theoretical framework examined the relationship between MIW's husbands' knowledge and the women's screening behavior in order to achieve a better understanding of how husbands influence their wives' CC screening utilization, ultimately affecting outcomes. (Fernandez et al., 2009a; Gregg et al., 2011; Philip et al., 2012).

Another aspect the theoretical framework addressed is the relationship between MIW's knowledge, their health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy) and their screening behaviors. Spousal support could potentially play a key role for MIW. In a study by Lee et al. (2014), the authors theorized that spousal support encouraged women to learn about cancer screening, aided them in overcoming difficulties, and conceivably changed their opinions of susceptibility, seriousness, and benefits of screening.

Lastly, the theoretical framework (see Figure 1) also attempted to describe and understand the influence within each couple on the wife's CC screening behaviors.

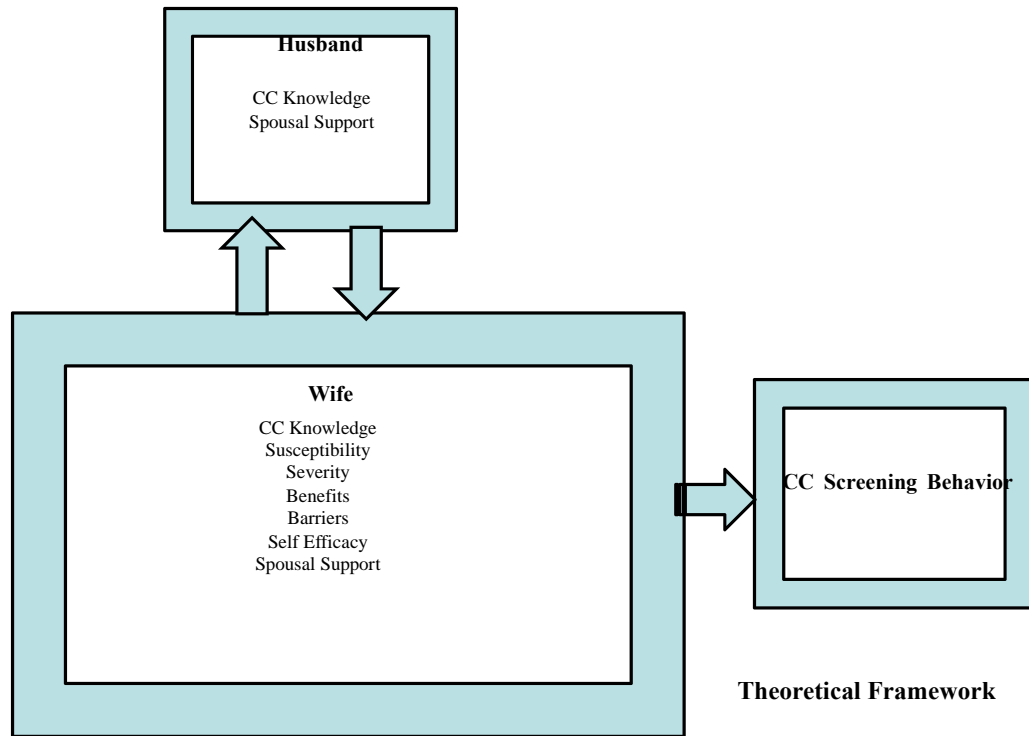


Figure 1. Theoretical framework.

Figure 1 summarizes aspects that were evaluated in the study. For the husband, CC knowledge, and spousal support were assessed by Principal Investigator (PI). Questionnaires used as well (socio-demographics, CC knowledge, and spousal support, and the Bi-dimensional Acculturation Scale [BAS]). Data were analyzed quantitatively (questionnaires). For the wife, several scales assessed CC knowledge, health beliefs, and spousal support. These included a socio-demographic questionnaire, HPV- cervical cancer and screening knowledge scale, *Creencias, Papanicolaou y Cancer* CPC-28), Cervical Cancer Screening Self-Efficacy Scale modified (CCSSE), BAS, and a spousal support scale. All the scales are in English and in

Spanish. Participants were given the option to use whichever language they felt more comfortable in

### **Summary**

This chapter provided a review of the theoretical background that guided the proposed research study. The HBM was chosen as the primary framework for the quantitative section of this study for its ability to explain health related behaviors. The theoretical framework assisted and guided the researcher in examining the aims of this research.

## CHAPTER 4

### Research Methodology

Chapter 4 presents a description of the research design, sample population, instrumentation and materials, and the measures that were operationalized from the instrumentation. The research questions and statistical hypothesis are also presented, and the data collection and analysis procedures are discussed.

This study had two purposes (a) to explore husbands' perceived support provided to Mexican immigrant women (MIW) with varying degrees of cervical cancer (CC) knowledge, awareness, and understanding of Pap testing; and (b) to determine the relationship between MIW's knowledge, health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy), perceived support received from their husbands, and their screening behaviors. This study was expected to find connections between Mexican immigrant men and their spouses, and how the men influence Pap testing utilization in women in the context of culture specific beliefs about gender roles, masculinity, and fatalism. The information obtained from the study can be used to generate tailored interventions to improve MIW's CC screening utilization behaviors. Educational programs specifically including men can also be developed in local Hispanic communities. Results may stimulate a larger-scale study that could help establish a causal connection between increasing males' knowledge and support and rates of testing. The two specific aims of this study, and the associated alternative hypotheses for aims 1 and 2, are presented as follows:

**Specific Aim 1:** Examine the relationship between husbands of MIW's knowledge and spousal support provided for their wives and the women's screening behavior. (Accomplished via survey from 110 couples.)



**Null Hypothesis 1a.** There is not a statistically significant correlation between husbands' knowledge about CC screening and MIW's CC screening behavior.

**Alternative Hypothesis 1a.** There is a statistically significant correlation between husbands' knowledge about CC screening and MIW's CC screening behavior.

**Null Hypothesis 1b.** There is not a statistically significant correlation between husbands' support provided for their wives about CC screening and MIW's CC screening behavior.

**Alternative Hypothesis 1b.** There is a statistically significant correlation between husbands' support provided for their wives about CC screening and MIW's CC screening behavior.

**Specific Aim 2:** Determine the relationship between MIW's knowledge, health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy), and perceived spousal support received from their spouse and their screening behaviors. (Accomplished via survey from 110 wives.)

**Null Hypothesis 2a.** There is not a statistically significant positive association between MIW's levels of knowledge and their CC screening behavior.

**Alternative Hypothesis 2a.** There is a statistically significant positive association between MIW's levels of knowledge and their CC screening behavior, such that higher knowledge is associated with compliant CC screening behavior. A point-biserial correlational analysis was performed to compare MIW's scores on the HPV-CCSK and their CC screening compliance.

**Null Hypothesis 2b.** There is not a statistically significant association between any of the MIW's levels health beliefs of (a) susceptibility, (b) severity, (c) benefits, and/or (d) barriers and their CC screening behavior.

**Alternative Hypothesis 2b.** There is a statistically significant association between at least one of the MIW's levels health beliefs of (a) susceptibility, (b) severity, (c) benefits, and/or (d) barriers and their CC screening behavior.

**Null Hypothesis 2c.** There is not a statistically significant association between MIW's perception of spousal support received from their husbands about CC screening and their CC screening behavior.

**Alternative Hypothesis 2c.** There is a statistically significant association between MIW's perception of spousal support received from their husbands about CC screening and their CC screening behavior.

### **Study Design**

Results from a cross-sectional descriptive survey with 110 couples (MIW and their husbands) were analyzed for the quantitative portion of the study.

**Quantitative design and appropriateness.** The quantitative element of this study involved a prospective correlational design approach via survey instrumentation and addressed the statistical hypotheses of Specific Aims 1 and 2. Quantitative research addresses questions about relationships between measured variables for the purpose of explaining, predicting, and/or controlling events (Leedy & Ormrod, 2005). Quantitative research involves the use of specific and narrow questions targeted toward measuring and explaining variable relationships (Cooper & Schindler, 2005).

A variety of methods are available to examine relationships between MIW and their husbands on the CC screening behaviors of the MIW. A correlational research method is appropriate for this study due to the nature of the variables of interest. Correlational studies are used when independent variable variation has already occurred. In this study, each participant's

motivations, beliefs, and CC screening behaviors have already been established naturally through the participant's life; therefore, the researcher has no control over the independent variables of the study. The basic purpose of a correlational study is to determine the relationship between variables, but not the cause of the relationship. Therefore, as stated by Triola (2010), coming to the conclusion that the results of a correlational study imply causality within the established relationship must be avoided.

### **Setting**

The study participants were recruited from two public local community centers in a Southern California city. These facilities have a director, a program coordinator, and have less than ten staff members. The director of the facility agreed to allow me to have access to their scheduled events in order to recruit the population of interest. These community centers host multiple community meetings, sports events, after school youth programs, alcoholic anonymous (AAA) meetings, Al-anon meetings, parenting classes, and a multitude of other community functions. The bulk of their help comes from volunteers within the community, making it an ideal place to recruit research participants for this study. No health services are offered in these locations.

These public facilities serve a large proportion of Mexican immigrants. Total Hispanics in the city where the community centers are located in 2014 were 23,617 out of 24,291, 97.0% of total population. Out of those Hispanics, 11,287 residents are foreign born (48%), 45.6% from Latin America and specifically 8,017 (34%) are Mexican immigrants (U.S. Census Bureau, 2014).

## **Study Sample, Selection, and Size**

The target population was MIW and their Mexican immigrant husbands. There were 110 MIW participants and their husbands (total 220) in the survey sample. Each participant received a \$10 grocery gift card. The gift cards were given upon completion of the surveys. This compensation is a small amount of monetary compensation for the participants' time, questionnaire completion and interviews.

**Inclusion and exclusion criteria.** Women participants were screened for eligibility based on the following *inclusion* criteria: (a) 40 - 65 years old; (b) Mexican descent; (c) residents of Southern California; and (d) married to a Mexican descent man. I chose to study MIW because previous research indicated that these women were less likely to have had Pap testing than other Latinas (ACS, 2020a; CDC, 2014a, 2023). The age criteria were based on data from SEER (2019), which provides the median age of 50 years as when CC is most frequently diagnosed in women of all races and ethnicities. However, Hispanic women, especially those who are older, are less likely to have received a Pap test than their younger Hispanic counterparts. Some reported rates by age groups show that only 56% and 51% of women aged 45-60 and 60 years and older respectively had reported having had a Pap smear test in the past 2 years (Bazargan et al., 2004; Ostbye et al., 2003). The current Pap smear testing recommendations, suggest testing should begin when a woman first engages in sexual intercourse and should be performed at least every three years until 65 years of age (ACS, 2020b). Since I am particularly interested in understanding why women did not obtain regular Pap testing, only women who had not had an exam within the past three years were eligible. The following were *exclusion* criteria for women: (a) had previous history of cervical cancer; (b) had a hysterectomy; and (c) were not married. We chose to exclude women with a history of cervical

cancer and a hysterectomy because they do not need to follow the Pap test screening recommendation. The surgery or the disease may have possibly influenced their beliefs.

Male participants were screened for eligibility based on the following inclusion criteria: (a) Mexican descent, (b) residents of Southern California, and (c) married to the woman in the study. Women who were not married were excluded from the study. Only couples were included in the study. Both the women and their husbands needed to meet inclusion criteria and consent to participate.

### **Sample Size**

G\*Power 3.0.10 software (Faul et al, 2007) was used in this determination. The analysis was performed for a Pearson's product moment correlation, which is computationally the same as a point-biserial correlation, and a logistic regression. The alpha level was set to .05, with a power of .80. Power is  $(1-\beta)$ , where  $\beta$  is the chance of Type II error (i.e., one accepts the null hypothesis when it is, in fact, false). The sample size needed for a Pearson's correlation with a medium effect size of  $r = .30$  (Cohen, 1988), two-tailed test, is 84 records.

A sample size of  $n = 110$  was targeted for each of the Specific Aims 1 and 2 based on a power analysis for detecting a relatively small effect size. A rule of thumb for logistic regression is to include at least 10 records for each predictor (Tabachnick & Fidell, 2013). The logistic regression model addressing Specific Aim 2 included six predictors. Thus, a minimum sample of 60 participants would be required to power the logistic regression. G\*Power was used to determine the minimum effects (odds ratio and conditional probability) that could be detected with a sample of 110 records. At 110 records, statistically significant effects can be seen with an odds ratio of 1.8 and a conditional probability of  $Y = 1$  given  $X = 1$  of 0.5 (50%).

## **Study Procedure**

**Recruitment for Mexican immigrant women.** The PI met with community center administrators and outlined the study protocols and methods for participant recruitment. The PI and the administrators handed out study flyers to all potentially eligible MIW. The flyer briefly highlighted the study, posed several intriguing questions on CC, and invited married women to be a part of this great research study. Flyers about the study (Appendix A) were posted throughout the two community centers. Snowball sampling was also used to recruit participants for the study. Participants who were interested in this study were asked to contact the PI by phone or email.

**Screening for eligibility.** An eligibility questionnaire was used both in English and Spanish to screen prospective participants (see Appendix B) via phone or in-person. Each potential participant was asked if she and her husband could read English or Spanish, and then were asked the inclusion criteria questions for herself and her husband. Those who met the above criteria were qualified to enroll in the study. Once screening was complete, the participants were asked to schedule an appointment with the PI when she and her husband were available for further explanation of the study, signing of consents, and data collection. The PI, who is fluent in both English and Spanish, collected survey data. This was all done in designated conference rooms at the community centers.

**Obtaining consent.** The PI arranged face-to-face meetings with all interested participants to explain the study details and obtain informed consent. The PI read the consent out loud in English or Spanish to the entire group of potential participants at each location (Appendix C) and asked the women/men to agree to participate by saying “yes.” Time was allotted for questions regarding the study and privacy was also made available to all participants including those who

wished to ask questions in private. Participants were allowed as much time as needed to decide if they wanted to stay and participate or not. Women/men who did not want to participate in the study were able to leave the conference room in the community center at this time. Participants were informed that: (a) study participation is voluntary, (b) information provided in the questionnaires and results of the study would be used solely for scientific purposes, (c) they had the right to decline answering any questions or withdraw from the study at any time, and (d) their personal telephone number or address were for follow-up of study questionnaire completion only if they agreed. Participants were also informed that those who met the eligibility criteria and consented to be a part of the study would receive a \$10 gift card (per participant) for their time in completing the study's surveys.

### **Instruments and Measurements**

All instruments including the socio-demographic questionnaire were available in English and Spanish. Four of the five scales (HPV/cervical cancer and screening knowledge scale, Creencias, Papanicolaou y Cancer, Cervical Cancer Screening Self-Efficacy Scale, and a bi-dimensional acculturation scale [BAS]) were available from the original authors in both English and Spanish. The participants were given the option to choose the language they felt most comfortable reading. English and Spanish data was compared to see if there were any significant differences, especially in the demographics questionnaires. The PI and three Master's prepared Registered Nurses (RNs) who are fluent in Spanish and English translated the spousal support scale into Spanish.

