FAMILY RELATIONSHIPS AND PRENATAL HEALTH AMONG NON-NATIVE MEXICAN AMERICAN WOMEN

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ILIANA RODRIGUEZ WARREN, B.S.

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DEDICATION

To my wonderful parents, Ernest and Cindy, and my brother and sister, Miguel and AnaLisa, whose love and encouragement are unmatched, thank you for being my pillars of strength and best friends.

To my husband, Logan, you are the greatest gift. Thank you for believing I can do anything and for choosing to love me every day.

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ABSTRACT

ILIANA RODRIGUEZ WARREN

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Research has shown there is an association between acculturation and birth outcomes. Women who are more acculturated in the United States have worse birth outcomes than those who are less acculturated. The purpose of this current study was to, first, examine the association between acculturation variables and prenatal care and health behaviors. And second, to examine the moderation effects of family relationships and relationships with focal children's fathers on the relationships between acculturation and prenatal care and health behaviors. Data from the Baseline surveys of the Fragile Families and Child Well-Being Study were used. Binary logistic regressions were run to determine the relationships between those variables. Results indicated there was no significant relationship between the acculturation variables and prenatal care; however, increased religious attendance and Spanish as the preferred language were significantly associated with decreased odds that women would engage in risky health behaviors. Binary logistic regressions indicated that neither family support nor relationships with focal children's fathers significantly moderated the association between the main effects. Additional

binary logistic regressions were run to determine if the moderators were significantly associated with prenatal care and/or risky health behaviors. Results show relationships with focal children's fathers decreased the odds that women would partake in risky health behaviors during pregnancy.

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CHAPTER I

INTRODUCTION

Family Relationships and Prenatal Health Among Non-Native Mexican American Women

Immigration is a major focus in the United States largely due to the recent election; however, there have always been concerns on both sides of the political aisle regarding the movement of individuals and families across America's borders. Mexican immigration has remained relatively stable, from 29.5% of total immigrants to the US in 2000 to 27.6% in 2014. Despite this, non-native Mexican Americans are more likely than immigrants from other countries and native-born individuals to live under the federal poverty line, lack proper education, and lack adequate health care or insurance (Zong & Batalova, 2016). Conditions are worse for Latina women, projected to be the largest female immigrant group in the country, because their lack of access to healthcare discourages them from seeking medical care until an emergency arises (Leite et al., 2013).

Despite findings that access to medical care is problematic for Hispanic immigrants, conflicting research shows that the overall health status of non-native individuals is actually better than that of U.S.-born Americans and those who immigrated to the United States but have lived in the country long term (Horevitz & Organista, 2012;

Perez & Cruess, 2014; Viruell-Fuentes, Morenoff, Williams, & House, 2013). This phenomenon is known as the immigrant health paradox, as worse health outcomes might be assumed given this population's lack of resources, low socioeconomic status, exposure to various stressors, and language barriers (Horevitz & Organista, 2012). More specific research has found that Latina immigrant women have equal or better birth outcomes than their American counterparts (Fleuriet, 2009). The Latina paradox, comparing birth outcomes between non-native Latina women and U.S.-born Latina American women, has been attributed to strong social ties in Hispanic culture (Viruell-Fuentes & Shulz, 2009). Further research is needed to identify the mechanisms within the social structure of this culture that contribute to this phenomenon (Viruell-Fuentes et al., 2013).

Statement of the Problem

Considering prenatal health, which includes health behaviors and prenatal care for the purposes of this study, is imperative for mothers and their children. A recent study found that Texas has the highest rate of maternal mortality in the developed world (MacDorman, Declercq, Cabral, & Morton, 2016). This is most concerning and should alarm professionals in various fields of study prompting them to ask how they can better support mothers and their children, native and non-native. Horevitz and Organista (2012) found that acculturating to American culture was related to worse birth outcomes in Mexican American women. Similarly, Ceballos and Palloni (2010) found increased time of residence in the United States was related to worse birth outcomes in non-native Mexican American women.

