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Influence of Marianismo on Colorectal Cancer Screening Behavior Among Hispanic Women in the United States

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Influence of *Marianismo* on Colorectal Cancer Screening Behavior among Hispanic Women in the United States

CAPSTONE PROJECT PAPER

A paper submitted in partial fulfillment of the
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By
Robin Thompson
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Background

Colorectal cancer (CRC) is the third most commonly diagnosed cancer and the second leading cause of cancer death in the United States (U.S).¹ Although early detection and treatment can reduce CRC-related morbidity and mortality, almost two-thirds of patients are diagnosed with advanced stage disease indicating non-adherence to recommended screening guidelines.¹ Indeed, less than half of individuals over 50 years of age get screened at recommended intervals.²

More specifically, lower rates of CRC screening exist among these groups: those identifying as being of Hispanic origin, the uninsured, disabled individuals, and women.³ In a 2011 report from the National Center on Health Statistics capturing the impact of socioeconomic status (SES) on the health of the nation, only 47% of Hispanic or Latino respondents reported any colorectal cancer screening procedure (2010) compared to 59% of all adults, ages 50 – 75 years, regardless of race.³ Evidence suggests that screening for CRC can reduce CRC mortality rates.⁵ The malignant form of CRC develops from a benign polyp that can be detected through screening methods.⁵ The primary screening methods for CRC include the fecal occult blood test (FOBT), sigmoidoscopy, and colonoscopy and the recommended screening intervals for each include one year, five years, and ten years, respectively.⁶ Despite strong evidence supporting the benefits of CRC screening and resulting reduction in mortality, low rates of screening among at-risk individuals will result in a projected 50,830 deaths from the disease this year.⁷

With such an enormous burden caused by a potentially preventable disease, the U.S Department of Health and Human Services (DHHS) has established goals and objectives to increase CRC screening via its *Healthy People 2020* initiative. From 2008

to 2010, DHHS reported an increase in CRC screenings from 52.1 to 59.1 percent. By 2020, DHHS aims to increase screening to a rate of 70.5 percent.⁴

To improve CRC screening rates, especially among populations where screening rates are lower, we need to increase our understanding of what factors influence screening among these populations.⁵ DHHS noted that the burden of CRC disease is distributed unequally among poor and ethnic and racial minorities because of multiple factors, including language or cultural differences with healthcare providers.² This language barrier, known as limited English proficiency (LEP), has been documented in the literature as a barrier to CRC screening among differing subgroups of Spanish-speaking Latinos.⁸ For example, in a study analyzing data from the Medical Expenditure Panel Survey (MEPS) aimed at understanding patient-provider communication and language barriers influencing CRC screening, non-English speaking patients experienced less than half the likelihood of being screened for CRC than did the English-speaking patients.⁹

In a cross-sectional study analyzing the factors associated with CRC screening disparities observed between Whites and Hispanic national origin subgroups, authors note that the variations in health behaviors may be as great among individuals *within* major racial/ethnic groups.¹⁰ Therefore, analyzing cultural barriers *within* a specific ethnic group could help us understand how to reduce those barriers. Specifically, understanding cultural barriers could result in the creation of personally-tailored interventions.¹⁰ In a systematic literature review highlighting interventions published from 1950 to September of 2010 aimed at the improvement of CRC-related care among racial and ethnic minorities, researchers found that interventions involving patient

education by phone or in-person contact, combined with patient navigation, leads to improvements in CRC screening rates among minority populations.¹¹ Furthermore, *promotoras*, or trusted members of Hispanic communities vested in the promotion of health, have been used to improve the health of Hispanic populations since the 1960's.¹² Acting as a bridge between the health care system and members of Hispanic communities in the U.S, *promotoras* have led many public health interventions.^{12,13} For example, in a recent quasi-experimental study evaluating a *promotora*-led intervention on CRC-related perceptions and communications among Hispanics in the Lower Yakima Valley of Washington State, researchers found a significant increase in the percentage of participants who asked their doctors for a CRC screening test after *promotora*-led intervention at follow-up.¹²

One cultural element observed as having a negative influence on CRC screening among Mexican males is *Machismo*.¹⁴ Evolving during the 19th century after Latin American countries asserted their independence from prior Spanish rule, *Machismo* was initially formed as a concept that defined male dominance over women and can be described as the “attitudes and identities associated with masculinity” seen among Hispanic men.^{14,15} This cultural factor is still prevalent among Hispanic males today and has been documented as a particular barrier to seeking preventative health care measures. Recently, a qualitative study investigated the influence of *Machismo* on CRC screening rates among two different subgroups of Hispanic men: first-generation Mexicans and Hispanos residing in New Mexico.¹⁴ Individuals identifying as being Hispano in this study trace their ancestry back to 16th century Spanish colonists who arrived in New Mexico and consider themselves “pure blooded” Spanish conquistadors.¹⁴ This

qualitative study found *Machismo* to be an inhibiting factor only for Mexican men.¹⁴