This was done as close to the Guidelines for the Cross-Cultural Adaptation Process as possible (Beaton et al., 2002). According to this source (the 2002 Guidelines from the American Academy of Orthopedic Surgeons), translation should include at least two independent forward

translations by bilingual translators (from English to Spanish). All nurses who participated in this study were certified by the Regional Kaiser Permanente Bilingual Education Department. These initial two translations were done by the PI who is a Qualified Bilingual Staff (QBS) and another Master's prepared, QBS RN. Afterwards, the two language versions were compared by the PI and a different QBS RN to identify discrepancies or other problems. During synthesis a third QBS Master's prepared RN mediated a discussion between the PI and the first QBS RN to assist in the development of the Spanish version of the survey. A fourth QBS Master's prepared RN blind to the original survey then back translated the newly developed Spanish version of the survey into the source (English) language and compared it to the original document to check the validity of the translation. An expert committee of four QBS RNs and the PI met with the purpose of consolidating the different versions of the survey to produce a final form and ensure equivalence between the source and new versions (Beaton et al., 2002). All issues were resolved through dialogue.

*Socio-demographic questionnaire.* The Principal Investigator (PI) developed the questionnaire. It included pertinent socio-demographic and socio-economic questions commonly asked in other studies on cervical cancer and Hispanic women (Fernandez et al., 2009b; McMullin et al., 2005; Moore De Peralta et al., 2015; Scarinci et al., 2003; Urrutia, 2009).

These sociodemographic questionnaires were given to all enrolled male and female participants prior to starting the survey with the exception of question J that is for women. Question J is about women's history of cervical cancer screening. The responses to question J were used to derive the dichotomous dependent variable of CC screening behavior (compliant = 1 vs. non-compliant = 0). The woman was also asked the duration of marriage. The questionnaire (Appendix D) includes the following socio-demographic and socio-economic questions:



- a) Age: chronological age of study participants was collected as a continuous variable.
- b) Gender: data was collected as a categorical variable as male or female.
- c) Employment status: data was collected as a categorical variable as part-time, full-time, retired, in school, or unemployed.
- d) Number of children: data was collected as a continuous variable.
- e) Number of years married: data was collected as a continuous variable.
- f) Income level: data was collected as a categorical variable based on the 2017 Federal poverty guidelines.
- g) Education level: data was collected as a continuous variable in number of years of schooling.
- h) Time lived in the U.S.: data was collected as a continuous variable in number of years participants had lived in the U.S.
- i) Primary language spoken at home: data was collected as a categorical variable of English, Spanish, or both.
- j) Cervical cancer screening history: data was collected as a categorical variable as either yes or no items including a) Ever had a Pap test; b) Had a Pap test within the last 3 years; c) Had a Pap test within the last 2 years; and d) Had a Pap test within the last year.

*Level of acculturation.* The Bi-Dimensional Acculturation Scale (BAS) (Appendix E) was completed by both husbands and wives. The Bi-Dimensional Acculturation Scale (BAS) was used to measure participants' acculturation level (Marin & Gamba, 1996). This bi-dimensional scale was produced as a new validated version to overcome the criticism of the linear nature (unidirectional) of previous scales. The benefit of using the BAS is its assessment

of two co-existing cultural self-identities. The BAS includes 24 Likert scale items. The 24 items can be divided into three factors that measure (s) linguistic usage (that is, spoken language preference), (b) language proficiency, and (c) electronic media usage. Half (12) of the 24 items refer to English use or English-language proficiency, and the other half (12) address the same areas related to Spanish use or proficiency. Answers to each of the 24 items is scored on a four-point Likert-type scale; answers range from 1 = “very poorly” to 4 = “very well” for the linguistic usage factor, and from 1 = “almost never” to 4 = “almost always” for the language proficiency and electronic media usage factors. The 12 items for each of the English and Spanish use/proficiencies cultural domains are scored to create two acculturation indexes, one for each cultural domain, which are obtained by averaging responses to the 12 items relevant to each cultural domain. Thus, the score for each of the cultural domains can range from 1 to 4. An average score close to 1 indicates a low level of cultural proficiency in a given cultural domain. An average score close to 4 indicates a high level of cultural proficiency on that same cultural domain. An average score of 2.5 was used as the cut-point to classify both the husbands and wives into low (average score of 2.5 or less) or high levels (average score of greater than 2.5) of adherence to each of the cultural domains. The value of 2.5 was chosen as the cut-point because it is in the middle of the score range of 1 to 4 for the BAS (Marin & Gamba, 1996).

Marin and Gamba (1996) found high reliability and validity in three language-related dimensions: language use, linguistic proficiency, and preferred language use when using electronic media with Hispanics from Mexico and Central America. They reported an average alpha coefficient reliability score of .90 for all the items with Hispanics.

## **Instrumentation**

*Knowledge.* The HPV, Cervical Cancer and Screening Knowledge Scale (HPV-CCSK) were completed by both husbands and wives. The HPV-CCSK was first used to assess South Carolina upstate Hispanic women's (54.5%) knowledge of cervical cancer and screening and was developed by Moore De Peralta et al. (2015). The scale includes 10 items. Items 1 – 3 are related to knowledge of Human Papilloma Virus (HPV) and its role in cervical cancer; items 4 – 6 corresponded to risk factors associated with cervical cancer; items 7 and 8 are related to usefulness of the Pap test and manifestations of cervical cancer; and items 9 and 10 corresponded to cervical cancer screening guidelines. There are three available responses for each of the 10 items, (a) true, (b) false, or (c) don't know. Correct responses for the 10 items were summed into a total knowledge score. Thus, the HPV-CCSK was used to measure the variable of knowledge in the quantitative analyses of Specific Aims 1 and 2.

The HPV-CCSK is available in both English and Spanish (Moore De Peralta et al., 2015). Knowledge about cervical cancer and the Pap test had Cronbach's coefficient alpha = .53. The author of the HPV, Cervical Cancer and Screening Knowledge scale gave me permission to adapt the scale for use in the MIW population, to examine the knowledge of both MIW and their husbands related to cervical cancer and the Pap test (Moore De Peralta et al., 2015).

*Health beliefs variables.* The Creencias, Papanicolaou y (and) Cancer Questionnaire (CPC-28) was completed by wives (MIW) only. The 28-item CPC-28 questionnaire was developed to measure Chilean women's beliefs about cervical cancer and the Pap test based on the Health Belief Model (Urrutia, 2009). The original CPC-28 was developed and tested in 2009 by Urrutia and is in English and Spanish. CPC-28 includes 28 items scored on a Likert scale from 1 = strongly disagree to 4 = strongly agree. The 28 items are divided into six domains as

follows: (a) the *barriers* to take a Pap test domain includes nine items with a range of possible scores from 9 to 36. Higher scores are indicative of greater barriers to take a Pap test; (b) the *cues to action* domain includes six items with a range of possible scores from 6 to 24. Higher scores are indicative of more cues to action; (c) the *severity* domain includes four items with a range of possible scores from 4 to 16. Higher scores are indicative of greater perceptions that consequences of having cervical cancer is severe; (d) the *need* to have a Pap test domain includes three items with a range of possible scores from 3 to 12. Higher scores are indicative of *lesser* perceived need of a woman to have a Pap test; (e) the *susceptibility* to cervical cancer domain includes three items with a range of possible scores from 3 to 12. Higher scores are indicative of greater perceived susceptibility of cervical cancer; and (f) the *benefit* domain includes three items with a range of possible scores from 3 to 12. Higher scores are indicative of greater perceived benefit of getting cervical cancer screening. The MIW completed the entire CPC-28, and descriptive measures were reported for all six domains. However, only the four domains of (a) barriers, (b) severity, (c) susceptibility, and (d) benefits were tested in the logistic regression model addressing Specific Aim 2.

Reliability analysis for the CPC-28 questionnaire returned a Cronbach's coefficient alpha value of .735 and an average mean inter-item correlation of .083 (Urrutia, 2009). Evidence of the values of both indices provides support for reliability of the items on the CPC-28 questionnaire. Exploratory factor analysis was used to evaluate validity and coefficient alpha to evaluate reliability. The content validity index was 0.93 after 10 Chilean experts' review (Urrutia, 2009). Currently, the CPC-28 had not been used in the MIW population. For this study, the author of the CPC-28 gave permission for the PI to use the scale for use in the MIW population to examine the beliefs related to cervical cancer and the Pap test.

*Self-Efficacy.* The Cervical Cancer Screening Self-Efficacy Scale (CCSSE) was completed by wives (MIW) only. The modified Cervical Cancer Screening Self – Efficacy Scale (CCSSE) developed by Fernandez et al. (2009b) was used to measure fatalistic beliefs of Mexican-American women (Fernandez et al., 2009b). The CCSSE was used as the measure for the variable of self-efficacy in this study. The CCSSE includes eight items relating to a woman’s self-efficacy in scheduling and obtaining a Pap test. The strength of each of the eight efficacy beliefs are computed on a 100-point scale, ranging in 10-unit intervals from 0 (“Cannot do”); through intermediate degrees of assurance, 50 (“Moderately certain can do”); to complete assurance, 100 (“Highly certain can do”). Self-efficacy scores are obtained by adding the items; thus, scores can range from 0 to 800, with high score indicative of greater self-efficacy.

The authors of the Fernandez et al. study (2009b) tested the CCSSE among low-income Mexican women (80% of this population is of Mexican descent) who were residents in Texas, California, and the U.S.- Mexico border. The CCSSE scale showed good internal consistency with a Cronbach’s alpha of 0.95. The authors conducted an exploratory factor analysis (EFA), which indicated a single-factor solution with all seven items loading  $>0.73$ . The results of the logistic regression in Fernandez et al.’s study (2009b) supported the relationship between self-efficacy and health behaviors such as Pap testing. Hence, women with higher self-efficacy were more likely to have had a recent Pap test than women with lower self-efficacy. Therefore, self-efficacy was an important determinant of Pap test screening. For this study, the author of the CCSSE has given me permission to use the scale for use in the MIW population to examine the self-efficacy beliefs related to cervical cancer and the Pap test.

*Spousal Support Scale.* The SSS was completed by both husbands and wives. The SSS, developed by Lee et al. (2014) measures encouragement and support received from family

members. The authors used this scale among Korean American Women (KAW) in two studies (Lee et al., 2014; Lee et al., 2016) to test a couple based intervention to improve KAW's mammography utilization. The same seven items were used to measure women's and their husbands' perception of support received/provided for their spouses where higher scores indicated a higher level of perceived support received/provided. The only difference was the word "received" on the KAW scale was changed to "provided" on items on the family members' (husbands') scale. Cronbach's alpha for measuring spousal support from wives and husbands' perspectives were 0.67 and 0.53 respectively, in the original KIM—CHI study. The author of the SSS gave me permission to adapt the scale for use in the MIW population. The responses to the SSS items will be used to test the specific aims 1b and 2c as well as to address dimensions of spousal support during qualitative coding and thematic analysis to more deeply investigate the relationship between factors relating to spousal support.

### **Data Collection**

*Procedures for the quantitative surveys.* The goal for the surveys used in the quantitative study is to address Specific Aims 1 and 2. Specific Aim 1 examines the relationship between MIW's husbands' knowledge via the responses to the HPV-CCSK, and the MIW's screening behavior via the responses to the Socio-Demographic Questionnaire item J (CC screening history). Specific Aim 2 examines the relationship between MIW's knowledge and health beliefs of susceptibility, severity, benefits, self-efficacy, and barriers and the MIW's screening behavior. No surveys were mailed and participants did not have the option to take a survey home and mail it back to the PI. All the questionnaires were completed on site and with pencil and paper. A designated conference room in the community centers was used. These rooms are equipped with tables and chairs and are large enough to fit 25-30 people and allowing for privacy. The

approximate time to complete the surveys was no more than 30-45 minutes for men and women, but extra time was provided to those who needed or requested more time.

### **Data Analysis**

The PI entered the data collected into a database in the computer using SPSS v.22. Data was cleaned, as it is a crucial part of the data analysis since misleading research findings can occur if data is not accurate. Frequencies were run on every variable and those frequencies were examined carefully for invalid values, unusual values, large amounts of missing data, and adequate variability. In addition, data cleaning is equally important in this step. This involved checking to see that only the codes assigned to answer the choices for each question appeared in the data file. This routine procedure is about cleaning up mistakes from step one which included but was not limited to incorrect coding, incorrect reading of codes, missing data and so forth (Plichta & Kelvin, 2013).

Descriptive statistics were used to summarize and describe the dependent and independent variables. The following descriptive statistics of frequency and percentage were used for categorical variables (i.e. education, income bracket, gender, employment status, marital status, language spoken at home, and cervical cancer screening compliance). Means and standard deviations were used for continuous variables (i.e. age, CPC-28 scores, CCSSE scores, HPV-CCSK scores, SS scores, duration of marriage, and time lived in the U.S.). In addition, tables were created to display sample socio-demographic characteristics such as those mentioned above. This step was needed to help provide a clear description of the target population.

Hypothesis testing was performed to address Specific Aims 1 and 2. The variables were operationalized for analysis according to the specifications described in the instrumentation

section of this chapter. The tools and tests used to address the two specific aims of this study are as follows:

**Specific Aim 1:** Examine the relationship between husbands of MIW's knowledge and spousal support provided for their wives and the women's screening behavior. (Accomplished via survey from both 110 couples)

**Null Hypothesis 1a.** There is not a statistically significant correlation between husbands' knowledge about CC screening and MIW's CC screening behavior.

**Alternative Hypothesis 1a.** There is a statistically significant correlation between husbands' knowledge about CC screening and MIW's CC screening behavior.

A point-biserial correlational analysis was performed to compare the husbands' scores on the HPV-CCSK and the MIW's CC screening compliance. Husbands' knowledge was derived as the number of correct responses for the 10 items of the HPV, cervical cancer and screening knowledge scale (HPV-CCSK). The MIW's CC screening compliance was derived from Item J of the Socio-Demographic Questionnaire. MIW who answered 'no' to the question 'Ever had a Pap test?' were scored as non-compliant = 0. MIW who answered 'yes' to the question, 'Ever had a Pap test?' AND answered yes to at least one of the items b, c, or d were scored as compliant = 1.

**Null Hypothesis 1b.** There is not a statistically significant correlation between husbands' support provided for their wives about CC screening and MIW's CC screening behavior.

**Alternative Hypothesis 1b.** There is a statistically significant correlation between husbands' support provided for their wives about CC screening and MIW's CC screening behavior. A point-biserial correlational analysis was performed to compare the husbands' scores on the Spousal Support Scale (SSS) and the MIW's CC screening compliance. Husbands'



support was derived as the total score of the seven items on the SSS. The MIW's CC screening compliance was derived from Item J of the Socio-Demographic Questionnaire. MIW who answered 'no' to the question 'Ever had a Pap test?' was scored as non-compliant = 0. MIW who answered 'yes' to the question. 'Ever had a Pap test?' AND answered 'yes' to at least one of the items b, c, or d were scored as compliant = 1.

**Specific Aim 2:** Determine the relationship between MIW's knowledge, health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy), and perceived spousal support received from their spouse and their screening behaviors. (Accomplished via survey from 110 wives.)

