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Predictors of Pap Smear Utilization Among Female Mexican American College Students

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PREDICTORS OF PAP SMEAR UTILIZATION AMONG
FEMALE MEXICAN AMERICAN
COLLEGE STUDENTS

A Thesis

by

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Submitted to the Graduate School of the
University of Texas-Pan American
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PREDICTORS OF PAP SMEAR UTILIZATION AMONG
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May 2010

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ABSTRACT

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The Pap smear is a diagnostic screening test that detects abnormal cell growth, which may lead to cervical cancer. Pap smears are performed at a consistently lower frequency among Hispanic than non-Hispanic American White women, potentially contributing to a 70% higher rate of cervical cancer in Hispanic Americans. This study examined possible predictors of Pap smear utilization among 165 Mexican American female college students aged 18 to 30 attending the University of Texas-Pan American situated near Texas's United States – Mexico border. Significant predictors were: recommendation by a health care professional; sexual activity; mother's educational level; and external locus of control based on powerful others. Non-significant predictors were: access to health care; mother's Pap smear utilization; acculturation; internal locus of control; and chance.

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CHAPTER I

CERVICAL CANCER AND HISPANIC AMERICANS

Cervical Cancer

Half a million women are diagnosed with cervical cancer each year and a quarter of a million women die from the disease worldwide (American Cancer Society, 2009c). Risk factors for developing cervical cancer include: tobacco use; a high number of live births; long-term use (12 years or more) of birth control; and human Pappillomavirus (HPV) infection (Franco, Duarte-Franco, & Ferenczy, 2001; National Cancer Institute, 2008). HPV infection represents the highest risk. Although HPV infection is very common among women, only a small percentage of women develop cervical cancer as a result. There are approximately 100 different types of HPVs, of which about 15 are considered “high risk” because they have been linked to the development of cervical cancer (National Cancer Institute, 2008). Risk factors for acquiring HPV are multiple sexual partners, intercourse with male partners that have had multiple partners, a history of other sexually transmitted diseases, and early age of first intercourse. HPV is especially prevalent from sexual activity during adolescence (Cothran & White, 2002).

Cervical cancer is commonly diagnosed among women between 20-39 years of age (Austin, McNally & Stewart, 2002). Cothran and White (2002) propose adolescent females should be screened early for HPV infection to help reduce their risk for contracting cervical cancer. They believe young women should be encouraged to lower

their risk for developing HPV by reducing their number of sexual partners and delaying the age at which sexual intercourse begins. While these measures underscore the idea that HPV infection is highly preventable through behavior change, cognitive factors are also thought to influence preventive behavior. Among these cognitive factors, perceived susceptibility to HPV and other sexually transmitted diseases may influence risky sexual behavior, especially in adolescents (Lopez & McMahan, 2007).

Overall incidence and mortality rates of cervical cancer have decreased among American women due in large part to the Papinicolou (Pap) smear test. The Pap smear is a diagnostic screening test used to detect abnormal cell growth that can potentially lead to cervical cancer. It has contributed to cervical cancer being considered one of the most preventable cancers. It is recommended that women begin obtaining a Pap smear three years after beginning sexual intercourse, but no later than age 21. A conventional Pap smear should be performed annually. If using the liquid-based variety, a Pap smear should be performed every two years. If abnormal cells are found as a result of the screening, further tests may be conducted to confirm the results so that treatment can be initiated. After age 30, if three consecutive Pap smear results are normal, the frequency of screening can be reduced to once every two to three years. After 70 years of age, Pap smears are no longer recommended in women who have obtained normal results for 10 years, or who have received total hysterectomies (American Cancer Society, 2009a).

Hispanic Americans

According to the 2000 Census (2006), Hispanic Americans/Latinos comprise 12.5% of the population and, with African Americans, comprise the largest minority groupings in the United States. With Asian Americans, they are the fastest growing

minority grouping. It is estimated that by 2060, Hispanic Americans will comprise 26.6% of the total US population. Data from the 2000 census indicates Hispanic Americans are the most poorly educated sociopolitical group in the United States, aside from the *Some Other Race* category. According to the census, only 56% of Hispanic Americans over the age of 25 graduated from high school and only 11% graduated from college.

The term “Hispanic American/Latino” is a federally appointed designation of a sociopolitical grouping consisting of individuals residing in the United States with ancestry from any of the Spanish-speaking countries, such as Spain, Mexico, Cuba, and Puerto Rico. Although Hispanic Americans are often considered a homogenous group, cultural characteristics and demographics vary dramatically according to country of origin (Gasquoine, 2008).

Mexican Americans are the largest (65%) and most well-established of the Hispanic American groupings due in large part to the acquisition of land by the United States from Mexico after the Mexican American war of 1846-1848 (Gasquoine, 2008). Many residents of this land decided to remain in the area of what is now the southwestern United States and became American citizens. Since then, due to economic and political issues, many more Mexicans have immigrated to the United States. The true number of Mexican immigrants is unknown, as many are undocumented.