Mexican men felt that getting a colonoscopy was “embarrassing”, and *Machismo*, rather than a concrete personality trait, was found to be a trait exhibited during particular situations in Mexican men.¹⁴

The evolution of *Machismo* has had a contrasting effect on the cultural identities of Hispanic women, in some instances leading them to develop a submissive and inferior identity to their male counterparts.¹⁵ This cultural characteristic exhibited among some Latin women is termed *Marianismo*. Less well-known than *Machismo*, *Marianismo* is a term used to imply the “idealized view of femininity based on the image of Mary, the Virgin Mother”.^{15,16} Women that exhibit the *Marianismo* characteristic pride themselves on being a good wife and mother and remain “respectful and dependent” on their husband.¹⁷ This ideology of gender roles has resulted in the belief that “women are the weaker sex” among Latin men and women in countries where *Machismo* and *Mariansmo* are prominent.¹⁵ In middle-class Latin America, women exhibiting *Marianismo* are exclusively identified with the home, tied to the domestic responsibilities and are discouraged from working outside the home.¹⁸ This aspect of *Marianismo* may cause women that exhibit these characteristics to be economically and socially vulnerable.¹⁸ Although research has been conducted and evaluated on *Machismo* as a barrier to CRC screening for Hispanic men, *Marianismo* and its effect on Hispanic women to seek CRC screening has not yet been evaluated. As Hispanic women have migrated to the U.S and have acculturated to the U.S environment, many of these women may still face cultural oppression by continuing “to adhere to their traditional patriarchal culture.”¹⁵ One result of this adherence to culture may be that many Hispanic women still

remain in the household as a homemaker, and in result may feel that because they are not bringing home an income, seeking primary health care services is not their choice. This situation may keep them a “vulnerable and disenfranchised population” in terms of healthcare.¹⁵ Studies have been conducted to understand the implications of *Machismo* exhibited among Hispanic men surrounding topics such as breast cancer survivorship and HIV prevention.^{17,19} For example, in a mixed-methods design study investigating the perspectives of a group of low-income Chilean women regarding HIV, *Machismo* and *Marianismo* were found to be major barriers to HIV prevention.¹⁷ Socio-cultural aspects of *Machismo* and *Marianismo* include the inability of women to make personal decisions; this study resulted in these aspects impacting low-income Chilean women to seek HIV preventative actions.¹⁷ In a qualitative cross-sectional study investigating the cultural, social, and healthcare system factors that impact quality of life and survivorship of a group of immigrant Latina breast cancer survivors in the metropolitan District of Columbia, researchers found that many women with male partners exhibiting *Machismo* noted “their male partners had difficulty demonstrating support and coping with the emotional aspects of having a spouse with a cancer diagnosis”.¹⁹ Being that there has been little research investigating the role of *Marianismo* on preventative health screening behaviors among Hispanic women, this study seeks to understand whether *Marianismo* influences the CRC screening behaviors of Hispanic women ages 50 and older in the U.S.¹⁵

Specifically, data from the 2012 Behavioral Risk Factor Surveillance Survey (BRFSS) will be analyzed to compare Hispanic women ages 50 and older exhibiting *Marianismo* characteristics and Hispanic women ages 50 and older not exhibiting

Marianismo characteristics. *Marianismo* characteristics will be distinguished by three reported demographic characteristics: marital status (being married), employment status (being a homemaker), and primary language spoken (Spanish).

METHODS

The Institutional Review Board at the University of Kentucky waived review of this study because of the use of publically available de-identified secondary data.

Data Source

The BRFSS is an ongoing data collection program initiated in 1984 designed to obtain information on the behavioral risk factors of adults ages 18 and older living in households across the 50 United States, the District of Columbia, Guam, and Puerto Rico.¹⁹ Using a cross-sectional design, data is collected annually by state, capturing information on preventative health practices and risk factors that are linked to chronic diseases, injuries, and preventable infectious diseases.²⁰ Participants in the phone study were limited to non-institutionalized adults over the age of 18 living in households.²⁰ Over 400,000 surveys are collected annually.²¹

A Disproportionate Stratified Sample (DSS) was utilized to randomize landline numbers into two groups for further randomization based on area code, prefix, first two digits, suffix, and the last two digits.²⁰ Participants receiving 90 percent or more calls on cellular telephones were eligible for participation in the cellular telephone survey.²⁰ Random Digit Dialing (RDD) using the Telecordia database for telephone exchange was used to randomly select cellular telephone participants in each state.²⁰ State health personnel or contractors were charged with conducting the three-part questionnaires by

utilizing Computer-Assisted Telephone Interview (CATI) systems in each of the 53 states or territories.²⁰