**Null Hypothesis 2a.** There is not a statistically significant positive association between MIW's levels of knowledge and their CC screening behavior.

**Alternative Hypothesis 2a.** There is a statistically significant positive association between MIW's levels of knowledge and their CC screening behavior, such that higher knowledge is associated with compliant CC screening behavior. A point-biserial correlational analysis was performed to compare MIW's scores on the HPV-CCSK and their CC screening compliance.

**Null Hypothesis 2b.** There is not a statistically significant association between any of the MIW's levels health beliefs of (a) susceptibility, (b) severity, (c) benefits, and/or (d) barriers and their CC screening behavior.

**Alternative Hypothesis 2b.** There is a statistically significant association between at least one of the MIW's levels health beliefs of (a) susceptibility, (b) severity, (c) benefits, and/or (d) barriers and their CC screening behavior.

One multiple logistic regression model tested to address the null hypotheses of Specific Aim 2. The dependent (criterion) variable was the MIW's CC screening compliance, and it was derived from Item J of the Socio-Demographic Questionnaire. MIW who answered 'no' to the question 'Ever had a Pap test?' were scored as non-compliant = 0. MIW who answered 'yes' to the question. 'Ever had a Pap test?' AND answered 'yes' to at least one of the items b, c, or d were scored as compliant = 1. Five independent (predictor) variables included the scores of the (a) susceptibility, (b) severity, (c) benefits, and/or (d) barriers domains from the CPC-28, and the score from the CCSSE survey.

**Null Hypothesis 2c.** There is not a statistically significant association between MIW's perception of spousal support received from their husbands about CC screening and their CC screening behavior.

**Alternative Hypothesis 2c.** There is be a statistically significant association between MIW's perception of spousal support received from their husbands about CC screening and their CC screening behavior. A point-biserial correlational analysis was performed to compare MIW's scores on the Spousal Support scale and their CC screening compliance. MIW's perceptions of the husbands' support were derived as the total score of the seven items on the SSS. The MIW's CC screening compliance was derived from Item J of the Socio-Demographic Questionnaire. MIW who answered 'no' to the question 'Ever had a Pap test?' were scored as non-compliant = 0. MIW who answered 'yes' to the question. 'Ever had a Pap test?' AND answered 'yes' to at least one of the items b, c, or d were scored as compliant = 1.

**Triangulating with literature.** Once all of the data and survey information were coded and organized into themes, the key findings were compared against the literature, in order to gain insight into how the findings relate to the literature including new and old news. This study

provides both research and practice with a real-world case study of the experience of MIW's and their husbands as relates to motivations and beliefs in obtaining CC screening for the MIW's. It is expected that the results of this study will inform future studies. Additionally, the researcher shared the first iterations of findings with the dissertation committee, with explicit notes on how the units of meaning were extracted, the list of codes, and how they helped create general research themes.

### **Protection of Human Subjects**

University human subject protection approval was obtained from the University of California, Los Angeles Institutional Review Board. In accordance to IRB standards, all data obtained from participants in this study was labeled with an identification number to protect patients' anonymity and privacy. Participants were all assigned a code in lieu of their personal names upon enrollment and all future correspondence will utilize the assigned code number instead of participants' names. A master list with participants' name and identification number were kept in a locked file cabinet in a locked room at UCLA research department with limited access by the PI and dissertation chair throughout the entire study. Furthermore, electronic data stored in computers all had password protection software to ensure safety.

### **Human subjects involvement, characteristics, and design.**

No invasive tests or substantial risks to human subjects were present in this study. The degree of risk was minimal, anticipated benefits were presented, and the availability of alternatives was discussed with the participants. Potential risks to participation included loss of time and embarrassment related to gynecological topics. Loss of time and embarrassment were kept to a minimum by providing and conducting confidential consents and private interview

sessions. Efficient time management practices were utilized to minimize time loss to study participants.

**Risk management protocols for adverse events.** The PI was to report any adverse events to her faculty sponsors immediately. Regular meetings online, conference calls, or in person with committee chair were conducted biweekly. Adverse issues were to be discussed on an as needed basis.

**Adequacy of protection against risk.** The selection of the 110 couples into this study was based upon the inclusion criteria. Participation was completely voluntary and free of coercion, with no unnecessary influence. The PI and the administrators handed out study flyers to all potential MIW participants and their husbands. Flyers about the study were posted throughout the two community centers. Snowball sampling was also used to recruit participants for the study. Participants who were interested in participating in this study were asked to contact the PI by phone or email.

The process included a face-to-face meeting in the community center where a discussion of what the incentive procedures were and included a question-and-answer session to address concerns. This was conducted in English or Spanish based on participant preference. This researcher is fluent in both spoken and written languages. Participants were asked to restate information to the interviewer as a way to evaluate the participant's understanding of the consent process or the study information. Each participant who completed the surveys in the study received a gift-card worth \$10. This compensation was a small amount of money for completion of the questionnaires and one interview. The PI notified participants that they have the complete freedom not to participate and can withdraw at any point during the study.

The researcher described the study, completed the screening and enrollment, and obtained informed consent. The participant couple was informed of the voluntary nature of the study. They were required to read and sign a consent form prior to participation. The participants were provided an unsigned copy of the consent form for their records. Signed consent forms were kept in a locked filing cabinet in the UCLA research office. This is an educationally and economically disadvantaged community. All consent forms and other information were provided in English or Spanish per the participants' preference or needs. The researcher is able to speak, read, translate, and write in both languages.

**Potential benefits of the proposed research to the subjects and others.** Participants gained knowledge and information on the importance of CC screening. They now have the tools to recognize signs and symptoms, when to seek out medical advice, understand guidelines of when to get screened for CC and theoretically, have their husbands support. No invasive tests or substantial risks to human subjects were present in this study making risks to participants reasonable in relation to the anticipated benefits. The research findings guided the development of improved screening tools and interventions for this vulnerable population. The potential benefit to women is prevention of mortality and morbidity from a preventable cancer.

**Data and safety monitoring (DSM) plan.** The data collected from participants included demographic, socioeconomic, and health status, along with their consent to participate in the study. Participants' intake and initial interview, questionnaire responses from men and women pertinent to the study were included. The informed consent also contains personal information of the participants. The researcher and trained staff have access to the participants' information and questionnaire responses during the data collection phase and throughout the various phases of the study. No photos of participants were taken.

Data and personal information was decoded and names of participants were replaced with a numerical code to ensure confidentiality. The researcher retained the code sheet locked in a secured filing cabinet at UCLA. The key code was filed separately from the collected data so that crosschecking of names and codes cannot occur. Hard copy data is located in a locked file cabinet in the UCLA research office. Data that was stored on a laptop was secured by password known only by the researcher. The password was changed periodically to ensure security and confidentiality. The data will be maintained indefinitely under the supervision of the researcher or designee.

**Importance of the knowledge to be gained.** The benefits to this study include potential life-saving information regarding CC detection. It has the potential to be beneficial to all women but specifically the Mexican immigrant community. The research findings have the potential to enhance prevention by increasing knowledge in men and women, increasing self-assessment and awareness. The findings have the potential to implement or evaluate future interventions among vulnerable populations.

## **Summary**

Chapter four included methods and procedures used to examine the events under study. A brief description of the research design, sample population and sample size calculations techniques were included. The procedure for participant's recruitment, data collection, consent procedure, confidentiality issues, and protection of human subjects were explained. Variables and selected instruments and scales used were described. The data analysis plan followed to assess study findings was thoroughly described.

## CHAPTER 5

### Results

In Chapter 5, the results of the research are presented in a descriptive format as well as with tables. The results are divided into four sections, (a) population and descriptive findings, (b) investigation of assumptions as relates to inferential analysis, (c) presentation of findings for the binary logistic regression models, and (d) tests of hypotheses. SPSS v.22 was used for all descriptive and inferential analyses. The inferential analyses were tested at the 95% level of confidence ( $p < .05$ ).

This study had two purposes (1) to explore husbands' perceived support provided to Mexican immigrant women (MIW) with varying degrees of cervical cancer (CC) knowledge, awareness, and understanding of Pap testing and (2) to determine the relationship between MIW's knowledge, health beliefs (susceptibility, severity, benefits, barriers and self-efficacy), perceived support received from their husbands, and their screening behaviors. A correlational research design approach was taken using cross-sectional descriptive surveys completed by Mexican immigrant couples.

The primary goal of the study was to achieve a better understanding of how husbands influence their wives' CC screening utilization. This study will also be helpful in revealing connections between Mexican immigrant men and their spouses, and how the men influence Pap testing utilization in women in the context of culture specific beliefs about gender roles, masculinity, and fatalism. The information obtained from the study can be used to generate tailored interventions to improve MIW's CC screening utilization behaviors. Educational programs specifically including men can also be developed in local Hispanic communities.

Results may stimulate a larger-scale study that could help establish a causal connection between increasing husbands' knowledge and support and rates of testing.

### **Population and Descriptive Findings**

Descriptive measurements of the data collected in this study for a total of 110 couples are presented in Table 1. On average, the husbands ( $M = 51.31$  years,  $SD = 9.30$  years) and wives ( $M = 49.75$  years,  $SD = 7.16$  years;  $t(216) = 1.39$ ,  $p = .166$ ) were similar in age. The husband and wife in each couple did not give exactly the same answers on many demographic questions. However, on average, the couples reported being married for approximately 23 years, living in the United States for an average of 25-27 years. The majority of husbands (80.9% of the husbands) were employed full-time. Seventy-seven wives (70% of the wives) were employed either full-time (33.6%) or part-time (36.4%). Approximately 27% of the wives were not working outside of the home.

Information on the number of children was collected from both husbands and wives, however, in some couples ( $n=2$ ) there were discrepancies in the number of children reported. Therefore, the number of children reported for use in this study was derived from the women's responses. All of the couples had at least one child, and 71% of the couples had 3 or fewer children. Annual income, also reported by the wives only, ranged from 0 to \$38,060, with most couples (87% of couples) making less than \$30,000 per year.

The most frequently reported number of years of education was high school for both husbands (40%) and wives (53%). Fifteen percent of the husbands reported an education level of some college or greater, and twelve percent of the wives reported education levels of some college or greater. The primary language spoken at home was Spanish (91% wives, 86% husbands).



All of the wives (100%) have had a Pap test, with 71% having had a Pap test within the previous three years, 50% having had a Pap test within two years and 35% having a Pap test within the past year.

Table 1  
*Descriptive Statistics for Husbands (n = 110), and for Wives (n = 110)*

Variable (Continuous)	Wives (n = 110)		Husbands (n = 110)		Test Statistic	p-value
	M	SD	M	SD		
Age <sup>a</sup>	49.75	7.16	51.31	9.30	t(216) = 1.39	.166
Number of children <sup>a,b</sup>	2.91	1.05	---	---		
Years of marriage <sup>a</sup>	23.32	10.67	23.33	10.76		
Years in United States <sup>a</sup>	25.15	11.46	26.65	11.50	t(216) = 0.97	.335
Variable (Nominal)	Freq.	%	Freq.	%	Test Statistic	p-value
Employment status					---	---
Part-time	40	36.4	11	10.0		
Full-time	37	33.6	89	80.9		
Retired	3	2.7	7	6.4		
Unemployed	30	27.3	1	0.9		
Missing/No Response	---	---	2	1.8		
Number of Children (count) <sup>b</sup>					---	---
0	---	---	---	---		
1	6	5.5	---	---		
2	32	29.1	---	---		
3	51	46.4	---	---		
4	11	10.0	---	---		
5	7	6.4	---	---		
6	3	2.7	---	---		
Missing/No Response	---	---	---	---		

Table 1 (cont'd)

Variable (Nominal; cont'd)	Wives ( <i>n</i> = 110)		Husbands ( <i>n</i> = 110)		Test Statistic	<i>p</i> -value
	Freq.	%	Freq.	%		
Income level (annually) <sup>b</sup>					---	---
0 - \$12,140	10	9.1	---	---		
\$12,140 - \$16,460	16	14.5	---	---		
\$16,641 - \$20,770	19	17.3	---	---		
\$20,771 - \$25,100	27	24.5	---	---		
\$25,101 - \$29,420	24	21.8	---	---		
\$29,421 - \$33,740	6	5.5	---	---		
\$33,741 - \$38,060	8	7.3	---	---		
Missing/No response	---	---	---	---		
Highest education level					$\chi^2(1) = 0.001$	.979
Elementary school (K-5)	9	8.2	15	13.6		
Middle school (6- 8)	28	25.5	35	31.8		
High school (9-12)	58	52.7	44	40.0		
Some college (1-2 years)	13	11.8	11	10.0		
College degree (Bachelors, Master's, Ph.D)	1	0.9	3	2.7		
Missing/No response	1	0.9	2	1.8		
Primary language spoken at home					$\chi^2(1) = 0.83$	.361
Spanish	100	90.9	94	85.5		
Both Spanish and English	10	9.1	14	12.7		
Missing/No response	---	---	2	1.8		

Table 1 (cont'd)

Variable (Nominal; cont'd)	Wives ( <i>n</i> = 110)		Husbands ( <i>n</i> = 110)		Test Statistic	<i>p</i> -value
	Freq.	%	Freq.	%		
(Women only) Ever had a pap test?					---	---
No	0	0	---	---		
Yes	110	100	---	---		
(Women only) Had a Pap test within past 3 years					---	---
No	32	29.1	---	---		
Yes	78	70.9	---	---		
(Women only) Had a Pap test within past 2 years					---	---
No	55	50.0	---	---		
Yes	55	50.0	---	---		
(Women only) Had a Pap test within past year?					---	---
No	72	65.5	---	---		
Yes	38	34.5	---	---		

*Note.* *M* = Mean; *SD* = Standard Deviation; Freq. = Frequency count of the category; % = Percentage of records for the category. Highest education level was aggregated for  $\chi^2$  test into two groups of (a) high school or less, and (b) at least some college.

<sup>a</sup> Variable was missing information for 2 (husband) subjects. The measures of central tendency for the continuous variables include, *n* = 108 records for husbands, *n* = 110 records for wives. Frequencies and percentages of the nominal variables include missing records in a separate category.

<sup>b</sup> Variable values reported for wives only.

## **Inferential Analysis of Specific Aims 1 and 2**

The inferential tests used to address the hypotheses of Specific Aims 1 and 2 include correlational analysis (Specific Aim 1) and multiple logistic regression (Specific Aim 2). The assumption requirements of the tests are presented first. Following the assumption section, the correlational and multiple regression models will be presented. The model findings will then be used to address the statistical hypotheses for each specific aim.

### ***Assumptions for Inferential Analysis***

A series of point bi-serial correlations and multiple logistic regression analyses are analyzed in this study. The dataset was investigated to ensure that it satisfied the assumptions of the point-biserial correlation and multiple logistic regression analyses, namely: level of measurement and linearity (for point-biserial correlational analyses); absence of multicollinearity (for the multiple logistic regression models); and absence of outliers (for both the correlation and regression models).