In addition to being one of the largest minority groupings in the United States, Hispanic Americans are also one of the poorest. Low income, lack of health insurance, and low levels of education all contribute to a lack of accessibility to health care. Race/ethnic health disparities have been well documented among Hispanic Americans

(e.g., Betancourt, Green, Carrillo, & Ananeh-Firempong, 2003; Huerta, 2003; Reynolds, 2004). Incidence rates of cardiovascular disease, diabetes, cancer, and asthma are disproportionately higher among Hispanic Americans when compared to non-Hispanic White Americans.

Aside from financial barriers to accessing healthcare, other causes of healthcare disparities may relate to cultural health beliefs, values, and behaviors (Armaro & de la Torre, 2002; Mayo, Erwin, & Spittler, 2003; Huerta, 2003; Reynolds, 2004). In an effort to combat disparities, recent research by Betancourt et al. (2003) has been focusing on the development of cultural competence for practitioners in the medical setting. Clinicians are encouraged to understand and address healthcare disparities to improve health care service delivery to minorities.

Cervical Cancer in Hispanic Americans

Pap smears are performed at a consistently lower frequency among women who are uninsured, recent immigrants, and/or have lower levels of education (American Cancer Society, 2009b). As a consequence, the incidence of cervical cancer is approximately 70% higher in Hispanic women living in the United States than in non-Hispanic White women (American Cancer Society, 2009b). Hispanic American women are two times more likely than non-Hispanic White women to die from cervical cancer once diagnosed. It is thought that about 80% of deaths related to cervical cancer in Hispanic American women could have been prevented by regular Pap smears and adherence to follow-ups after abnormal test results.

In a study of breast and cervical cancer screening practices among females living along the United States-Mexico border, residents were less likely to have undergone a

Pap smear within the past three years compared to Hispanic American women living in central and northern regions of the border states (Coughlin, Ulber, Richards & Wilson, 2003). Economic and cultural variables have been cited as possible factors in Pap smear underutilization among Hispanic American women (Abraido-Lanza, Chao, & Gates, 2005; Ackerson & Gretebeck, 2007). If adolescents are encouraged to take preventive action and engage in screening tests, they may be less likely to develop cervical cancer in adulthood (Cothran & White, 2002).

My study was designed to investigate possible extrinsic and intrinsic variables affecting early cervical cancer screening in Hispanic American college students. Binary logistic regression will be conducted to assess extrinsic (access to health care, mother's level of education, and acculturation) and intrinsic factors (recommendation by health care professional, sexual activity, mother's utilization of Pap smears, internal locus of control, chance external locus of control, and external locus of control based on powerful others) as predictors for Pap smear utilization.

CHAPTER II

FACTORS AFFECTING PAP SMEAR UTILIZATION

The Health Belief Model

Many theories have been used to explain health behavior. The Health Belief Model (HBM) is one that is often used to explain why people engage in preventive behavior, such as undergoing Pap smear testing. According to the HBM, four interacting factors influence such behavior: perceived susceptibility to illness; perceived severity of illness; perceived benefits and barriers of treatment; and cues to action. Preventive behavior is most likely to occur when people believe: (a) they may be vulnerable to a specific illness; (b) the illness can cause personal consequences; (c) preventive behavior may decrease the likelihood of developing the illness; (d) the benefits of prevention outweigh the cost of engaging in preventive behavior; and (e) the environment is conducive to engaging in preventive behavior (Straub, 2007).

Ackerson and Gretebeck (2007) categorized factors that most often prevented Hispanic American women from obtaining Pap smears into extrinsic and intrinsic motivational factors. Extrinsic factors involved lack of health insurance, low levels of acculturation, not having a regular source of health care, low socioeconomic status, and low educational level. Intrinsic factors were lack of perceived vulnerability to disease and beliefs about cervical cancer.

Extrinsic Barriers to Pap Smear Utilization

Access to Health Care

Socioeconomic factors linked to Pap smear underutilization are low household income and lack of health insurance (Borrayo & Reyes, 2002; Buki, Jamison, Anderson & Cuadra, 2007; Garner, 2003; Scarinci, Beech, Kovach & Bailey, 2003; Rodriguez, Ward & Perez-Stable, 2005). The poverty rate among Hispanic American households was 23.2% in 2008 compared to 8.6% among non-Hispanic Whites (United States Census Bureau, 2009). In addition, 30.7% of Hispanics were uninsured, compared to 10.8% of non-Hispanic Whites. Uninsured women are less likely to undergo screening and are more likely to be diagnosed with cervical cancer after the disease is already in its advanced stages (Garner, 2003).

Another factor often linked to Pap smear utilization is having a usual source of health care, such as a regular family doctor (Ackerson & Gretebeck, 2007; Otero-Sabogal, Stewart, Sabogal, Brown, & Prerez-Stable, 2003; Scarinci, Beech, Kovach, & Bailey, 2003). Selvin and Brett (2003) found having a usual source of care to be the strongest predictor of Pap smear utilization. They found Hispanic women, compared to non-Hispanic white women, were less likely to have a usual source of health care. They attributed this to lower income and lower rates of health insurance.