Study Population

For this particular study, assessment of data relating to CRC screening behaviors among women responding as being of Hispanic or Latino ethnicity ages 50 and older will be included. According to the U.S 2010 Census, “Hispanic or Latino” refers to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race.²² Related to ethnicity, respondents were asked the question, “Are you Hispanic or Latino?” The following response options were included: yes, no, don’t know/not sure, or refusal. For age, respondents were asked the question “What is your age?” The following response options included the following: don’t know/not sure, refused, age 18-24, age 25-34, age 35-44, age 45-54, age 55-64, and age 65 or older. For this particular study, age was dichotomized into two groups: 49 and under and 50 and older; only the latter group was analyzed.

Drawn from the BRFSS, this data included survey responses from individuals living in households across the 50 United States, the District of Columbia, Guam, and Puerto Rico. Data collected from Hispanic women residing in Puerto Rico, comprising of almost 54% of the original sample of women exhibiting *Marianismo*, were excluded from this study due to multiple factors. The intent of this study is to examine the influence of *Marianismo* on Hispanic women in the U.S. Hispanics residing in Puerto Rico experience different lifestyles, environments, and access to healthcare compared to Hispanics from Puerto Rico living on the mainland of United States.²³ In regards to health care access, in 1993 Puerto Rico adopted a new healthcare reform, known as "the Reforma". The

Reforma privatized healthcare to reduce rising costs burdening the Puerto Rican government and increase access, lower costs, and improve health outcomes for Puerto Ricans previously covered under Medicaid and Medicare and whose incomes are below 200% of the poverty level.²³ Although the U.S healthcare system shares some characteristics with the Puerto Rican healthcare system, there are many differences that impact access to care for the individuals utilizing the system. For example, in a cross sectional study examining differences in the Medicare experiences of beneficiaries in Puerto Rico compared with those in the U.S, researchers found that beneficiaries in Puerto Rico reported less positive experiences than U.S beneficiaries for receiving needed care, receiving needed care quickly, and immunization.²⁴ Researchers attributed the findings to the lower funding of healthcare services in Puerto Rico relative to the U.S.²⁴ Also, Hispanic women residing on the mainland may be experiencing acculturation, unlike the Hispanic women residing in Puerto Rico. Acculturation can be defined as "changes that take place over time when two cultures come in continuous contact".²⁵

Demographic Variables

The intent of this study was to examine the influence of *Marianismo* on the CRC screening behaviors of Hispanic women ages 50 and older in the U.S. Two independent variables, "*Marianismo*" and "Non-*Marianismo*" were constructed from the sample to compare the influence of *Marianismo* on CRC screening behaviors. "*Marianismo*" was constructed from the following demographic variables: marital status (married), employment status (homemaker), and primary language spoken (Spanish). All other Hispanic women ages 50 and older were considered "Non-*Marianismo*". For marital

status, participants were given the following response options: married, divorced, widowed, separated, never married, a member of an unmarried couple, or refused. For employment status, participants were given the following response options: employed for wages, self-employed, out of work for more than 1 year, out of work for less than 1 year, a homemaker, a student, retired, unable to work, or refused. For primary language spoken, participants were given the following response options: English, Spanish, or other. Each of the variables were dichotomized and then the variables “*Marianismo*” and “*Non-Marianismo*” were constructed for comparison.

Outcomes

To assess CRC screening behaviors, participants 50 years and older were asked about the use of tests used to screen for CRC. The use of a blood stool test (FOBT) was determined by the question “A blood stool test is a test that may use a special kit at home to determine whether the stool contains blood. Have you ever had this test using a home kit?” If the participant answered “yes”, they were prompted to respond to the next question, “How long has it been since you had your last blood stool test using a home kit?” Participants were given the following response options: within the past year (anytime less than 12 months ago), within the past 2 years (1 year but less than 2 years ago), within the past 3 years (2 years but less than 3 years ago), within the past 5 years (3 years but less than 5 years ago), 5 or more years ago, don’t know/not sure, or refused. For purposes of this study to examine whether women in the “*Marianismo*” group and “*Non-Marianismo*” group who had ever taken a FOBT were up to date based on recommended screening intervals, the variable was dichotomized into two categories: up to date (within the past year) and not up to date (all other responses).