The point-biserial correlation is computed exactly as a Pearson's product moment correlation analyses (Pallant, 2013), with the assumptions that that the level of measurement includes one dichotomous variable and one continuous variable. The level of measurement assumption was met. Linearity was investigated with scatterplots for each correlational pair. The assumption of linearity was met.

Logistic regression is sensitive to outliers and multicollinearity (Pallant, 2013). Outliers in a dataset have the potential to distort results of an inferential analysis. A check of the coded values on the categorical variables indicated correct values with no outliers due to keying errors or other errors in the data processing. The ranges of data for the continuous variables were

checked and the values were within acceptable ranges. Therefore, the assumption of absence of outliers was met.

Multicollinearity occurs when independent variables of a study are highly correlated with each other. Highly correlated is defined as a correlation coefficient between two variables of .90 or greater (Pallant, 2013). Multicollinearity checks between the variables used as independent predictors in the logistic regressions were performed via a check of the correlation coefficients (see Table 2). Multicollinearity was not detected for any of the variables used as independent predictors for the logistic regression. Therefore, the assumption of absence of multicollinearity was met.

Cronbach's alphas were calculated for all scales and subscales used (except for demographic information). Several of the measures showed quite high internal reliability: Self-efficacy (wives only): .932; Acculturation- wives: .825; and Acculturation- husbands: .837. Several others were satisfactorily high: Spousal Support- wives: .798, which is higher than that reported by Lee et al. (2014): .67. For Spousal Support- husbands: .579, also slightly higher than that found by Lee: .53. For the total score of the CPC-28 (wives only), alpha was .742. This may be compared to that found by Urrutia (2009): .735. Individual subscales' alphas were found to be: Barriers: .898, Benefit: .456, Severity: .816, and Susceptibility: .500. There appears not to have been prior research reporting alphas for the subscales separately, although Szabóová, Švihrová, Švihra, Rišková, and Hudečková (2018) reported that alpha was greater than .8 in all domains. The Cervical Cancer and Screening Knowledge Scale yielded rather low alphas: Knowledge -husbands: .459 and Knowledge- wives: .511

### *Correlational Analyses*

Table 2 presents the findings of the point-biserial correlation analyses. Cohen (1988) suggests that the measured effects of correlation coefficients with absolute values between .10 to .29 are weak, between .30 to .49 are moderate, and between .50 to 1.0 are strong. An inverse (negative) correlation indicates that the relationship between two variables is contrary; their respective scores move in opposite directions. A positive correlation coefficient indicates that the two variables' values or scores are moving in a like manner. Only the statistically significant correlations are reported in the following paragraphs.

The husbands' spousal support scores had a weak and positive correlation with the wives' knowledge scores ( $r = .198, p = .038$ ), and a moderate and positive correlation with the husbands' knowledge scores ( $r = .400, p < .0005$ ). The positive relationships indicated that increased husband spousal support was associated with increased knowledge for both husbands and wives, and decreased husband spousal support was associated with decreased knowledge for both husbands and wives.

Women's knowledge scores were negatively and weakly correlated with the CPC-28 score of barriers ( $r = -.207, p = .030$ ). The CPC-28 score of barriers was coded such that higher scores were indicative of greater barriers. Thus, the negative relationship suggested that when a woman's knowledge increased she felt she experienced fewer barriers to testing, and when a woman's knowledge decreased, the woman felt she had more barriers to testing.

Compliance was statistically significantly correlated with the three CPC-28 scores of barriers ( $r = -.299, p = .002$ ), benefit ( $r = .270, p = .004$ ), and severity ( $r = .247, p = .009$ ). The direction of the correlations suggested that compliant women felt they had less barriers to testing,

more benefit to their health, and more understanding of the severity of CC, than women who were not compliant.

The CPC-28 score of severity was moderately correlated with the CPC-28 scores of barriers ( $r = -.407, p < .0005$ ), benefit ( $r = .413, p < .0005$ ), and susceptibility ( $r = .302, p = .001$ ). The direction of the correlations suggested that women who had a greater understanding of the severity of CC felt they had fewer barriers to testing, a greater belief in the benefits of CC testing, and greater belief in their CC susceptibility.

Table 2

*Point-Biserial Correlation Coefficients for Bi-Variate Relationships (N = 110 couples)*

Variable (Group)	1	2	3	4	5	6	7	8
1. Compliance (Wives only)								
2. Knowledge (Wives)	-.017							
3. Knowledge (Husbands)	-.146	.159						
4. Spousal support (Wives)	.094	.088	-.025					
5. Spousal support (Husbands)	-.069	.198*	.400**	.053				
6. Barriers (Wives)	-.299**	-.207*	.013	-.071	-.186			
7. Benefit (Wives)	.270**	-.117	-.088	.168	-.002	-.324**		
8. Severity (Wives)	.247**	-.034	-.069	.151	.025	-.407**	.413**	
9. Susceptibility (Wives)	.077	.098	.163	.034	.127	-.152	.169	.302**

\*  $p < .05$

\*\* $p < .01$



### **Multiple Logistic Regression Analyses**

A series of three multiple logistic regressions were performed. The first logistic regression model included only the sociodemographic variables as predictors for the criterion of compliance (see Table 3). Any variables in the first model that had a *p*-value of .25 or less were retained and included in a second logistic regression. For the second logistic regression models, two variables that met the criteria of inclusion from the first model (wives' income and number of children) were included with the MIW's predictors of health beliefs of (a) susceptibility, (b) severity, (c) benefits, and/or (d) barriers, the spousal support for husbands and wives, and the wives' CCSSE self-efficacy score (see Table 4). Again, only the variables with a *p*-value of .25 or less were retained. Then the third model was built. The third model (see Table 5) was used to address the hypotheses of Specific Aim 2b.

Table 3

*Multiple Logistic Regression Model 1: Compliance Regressed on Demographic Variables (N = 110)*

Variable	B	SE B	Wald $\chi^2$	Odds Ratio	95% CI for Odds Ratio		<i>p</i>
					Lower	Upper	
Age (husbands)	-0.09	0.09	0.94	0.92	0.77	1.09	.332
Age (wives)	0.07	0.11	0.40	1.07	0.87	1.31	.529
Education (husbands)	0.25	0.41	0.40	1.28	0.58	2.85	.544
Education (wives)	0.02	0.41	<0.01	1.02	0.46	2.26	.968
Acculturation (husbs)	0.10	0.10	1.14	1.11	0.92	1.34	.286
Acculturation (wives)	-0.09	0.10	0.90	0.91	0.76	1.10	.344
Primary lang. (husbs)	-0.20	1.32	0.02	0.82	0.06	10.99	.883
Primary lang. (wives)	0.23	1.32	0.03	1.26	0.10	16.61	.862
Income (husbands)	1.25	1.14	1.22	3.51	0.38	32.43	.269
Income (wives)	-1.35	1.13	1.43	0.26	0.03	2.36	.232
Number of children	0.43	0.32	1.749	1.54	0.82	2.92	.181
Years married	-0.01	0.04	0.10	0.99	0.91	1.08	.757
Constant	0.78	4.07	0.04	2.18	---	---	---

*Note.* Sig. = Significance; CI = Confidence Interval; *p* = p-value.

Number of children and years married were derived from the wives' responses.

Table 4

*Multiple Logistic Regression Model 2: Compliance Regressed on Demographics Meeting Criteria of Model 1 and Independent Variables of Study (N = 110)*

Variable	B	SE B	Wald $\chi^2$	Odds Ratio	95% CI for Odds Ratio		<i>p</i>
					Lower	Upper	
Income (wives)	-0.04	0.16	0.07	0.96	0.70	1.32	.793
Number of children	0.22	0.27	0.64	1.24	0.73	2.10	.423
HPV-CCSK Score (husbands)	-0.04	0.20	0.048	0.96	0.65	1.43	.850
HPV-CCSK Score (wives)	-0.03	0.17	0.02	0.98	0.71	1.35	.878
CCSSE Score	0.01	<0.01	1.76	1.01	1.00	1.01	.185
Barriers	-0.11	0.06	3.28	0.89	0.79	1.01	.070
Severity	0.10	0.17	0.36	1.10	0.80	1.53	.550
Susceptibility	-0.40	0.22	3.41	0.67	0.44	1.03	.065
Benefit	0.47	0.26	3.37	1.60	0.97	2.65	.066
SSS Score (husbands)	-0.61	0.67	0.84	0.54	0.15	2.02	.361
SSS Score (wives)	0.06	.042	0.02	1.06	0.47	2.42	.884
Constant	-1.20	4.49	0.07	0.30	---	---	---

*Note.* Sig. = Significance; CI = Confidence Interval; *p* = p-value.  
Number of children was derived from the wives' responses.

Table 5

*Multiple Logistic Regression Model 3: Compliance Regressed on Variables Meeting Criteria of Model 2 (N = 110)*

Variable	B	SE B	Wald $\chi^2$	Odds Ratio	95% CI for Odds Ratio		<i>p</i>
					Lower	Upper	
CCSSE Score	0.01	<0.01	3.00	1.01	1.00	1.01	.083
Barriers	-0.10	0.06	3.31	0.90	0.81	1.01	.069
Susceptibility	-0.41	0.20	4.01	0.66	0.45	0.99	.045
Benefit	0.54	0.23	5.40	1.72	1.09	2.71	.020
Constant	-2.75	3.44	0.64	0.06	---	---	---

*Note.* Sig. = Significance; CI = Confidence Interval; *p* = p-value.  
Number of children was derived from the wives' responses.

### Tests of Hypotheses

**Specific Aim 1:** Examine the relationship between husbands of MIW's knowledge and spousal support provided for their wives and the women's screening behavior. (Accomplished via survey from 110 couples.)

**Null Hypothesis 1a.** There is not a statistically significant correlation between husbands' knowledge about CC screening and MIW's CC screening behavior.

**Alternative Hypothesis 1a.** There is a statistically significant correlation between husbands' knowledge about CC screening and MIW's CC screening behavior.

A point-biserial correlational analysis was performed to compare the husbands' scores on their CC Knowledge (HPV-CCSK) and the MIW's CC screening compliance. The correlation was weak and negative, indicating that greater knowledge of the husbands was associated with greater compliance for the wives. However, the correlation between the two variables was not statistically significant ( $r = -.146, p = .128$ ).

***Conclusion as relates to Null Hypothesis 1a.*** A statistically significant correlation was not present. Therefore, do not reject Null Hypothesis 1a. There is not sufficient evidence to indicate that there is a statistically significant correlation between husbands' knowledge about CC screening and MIW's CC screening behavior.

**Null Hypothesis 1b.** There is not a statistically significant correlation between husbands' support provided for their wives about CC screening and MIW's CC screening behavior.

**Alternative Hypothesis 1b.** There is a statistically significant correlation between husbands' support provided for their wives about CC screening and MIW's CC screening behavior.

A point-biserial correlational analysis was performed to compare the husbands' scores on the Spousal Support Scale (SSS) and the MIW's CC screening compliance. The correlation was negative, indicating that greater spousal support of the husbands was associated with lesser compliance for the wives. However, the correlation between the two variables was not statistically significant ( $r = -.069, p = .475$ ), and less than weak according to the effect size criteria set by Cohen (1988).

***Conclusion as relates to Null Hypothesis 1b.*** A statistically significant correlation was not present. Therefore, do not reject Null Hypothesis 1b. There is not sufficient evidence to indicate that there is a statistically significant correlation between husbands' support provided for their wives about CC screening and MIW's CC screening behavior.

**Specific Aim 2:** Determine the relationship between MIW's knowledge, health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy), and perceived spousal support

received from their spouse and their screening behaviors. (Accomplished via survey from 110 wives)

**Null Hypothesis 2a.** There is not a statistically significant positive association between MIW's levels of knowledge and their CC screening behavior.

**Alternative Hypothesis 2a.** There is a statistically significant positive association between MIW's levels of knowledge and their CC screening behavior, such that higher knowledge is associated with compliant CC screening behavior.

A point-biserial correlational analysis was performed to compare MIW's scores on the HPV-CCSK and their CC screening compliance. Results indicated that greater levels of knowledge of the wives was associated with lesser compliance for the wives. However, the correlation between the two variables was not statistically significant ( $r = -.017, p = .432$ ; 1-sided test), and less than weak according to the effect size criteria set by Cohen (1988).

**Conclusion as relates to Null Hypothesis 2a.** A statistically significant correlation was not present. Therefore, do not reject Null Hypothesis 1b. There is not sufficient evidence to indicate that there was a statistically significant association between MIW's levels of knowledge and their CC screening behavior, such that higher knowledge is associated with compliant CC screening behavior.

**Null Hypothesis 2b.** There is not a statistically significant association between any of the variables of CCSK knowledge scores for males and/or females, MIW's levels of health beliefs (a) susceptibility, (b) severity, (c) benefits, (d) barriers, spousal support scales for males and/or females, CCSSE self-efficacy score and MIW's CC screening behavior.

**Alternative Hypothesis 2b.** There is a statistically significant association between at least one of the variables of CCSK knowledge scores for males and/or females, MIW's levels of

health beliefs (a) susceptibility, (b) severity, (c) benefits, (d) barriers, spousal support scales for males and/or females, CCSSE self-efficacy score and MIW's CC screening behavior.

The final logistic regression model (see Table 5) included the criterion of compliance and four predictors of (a) CCSSE self-efficacy score, (b) barriers, (c) susceptibility, and (d) benefits. A test of the model with predictors against a constant only model (no predictors, and assuming that none of the women were compliant with CC screening) was statistically significant. The Omnibus Tests of Model Coefficients indicated significance,  $\chi^2(4) = 19.59, p = .001$ , indicating that the predictors, as a set, reliably differentiated between women classified as being compliant and those who were not. The Step 1 model's goodness-of-fit was also assessed using the Hosmer and Lemeshow Test,  $\chi^2(8) = 12.94, p = .114$ . For this test, a *p*-value greater than .05 indicates the data fits well with the model. Therefore, goodness-of-fit was indicated for this model.

Variability accounted for by the model was assessed using two statistics, Cox and Snell R-Square ( $R^2 = .163$ ) and Nagelkerke R-Square ( $R^2 = .254$ ). These two tests indicated that between 16% and 25% of the variability in the dependent variable was explained by the predictors of the model. Percentage accuracy in classification (PAC) of the correct outcome category of compliance for the model 77.3%, a decrease in the PAC over the base model constant only (no predictors, all cases reported were compliant) percentage correct of 79.1%.

Table 5 presents the findings of the hierarchical logistic regression analysis. Wald statistics indicated that two of the predictors for the model contributed significantly to the outcome of compliance. Susceptibility was significant [OR = 0.66, 95% CI OR = (0.45, 0.99); *p* = .045]. The odds ratio indicated that for each one-unit increase in the susceptibility variable, a woman was approximately 34% less likely to be in compliance. Higher scores were associated

with greater beliefs of susceptibility, therefore, as women felt more susceptible to CC, they were less likely to be compliant in CC screening. Benefit was significant [OR = 1.72, 95% CI OR = (1.09, 2.71);  $p = .020$ ]. The odds ratio indicated that for each one-unit increase in the benefit variable, a woman was approximately 72% more likely to be in compliance. Higher scores were associated with greater beliefs of the benefits of CC screening; therefore, as women felt the benefits of CC screening were more beneficial, they were more likely to be compliant in CC screening.