Acculturation

Acculturation refers to the learning process that takes place when different race/ethnocultural groupings come into continuous first-hand contact with each other. Acculturation is a multidimensional process whereby minority group members gradually adopt the attitudes, values, and norms of the majority group from contact. Acculturation

has been used to predict or explain health inequalities (Abraido-Lanza, Chao & Gates, 2005; Hunt, Schneider, & Comer, 2004). A literature review by Abraido-Lanza et al., showed the relationship between Pap smear utilization and acculturation in Hispanic American women to be inconsistent. While some studies indicated a positive correlation between level of acculturation and Pap smear utilization, other studies failed to find any correlation. The authors suggest other extrinsic factors, such as health insurance, might play a more important role in predicting utilization.

Cuellar, Arnold, and Gonzalez (1995) hypothesized that acculturation might be correlated with intrinsic motivators, such as attitudes, values, and beliefs. According to this hypothesis, if traditional Hispanic culture deters cancer screening, higher levels of acculturation should increase the likelihood of screening.

Hunt, Schneider, and Comer (2004) argued that acculturation as a measurement of culture is ambiguous, because culture, itself, is an ambiguous concept. Although a popular variable in health research, the researchers warn that acculturation is a weak concept to build future research upon. They compare acculturation measurement to a proverbial “black box”, in which a variety of factors play a role but none are completely discernible. In the “black box” of acculturation measurement are variables such as income, health insurance, education, and language. It is these variables that are much more measurable, salient, and beneficial to future health research.

Mother’s Educational Level

In their study of Hispanic Americans living in various states, Buki et al. (2007), found that lower levels of education are associated with decreased rates of Pap smears for all American women. Hispanic American women with at least a Bachelor’s degree were

found to be more likely to obtain a Pap smear than those without Bachelor's degrees (Selvin & Brett, 2003). Because all participants in this study were currently attending college, it was hypothesized that the educational level of the participants' mothers may also predict utilization.

Intrinsic Barriers to Pap Smear Utilization

Sexual Activity

Hispanic American women have been found to believe that Pap smears are necessary when engaging in risky sexual behavior and not needed when this behavior is not occurring (McMullin, De Alba, Chavez & Hubbel, 2005). This finding implies that sexual activity may increase women's perceived vulnerability to cervical cancer, which then leads to Pap smear utilization.

Recommendation by a Health Care Professional

A family doctor or general practitioner is often a useful resource to get recommendations for Pap smears. Studies indicate that Hispanic American women who have not received a recommendation to obtain a Pap smear are significantly less likely to obtain one (Ackerson & Gretebeck, 2007). If a health care professional leads a woman to believe that obtaining a Pap smear is necessary, they may be more likely to obtain one.

Mother's Role Modeling

It is hypothesized that mother's role modeling may be a factor in Pap smear utilization for Hispanic American women. Specifically, if one's mother does not express the importance of Pap smear utilization by discussing the issue with their child or by modeling the behavior, the individual may not place importance on utilization.

Locus of Control

Locus of control is associated with the feeling of power in one's life (Bruce & Thornton, 2004). Individuals who have an internal locus of control are considered to be self-efficient and responsive to their own choices and actions. These individuals feel they have control in maintaining their own personal health and well-being. In contrast, an external locus of control is associated with powerlessness and lack of personal accountability (Dettenborn, DuHamel, Butts, Thompson, & Jandorf, 2004).

The multidimensional health locus of control (MHLC) scale was developed to determine how locus of control influences health (Wallston, Wallston, & DeVillis, 1978). Borrayo and Reyes (2002) were unable to find a significant correlation between MHLC and cervical cancer screening among Hispanic Americans, while acknowledging that not enough research had been conducted to arrive at any concrete conclusion.

CHAPTER III

METHOD

Participants

Study recruits consisted of 165 female, Mexican-American students attending undergraduate classes at the University of Texas-Pan American in Edinburg, Texas. Participants ranged in age from 18 to 30 years ($M = 22$; $SD = 2.86$). All participants were undergraduates, with the exception of five students who had already graduated with a Bachelor's degree and were returning for extra classes.

A total of 173 students were originally recruited. Of those students, four were removed from the data sample because they were over 30 years old. Pap smears do not need to be undergone every year after age 30 (American Cancer Society, 2009a). Four other students were also excluded: two students were of Anglo origin and two were of Hispanic origin but from countries other than Mexico or the United States.

Procedure

Female students enrolled in summer undergraduate psychology and sociology courses at the University of Texas – Pan American were asked to remain after class to participate in a brief, 10-15 minute survey (see Appendix A). Students were not offered any incentive to participate. The surveys were presented in manila envelopes. Participants were asked to complete the survey, place it back in the envelope, and then place the envelope in a box at the front of the room as they left the classroom.