The use of sigmoidoscopy and colonoscopy were determined by the question “Sigmoidoscopy and colonoscopy are exams in which a tube is inserted in the rectum to view the colon for signs of cancer or other health problems. Have you ever had either of these exams?” If participants responded “yes”, they were then asked to identify of the two exams, which one was their most recent by the question “Was your MOST RECENT exam a sigmoidoscopy or colonoscopy”? To determine whether participants were up to date with recommended CRC screening guidelines, participants that answered that they had received either a sigmoidoscopy or colonoscopy were asked, “ How long has it been since you had your last sigmoidoscopy or colonoscopy?” Participants were given the following response options: within the past year (anytime less than 12 months ago), within the past 2 years (1 year but less than 2 years ago), within the past 3 years (2 years but less than 3 years ago), within the past 5 years (3 years but less than 5 years ago), within the past 10 years (5 years but less than 10 years ago), 10 or more years ago, don’t know/not sure, or refused. To determine adherence with CRC screening guidelines for the sigmoidoscopy test, the responses to the adherence question were dichotomized into two groups: up to date (within the past 5 years) and not up to date (all other responses). To determine adherence with CRC screening guidelines for the colonoscopy test, the responses to the adherence question were dichotomized into two groups: up to date (within the past 10 years) and not up to date (all other responses). To determine the use of any tests (FOBT, sigmoidoscopy, or colonoscopy) and adherence to any of the tests, variables were computed including the three tests.

Analytic Plan

This study examined the influence of *Marianismo* on CRC screening behaviors among Hispanic women ages 50 and older in the U.S. All analyses were performed using SPSS version 21.0. To determine differences among the “*Marianismo*” versus the “*Non-Marianismo*” correlates with CRC screening behavior, bivariate analyses were conducted using Chi-square tests. Logistic regression models with an alpha level set at 0.05 were used to determine the overall contribution of *Marianismo* to CRC screening behavior, controlling for education, income, age, health insurance, and children (<18) living in the home. The models were correlated with the following dependent variables: never received any CRC screening test, not up to date on any CRC screening test, never received FOBT, not up to date with FOBT, never received sigmoidoscopy or colonoscopy, not up to date with sigmoidoscopy, and not up to date with colonoscopy. All missing and unreported data were excluded within all analyses conducted.

Results

Baseline data indicate that of the 7,101 Hispanic women ages 50 and older examined in this study, *Marianismo* women were younger, reported having less education and lower levels of income, were less likely to have health insurance, and more likely to have children (<18) living in the home (Table 1). For age, 81% of *Marianismo* women reported being between the ages of 50-69 compared to 72% of the *Non-Marianismo* women. For education, 58% of *Marianismo* women reported never attending school or only kindergarten or elementary school (grades 1-8) as highest grade or year of school completed. Contrastingly, 52% of *Non-Marianismo* women reported completing high school, a GED, or 1-3 years of college as highest grade or year of school completed.

An assessment of the geographical distribution of the two study groups revealed that a significant percentage of both *Marianismo* and Non-*Marianismo* women resided in the West region of the U.S, respectively, (45% and 42%) (Table 2.1). Within the West Region and Mountain District, New Mexico included the largest percentages of both *Marianismo* and Non-*Marianismo* women, respectively (10% and 13%).

Bivariate analyses revealed significant associations between *Marianismo* women and all outcomes of interest except with outcomes of adherence for the sigmoidoscopy and colonoscopy tests (Table 2). Never receiving a sigmoidoscopy or colonoscopy test among *Marianismo* women had the strongest association. The crude odds of never receiving a sigmoidoscopy or colonoscopy test are 2.207 times higher for *Marianismo* women versus Non-*Marianismo* women (95% CI= 1.767, 2.756). More participants reported never receiving a FOBT than never receiving a sigmoidoscopy or colonoscopy exam among both *Marianismo* and Non-*Marianismo* women, respectively (82% versus 59% and 74% versus 40%). The odds of not receiving a FOBT in the past year are 55% lower for *Marianismo* women versus Non-*Marianismo* women (cOR=0.554, 95% CI= 0.332, 0.924). This indicates that the *Marianismo* construct is a protective factor among Hispanic women ages 50 and older for adherence to CRC screening guidelines for FOBT.

Results from the logistic regression models predicting CRC screening behaviors among *Marianismo* women while controlling for income, age, education, health insurance status, and having children (<18) living in the home indicated *Marianismo* was not significantly associated with never getting screened nor with not adhering to recommended screening guidelines. All control variables were significantly associated with “never receiving any test”, “not up to date on any test”, “never received FOBT”, and

“never received sigmoidoscopy or colonoscopy”. Income and age were significantly associated with “did not receive FOBT in the past year” and age and health insurance coverage were significantly associated with “did not receive colonoscopy in the past 10 years”. The only outcome of interest that was not significantly predicted by the control variables was “did not receive sigmoidoscopy in the past 5 years”.