**Conclusion as relates to Null Hypothesis 2b.** A statistically significant correlation was found for the predictors of susceptibility and benefit. Therefore, reject Null Hypothesis 2c. There is sufficient evidence to indicate there was a statistically significant association between at least one of the MIW's levels health beliefs of (a) susceptibility, (b) severity, (c) benefits, and/or (d) barriers and their CC screening behavior.

**Null Hypothesis 2c.** There is not a statistically significant association between MIW's perception of spousal support received from their husbands about CC screening and their CC screening behavior.

**Alternative Hypothesis 2c.** There is a statistically significant association between MIWs' perception of spousal support received from their husbands about CC screening and their CC screening behavior.

A point-biserial correlational analysis was performed to compare MIW's scores on the Spousal Support scale and their CC screening compliance. Results indicated that greater levels of MIWs' perception of spousal support was associated with greater compliance for the wives. However, the correlation between the two variables was not statistically significant ( $r = .094$ ,  $p = .331$ ), and less than weak according to the effect size criteria set by Cohen (1988).



*Conclusion as relates to Null Hypothesis 2c.* A statistically significant correlation was not found between the MIW scores on the SSS support scale and CC screening compliance. Therefore, do not reject Null Hypothesis 2c. There is not sufficient evidence to indicate that there was a statistically significant association between MIW's perception of spousal support received from their husbands about CC screening and their CC screening behavior.

### **Summary**

In Chapter 5, the results of the research were presented in a descriptive format as well as with tables. The results were divided into four sections, (a) population and descriptive findings, (b) investigation of assumptions as relates to inferential analysis, (c) presentation of findings for the binary logistic regression models, and (d) tests of hypotheses. SPSS v.22 was used for all descriptive and inferential analyses. The inferential analyses were tested at the 95% level of confidence ( $p < .05$ ).

This study had two purposes: (1) to explore husbands' perceived support provided to Mexican immigrant women (MIW) with varying degrees of cervical cancer (CC) knowledge, awareness, and understanding of Pap testing and (2) to determine the relationship between MIW's knowledge, health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy), perceived support received from their husbands, and their screening behaviors.

Two specific aims were tested in this study. The summary of findings is presented according to each specific aim.

**Specific Aim 1:** There was not a statistically significant correlation between husbands' knowledge about CC screening and MIW's CC screening behavior. There also was not a statistically significant correlation between husbands' support provided for their wives about CC screening and MIW's CC screening behavior.

**Specific Aim 2:** There was not a statistically significant positive association between MIW's levels of knowledge and their CC screening behavior, such that higher knowledge is associated with compliant CC screening behavior. There was also not a statistically significant association between MIW's perception of spousal support received from their husbands about CC screening and their CC screening behavior. However, there was a statistically significant correlation found for the predictors of susceptibility and benefit. There is sufficient evidence for an association between two of the MIW's levels health beliefs, those of (a) susceptibility and (c) benefits and their CC screening behavior, but not for (b) severity or (d) barriers.

The next chapter will include a discussion of the quantitative findings as they apply to the two specific aims, the literature review, and the extant literature. The next chapter will also provide information on study implications and recommendations for further research.

## Chapter 6

### Discussion

Analyses from this study found perceived susceptibility to cervical cancer and benefit from screening reported by wives significantly predicted their screening behaviors. The data on the husbands did not show influence or affect decisions or actions. This was a highly acculturated sample of women who were also very well connected to a well resourced and well established community clinic that partnered with Kaiser Permanente and their prevention programs such as child care and transportation services. Nonetheless, our study does provide specific nuanced insight that could be useful to future research and interventions. Other variables of husband's perceived support provided to their wives, MIW's perceived support received from their husbands, MIW and their husband's knowledge, and MIW's perceived severity, barriers, and self-efficacy were not predictors for the outcome variable of CC screening uptake. However, there were statistically significant relationships among some of the variables by bivariate correlation.

Previous studies used the health belief model (HBM) to guide investigation of CC screening behavior of Mexican women, and findings from prior studies tended to agree with findings from this study. Studies that found susceptibility as a positive predictor for CC screening behavior of MIW include Barrera Ferro et al. (2022), Moore De Peralta et al. (2015, 2017), and Nigussi et al. (2019). Although susceptibility was evaluated, it was not found to be a predictor in other studies (Byrd et al., 2004; Dsouza et al. 2022; Fernandez-Esquer et al. 2003; Fernandez et al., 2009a). However, the present study found a negative correlation between susceptibility and screening, with an OR of 0.45, which was not very strong. A possible reason for this could be because women did not want to think about their own susceptibility due to fear

of pain and fear of potentially finding CC (Byrd, 2007). The results across studies are inconclusive; about half of the studies found susceptibility to be a significant predictor in CC screening and the other half did not. Continued work at targeting marginalized communities with tailored interventions focusing on improving perceived susceptibility could significantly improve CC screening uptake.

Some previous studies have found perceived benefit as a predictor for CC screening behavior of MIW. These include Dsouza et al. (2022) and Moore De Peralta et al. (2016), and the findings in those articles are congruent with this study's findings. However, other studies did not find benefit as a predictor for CC screening behavior. These include Barrera Ferro et al. (2022), Byrd et al. (2004), Moore de Peralta et al. (2015), and Nigussie et al. (2019). There were twice as many studies that found perceived benefit to not be a CC screening predictor. MIW in this study who were recruited from a community center were more likely well informed by the information that local community centers provided, which might have helped them to better understand the benefits to obtaining CC screening. There remains a need to promote the benefits of screening and its availability in addition to reducing negative attitudes towards screening. Tailored interventions focusing on improving perceived benefit could significantly improve CC screening.

The following studies found barriers to be a predictor for CC screening behavior: Byrd et al. (2004, 2007), Dsouza et al. (2022), Fernandez-Esquer et al. (2003), Luque et al. (2018), and Moore de Peralta et al. (2016). Studies that examined barriers but did not find it to be a significant predictor of CC screening behavior include Barrera Ferro et al. (2022), Fernandez et al. (2009a), and Moore de Peralta et al. (2015). Nonetheless, barriers were not a significant predictor in our study. One possible explanation of this difference could be that our instrument

(CPC-28) was not sensitive to this MIW population and perhaps they had other types of culture specific barriers that the CPC-28 could not measure. Another possibility as to why perceived barriers were not significant in this study is due to the fact that all of the participants were recruited from a community center. This center is affiliated with many community outreach programs which provide transportation assistance, interpreters, childcare, etc., which in turn significantly could have lowered their perceived barriers. Therefore, the sample may have been represented by MIW who were more affiliated or engaged with community institutions such as health clinics and organizations such as Kaiser Permanente who work closely with underserved groups. They also may have had peers that were more likely to get screened. This collaboration may have also made these women more aware or informed of the issues covered by the survey, and be more prone to seek help through organizations they trusted. Therefore, these results may not be applicable to the entire population of MIW in the U.S.

Out of the studies which included the perceived severity for CC screening among MIW (Barrera Ferro et al., 2022; Byrd et al., 2004, 2007; Dsouza et al., 2022; Fernandez et al., 2009a; Luque et al., 2018; Moore De Peralta et al., 2016; Moore de Peralta et al., 2015; Nigussie et al., 2019), only Moore de Peralta et al. (2015) found severity to be a significant predictor of CC screening behavior. Our finding is consistent with the literature that perceived severity is not a reliable predictor for CC screening behaviors. Also, researchers have been less inclined to include the concept of perceived severity in their studies because overwhelmingly, most women know that getting cancer is very serious and that it can potentially change their quality of life and duration of life, as well as affect their family's life. Nonetheless, specific outreach might be helpful if targeted toward those women who do not understand the implications of a cancer diagnosis.

From the bi-variate analyses, the dependent (criterion) variable of CC screening behaviors were correlated significantly with wives' reports of perceived barriers, benefit, and severity. However, it also shows that these three variables were moderately inter-correlated ( $r$ s of -.324, -.407, and .413). Furthermore, perceived severity was correlated with perceived susceptibility at  $r = .302$ . The predictors therefore appear to have introduced multicollinearity. Although the multiple logistic regression confirmed that, as a group, the four predictors (benefits, barriers, susceptibility, severity) did relate to compliance, the particular balance of strength of relationships among the predictors was unstable. In effect, the variables competed with one another, and only the two strongest proved to be significant in the full analysis.

Self-efficacy has been found to be an important determinant of many health behaviors and these findings indicate that it is important for Pap test screening as well. Fernandez et al. (2009a), Hogenmiller et al. (2007), Moore De Peralta et al. (2015, 2017), and Luque et al. (2018) either found self-efficacy to be a strong predictor of screening behavior or found independent associations between self-efficacy and Pap screening behavior. Only Dsouza et al. (2022) did not find statistically significant relationships between self-efficacy and CC screening among women with low income. Self-efficacy was not a significant predictor in this study. A plausible explanation as to why it was not significant could be because the community center where these MIW were recruited was closely affiliated with organizations such as Kaiser Permanente where there is a strong emphasis on prevention; this may have led women to feel confident regardless of whether they obtained CC screening or not. The fact that these women have had previous screening experience could have made them more comfortable and confident to continue testing.

## **Spousal Support**

Even though husbands' perceived support was not found to be a predictor for their wives' cervical cancer screening in our analyses, the results of the bivariate analysis show husbands' reports of their supportiveness did correlate significantly with both wives' and husbands' knowledge. Not surprisingly, it appears that husbands regard of themselves as supportive was related to their wives' level of knowledgeable about CC. This may suggest that when some couples happened to become more knowledgeable about CC screening, the husbands may have seen this as being supportive. Interestingly, however, the husbands' responses about their perceived support for their wives were almost completely unrelated to those of their wives' perceptions of receiving support from their husbands ( $r = .053$ ). This suggests that husbands' merely being aware of and knowledgeable about their wives' health issues was not perceived as supportive by the wives.

Very few studies examined husbands' support for their wives' cervical cancer screening uptake. Only Winkler et al. (2008) found that among women who had previous screening experience, having a husband who was supportive of screening participation and attending an awareness-raising session were predictors of CC screening. Other studies identified factors in their spouses (men) such as lack of approval, lack of knowledge and education on CC screening as barriers that may negatively influence screening uptake in MIW (Bocanegra et al., 2009; Fernandez et al., 2009a). Several other couples studies with other minority women simply suggested a need for gender specific intervention approaches, with an emphasis on educating the men in relationships so they would be a positive influence on their partner's CC screening behaviors and women's health in general (Lee et al., 2014; Martire, Schulz, Helgeson, Small, & Saghafi, 2010, Pomeroy, Green, & Laningham, 2002).

One possible explanation of the finding of lack of relationship between husbands' support and wives' compliance in this study could again be due to the particular sample, which was drawn from a well resourced community center. This sample differs from those of the other studies, which generally drew their samples from religious organizations, health centers, or rural Hispanic communities (Martire et al., 2010; Pomeroy et al., 2002). Conversations with the wives during data collection revealed a possible explanation. It emerged that the community center and its connections to other supportive organizations seemed to provide most of the support that the wives required. For example, when the women had health care appointments, they were able to drop off their children at the center and make use of the Uber service. Therefore, they were less likely to need to rely on their husbands for such support. Although the results of this study may not generalize to all MIWs, these results might suggest that women who are connected to such organizations may gain meaningful benefits from them. Furthermore, if it can be established by future research that this is the case, it suggests that it might be efficient and effective in terms of reducing CC harm to focus on encouraging such organizational connections. However, when such community organizations are not available, husbands' support could be more influential for MIW's CC screening uptake, hence more research is warranted.

The age of the couples in this study were similar. The husbands' mean age was 51 years and wives' mean age was 50 years. In comparison to the extant literature (Byrd et al., 2007; Bocanegra et al., 2009; Fernandez et al., 2009a; Scarinci et al., 2003) females in CC studies ranged in age between 18 and 45 years and males ranged in age from 25 to 62 years, indicating the couples in this study were much older. They were not highly educated; 66% of the wives and 55% of the husbands had education at the 9<sup>th</sup> grade level or greater. Additionally, the



income level of all couples was less than \$40,000 annually. The education level and income were lower than other Mexican couples living in the U.S., according to MPI 2022, where in 2019 households headed by a Mexican immigrant had a median annual income of \$51,000, compared to \$64,000 for all immigrant households.

Despite our sample being older, less educated, and lower in income than those in most previous studies, in this study, based on the Bi-dimensional Acculturation Scale (BAS) which measured language usage, language proficiency, and electronic media usage for both wives and husbands, the level of acculturation of our sample was relatively high in comparison to samples' scores reported in the literature (Arredondo et al., 2009; Shah et al., 2005; Wu et al., 2001). The couples in this study had lived in the U.S. for approximately 25 years and had been married on average for over 20 years. Research in the extant literature has documented that Hispanic women with higher acculturation, those who speak English and have been in the U.S. greater than 5 years, were more likely to obtain a Pap smear than those with low levels of acculturation, and suggested reasons for this phenomenon are that less acculturated women may have greater barriers to CC screening compliance, such as language barriers (Arredondo et al., 2009; Shah et al., 2005; Wu et al., 2001). Thus, it appears that a high level of acculturation was a more important factor in MIW's health behaviors than a lower level of socioeconomic status.

All of the women (100%) in this study had had a Pap test, with 71% having had a Pap test within the previous three years, 50% having had a Pap test within two years and 35% having a Pap test within the past year. In contrast, according to the literature only approximately 77% of Hispanic women report having been screened with a Pap test for CC within the last three years (e.g., Gregg et al., 2011; Seeff & McKenna, 2003). Studies among older Hispanic women indicate statistically lower rates of CC screening than their non-Hispanic counterparts.

Some reported rates by age groups were: 67% of women aged 18-44 years reported having had a Pap smear in the past 2 years, but only 56% and 51% of women aged 45-60 and 60 years and older reported having had a Pap smear test in the past 2 years (Ostbye et al., 2003).

All of the above aforementioned characteristics could have influenced the screening behavior of the MIW in our sample. The fact that our participants were low income and not highly educated made them eligible for the services offered by the community center where they were recruited. Also, it is likely that due to being highly acculturated they were able to navigate through their community resources and obtain more frequent Pap screening which in turn made them more confident to continue screening at least every 1-2 years.

### **Limitations**

This study had some limitations. This research was a descriptive study among Mexican Immigrant couples in the United States, thus limiting the generalization of results. To truly have study generalizability, a randomized controlled trial (RCT) should be performed. Since the study reported here was limited to a quantitative approach, there was not an opportunity to report more detailed in-depth information on how husbands influence their wives' CC screening utilization as could have been found by conducting a qualitative or mixed-methods study.