Table 1

Demographics for Students With and Without Pap Smears

	With Pap Smear (N = 98)	Without (N = 67)	Total (N = 165)
Country of Birth			
US	85	53	138
Mexico	13	14	27
Grade			
Freshman	4	13	17
Sophomore	11	14	25
Junior	34	19	53
Senior	45	20	65
Returning Student	4	1	5
Marital Status			
Single	48	55	103
Committed Relationship/ Living Together	20	8	28
Married	27	3	30
Divorced/Separated	3	0	3
Widow	0	1	1
Employment Status			
No job	49	37	86
Part-time	33	28	61
Full-time	16	2	18
Income*			
< \$10,000	15	9	24
\$10,000-\$30,000	31	24	55
\$30,000-\$50,000	23	15	38
\$50,000-\$75,000	17	9	26
>\$75,000	12	8	20

*Two participants did not disclose income

Measures

A dichotomous dependent variable was constructed for cervical cancer screening: participants who had obtained a Pap smear (with: $N = 98$) vs. those who had never obtained a Pap smear (without: $N = 67$). Table 1 shows demographic characteristics separately for students with and without Pap smears including: country of birth; employment status; marital status; and self-reported annual household income. An independent samples t -test indicated there was a significant difference in the mean ages for students with Pap smears ($M = 23$, $SD = 2.92$) compared to those without ($M = 21$, $SD = 2.29$); $t(163) = 4.70$, $p < .01$. Predictor variables consisted of: access to health care; previous recommendation by a health care professional to obtain a Pap smear; sexual activity; mother's level of education; mother's utilization of Pap smears; acculturation; and three variables associated with multidimensional health locus of control.

Access to health care was determined by combining participants' responses to two dichotomous questions. Participants were asked if they: 1) currently had health insurance; and 2) had a regular family doctor. The responses were then combined to form one variable. Possible scores ranged from 0-2. Participants who responded "Yes" to both questions were assigned a score of 2. Participants who responded "No" to both questions were assigned a score of 0.

Sexual activity was measured by asking participants how old they were when they first engaged in sexual intercourse and how many sexual partners they had since first engaging in sexual intercourse. If either question was answered "Yes", the participant was determined to have been sexually active.

Information about participant mothers' level of education was also gathered. Participants were asked if their mother: "did not finish high school", "graduated from high school", "attended college", or "graduated from college".

To determine the influence of family role modeling, participants were asked if their mother obtained Pap smears regularly. Possible responses were: "Yes"; "No"; or "I don't know/We have never discussed that".

A modified version of the multidimensional health locus of control (MHLC) scale was used to assess locus of control in relation to health (Wallston, Wallston, & DeVillis, 1978). The modification was necessary to increase scale reliability coefficients. The original MHLC scale consists of three, six-item subscales: internally focused locus of control; chance externally focused locus of control; and externally focused locus of control based upon powerful others. The published reliability coefficients (alpha) of the subscales are approximately 0.70, ranging between 0.65-0.75.

Internal locus of control refers to the extent individuals feel personally responsible for their health. Examples from the internally focused locus of control scale include: "I am directly responsible for my own health" and "My physical well-being depends on how well I take care of myself." In this study this scale was found to have an alpha coefficient of 0.66. By deleting one item, "If I become sick, I have the power to make myself well again," the reliability coefficient (alpha) was increased to 0.7.

The chance externally focused locus of control scale measures the extent to which individuals feel that external forces are responsible for their health. Examples from the chance locus of control scale include: "When I stay healthy, I'm just plain lucky" and "Even when I take care of myself, it's easy to get sick." The scale was found to have an

alpha coefficient of 0.54. By deleting three items: “Often I feel that no matter what I do, if I am going to get sick, I will get sick”; “It seems that my health is greatly influenced by accidental happenings”; and “When I am sick, I just have to let nature run its course” the reliability coefficient (alpha) was increased to 0.56.

The externally focused locus of control based upon powerful others scale measures the extent to which individuals feel that other people, specifically doctors and other health care professionals, are responsible for keeping them healthy. Examples from the powerful others scale include: “I can only maintain my health by consulting health professionals” and “Following doctor’s orders to the letter is the best way for me to stay healthy.” The scale was found to have a reliability coefficient (alpha) of 0.59. By deleting one item, “If I see a doctor regularly, I am less likely to have health problems,” the reliability coefficient (alpha) was increased to 0.62.

The Acculturation Rating Scale for Mexican Americans-II (ARSMA-II: Cuellar, Arnold, & Maldonado, 1995) short form was used to measure acculturation. It is comprised of two subscales that measure orientation toward Mexican and Anglo culture independently. Sample items on the Mexican Orientation Subscale are: “I speak Spanish”; and “My thinking is done in the Spanish language.” Sample items on the Anglo Orientation Subscale are: “I write letters in English”; “My thinking is done in the English language”; and “My friends are of Anglo origin.” The published reliability (alpha) coefficients for the Mexican and Anglo Orientation Subscales are 0.88 and 0.83, respectively. In this study, the Mexican Orientation scale was found to have an alpha coefficient of 0.93. The Anglo Orientation subscale had a reliability coefficient (alpha) of 0.64.

Binary logistic regression was used to predict Pap smear utilization based upon nine independent predictor variables: access to health care; recommendation of a healthcare professional; sexual activity; mother's level of education; mother's utilization of Pap smears; acculturation; internal locus of control; chance externally focused locus of control; and externally focused locus of control based upon powerful others.