Discussion

This study provides the first analysis of the influence of *Marianismo* on the CRC screening behaviors among Hispanic women ages 50 and older in the U.S. While bivariate analyses found significant associations among *Marianismo* women and CRC screening behaviors, after adjusting for income, age, education, health insurance coverage, and children (<18) living in the home, *Marianismo* was not significantly associated with any of the CRC screening behaviors. However, income, age, education, health insurance coverage, and children (<18) living in the home were all significantly associated with “never received any test”, “not up to date with any test”, “never received FOBT”, and “never received sigmoidoscopy or colonoscopy”. The *Marianismo* women in this study were found to have significantly less income, less education, less health care coverage, and more children (<18) living in the home (Table 1) than the Non-*Marianismo* women. With those socio-demographic characteristics found to be significantly associated with CRC screening behaviors, *Marianismo* and the resultant socio-demographic characteristics of the *Marianismo* women revealed in this study may potentially contribute to resultant CRC screening behaviors as mediators (Figure 1). Further research is needed to determine whether the construct *Marianismo* puts women exhibiting this construct at a disadvantage in terms socioeconomic status, as seen in this

study. Do all *Marianismo*-exhibiting women have lower income, less education, and no health insurance?

With the results from this study indicating that the socio-demographic characteristics reported by *Marianismo* women (income, education, health insurance, and children (<18) in the home) could potentially influence CRC screening behavior based on reported socio-demographic results (Table 1), a closer examination of the potential causes of these socio-demographic characteristics must be examined. Considered a complement to *Machismo*, *Marianismo* could not exist without *Machismo*.¹⁸ A major component of *Marianismo* involves women acting submissive towards and dependent on their husbands that express the *Machismo* characteristic. The impact of the relationship among the gender roles of this culture on preventative screening behaviors warrants evaluation. Connell's Theory of Gender and Power (TGP) has been used in HIV research to understand the risk factors of women created from relationships with imbalanced power.²⁶ Connell's theory can provide insight to the current study when applied to the relationship among Hispanic women and men exhibiting the *Marianismo* and *Machismo* characteristics. This application may provide a better understanding of the risk factors and exposures of Hispanic women exhibiting *Marianismo* characteristics as they relate to potential barriers to CRC screening to guide potential research and intervention efforts.

Connell's TGP is comprised of three social structures: (1) sexual division of labor; (2) sexual division of power; and (3) structure of cathexis.²⁶ All three components are necessary when applied to understand the relationship among gender roles within a particular population.²⁶ In regards to *Marianismo* and the sexual division of labor, women exhibiting the *Marianismo* characteristic are typically homemakers. This limits the

economic potential that these women may have and may explain a lack of finances as a barrier to seeking CRC screening.²⁴ In this current study, *Marianismo* women reported significantly lower income levels than the Non-*Marianismo* women and income was significantly associated with CRC screening behaviors. This finding reinforces the economically vulnerable state that the *Marianismo-Machismo* relationship may be causing for *Marianismo*-exhibiting women. In regards to *Marianismo* and the sexual division of power, women exhibiting the *Marianismo* characteristic may feel inferior to their husbands that exhibit the *Machismo* characteristic and therefore may have poor communication skills. A woman exhibiting the *Marianismo* characteristic may not discuss CRC screening with her husband out of the fear of asserting any wants or needs. In regards to structure of cathexis, which describes the social norms surrounding the gender role that one plays within a certain culture, *Marianismo* may cause women exhibiting this trait to strictly adhere to *Marianismo* regardless of its impact on potential health outcomes in fear of what others may think.²⁶ The home and children of a *Marianismo* women are her ultimate priority and she always comes secondary. Therefore, a *Marianismo*-exhibiting woman may not speak up to her husband in order to obtain the resources or approval to seek CRC screening out of wanting to act in a *Marianismo* manner. Figure 1, adapted from Wingood and DiClemente's *Proposed Model Conceptualizing the Influence of the Theory of Gender and Power on Women's Health*, provides a visual representation of Connell's TGP when applied to *Marianismo*-exhibiting Hispanic women and CRC screening behaviors.²⁶ The gender-based inequities and disparities within this relationship generate the exposures, acquired risks, and risk

factors that adversely affect the health of *Marianismo* women and perpetuate the preexisting disparities surrounding the CRC screening rates of these women.²⁶

With only 355 Hispanic women ages 50 and older exhibiting the *Marianismo* characteristics (homemaker, married, and Spanish-speaking) represented in this study, the aspect that Hispanic women exhibiting *Marianismo* are known to act in a submissive manner towards their husbands may provide a possible reason for this low representation. Hispanic males exhibiting *Machismo* are typically the “heads of the household”, ultimately making all the decisions for the family.¹⁶ When data from the BRFSS was being collected, Hispanic households that were contacted where these traditional patriarchal roles still exist, may have limited Hispanic women to participate in the survey. With this small representation of Hispanic women exhibiting the *Marianismo* characteristics in this study coupled with the cultural context of these women in mind, there may be a much larger U.S population of Hispanic women that exhibit the under-researched *Marianismo* characteristic that are not captured in scientific studies.