Another limitation is the fact that these women were recruited solely from a community center and reported higher CC screening uptakes and had more resources at their disposal than other MIW; therefore, results may not be generalizable to all MIW. However, the descriptive design of this study allowed the researcher to find agreement on many variables studied in the prior literature. Also, due to the nature of this study only married women were recruited. If single women would have been included in the study, the findings could have been very

different. However, the purpose of this study was to achieve a better understanding of how husbands influence their wives' CC screening utilization.

### **Clinical implications**

Findings from our study support the need for healthcare providers to continue to advocate for funding for community programs and centers such as the ones that served as the recruitment sites for this study. These programs offer resources to underserved women who may not have other means to care for themselves. Nurses who work in these communities can work as liaisons and connect MIW to existing services through other larger organizations such as Kaiser Permanente so they can obtain Pap screening and other needed services.

Also, because susceptibility and benefits were predictors of Pap screening uptake in this study, providing literature and pamphlets in Spanish that spotlight these themes could help improve MIW's understanding and help them seek out other necessary resources.

The findings of this study will equip nurses and healthcare providers to effectively influence this population with culturally appropriate prevention interventions and care. This study's potential long-term benefit is to decrease CC related mortality and morbidity among MIW. By providing an understanding of areas in which the support of a husband may be beneficial or detrimental to MIW's CC screening compliance, these research findings can help guide the development of new screening tools or drive improvement of existing screening tools. Perhaps MIW husbands' support or lack thereof may not be nearly as important as obtaining support from local well established and resourced community centers such as the ones described in this study. The husbands in this study were for the most part supportive of their wives receiving CC screening, and many of the women in this study were compliant with CC screening guidelines. Health care providers must take an active role in advocating for greater

provision of services for this vulnerable group by community centers. The knowledge obtained from participants with this socio-demographic make-up can allow practitioners and policy makers to better refine existing programs and policies to address the needs of MIW and improve women's CC health behavior. This might take the form of encouraging better coordination of services between public, private, and faith-based organizations.

### **Recommendations for Future Research**

Until now, much research has focused on the woman and not enough attention has been given to the influence a husband can have on his wife's Pap screening practices among MIW. A husband's influence could improve his wife's knowledge; this could conceivably allow them to obtain more information to make better medical decisions and potentially receive CC screening services. Despite the results of this study, the mechanism of how a husband's support translates into action (such as obtaining a Pap test) by the wife or if the husband's support truly makes a difference is not well understood. Other than the current study, there have not been any studies conducted specifically on the influence of MIW's husbands on the women's beliefs and Pap screening practices. This research was performed to derive information to fill this gap in the present knowledge. However, future studies should be done with recent immigrant women, those in marginalized rural communities, and women who are not married but are partnered.

Future research should also focus on qualitative studies to understand the mechanism of how a husband's support translates into action. This would include the factors measured by the quantitative instrumentation in this study. A qualitative or mixed-method design would be a logical next step in achieving a better understanding of how husbands influence their wives' CC screening utilization.

Secondly, a study to obtain detailed information and acquire a unique depth of understanding on those MIW who don't have access to community resources, and are more likely to depend on their husband's support, would be valuable. Educational outreach might be better targeted to less acculturated populations that are not already well-connected to community centers that are culturally tailored or provide focused services. Participants in a qualitative study are able to discuss their thoughts and feelings free of the constraints of a quantitative study relying on scored instruments. Many of the studies in the literature review included a qualitative element (Bocanegra et al., 2009; Byrd et al., 2007; Fernandez et al., 2009a; McMullin et al., 2005; Scarinci et al., 2003).

Lastly, further studies should include Mexican immigrant married couples from a more diverse range of acculturation levels, age groups, and years of marriage. Additionally, older women who have been married for over 20 years may have established themselves as matriarchs of the family, which could give them more power in healthcare choices and facilitate more preventative actions as relates to healthcare in their families. A longitudinal study investigating the beliefs and actions of married MIW and their spouses, although time consuming, would be beneficial to understanding changes over time related to MIW matriarchal progression and CC screening compliance. Further studies should also consider examining susceptibility in relation to fear of finding CC in MIW and how interventions could overcome fear in this population.

### **Summary**

This study had two purposes: (1) to explore husbands' perceived support provided to Mexican immigrant women (MIW) with varying degrees of cervical cancer (CC) knowledge, awareness, and understanding of Pap testing, and (2) to determine the relationship between

MIW's knowledge, health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy), perceived support received from their husbands, and their screening behaviors. Understanding the relationships amongst variables studied in this research added to the knowledge of MIW's perspectives on Pap testing as well as their husbands' influence in their wives' compliance with CC screening.

MIW are at risk of dying of CC because of a lack of screening utilization in this population. Limited information is available about the reasons for the low utilization of CC screening services among the MIW population. Having an in depth understanding of how women perceive and cope with the health risks associated with CC plays a critical role in planning health efforts to improve CC screening.

The theoretical framework of the HBM and spousal support guided this study to understand and explain health related behaviors. It helped gain some insights into relationships between perceptions of husbands' support and their wives' CC screening behaviors. This model found susceptibility, and benefits as predictors, but not perceived seriousness, barriers, or self-efficacy. Although spousal support was not able to predict women's CC screening behaviors the research findings have the potential to enhance prevention by increasing knowledge in men and women, enhancing support mechanism in each couple, and increasing self-assessment and awareness in women.

The present study confirmed some of the previous findings in this area, but failed to show certain relationships among the variables that were expected. Still, an understanding of the likely reasons for lack of support of several hypotheses provided new insights into the complexities of the relationships among husbands' support and wives' health-related behaviors.

It is hoped that these insights can help shape future research and practice in this vitally important field.

## Appendix A

### Flyer

**SE NECESITA PARTICIPANTES PARA UN ESTUDIO DE INVESTIGACIÓN DE UCLA**

ERES MUJER O HOMBRE INMIGRANTE  
MEXICANO/A?

ERES CASADA?

USTED PUEDE SER ELEGIBLE PARA  
PARTICIPAR EN ESTE ESTUDIO DE  
INVESTIGACIÓN



**PROPÓSITO:** APRENDER SOBRE EL CÁNCER CERVICAL Y LA PRUEBA DE PAPANICOLAU Y OBTENER UNA VISIÓN DE LA PERCEPCIÓN DE CÓMO LOS ESPOSOS INFLUYEN EN EL USO DE DETECCIÓN DE CÁNCER CERVICAL DE SUS ESPOSAS



**ELEGIBILIDAD:** MUJERES DE ENTRE 40 Y 65 AÑOS O HOMBRES DE 21 AÑOS O MÁS  
SIN HISTERECTOMÍA Y CÁNCER DE CUELLO UTERINO  
DECENDENCIA MEXICANA CASADAS Y RESIDENTES DEL SUR DE  
CALIFORNIA

**COMPENSACIÓN:** CADA PERSONA QUE PARTICIPE EN EL ESTUDIO PER MEDIO DE  
COMPLETAR LOS QUESTIONARIOS RECIBIRÁ UNA TAERJETA DE  
REGALO DE \$10.

**CONTACTO:** PARA MÁS INFORMACIÓN LLAME A SUSAN VARGAS  
(323) 574-4300 O CORREO ELECTRÓNICO: [svargas1@ucla.edu](mailto:svargas1@ucla.edu)

**SU PARTICIPACION ES VOLUNTARIA**

**RESEARCH PARTICIPANTS NEEDED FOR UCLA RESEARCH STUDY**

ARE YOU A MEXICAN IMMIGRANT WOMAN  
OR MAN?

ARE YOU MARRIED?

YOU MAY BE ELIGIBLE TO PARTICIPATE IN  
THIS RESEARCH STUDY



**PURPOSE:** TO LEARN ABOUT CERVICAL CANCER AND PAP TEST BELIEFS AND GAIN INSIGHT INTO PERCEPTIONS OF HOW HUSBANDS INFLUENCE THEIR WIVES' CERVICAL CANCER SCREENING USE

**ELIGIBILITY:** WOMEN BETWEEN 40 & 65 YRS OLD & MEN 21 YRS & OLDER WITHOUT A HYSTERECTOMY AND CERVICAL CANCER MEXICAN DECENT AND MARRIED & A RESIDENT OF SOUTHERN CALIFORNIA

**COMPENSATION:** EACH PARTICIPANT IN THE STUDY WILL RECEIVE A \$10 GIFT CARD AFTER COMPLETING THE QUESTIONNAIRES.

**CONTACT:** FOR MORE INFORMATION ABOUT THIS STUDY PLEASE  
CALL SUSAN VARGAS at (323) 574-4300 OR VIA EMAIL:  
[svargas1@ucla.edu](mailto:svargas1@ucla.edu)

**PARTICIPATION IS VOLUNTARY**

## Appendix B

### Eligibility Questionnaire

#### UNIVERSITY OF CALIFORNIA, LOS ANGELES SCREENING CONSENT SCRIPT

Mexican Immigrant Women and Cervical Cancer Screening beliefs and the Pap test

Thank you for calling Susan Vargas RN, MSN (doctoral student), from the Nursing department at the University of California, Los Angeles (UCLA), regarding Mexican Immigrant Women and Cervical Cancer Screening beliefs and the Pap test. I would like to ask you a few questions in order to determine whether you may be eligible for the research. Before I begin the screening I would like to tell you a little bit about the research. The goal of the study is learn more about cervical cancer beliefs and the Pap test among Mexican immigrant women and to gain insight into perceptions of how husbands influence their wives' cervical cancer screening utilization.

Would you like to continue with the screening? The screening will take about 5-10 minutes. I will ask you about your age, if you are of Mexican decent, and married. You do not have to answer any questions you do not wish to answer or are uncomfortable answering, and you may stop at any time. Your participation in the screening is voluntary.

Your answers will be confidential. No one will know your answers except for the research team. If you do not qualify for this study all information will be destroyed. If you do qualify for this study, all data obtained will be recoded with an identification number to protect patients' anonymity and privacy. Participants will all be assigned a code in lieu of their personal names upon enrollment and all future correspondence will utilize the assigned code number instead of participants name. A master list with participants' name and identification number will be kept in a locked file cabinet in a locked room at UCLA research department with limited access by the PI and dissertation chair throughout the entire study. Furthermore, electronic data stored in computers will all have password protection software to ensure safety.

Would you like to continue with the screening? *[If no, thank the person and hang-up]*

*[If yes, continue with the screening - please include all screening questions in this script*

1) What is your age; 2) Are you of Mexican descent, recently immigrated (regardless of documentation); 3) Are you a resident of Southern California; 4) Are you currently married; 5) have you had a previous history of cervical cancer; and 6) have you had a hysterectomy.

Thank you for answering the screening questions. *[Indicate whether the person is eligible, requires additional screening, or is not eligible and explain why.]*

Do you have any questions about the screening or the research? I am going to give you a couple of telephone numbers to call if you have any questions later. Do you have a pen? If you have questions about the research screening, you may call Susan Vargas (323) 574-4300 and Eunice Lee (310) 267-0057 and they will answer your questions.

If you have questions about your rights as a research subject or if you wish to voice any problems or concerns you may have about the study to someone other than the researchers, please call the UCLA Office of the Human Research Protection Program at (310) 825-7122.

Thank you again for your willingness to answer our questions.

## Appendix C

### Consent Procedure

Universidad de California, Los Angeles (UCLA)

#### ACTA DE CONSENTIMIENTO INFORMADO (CONSENT TO PARTICIPATE IN RESEARCH)

Creencias acerca del Cáncer Cervical y el examen Papanicolaou en Mujeres Mexicanas Inmigrantes

Susan Vargas Enfermera Registrada y estudiante de Doctorado con la Dra. Eunice Lee del Departamento de Enfermería en la Universidad de California, Los Angeles (UCLA) están conduciendo un estudio de investigación.

Usted fue seleccionada para participar en un estudio por las siguientes razones:

**Es Mujer** – entre 40-65 años de edad, Mexicana recién inmigrada, no haber tenido una histerectomía, casada y residente del Sur de California.

**Es Hombre** – mayor de 21 años, Mexicano, casado y residente del Sur de California.

Su participación en este estudio es voluntario.

#### PROCEDIMIENTOS:

Si usted decide participar en este estudio, la investigadora le pedirá:

- Que firme el acta de consentimiento informado para participar en el estudio
- Que complete los cuestionarios. El cuestionario le tomará 20 - 30 minutos de su tiempo (hombres) y 30 - 45 minutos (mujeres) y solo lo deberá contestar una sola vez.
- Los cuestionarios serán distribuidos por la investigadora en los dos centros comunitarios. Tienen que ser llenados por completo en los centros comunitarios y no se pueden llevar a casa
- La investigadora seleccionará 10 parejas para entrevistar en otra ocasión. Esto ayudará a identificar creencias específicas a la cultura del rol de género masculino y el fatalismo y entender cómo él esposo influye la utilización del Pap con sus esposas. La duración de la entrevista será de 60-90 minutos.

#### RIESGOS Y MOLESTIAS:

No creemos que exista riesgo o molestias por participar en este estudio. Tal vez puede haber pérdida de tiempo y temas ginecológicos vergonzosos. Todo esto puede mantenerse al mínimo siempre y cuando se provea privacidad y prácticas de gestión del tiempo.

## **BENEFICIOS:**

Los participantes pueden obtener conocimiento e información sobre la importancia del examen del Pap. Quizás podrán reconocer los signos y síntomas, cuando buscar consejo médico, y tener una mejor comprensión de las pautas del cáncer cervical.

Los resultados de la investigación pueden guiar el desarrollo de mejores herramientas de detección e intervenciones para poblaciones vulnerables. La ventaja potencial para mujeres es la prevención de mortalidad y morbilidad de un cáncer evitable

## **COMPENSACIÓN:**

Usted recibirá una tarjeta de regalo de \$10 por participante por su tiempo en completar las encuestas de estudios. También una tarjeta de regalo adicional de \$10 por participante se dará a aquellos que cumplen con los criterios de elegibilidad para participar en la sesión de entrevista de pareja.

## **CONFIDENCIALIDAD:**

Toda la información que se obtenga en relación con al estudio incluso sus respuestas serán confidenciales. Sólo será revelado con su permiso o como requerido según la ley. Su nombre no aparecerá en ningún documento. Usted será identificada por un número, el cual será asignado al cuestionario que usted recibirá. Su nombre y sus respuestas no podrán ser relacionados, ya que su nombre no será solicitado. El cuestionario y el consentimiento serán guardados en la oficina de la investigadora, en un mueble con llave en UCLA.

Los datos que se almacenen en el ordenador portátil será protegida por contraseña conocida sólo por el investigador. La contraseña será cambiada periódicamente para garantizar su seguridad y confidencialidad. Los datos serán mantenidos definitivamente bajo la supervisión del investigador o designado.

## **DERECHO DE RETIRARSE:**

Su participación en este estudio es voluntaria. Usted está en el derecho de no participar en el estudio o de retirarse en cualquier momento. La decisión de no participar en el estudio o de retirarse en cualquier momento, no afectará el tratamiento o atención que está recibiendo o que va a recibir.