CHAPTER IV

RESULTS

Table 2 shows frequencies of health insurance, regular doctor, sexual activity, mother's education, and mother's Pap smear utilization for participants with and without Pap smears. Approximately 59% of respondents had obtained a Pap smear ($n = 98$); 45% reported having some form of health insurance ($n = 74$); 62% had a regular doctor ($n = 102$); 53% had received a recommendation to obtain a Pap smear by a health care professional ($n = 88$); 76% were sexually active ($n = 127$); 52% reported that their mother had a high school education or below ($n = 86$); 63% reported that their mother regularly obtains Pap smears ($n = 105$).

Table 3 shows a correlation matrix between the internal locus of control, chance externally focused locus of control, externally focused locus of control based upon powerful others, and acculturation scales. Two statistically significant correlations were found. The powerful others scale was weakly correlated with the internal locus of control scale ($r = 0.158, p = 0.04$) and moderately correlated with the chance scale ($r = 0.47, p < 0.01$).

Table 2

Frequencies of Independent Variables

Pap Smear	With (<i>n</i> = 98)	Without (<i>n</i> = 67)	Total (<i>N</i> = 165)
Insurance			
Yes	50%	37%	45%
Regular Doctor			
Yes	67%	54%	62%
Recommendation			
Yes	76%	21%	53%
Sexual Activity			
Yes	56%	51%	77%
Mother's Education			
Did not Complete High School	29%	34%	31%
High School Graduate	17%	27%	21%
Some College	25%	22%	24%
College Graduate	29%	17%	24%
Mother's Pap Utilization			
I don't know	17%	37%	26%
No	8%	15%	11%
Yes	75%	48%	63%

Table 3

Correlation Matrix of Scales

	Internal Locus of Control	Chance	Powerful Others	Acculturation
Chance				
Pearson Correlation	-.14			
Sig. (2-tailed)	.07			
N	165			
Powerful Others				
Pearson Correlation	.16	.47		
Sig. (2-tailed)	.04	.00		
N	165	165		
Acculturation				
Pearson Correlation	-.09	.09	.02	
Sig. (2-tailed)	.23	.27	.77	
N	165	165	165	165

Logistic Regression

Binary logistic regression was performed to assess the impact of the nine predictor variables on the likelihood that respondents would report Pap smear utilization. Table 4 shows a summary of the logistic regression results. The nine predictor variables were: (1) access to healthcare; (2) recommendation by a healthcare professional; (3) sexual activity; (4) mother's educational level; (5) mother's Pap smear utilization; (6) acculturation; (7) internal locus of control; (8) chance external locus of control; (9) external locus of control powerful others. The full model containing all predictors was statistically significant, $\chi^2(9, N = 165) = 97.96, p < 0.01$, indicating that the model was able to distinguish between respondents who reported and did not report Pap smear utilization. The model as a whole explained between 44.8% (Cox and Snell R square) and 60.4% (Nagelkerke R square) of the variance in Pap smear utilization, and correctly classified 82.4% of cases. Four independent variables made statistically significant contributions to the model: sexual activity; recommendation by a healthcare professional; mother's educational level; and external locus of control powerful others.

The strongest predictor of Pap smear utilization was sexual activity, recording an odds ratio of 18.23. This indicated that respondents who were sexually active were over 18 times more likely to report Pap smear utilization than those who were not sexually active, controlling for all other factors in the model.

The second strongest predictor of Pap smear utilization was recommendation by a health care professional, recording an odds ratio of 12.52. This indicated that respondents who had received a recommendation to obtain a Pap smear were over 11

times more likely to report utilization than those who had not received a recommendation, controlling for all other factors in the model.

Another predictor of Pap smear utilization was mother's educational level. Of the four categories: "Did Not Complete High School"; "High School Graduate"; "Some College"; and "College Graduate", only the last group was significant, recording an odds ratio of 6.70. This indicated that participants whose mother had at least a bachelors degree were over six times more likely to report Pap smear utilization than those whose mother had not completed high school, controlling for all other factors in the model.

External locus of control based on powerful others was another significant predictor of utilization. There was a negative association between higher scores on the scale and Pap smear utilization with an odds ratio of 0.87. This indicated that the odds of getting a Pap smear was increased by factor of 0.87 for each one unit decrease on the powerful others scale.

Table 4

Results of Logistic Regression Analyses

Variable	β	SE	Wald	<i>p</i>	Exp (β)
Access (No Insurance or Regular Doctor)			2.50	0.29	
Access (Insurance or Regular Doctor)	0.44	0.61	0.53	0.47	
Access (Insurance & Regular Doctor)	0.96	0.61	2.50	0.11	
Recommendation	2.53	0.51	24.72	0.00	12.52
Sexual Activity	2.93	0.68	18.15	0.00	18.23
Mother's Education (Did not Complete HS)			9.69	0.02	
Mother's Education (HS Grad)	-0.24	0.68	0.13	0.72	
Mother's Education (College)	0.85	0.67	1.60	0.21	
Mother's Education (College Grad)	1.90	0.73	6.89	0.01	6.70
Mother's Pap Utilization (I don't know)			1.06	0.59	
Mother's Pap Utilization (No)	0.34	0.89	0.14	0.71	
Mother's Pap Utilization (Yes)	0.58	0.56	1.06	0.30	
Internal Locus of Control	0.07	0.06	1.30	0.25	
Chance	0.11	0.11	1.13	0.29	
Powerful Others	-0.14	0.07	4.37	0.04	0.87
Acculturation	-0.01	0.19	0.00	0.96	