The main limitation of this study is that the data used for analysis came from the BRFSS, a cross-sectional study therefore we cannot determine that the reported socio-demographic variables are actually influencing CRC screening behavior. A longitudinal cohort study examining the influence of the characteristics of Hispanic women exhibiting *Marianismo* on CRC screening behaviors is needed to determine the extent of the influence these characteristics may actually have on CRC screening rates among this population. Another limitation in this study is that the 2012 BRFSS did not ask any questions regarding Hispanic subpopulations. There are vast differences among different Hispanic subgroup that influence CRC screening behavior but we are unable to examine

those differences in the current study. Future CRC screening studies including identification of Hispanic subpopulations may be beneficial in understanding the differences within specific ethnic groups.

Although the socio-demographic variables in the logistic regression models yielded significant associations with the majority of the outcomes of interest, the Naglekerke R Square scores were consistently small indicating that the variables did not explain the complete variance in the logistic regression models (Table 3). This study indicates that there are many other variables to consider as predictors explaining CRC screening behaviors among *Marianismo*-exhibiting Hispanic women.

Marianismo, is a cultural role exhibited by members of the fastest growing population in the U.S. According to the U.S Census, as of July 1, 2012 the Hispanic population accounted for 17% of the nation's total population and by 2060, this population is projected to account for 31% of the nations population.²⁷ Gleaned from this study, if further studies including more representative samples of *Marianismo* women are conducted, this cultural role may pose as a barrier for many Hispanic women as it relates to seeking preventative health care. This population, misunderstood in the scientific community due to a cultural context that places them in a secondary and submissive role, needs attention. *Marianismo*, an under-researched topic especially as it relates to preventative health care behaviors is a characteristic exhibited by a population with the lowest rates of CRC screening. Efforts geared towards understanding cultural differences that may pose as barriers within specific ethnic groups, like the specific Hispanic population in this study, are crucial in the understanding of what may enable these populations to seek care. Understanding what may enable a portion of the fastest growing

population with the lowest rates of CRC screening to seek care will then allow us to potentially minimize the disparity surrounding CRC screening among this population.

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Biographical Sketch

Robin Anne Thompson received a Bachelor of Science Degree concentrating in Public Health from the University of West Florida in Pensacola, Florida in May of 2012. Ms. Thompson is a member of the American Public Health Association (APHA) and is provisionally certified in public health (CPH) by the National Board of Public Health Examiners. She will gain full certification upon completion of her Master of Public Health degree from the University of Kentucky. Contact Information: (Address): 139 Grand Lagoon Shores Drive, Panama City Beach, Florida, 32408; (Phone): (850)-596-7973; (Email): rthompson89@icloud.com.

Table 1. Baseline characteristics of *Marianismo* and *Non-Marianismo* Hispanic women ages 50 and older and reported CRC screening behaviors (n=7,101)

| Baseline Characteristics | <i>Marianismo</i>; n=355 n (%) | <i>Non-Marianismo</i>; n=6,746 n (%) | P-Value |
|---|---|--|----------------|
| Age (n=7,101) | 355(100) | 6,746(100%) | .000* |
| 50-59 | 174(49) | 2,738(40.6) | |
| 60-69 | 112(31.5) | 2,117(31.4) | |
| 70-79 | 62(17.5) | 1,312(19.4) | |
| 80-89 | 7(2.0) | 531(7.9) | |
| 90 + | 0(0.0) | 48(0.7) | |
| Education (n=7,028) | 354(99.7) | 6,674(98.9) | .000* |
| Only Kindergarten | 30(8.5) | 119(1.8) | |
| Grade 1-8 (Elementary) | 175(49.4) | 1,238(18.5) | |
| Grade 9-11 (H.S) | 50(14.1) | 761(11.4) | |
| Grade 12 or GED (H.S Grad) | 61(17.2) | 2,009(30.1) | |
| College 1-3 yrs. | 22(6.2) | 1,377(20.6) | |
| College 4+ yrs. (College Grad) | 16(4.5) | 1,170(17.5) | |
| Income (n=5,725) | 243(68.5) | 5,482(81.3) | .000* |
| < \$10,000 | 42(17.3) | 927(16.9) | |
| \$10,000 - \$14,999 | 57(23.5) | 741(13.5) | |
| \$15,000 - \$19,999 | 54(22.2) | 758(13.8) | |
| \$20,000 - \$24,999 | 46(18.9) | 702(12.8) | |
| \$25,000 - \$34,999 | 23(9.5) | 641(11.7) | |
| \$35,000 - \$49,999 | 12(4.9) | 571(10.4) | |
| \$50,000 - \$74,999 | 6(2.5) | 496(9.0) | |
| \$75,000 + | 3(1.2) | 646(11.8) | |
| Health Insurance (n=7,076) | 351(98.9) | 6,725(99.7) | .000* |
| Yes | 184(52.4) | 5,598(83.2) | |
| Children (>18) living in home (n=7,053) | 355(100) | 6,698(99.3) | .000* |
| Yes | 106(29.9) | 1,040(15.6) | |
| Geographical Distribution (U.S Census Region/District) | <i>Marianismo</i>; n=355 n (%) | <i>Non-Marianismo</i>; n= 6,746 n (%) | |
| WEST* | 160(45.1) | 3,117(46.2) | |
| Pacific | 65(40.1) | 1,080(34.6) | |
| Mountain | 95(59.4) | 2,037(65.4) | |
| MIDWEST* | 33(9.3) | 612(9.1) | |
| West North Central | 16(48.5) | 367(60) | |
| East North Central | 17(52) | 245(40) | |
| NORTHEAST* | 35(9.9) | 1,405(21) | |
| Middle Atlantic | 13(37.1) | 629(44.8) | |
| New England | 22(62.9) | 776(55.2) | |
| SOUTH* | 127(35.8) | 1,580(23.4) | |
| West South Central | 91(71.7) | 782(49.5) | |
| East South Central | 0(0) | 169(10.7) | |
| South Atlantic | 36(28.3) | 629(39.8) | |
| GUAM | 0(0) | 32(0.05) | |