## **PREGUNTAS Y CONSULTAS:**

Con mucho gusto se le contestará cualquier pregunta que usted tenga en relación al propósito, procedimientos y resultados de este estudio. Favor de llamar a:

**Susan Vargas (323) 574-4300 o correo electrónico - [svargas1@ucla.edu](mailto:svargas1@ucla.edu)  
Eunice Lee (310) 267-0057 o correo electrónico - [eclee@sonnet.ecla.edu](mailto:eclee@sonnet.ecla.edu)**

Si usted tiene alguna pregunta sobre sus derechos como sujeto de investigación, por favor contáctese con el Comité de Ética de la Universidad de Los Angeles al teléfono (310) 206-2040; o correo electrónico: [participants@research.ucla.edu](mailto:participants@research.ucla.edu) o por correo: Box 951406, Los Angeles, CA 90095-1406.

ACUERDO DE PARTICIPACIÓN:

He leído la información en este consentimiento informado y estoy de acuerdo en participar en este estudio. He tenido la oportunidad de hacer preguntas acerca del estudio, y se me han contestado mis preguntas. He recibido una copia de este consentimiento después de ser leída y firmada. Basada en esta información, acepto voluntariamente participar en este estudio.

Nombre de la persona que participa en el estudio	Fecha
--	-------

Firma de la mujer que participa en el estudio	Fecha
---	-------

Nombre de persona que solicita el consentimiento	Fecha
--	-------

Firma de la persona que solicita el consentimiento	Fecha
--	-------



University of California, Los Angeles

## **CONSENT TO PARTICIPATE IN RESEARCH**

Mexican Immigrant Women and Cervical Cancer Screening beliefs and the Pap test

Susan Vargas RN, MSN (doctoral student), and Eunice Lee RN, PhD, from the Nursing department at the University of California, Los Angeles (UCLA) are conducting a research study.

You were selected as a possible participant in this study because you are:

**A Woman** - between the ages of 40-65 years of age, Mexican decent recently immigrated, have not had a hysterectomy, or cervical cancer, married, and a resident of Southern California.

**Man** - 21 years and older of Mexican descent, married, and a resident of Southern California.

Your participation in this research study is voluntary.

### **Why is this study being done?**

The goal of the study is learn more about cervical cancer beliefs and the Pap test among Mexican immigrant women and to gain insight into perceptions of how husbands influence their wives' cervical cancer screening utilization.

### **What will happen if I take part in this research study?**

If you volunteer to participate in this study, the researcher will ask you to do the following:

- Sign a consent form for your participation in the study
- Complete the surveys. Time to complete all the surveys is anticipated to be 20-30 minutes for men and 30-45 minutes for women. This will only be done once.
- The surveys will be distributed by the researcher at the two community centers and are to be completed at these facilities. Surveys may not be taken home.
- The researcher will select 10 couples to be interviewed at a later time. This will assist in identifying culture specific beliefs about gender roles, masculinity, and fatalism and understand how husbands influence their wives' cervical cancer screening utilization. The time allocated to complete the couple's interviews in person or via phone is anticipated to be 60 to 90 minutes each.

### **How long will I be in the research study?**

Participation will take a total of about 30 to 45 minutes to complete the surveys. If you are selected to participate in the couple's session the duration is 30-45 minutes, which will be arranged at a later time.

**Are there any potential risks or discomforts that I can expect from this study?**

There are minimal anticipated risks or discomforts. Potential risks to participation include loss of time, and may include embarrassment related to gynecological topics. Loss of time and embarrassment will be kept to a minimum by providing and conducting confidential consent and private interview sessions. Efficient time management practices will be utilized to minimize time loss to study participants.

**Are there any potential benefits if I participate?**

Participants may gain knowledge and information on the importance of cervical cancer screening. They may have the tools to recognize signs and symptoms, when to seek out medical advice, and have a better understanding of the guidelines of when to get screened for cervical cancer.

The research findings can guide the development of improved screening tools and interventions for vulnerable populations. The potential benefit to women is prevention of mortality and morbidity from a preventable cancer.

**Will I be paid for participating?**

You will receive a \$10 gift card per participant for your time in completing the study's surveys.

**Will information about my participation and me be kept confidential?**

Any information that is obtained in connection with this study and that can identify you will remain confidential. It will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of; Data and personal information will be decoded and names of participants will be replaced with a numerical code to ensure confidentiality. The researcher will retain the code sheet locked in a secured filing cabinet at UCLA. The key code will be filed separately from the collected data so that crosschecking of names and codes cannot occur. Hard copy data will be located in a locked file cabinet in the UCLA research office. Data that is stored on a laptop will be secured by password known only by the researcher. The password will be changed periodically to ensure security and confidentiality. The data will be maintained indefinitely under the supervision of the researcher or designee.

**What are my rights if I take part in this study?**

- You can choose whether or not you want to be in this study, and you may withdraw your consent and discontinue participation at any time.
- Whatever decision you make, there will be no penalty to you, and no loss of benefits to which you were otherwise entitled.
- You may refuse to answer any questions that you do not want to answer and still remain in the study.

**Who can I contact if I have questions about this study?**

- **The research team:**  
If you have any questions, comments or concerns about the research, you can talk to the one of the researchers. Please contact:

**Susan Vargas (323) 574-4300 or via e-mail [svargas1@ucla.edu](mailto:svargas1@ucla.edu)  
Eunice Lee (310) 267-0057 or via e-mail [eclee@sonnet.ecla.edu](mailto:eclee@sonnet.ecla.edu)**

- **UCLA Office of the Human Research Protection Program (OHRPP):**  
  
If you have questions about your rights as a research subject, or you have concerns or suggestions and you want to talk to someone other than the researchers, you may contact the UCLA OHRPP by phone: (310) 206-2040; by email: [participants@research.ucla.edu](mailto:participants@research.ucla.edu) or by mail: Box 951406, Los Angeles, CA 90095-1406.

***You will be given a copy of this information to keep for your records.***

**SIGNATURE OF STUDY PARTICIPANT**

\_\_\_\_\_  
Name of Participant

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

**SIGNATURE OF PERSON OBTAINING CONSENT**

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Name of Person Obtaining Consent	Contact Number
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Signature of Person Obtaining Consent	Date
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## Appendix D

### Demographic and Socio-economic Questions:

- a) Age: chronological age of study participants was collected as a continuous variable.
- b) Gender: data was collected as a categorical variable as male or female.
- c) Employment status: data was collected as a categorical variable as part-time, full-time, retired, in school, or unemployed.
- d) Number of children: data was collected as a continuous variable.
- e) Number of years married: data was collected as a continuous variable.
- f) Income level: data was collected as a categorical variable based on the 2017 Federal poverty guidelines.
- g) Education level: data was collected as a continuous variable in number of years of schooling.
- h) Time lived in the U.S.: data was collected as a continuous variable in number of years participants had lived in the U.S.
- i) Primary language spoken at home: data was collected as a categorical variable of English, Spanish, or both.
- j.) Cervical cancer screening history: data was collected as a categorical variable as either yes or no items including a) Ever had a Pap test; b) Had a Pap test within the last 3 years; c) Had a Pap test within the last 2 years; and d) Had a Pap test within the last year.

## Appendix E

### SSIQ

Appendix 1: CPC 28 Questionnaire. Spanish Version  
**Cuestionario CPC-28**  
**(Creencias acerca del Papanicolaou y Cáncer Cervicouterino)**

- A. Las siguientes oraciones son algunas ideas relacionadas con el Papanicolaou (PAP) y el cáncer cervical (cáncer al cuello del útero). Por favor marque con una cruz *la alternativa que más se acerque a lo que usted cree en cada una de las oraciones*. Este cuestionario no considera respuestas buenas o malas, por lo tanto si hay alguna respuesta que usted no esté segura o que no sabe, siéntase libre de contestar lo que usted cree.

	<b>Completa- mente de acuerdo</b>	<b>De acuerdo</b>	<b>En desacuerdo</b>	<b>Completa- mente en desacuerdo</b>
1. Tomarme el PAP me hace sentir bien porque significa que yo cuido mi salud.				
2. No tengo tiempo para tomarme el PAP.				
3. No me tomo el PAP porque en el consultorio me tartán mal.				
4. Yo no sé a qué edad es necesario tomarse el PAP.				
5. No me tomo el PAP porque cuando voy necesito esperar largo tiempo para ser atendida.				
6. El PAP puede salvar mi vida				
7. No me tomo el PAP porque me da miedo saber que tengo cáncer.				
8. No me tomo el PAP porque el consultorio atiende en horarios en los que no puedo ir.				
9. No me tomo el PAP porque me da vergüenza que me examinen los genitales.				

10. Yo no se cada cuanto tiempo necesito ir a tomarme el PAP.				
11. No me tomo el PAP porque cuesta mucho sacar una hora de atención.				
12. El cáncer cervical (o cáncer de cuello del útero) puede causar la muerte.				
13. El cáncer cervical (o cáncer de cuello del útero) puede llevar a una mujer a tener que someterse a una histerectomía (sacarse el útero o matriz).				
14. El cáncer cervical (o cáncer de cuello del útero) es un problema de salud serio.				
15. El cáncer cervical (o cáncer de cuello del útero) puede llevar a una mujer a tener que realizarse un tratamiento con quimioterapia o radioterapia.				

B. Las siguientes oraciones son algunas ideas relacionadas con *la necesidad que usted tiene de tomarse el PAP y el riesgo de tener un Cáncer Cervical (cáncer de cuello del útero)*. Por Favor, señale su grado de acuerdo en cada una de ellas. Recuerde que no hay respuestas buenas ni malas, por lo tanto si hay alguna respuesta que usted no esté segura o que no sabe, siéntase libre de contestar lo que usted cree.

	<b>Completa- mente de acuerdo</b>	<b>De acuerdo</b>	<b>En desacuerdo</b>	<b>Completamente en desacuerdo</b>
1. Si no tengo síntomas o molestias, no necesito tomarme un PAP.				
2. Si no he tenido hijos, no necesito tomarme un PAP.				
3. Si no estoy teniendo relaciones sexuales, no necesito tomarme un PAP.				
4. Yo tengo riesgo de desarrollar un cáncer cervical (cáncer del cuello del útero).				
5. Si yo tengo cáncer cervical me puedo morir.				
6. El cáncer cervical (cáncer del cuello del útero) es uno de los canceres más comunes entre las mujeres de mi edad.				

C. Las siguientes son algunas razones que las mujeres pueden tener para ir a tomarse un PAP. Por favor, señale en cada una de ellas su grado de acuerdo, pensando en las *razones que me la han llevado o que la llevarían a tomarme el PAP*. Recuerde que no hay respuestas buenas ni malas.

	<b>Completa- mente de acuerdo</b>	<b>De acuerdo</b>	<b>En desacuerdo</b>	<b>Completa- mente en desacuerdo</b>
1. Para cuidar mi salud.				
2. Porque una enfermera o matrona me lo pidio.				
3. Porque un doctor me lo pidio.				
4. Porque mi madre me hablo sobre eso.				
5. Porque una amiga o vecina me hablo sobre eso.				
6. Porque miembros de mi familia me dijeron que me lo tomara.				
7. Porque escuché o leí algo en el diario o en algún programa de televisión o radio.				

#### Appendix 2: Cervical Cancer Screening Self-Efficacy Scale (CCSSE)

¿Usted se siente en capacidad de obtener su citología cervical o prueba de Papanicolaou? Por favor valore su grado de confianza mediante el registro de un numero desde el 0 al 100, utilizando la escala que se le proporciona en la siguiente tabla. No hay respuestas correctas o incorrectas en este cuestionario, de modo que si usted no está segura o no sabe una respuesta, siéntase en la libertad de responder lo que usted considere.

<b>Preguntas</b>	Absolutamente no puedo hacerlo			Moderadamente puedo hacerlo				Totalmente segura que puedo hacerlo			
	0	10	20	30	40	50	60	70	80	90	100
Que tan segura está usted de que puede discutir sobre realizarse una prueba de Papanicolaou con su médico o											



enfermera, incluso si el/ella no le plantea el tema?											
¿Qué tan segura está usted de que puede hacer una cita para realizarse una prueba de Papanicolaou y cumplir con esta cita?											
¿Qué tan segura está usted de que pueda realizarse una prueba de Papanicolaou, incluso si tuviera que ir a un consultorio o centro de salud diferente o nuevo para usted?											
¿Qué tan segura está usted de que pueda pedirle a su médico o enfermera un referimiento para realizarse la prueba de Papanicolaou?											
¿Qué tan segura está usted de que pueda ir a realizarse su próxima prueba de Papanicolaou?											
¿Qué tan segura está usted de que pueda realizarse la prueba de Papanicolaou, incluso si una amiga la convenza de que no lo haga?											
¿Qué tan segura está usted de que pueda realizarse la prueba de Papanicolaou, incluso si tuviera que pagar para que le hagan esta prueba?											

Appendix 3: HPV, cervical cancer and screening knowledge scale (HPV-CCSK)

Por favor responda verdadero o falso a los siguientes enunciados. Responda “No se”, cuando no sepa la respuesta:

Enunciados	Verdadero	Falso	No se
El virus del papiloma humano (VPH) puede causar cáncer cervical.			
Si el resultado de la prueba de Papanicolaou de una mujer es normal, ella no tiene el virus del papiloma humano (VPH).			
La prueba de Papanicolaou siempre puede detectar el virus del papiloma humano (VPH).			
El habito de fumar aumenta la probabilidad de que a una mujer le de cáncer cervical.			
Tener historia familiar de cáncer, aumenta la probabilidad de que a una mujer le de cáncer cervical.			
Tener muchas parejas sexuales aumenta la probabilidad de que a una mujer le de cáncer cervical.			
Le prueba de Papanicolaou puede detectar problemas antes de que se conviertan en cáncer.			
Muchas mujeres que tienen cáncer cervical no presentan signos o síntomas aparentes de la enfermedad.			
Las mujeres que pasaron por la menopausia no necesitan realizarse la prueba de Papanicolaou.			
Una mujer debe realizarse la prueba de Papanicolaou por lo menos una vez cada tres años.			

**Por favor conteste estas últimas preguntas:**

<p><b>Alguna vez le han diagnosticado cancer?</b> Si <input type="checkbox"/> No <input type="checkbox"/></p> <p>¿Si la respuesta es sí, Que tipo de cáncer?</p>
<p><b>Le han diagnosticado cáncer a algún miembro de su familia inmediata (abuelos, padres, tíos/tías, hermanos o hermanas, primos cercanos)</b></p> <p>Si <input type="checkbox"/> No <input type="checkbox"/></p> <p>Si la respuesta es si, Que tipo de cancer?</p>
<p><b>¿Le han realizado una histerectomía? (cirugía para extirpar o quitar el útero o matriz)</b></p> <p>Si <input type="checkbox"/> No <input type="checkbox"/> No se <input type="checkbox"/></p>
<p><b>¿Le gustaría apoyar esta investigación reuniendo al interior de su comunidad un grupo de mujeres entre 18 a 65 años, para que completen este cuestionario?</b></p> <p>Si <input type="checkbox"/> No <input type="checkbox"/></p> <p>Si su respuesta es sí, por favor registrar sus datos de contacto en una de las tarjetas que le proporcionaremos si nos la solicita. La investigadora principal se comunicará posteriormente con usted para coordinar el encuentro. Esta tarjeta con sus datos personales será guardada bajo llave en un lugar seguro, y será destruida luego de realizado el encuentro.</p>
<p><b>Este cuestionario fue completado solo por la participante (preguntas no leídas por el facilitador):</b> Si <input type="checkbox"/> No <input type="checkbox"/></p>

**¡Muchas gracias por su participación!!!**

Appendix 4: **Bi-Dimensional Acculturation Scale (BAS)**

**Por favor lea sobre la frecuencia con la que usted se comunica en Español O en Ingles. Para cada pregunta, por favor díafanos la respuesta que mejor refleje su opinión; en una escala de 1 (Casi nunca) a 4 (Casi siempre).** No hay respuestas correctas or incorrectas en este cuestionario. De modo que si usted no está segura o no sabe una respuesta, siéntase en la libertad de responder lo que usted sabe.