In contrast, social support is often named as a significant factor in protecting immigrants from poor health outcomes. Viruell-Fuentes and Shulz (2009) interviewed first-generation Latina women who reported having a significant amount of social support throughout the migration process; however, like other studies of its kind, the researchers failed to operationalize or specify the type of social support received. Operationalizing this construct is critical to understanding the impact of social support on women's health for non-native Mexican American women.

It is not enough for studies simply to suggest that Hispanic culture, as a whole, protects pregnant women. Although this is implied through the Latina paradox (Balcazar, Krull, & Peterson, 2001), the mechanisms whereby Hispanic culture provide protective benefits, or interact with other factors to buffer negative health outcomes, are unclear. More specifically, research focused on investigating acculturation, health behaviors, and health outcomes among pregnant Hispanic women fails to take into account the imperative role of familial relationships and their impact on prenatal health (Ceballos & Palloni, 2010; Viruell-Fuentes & Shulz, 2009).

Purpose of the Study

The purpose of this study is to identify how familial relationships act as protective mechanisms for the health of non-native Mexican American women who are pregnant. This study will take into account Mexican culture and the various relationships within the culture which may be considered family relationships: the nuclear family, fictive kin, and other figures of support. Discovering how pregnant Mexican women's families impact

their prenatal health may provide health professionals with the tools they need to better support women who are not experiencing positive birth outcomes. This study will provide an in-depth assessment of family relationships and their role in interacting with acculturation to impact health behaviors and prenatal care among non-native Mexican American women.

Research Question and Hypotheses

The following research question is the focus of the present study: how do close family relationships interact with acculturation to impact prenatal care and health behaviors among non-native Mexican American women? Specific moderation hypotheses include:

(1) Acculturation is associated with prenatal care and risky health behaviors.

(2) Family relationships moderate the association between acculturation and prenatal health, thus the relationship between acculturation and prenatal health would be stronger among those who have positive family relationships.

Significance of the Study

Current studies assert that social support is associated with more positive health outcomes among Hispanic immigrants than U.S.-born or long-time U.S. residents (Ceballos & Palloni, 2010; Fuentes-Afflick, Odouli, Escobar, Stewart, Hessol, 2014; Horevitz & Organista, 2012). Studies suggest that acculturation, and even more specifically acculturative stress, may be an additional determining factor in these findings (Arbona et al., 2010; Balcazar et al., 2001; Fuentes-Afflick et al., 2014). However, this

research does not offer specific conceptualizations or definitions for whether that support was familial or institutional and what dynamics of those relationships affect health outcomes (Ceballos & Palloni, 2010; Viruell-Fuentes & Shulz, 2009). This research study will contribute to the literature by placing emphasis on the importance of family support and its role in protecting pregnant non-native Mexican American women from poor health outcomes predicted by acculturation. The findings of this study may provide medical and mental health professionals insight into how their services can enhance protective factors for women in need of improved prenatal health outcomes and provide direction for future research to determine how to reduce the rate of maternal mortality (especially concerning in Texas).

CHAPTER II

LITERATURE REVIEW

Research studies regarding non-native Mexican women and U.S.-born Mexican American pregnant women vary in conceptualizations of acculturation, social support, familial relationships, and prenatal care (Ceballos & Palloni, 2010; Coburn, Gonzales, Luecken, and Crnic, 2016; Fuentes-Afflick et al., 2014; Gress-Smith et al., 2013; Heaman et al., 2013). The immigrant health paradox is intertwined in various studies as researchers find evidence to support this process (Horevitz & Organista, 2012; Perez & Cruess, 2014; Viruell-Fuentes & Shulz, 2009; Viruell-Fuentes et al., 2013). However, "there is [still] limited information regarding the factors that may impact the physical and mental health status and health behaviors of Hispanics" (Perez & Cruess, 2014, p. 95); this is especially true for pregnant Hispanic women (Balcazar et al., 2001; Fuentes-Afflick et al., 2014). It is imperative to consider the findings and limitations of research in this area in order to contribute to the existing literature.