β = Beta weight

SE = Standard error

Wald = Wald chi-square

p = p-value

Exp (β) = odds ratio

CHAPTER V

DISCUSSION

This study explored variables hypothesized to predict Pap smear utilization in Hispanic American college students. One extrinsic variable (mother's level of education) and three intrinsic variables (recommendation by a health care professional, sexual activity, and external locus of control based on powerful others) were significant predictors of utilization. The two strongest predictors of utilization were sexual activity and recommendation by a health care professional to obtain a Pap smear. Factors that were not found to be significant in predicting the likelihood of Pap smear utilization were: access to health care; mother's utilization of Pap smears; acculturation; internal locus of control; and chance, or externally focused locus of control.

Sexual activity was the strongest predictor of utilization. Although my study did not explore the mental aspect of this variable, previous research suggests that morality may play a role in the decision by Hispanic American women to obtain Pap smears. Hispanic American women were more likely than non-Hispanic white women to believe that engaging in risky sexual behavior, such as having multiple partners, sex during menstruation, or abortion, increases the risk of developing cervical cancer. Women who believed sexual behavior to be the primary risk factor involved in cervical cancer were less likely to engage in Pap smear utilization (McMullin, De Alba, Chavez & Hubbell, 2005).

Recommendation by a health care professional was another significant predictor of Pap smear utilization. This is similar to other findings concerning the importance of recommendation (Ackerson & Gretebeck, 2007; Borrayo & Reyes, 2002). When a health care professional recommends a Pap smear, women may realize the importance of obtaining Pap smears and also may gain other useful information, such as where to obtain one.

Mother's level of education was another significant predictor of Pap smear utilization. Previous research has shown higher levels of education to be a strong predictor of utilization (Selvin & Brett, 2003). A possible explanation for this finding is that mother's level of education is a secondary measure of family income, which is a common predictor of utilization (Borrayo & Reyes, 2002; Buki, Jamison, Anderson & Cuadra, 2007; Garner, 2003; Scarinci, Beech, Kovach & Bailey, 2003; Rodriguez, Ward & Perez-Stable, 2005).

From the multidimensional health locus of control scales, internal locus of control and chance externally focused of control were not significant predictors of Pap smear utilization. Internal locus of control was expected to be positively related to utilization, and chance was expected to be negatively related to utilization. Other research also has found these variables to be poor predictors of utilization (Borray & Reyes, 2002). This finding may be partly explained by the low reliability coefficient of the chance scale ($\alpha = 0.56$).

Unlike Borrayo and Reyes (2002), I found external locus of control based on powerful others to be a significant predictor of utilization. Theoretically, external locus of control is associated with low levels of personal accountability and responsibility for

one's actions, which could serve as a barrier to preventive behavior (Dettenborn, DuHamel, Butts, Thompson, & Jandorf, 2004). Higher scores on the powerful others scale was negatively related to Pap smear utilization, supporting this theory.

Access to health care was not found to be a significant predictor of Pap smear utilization, which is inconsistent with previous findings (Borrayo & Reyes, 2002; Buki, Jamison, Anderson & Cuadra, 2007; Garner, 2003; Scarinci, Beech, Kovach & Bailey, 2003; Rodriguez, Ward & Perez-Stable, 2005). The inconsistency may be due to the lifestyle of the population sampled. College students tend to have great variability in income. 52% of the population sampled did not have a job ($n = 86$), and only 11% ($n = 18$) reported having full-time jobs, which may account for lower rates of health insurance.

Acculturation also was not found to be a significant predictor of Pap smear utilization. Research involving acculturation as a predictor of utilization has been inconsistent (Abraido-Lanza, Chao & Gates, 2005). My finding supports the idea that acculturation is a weak determinant of Pap smear utilization and other factors, such as recommendation by a health care professional, are much better predictors of utilization (Borrayo & Reyes, 2002; Hunt, Schneider & Comer, 2004).

Limitations

There were several limitations to this study. Previous research on Pap smear utilization among Hispanic American women has focused on older populations. I found that some factors—such as income and health insurance status—were more difficult to quantify in the college-aged population. In future studies involving college students, it may be more beneficial to consider parents' income, rather than the participants'.

According to the United States Census (2010), over 89% of residents in the area where this study was conducted consider themselves Hispanic American. The generalizability of my study to other Hispanic American populations is unknown considering the strong presence of Mexican culture in the area. Also, I did not compare my findings to a non-Hispanic population, which could give a better indication of the role ethnicity plays in Pap smear utilization.

Another limitation is that without having documentation about previous Pap smear utilization or recommendation, there was no way to prove that responses were accurate.

Conclusions

My findings underscore the importance for health care professionals to recommend Pap smears for college students. Although human Pappillomavirus (HPV) infection is the primary risk factor for acquiring cervical cancer, the American Cancer Society recommends that all women obtain Pap smears by the age of 21, despite lack of sexual activity. It is important for health care professionals to urge all women to obtain Pap smears by this time.