*States within each Region: **West**= WA, OR, CA, AK, HI, NM, AZ, NV, ID, MT, UT, CO; **Midwest**=MO, SD, ND, NE, KS, IA, MN, WI, IL, IN, OH, MI; **Northeast**= NY, PA, NJ, ME, NH, VT, MA, CT, RI; **South**= TX, OK, AR, LA, KY, TN, MS, AL, DE, MD, DC, VA, WV, NC, SC, GA, FL.²⁸

Table 2. Crude Odds of CRC screening behaviors among Hispanic women ages 50 and older exhibiting *Marianismo* characteristics (N=7,101)

| CRC Screening Behaviors | <i>Marianismo</i> (n=355) | | | Non- <i>Marianismo</i> (Reference) (n=6,746) |
|---|------------------------------|----------------------|---------|--|
| | n (%) | OR (95%CI) | P-Value | n (%) |
| <i>Any CRC Test</i> | | | | |
| Never Received Any Test | 169 (49.7) | 2.05 (1.647, 2.554) | .000* | 2,005 (32.5) |
| Not Up to Date on Any Test | 170 (55.0) | 2.077 (1.650, 2.616) | .000* | 2,083 (37.1) |
| <i>FOBT</i> | | | | |
| Never Received FOBT | 280 (82.1) | 1.633 (1.231, 2.162) | .001* | 4,450 (73.8) |
| Did Not Receive FOBT in the past year | 30 (49.2) | 0.554 (0.332, 0.924) | .002* | 1,029 (63.6) |
| <i>Sigmoidoscopy/Colonoscopy</i> | | | | |
| Never Received Sig./Col. | 199 (58.7) | 2.207 (1.767, 2.756) | .001* | 2,415 (39.2) |
| Did Not Receive Sig. in the past 5 years | 2 (16.7) | 0.397 (0.085, 1.861) | .226 | 73 (33.5) |
| Did Not Receive Col. in the past 10 years | 4 (3.6) | 0.679 (.247, 1.863) | .449 | 173 (5.2) |

Note. OR= odds ratio; CI= confidence interval; FOBT= fecal occult blood test; Sig./Col.= Sigmoidoscopy/Colonoscopy; P<.05*.

Table 3. Logistic regression models predicting CRC screening behavior among Hispanic women in the U.S ages 50 and older exhibiting *Marianismo* (N=7,101)