<b>Sub-escala de uso del idioma</b>	Casi nunca	Algunas veces	Con frecuencia	Casi Siempre
	1	2	3	4
¿Con que frecuencia habla usted inglés?				
¿Con que frecuencia habla usted ingles con sus amigos?				
¿Con que frecuencia piensa usted en inglés?				
¿Con que frecuencia habla usted español?				
¿Con que frecuencia habla usted español con sus amigos?				
¿Con que frecuencia piensa usted en español?				
<b>Sub-escala de dominio del idioma</b>	Muy mal	Mal	Bien	Muy Bien
	1	2	3	4
¿Qué tan bien habla usted inglés?				
¿Qué tan bien lee usted inglés?				
¿Qué tan bien entiende usted los programas de televisión en inglés?				
¿Qué tan bien entiende usted los programas de radio en inglés?				
¿Qué tan bien escribe usted en inglés?				
¿Qué tan bien entiende usted la música en inglés?				

¿Qué tan bien habla usted español?				
¿Qué tan bien lee usted español?				
¿Qué tan bien entiende usted los programas de televisión en español?				
¿Qué tan bien entiende usted los programas de radio en español?				
¿Qué tan bien escribe usted en español?				
¿Qué tan bien entiende usted la música en español?				
<b>Sub-escala sobre medios de comunicacion electronicos</b>	Casi nunca	Algunas veces	Con frecuencia	Casi nunca
	1	2	3	4
¿Qué tan frecuente mira usted programas de television en inglés?				
¿Qué tan frecuente escucha usted programas de radio en inglés?				
¿Qué tan frecuente escucha usted musica en inglés?				
¿Qué tan frecuente mira usted programas de television en español?				
¿Qué tan frecuente escucha usted programas de radio en español?				
¿Qué tan frecuente escucha usted musica en español?				

## Appendix 5: Spousal Support Scale (SSS)

### Mujer

1. Su esposo la anima o aconseja que se haga un Papanicolaou o evaluación de Cancer Cervical?
  1. Si
  2. No
  
2. Que seguido encuentra que su esposo está dispuesto a escucharla cuando necesita platicar de problemas de salud o preocupaciones como sintomas de Cancer Cervical o un Papanicolaou?
  1. Nunca
  2. Raramente
  3. De vez en cuando
  4. Frecuentemente
  
3. Que seguido encuentra que su esposo le da sugerencias o informacion de problemas de salud, como Cancer Cervical?
  1. Nunca
  2. Raramente
  3. De vez en cuando
  4. Frecuentemente
  
4. Como se siente su esposo de que ud. tenga un Papanicolaou?
  1. Fuertemente aprueba
  2. Aprueba
  3. Desaprueba
  4. Fuertemente desaprueba
  5. No se
  
5. Cuanta influencia tiene la opinión de su esposo de que Ud. tenga un Papanicolaou o evaluación de Cancer Cervical?
  1. Mucho
  2. Algo
  3. No tanto
  4. De ningún modo
  5. No se

6. Ud. espera que su esposo la ayude a hacer y mantener citas medicas (tal como citas de Papanicolaou), con hacer cosas como conducirla o cuidar de otros miembros de familia, o cuidar el negocio mientras Ud. no esta?
  1. Nunca
  2. Raramente
  3. De vez en cuando
  4. Frecuentemente
  
7. Como calificaria el apoyo de su esposo si ud. quisiera hacerse un papanicolaou?
  1. Fuertemente sin apoyo
  2. Algo sin apoyo
  3. Con cierto apoyo
  4. Fuertemente apoya
  5. No se

#### Hombre

1. Ud. aconseja o sugiere a su esposa que se haga un Papanicolaou o evaluacion de Cancer Cervical?
  1. Si
  2. No
  
2. Estuvo Ud. dispuesto a escuchar su esposa cuando ella necesita habla de problemas de salud o preocupaciones como s íntomas de Cancer Cervical o el Papanicolaou?
  1. Nunca
  2. Raramente
  3. De vez en cuando
  4. Frecuentemente
  
3. Ud. le da a su esposa sugerencias o informacion de problemas de salud, como Cancer Cervical?
  1. Nunca
  2. Raramente
  3. De vez en cuando
  4. Frecuentemente
  
4. Como se siente ud. tocante su esposa teniendo un Papanicolaou?
  1. Fuertemente aprueba
  2. Aprueba

3. Desaprueba
  4. Fuertemente desaprueba
  5. No se
5. Cuanto cree Ud. que su opinion influye la decision de su esposa tocante teniendo un Papanicolaou?
1. Mucho
  2. Algo
  3. No tanto
  4. De ningún modo
  5. No se
6. En su opinion, cuanto espera su esposa que ud. la ayude hacer y mantener citas medicas (como citas para Papanicolaou), con hacer cosas como conducir a citas o cuidar de miembros de familia o cuidar de el negocio mientras ella esta alejada?
1. Nunca lo espero
  2. Raramente lo esperaría
  3. De vez en cuando lo esperaría
  4. Frecuentemente lo esperaría
  5. No es necesario
7. Cuanto apoyo le brindaria Ud. a su esposa si ella quiere tener un Papanicolaou?
1. Fuertemente sin apoyo
  2. Algo sin apoyo
  3. Con cierto apoyo
  4. Fuertemente apoya
  5. No se



**Appendix 1: Creencias, Papanicolaou y Cancer Questionnaire (CPC-28)**  
(Beliefs about Papanicolaou and Cervical Cancer)

D. The following sentences are some ideas related to the Papanicolaou test (PAP) and cervical cancer (uterine cervix cancer). Please indicate with a cross the alternative that best describes your belief about each one of the sentences. There are no good or bad answers in the questionnaire, therefore if you are unsure or do not know an answer, feel free to answer what you believe.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. Getting a Pap test makes me feel good because it means that I take care of my health.				
2. I do not have time to get a Pap test.				
3. I have not taken the Pap test because they treat me badly in the health care center.				
4. I do not know at what age it is necessary to have a Pap test.				
5. I have not taken a Pap test because when I go, I need to wait a long time to be seen.				
6. The Pap can save my life.				
7. I have not taken the Pap test because I am afraid to find out if I have cancer.				
8. I have not taken the Pap test because the health care center is only open during hours when I cannot go.				
9. I have not taken the Pap test because I am embarrassed to have a genital exam.				
10. I do not know how often I need to get a Pap test.				
11. I have not taken a Pap test because it is difficult to get an appointment.				
12. Cervical Cancer may lead to death.				
13. Cervical Cancer may lead to a woman having a hysterectomy.				
14. Cervical Cancer is a serious health problem.				

15. Cervical Cancer can lead to a woman needing to receive chemotherapy or radiotherapy treatment.				
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E. The following sentences are related to **the need that you have to take the Pap test, and the risk of having Cervical Cancer.** Please indicate the degree to which you agree or disagree with each statement. Remember, there are no good or bad answers in the questionnaire, therefore if you are unsure or do not know an answer, feel free to answer what you believe.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. If I do not have symptoms, I do not need a Pap test.				
2. If I have not had children, I do not need a Pap test.				
3. If I do not have intercourse, I do not need a Pap test.				
4. I am at risk for developing cervical cancer.				
5. If I have cervical cancer, I can die.				
6. Cervical cancer is one of the most common cancers among women my age.				

F. The following sentences are some reasons women have for getting a Pap test. Please indicate the degree of agreement in each sentence, thinking about the reasons that have made you or would make you get a PAP test. Remember, there are no good or bad answers in this questionnaire, therefore if you are unsure or do not know an answer, feel free to answer what you believe.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. To take care of my health.				
2. Because a nurse or midwife told me.				
3. Because a doctor told me.				
4. Because my mother spoke to me about it.				
5. Because a friend or neighbor spoke to me about it.				
6. Because members of my family told me to get it.				
7. Because I listened to or read something in the newspaper or in a television or radio program.				

**Appendix 2: Cervical Cancer Screening Self-Efficacy Scale (CCSSE)**

Do you think you are able to get your Pap test or cervical screening? Please rate your degree of confidence by recording a number from 0 to 100 using the scale given below. There are no good or bad answers in this questionnaire, therefore if you are unaware or do not know an answer, feel free to answer what you believe.

Items	Cannot do it at all			Moderately can do				Highly certain can do			
	0	10	20	30	40	50	60	70	80	90	100
How sure are you that you can discuss having a Pap test with your health care provider even if (s)he does not bring it up?											
How sure are you that you can schedule a Pap test appointment and keep it?											
How sure are you that you can keep having a Pap test even if you had to go to a new office to get one?											
How sure are you that you can ask your primary care physician for a referral to get a Pap test?											
How sure are you that you can go to get your next Pap test?											
How sure are you that you can get a Pap test even if you are worried that it will be painful?											
How sure are you that you can get a Pap test even if a friend discouraged you from having one?											

How sure are you that you can get a Pap test even if you had to pay for it?											
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Appendix 3: **HPV, cervical cancer and screening knowledge scale (HPV-CCSK)**

**Please answer true or false for the following statements:**

Statements	True	False	Don't know
Human Papiloma Virus (HPV) can cause cervical cancer			
If a woman's Pap smear is normal, she does not have Human Papiloma Virus (HPV)			
Pap smears will almost always detect Human Papiloma Virus (HPV)			
Smoking increases a woman's chances of getting cervical cancer			
Family history increases a woman's chances of getting cervical cancer			
Having multiple sex partners increases a woman's chances of getting cervical cancer			
Pap test can detect problems before they become cancer			
Most People with cervical cancer have no visible signs or symptoms			
Women who have gone through menopause do not need a Pap test			
A woman should get a Pap test at least once every 3 years			

**Please complete these final questions:**

<p><b>Have you been diagnosed with cancer?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If the answer is yes, what type of cancer?</p>
<p><b>Has someone of your immediate family (grandfathers, parents, uncles/aunts, brothers or sisters) been diagnosed with cancer?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If the answer is yes, what type of cancer?</p>
<p><b>Have you got a hysterectomy?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p>
<p><b>Would you like to support this research by gathering a group of women inside your community to complete this questionnaire?</b></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If the answer is yes, please complete one of the given cards with your contact information to arrange this meeting.</p>

**Appendix 4: Bi-Dimensional Acculturation Scale (BAS)**

**Please read about how frequent you communicate in Spanish and English. For each question, please tell me the response that best reflects your opinion; in a scale from 1 (Almost never) to 4 (Almost always).** There are no good or bad answers in the questionnaire, therefore if you are unsure or do not know an answer, feel free to answer what you believe.

	Almost never	Sometimes	Often	Almost always
<b>Language Use Subscale</b>	1	2	3	4
How often do you speak English?				
How often do you speak English with your friends?				

How often do you think in English?				
How often do you speak Spanish?				
How often do you speak Spanish with your friends?				
How often do you think in Spanish?				
<b>Linguistic Proficiency Subscale</b>	Very poorly	Poorly	Well	Very well
	1	2	3	4
How well do you speak English?				
How well do you read English?				
How well do you understand television programs in English?				
How well do you understand radio programs in English?				
How well do you write in English?				
How well do you understand music in English?				
How well do you speak Spanish?				
How well do you read Spanish?				
How well do you understand television programs in Spanish?				
How well do you understand radio programs in Spanish?				
How well do you write in Spanish?				
How well do you understand music in Spanish?	Almost never	Sometimes	Often	Almost always
<b>Electronic Media Subscale</b>	1	2	3	4
How often do you watch television programs in English?				
How often do you listen to radio programs in English?				

How often do you listen to music in English?				
How often do you watch television programs in Spanish?				
How often do you listen to radio programs in Spanish?				
How often do you listen to music in Spanish?				

## Appendix 5: Spousal Support Scale (SSS)

### Women

1. Does your husband encouraged or advised you to have a Pap test?
  - a. Yes
  - b. No
  
2. How often is your husband willing to listen to you when you need to talk about specific health problems or concerns, such as cervical symptoms or Pap testing?
  1. Never
  2. Rarely
  3. Sometimes
  4. Frequently
  
3. How often does your husband give you advice or information about health problems, such as cervical cancer?
  1. Never
  2. Rarely
  3. Sometimes
  4. Frequently
  
4. How does your husband feel about your having a Pap test?
  1. Strongly approve
  2. Approve
  3. Disapprove
  4. Strongly disapprove
  5. Don't know
  
5. How much does the opinion of your husband influence your decision about having a Pap test?
  1. Very much
  2. Somewhat
  3. Not very much
  4. Not at all
  5. Don't know
  
6. Do you expect your husband to help you make and keep medical appointments (such as appointments for a Pap test), by doing things such as giving you a ride or taking care of other family members or taking care of your business while you are away?
  1. Never expect
  2. Rarely expect
  3. Sometimes expect
  4. Frequently expect
  5. No need
  
7. How would you rate your husband's support if you wanted to get a Pap test?
  1. Very unsupportive
  2. Somewhat unsupportive
  3. Somewhat supportive



4. Very supportive
5. Don't know

### Husband

1. Do you encourage or advise your wife to have a Pap test?
  1. Yes
  2. No
  
2. How often were you willing to listen to your wife when she needs to talk about specific health problems or concerns, such as cervical symptoms or Pap testing?
  5. Never
  6. Rarely
  7. Sometimes
  8. Frequently
  
3. Do you give your spouse advice or information about health problems, such as cervical cancer?
  5. Never
  6. Rarely
  7. Sometimes
  8. Frequently
  
4. How do you feel about your spouse having a Pap test?
  6. Strongly approve
  7. Approve
  8. Disapprove
  9. Strongly disapprove
  10. Don't know
  
5. How much do you think your opinion would influence your spouse's decision about having a Pap test?
  6. Very much
  7. Somewhat
  8. Not very much
  9. Not at all
  10. Don't know
  
6. In your opinion, how much does your spouse expect help from you for her to make and keep medical appointments (such as appointments for a Pap test), by doing things such as giving you a ride or taking care of other family members or taking care of your business while you are away?
  6. Never
  7. Rarely
  8. Sometimes
  9. Frequently
  10. No need

7. How much would you support your spouse if she wants to get a Pap test?
2. Very unsupportive
  3. Somewhat unsupportive
  4. Somewhat supportive
  5. Very supportive
  6. Don't know

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