Conflicting findings concerning the role of family in Pap smear utilization were observed. While mother's educational level was a significant predictor of utilization, knowledge of mother's utilization was not. Future research should focus on the influence mothers have on Pap smear utilization. Specifically, do mothers discuss utilization with their daughters? How knowledgeable are mothers about the importance of Pap smear utilization?

Better understanding of the factors that influence Pap smear utilization among Hispanic American women can lead to effective culture-specific interventions. Increased rates of utilization should help to decrease the health disparity between Hispanic and non-Hispanic white women.

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APPENDIX A

APPENDIX A

STUDENT SURVEY

Please answer the following questions as accurately as you can. Your responses are confidential and will not be identifiable.

Date of Birth: ____/____/____

Current age: _____

1. Are you Hispanic/Latina?

- a. Yes
- b. No

2. What country were you born in?

- a. United States
- b. Mexico
- c. Other, please specify _____

3. What country were you parents born in?

Mother:

- a. United States
- b. Mexico
- c. Other, please specify _____

Father:

- a. United States
- b. Mexico
- c. Other, please specify _____

4. What country were your grandparents born in?

Mother's mother:

- a. United States
- b. Mexico
- c. Other, please specify _____

Mother's father:

- a. United States
- b. Mexico
- c. Other, please specify _____

Father's mother:

- a. United States
- b. Mexico
- c. Other, please specify _____

Father's father:

- a. United States
- b. Mexico
- c. Other, please specify _____

5. What is your current academic standing?
 - a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior

6. Are you currently employed?
 - a. Yes, part-time (less than 40 hours/week)
 - b. Yes, full-time (40 or more hours/week)
 - c. No

7. Do you currently live with your parents?
 - a. Yes
 - b. No

8. What is your marital status?
 - a. Single
 - b. Married
 - c. Divorced/Separated
 - d. In a committed relationship / Living together
 - e. Widow

9. How many individuals in your household are currently working? _____

10. What is your average annual household income?
 - a. Under \$10,000
 - b. Between \$10,000- \$30,000
 - c. Between \$30,00 - \$50,000
 - d. Between \$50,000 - \$75,00
 - e. Over \$75,000

11. What is your mother's educational level?
 - a. College graduate
 - b. Attended some college
 - c. High school graduate
 - d. Did not complete high school

12. What is your father's educational level?
 - a. College graduate
 - b. Attended some college
 - c. High school graduate
 - d. Did not complete high school

13. What is your mother's occupation? _____

14. What is your father's occupation? _____

15. Do you have a regular family doctor?
a. Yes
b. No
16. Do you currently have health insurance coverage?
a. Yes
b. No
17. Has a first-degree family member (mother, sister, father, brother) ever been diagnosed with cancer?
a. Yes
b. No
18. Has a second-degree family member (aunt, uncle, cousin, grandparent) ever been diagnosed with cancer?
a. Yes
b. No
19. Do you regularly use birth control methods that are provided by doctor (birth control pills, patch, or IUD)?
a. Yes
b. No
20. How many sexual partners have you had? _____
21. If you have ever been sexually active, how old were you when you first started having sexual intercourse? _____
22. Have you ever given birth?
a. Yes
b. No
23. Have you ever visited a gynecologist?
a. Yes
b. No
24. Do you know what a Pap smear (Papanicolaou exam) is?
a. Yes
b. No
25. From your understanding, why are Pap smears performed? _____

26. Has a health care provider ever recommended that you receive a Pap smear?
a. Yes
b. No

27. Have you ever received a Pap smear by a gynecologist or other health care provider?
- Yes
 - No
28. Are you planning on having a Pap smear within the next year?
- Yes
 - No
29. Does your mother receive Pap smears?
- Yes
 - No
 - I don't know. / We have never discussed that.
30. If you have received a Pap smear before, when did you last have one done?
- Within the past year
 - A year ago
 - Two years ago
 - Three to five years ago
 - Over five years ago
31. If you have received a Pap smear before, have you ever had an abnormal result?
- No
 - Yes, and I followed up by obtaining another exam.
 - Yes, but I did not return to my practitioner again.
 - Yes, but my practitioner did not suggest another exam.

Circle the number that most accurately represents your experience according to the following scale:

- 1 - Not at all
- 2 - Very little / Not very much
- 3 - Moderately
- 4 - Much / Very often
- 5 - Extremely often / Almost always

- | | | | | | |
|--------------------------------------------------|---|---|---|---|---|
| 32. I speak Spanish | 1 | 2 | 3 | 4 | 5 |
| 33. I speak English | 1 | 2 | 3 | 4 | 5 |
| 34. I enjoy speaking Spanish | 1 | 2 | 3 | 4 | 5 |
| 35. I associate with Anglos | 1 | 2 | 3 | 4 | 5 |
| 36. I enjoy listening to English language movies | 1 | 2 | 3 | 4 | 5 |
| 37. I enjoy Spanish language TV | 1 | 2 | 3 | 4 | 5 |
| 38. I enjoy Spanish language movies | 1 | 2 | 3 | 4 | 5 |
| 39. I enjoy reading books in Spanish | 1 | 2 | 3 | 4 | 5 |
| 40. I write letters in English | 1 | 2 | 3 | 4 | 5 |
| 41. My thinking is done in the English language | 1 | 2 | 3 | 4 | 5 |
| 42. My thinking is done in the Spanish language | 1 | 2 | 3 | 4 | 5 |
| 43. My friends are of Anglo origin | 1 | 2 | 3 | 4 | 5 |