| CRC Screening Behavior | aOR | 95% CI | P-value |
|--|------------|---------------|----------------|
| Never Received Any Test | | | |
| <i>Marianismo</i> | 1.145 | .860, 1.525 | .353 |
| Income | .935 | .907, .964 | .000* |
| Age | .742 | .690, .798 | .000* |
| Education | .899 | .855, .946 | .000* |
| Health Care | .368 | .316, .430 | .000* |
| Children in home (<18) | 1.255 | 1.069, 1.474 | .005* |
| R ² | .116 | | |
| Not Up to Date on Any Test | | | |
| <i>Marianismo</i> | 1.130 | .836, 1.527 | .426 |
| Income | .937 | .908, .967 | .000* |
| Age | .802 | .746, .863 | .000* |
| Education | .897 | .851, .945 | .000* |
| Health Care | .330 | .280, .388 | .000* |
| Children in home (<18) | 1.288 | 1.091, 1.521 | .003* |
| R ² | .119 | | |
| Never Received FOBT | | | |
| <i>Marianismo</i> | .938 | .663, 1.327 | .717 |
| Income | .954 | .924, .985 | .004* |
| Age | .726 | .677, .778 | .000* |
| Education | .841 | .796, .889 | .000* |
| Health Care | .644 | .529, .784 | .000* |
| Children in home (<18) | 1.431 | 1.179, 1.737 | .000* |
| R ² | .067 | | |
| Did Not Receive FOBT in the past year | | | |
| <i>Marianismo</i> | .665 | .358, 1.234 | .196 |
| Income | 1.119 | 1.058, 1.183 | .000* |
| Age | 1.211 | 1.068, 1.372 | .003* |
| Education | .921 | .833, 1.017 | .103 |
| Health Care | .837 | .578, 1.212 | .346 |
| Children in home (<18) | .790 | .557, 1.122 | .188 |
| R ² | .025 | | |
| Never Received Sig./Col. | | | |
| <i>Marianismo</i> | 1.304 | .977, 1.739 | .071 |
| Income | .927 | .900, .954 | .000* |
| Age | .780 | .729, .835 | .000* |
| Education | .933 | .888, .979 | .005* |
| Health Care | .371 | .317, .433 | .000* |
| Children in home (<18) | 1.302 | 1.112, 1.523 | .001* |
| R ² | .108 | | |
| Did Not Receive Sigmoidoscopy in the past 5 years | | | |
| <i>Marianismo</i> | .269 | .031, 2.301 | .230 |
| Income | 1.012 | .864, 1.184 | .886 |
| Age | 1.091 | .784, 1.518 | .606 |
| Education | 1.070 | .823, 1.391 | .611 |
| Health Care | 1.044 | .404, 2.693 | .930 |

| | | | |
|---|-------|--------------|-------|
| Children in home (<18) | 1.060 | .420, 2.673 | .902 |
| R ² | .023 | | |
| Did Not Receive Colonoscopy in the past 10 years | | | |
| <i>Marianismo</i> | .763 | .264, 2.199 | .616 |
| Income | 1.009 | .924, 1.102 | .840 |
| Age | 1.484 | 1.226, 1.797 | .000* |
| Education | 1.041 | .894, 1.212 | .605 |
| Health Care | .325 | .202, .522 | .000* |
| Children in home (<18) | 1.442 | .873, 2.383 | .153 |
| R ² | .032 | | |

Note. OR= odds ratio; CI= confidence interval; FOBT=Fecal occult blood test. Sig./Col=Sigmoidoscopy/Colonoscopy; P<.05*.

Figure 1. Proposed conceptual model of potential mediators of CRC screening behavior among Hispanic Women ages 50 and older exhibiting *Marianismo* characteristics

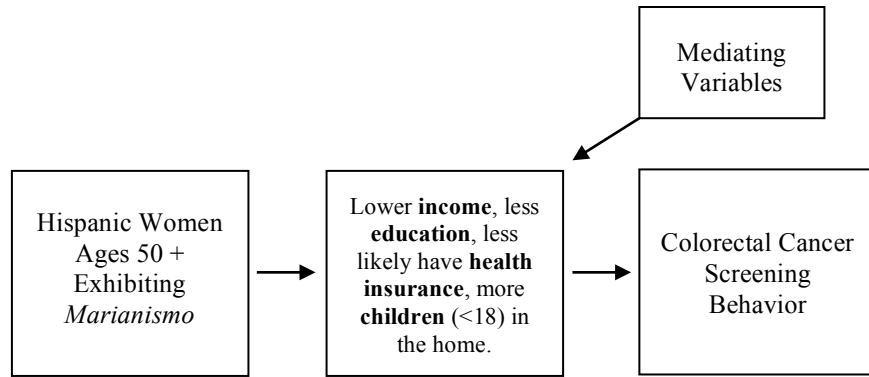


Figure 2. Proposed model conceptualizing the influence of the *Theory of Gender and Power* on the CRC screening behaviors of Hispanic women exhibiting *Marianismo* in the U.S.²⁶

| Societal Level | Institutional Level | Social Mechanisms | Exposures | Risk Factors | Biological Factors | Disease |
|---|-------------------------------|---|--|----------------------------|--------------------------------|-------------------|
| Sexual Division of Labor | Community, family | “homemaker” status; produces economic inequities | Economic exposures | Socioeconomic risk factors | Age; Hereditary predisposition | Colorectal Cancer |
| Sexual Division of Power | Relationships, medical system | Imbalances in control produced by <i>Machismo</i> and <i>Marianismo</i> | Submissive Role limiting decision-making | Behavior risk factors | | |
| Cathexis: social norms and affective attachments | Relationships, family, church | Constraints on Hispanic Women through their traditional role | Social exposures (family and cultural pressures) | Personal risk factors | | |

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