Circle the number that most accurately represents your opinion according to the following scale:

- 1 - Strongly disagree
- 2 - Disagree
- 3 - Neither disagree or agree
- 4 - Agree
- 5 - Strongly agree

- | | | | | | |
|------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| 44. There's nothing a person can do to prevent cancer. | 1 | 2 | 3 | 4 | 5 |
| 45. If you don't die from this, you'll die from that, so there's no point in taking screening tests. | 1 | 2 | 3 | 4 | 5 |
| 46. Cancer is a death sentence. | 1 | 2 | 3 | 4 | 5 |

Circle true if you agree with the given statement, or false if you do not.

- | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------|------|-------|
| 47. All adults should be respected. | True | False |
| 48. More parents should teach their children to be loyal to the family. | True | False |
| 49. It is more important for a woman to learn how to take care of the house and the family than it is for her to get a college education. | True | False |
| 50. The stricter the parents the better the child. | True | False |
| 51. Some equality in marriage is a good thing, but by and large the father ought to have the main say so in family matters. | True | False |
| 52. Even if a child believes that his parents are wrong, (s)he should obey without question. | True | False |
| 53. Relatives are more important than friends. | True | False |
| 54. For a child, the mother should be the dearest person in the world. | True | False |
| 55. A girl should not date a boy unless her parents approve. | True | False |
| 56. No matter what the cost, dealing with my relatives' problems comes first. | True | False |
| 57. I expect my relatives to help me when I need them. | True | False |
| 58. My family frequently participates in school-sponsored activities for our children. | True | False |
| 59. It is more important to enjoy life now than to plan for the future. | True | False |
| 60. People die when it is their time and there is not much that can be done about it. | True | False |
| 61. We must live for the present, who knows what the future may bring. | True | False |
| 62. If my doctor said I was disabled, I would believe it even if I disagreed. | True | False |
| 63. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyway. | True | False |
| 64. It doesn't do any good to try to change the future because the future is in the hands of God. | True | False |
| 65. When I make plans, I am almost certain I can make them work. | True | False |
| 66. I sometimes feel that someone controls me. | True | False |

Circle the number that most accurately represents your opinion according to the following scale:

- | | |
|------------------------------|---------------------------|
| 1 - Strongly disagree (SD) | 4 - Slightly Agree (A) |
| 2 - Moderately Disagree (MD) | 5 - Moderately Agree (MA) |
| 3 - Slightly Disagree (D) | 6 - Strongly Agree (SA) |

	SD	MD	D	A	MA	SA
67. If I become sick, I have the power to make myself well again.	1	2	3	4	5	6
68. Often I feel that no matter what I do, if I am going to get sick, I will get sick.	1	2	3	4	5	6
69. If I see an excellent doctor regularly, I am less likely to have health problems.	1	2	3	4	5	6
70. It seems that my health is greatly influenced by accidental happenings.	1	2	3	4	5	6
71. I can only maintain my health by consulting health professionals.	1	2	3	4	5	6
72. I am directly responsible for my health.	1	2	3	4	5	6
73. Other people play a big part in whether I stay healthy or become sick.	1	2	3	4	5	6
74. Whatever goes wrong with my health is my own fault.	1	2	3	4	5	6
75. When I am sick, I just have to let nature run its course.	1	2	3	4	5	6
76. Health professionals keep me healthy.	1	2	3	4	5	6
77. When I stay healthy, I'm just plain lucky.	1	2	3	4	5	6
78. My physical well-being depends on how well I take care of myself.	1	2	3	4	5	6
79. When I feel ill, I know it is because I have not been taking care of myself properly.	1	2	3	4	5	6
80. The type of care I receive from other people is what is responsible for how well I recover from an illness.	1	2	3	4	5	6
81. Even when I take care of myself, it's easy to get sick.	1	2	3	4	5	6
82. When I become ill, it's a matter of fate.	1	2	3	4	5	6

	SD	MD	D	A	MA	SA
83. I can pretty much stay healthy by taking good care of myself.	1	2	3	4	5	6
84. Following doctor's orders to the letter is the best way for me to stay healthy.	1	2	3	4	5	6

BIOGRAPHICAL SKETCH

Sylvia Marie Morales was born in Weslaco, TX. She graduated from South Texas High School for Health Professions in 2003. She received a Bachelor of Science degree in Psychology from the University of Texas-Pan American in 2007 and her Master of Arts degree in Experimental Psychology in 2010. Sylvia plans to obtain her Doctor of Philosophy in Behavioral Sciences at the University of Texas Health Science Center at Houston's School of Public Health.

Sylvia has held two research assistant positions while enrolled at the University of Texas-Pan American, both within the College of Health Sciences and Human Services. Her research interests are in women's health and cancer prevention.

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