Acculturation

The definition of acculturation varies within the literature. Researchers define acculturation as a cultural exchange process (Lueck & Wilson, 2011; Perez & Cruess, 2014), a time of adaptation (Ceballos & Palloni, 2010), and the process by which a nondominant population's behaviors become more similar to those of the dominant culture (Smokowski, Rose, & Bacallao, 2008). Horevitz and Organista (2012) criticized

the use of acculturation in research studies regarding minorities because it is a broad and seemingly undefined construct. Horevitz and Organista (2012) discussed the difficulty in differentiating between minority and majority culture without having assessed the lifestyles and behaviors of immigrants prior to their migration. However, researchers seem to agree that acculturation, in all its forms, causes stress on individuals as they learn to adapt to a new environment (Arbona et al., 2010; Balcazar et al., 2001; Horevitz & Organista, 2012; Lueck & Wilson, 2010; Miranda & Matheny, 2000; Perez & Cruess, 2014).

Acculturative Stress

Acculturative stress refers to the emotional reactions of immigrants surrounding the difficulties they face throughout their migration to a new country (Arbona et al., 2010). The challenges facing Mexican immigrants are many; they experience a change in culture, language, community, economic and physical security, and much more (Arbona et al., 2010; Miranda & Matheny, 2000). The immigrant health paradox is often associated with acculturative stress; however, it cannot be reduced to a cause-and-effect relationship because there are many variables to consider which may affect the emotions and behaviors of Mexican immigrants (Horevitz & Organista, 2012). Research shows that negative psychological outcomes are correlated with acculturative stress among Latino immigrants (Arbona et al., 2010). Higher levels of acculturation and more time spent in the United States are positively related to the prevalence rates of mental disorders (Horevitz & Organista, 2012). Balcazar et al. (2001) found that acculturation

levels are important to consider when studying psychosocial and health-related outcomes among immigrant populations because protective factors vary at different levels of acculturation.

Balcazar et al. (2001) highlighted research studies that found higher prevalence rates of acculturative stress for poor pregnancy outcomes among second-generation non-native Mexican Americans. Ironically, Balcazar et al. found that less acculturated women had a lower quality of prenatal care, in contrast to the immigrant health paradox (2001). Greater instances of alcohol consumption and smoking are also attributed to higher levels of acculturation among Mexican immigrant women (Ceballos & Palloni, 2010). The study of family cohesion and social networks is considered imperative to the conversation surrounding acculturative stress because non-native family relationships have been reported as a buffer against acculturative stress and health outcomes (Lueck & Wilson, 2011; Miranda & Matheny, 2000).

Social Support versus Family Relationships

Studies of acculturation and family relationships use the measures of social support and family relationships interchangeably (Balcazar et al., 2001; Ceballos & Palloni, 2010; Gress-Smith et al., 2013). Social support is a larger umbrella concept that could include various entities: family, fictive kin, institutional support, or spiritual support, as examples. In considering social support specific to the Hispanic culture, it is also important to understand *familism*. *Familism* is defined as the strong loyalty (Perez & Cruess, 2014) and devotion that Hispanics have to their families and their commitment to

the good of the whole rather than the individual (Smokowski et al., 2008). Family relationships are more distinct and more meaningful than broad social support (Shor, Roefls, & Yogev, 2013). However, the multidimensionality of social support and *familism* should be considered when studying family relationships and health outcomes (Perez & Cruess, 2014), especially for pregnant Hispanic women, for whom support from others may be especially critical (Balcazar et al., 2001; Ceballos & Palloni, 2010).

Social Support

Social networks are considered an important aspect of maintaining health practices and access to resources or lack thereof (Viruell-Fuentes et al., 2013). Research surrounding social support, specific to the present population, has often been conducted in the southwest regions of the United States and does not allow for the generalizability of the results to immigrants and Mexican Americans throughout the country (Viruell-Fuentes et al., 2013). Immigrants who move to various parts of the United States face different challenges when trying to build social networks (Arbona et al., 2010). Transportation, socioeconomics, governmental, and neighborhood support have been included in studies considering the social support of Mexican immigrants and Mexican Americans throughout the country (Viruell-Fuentes et al., 2013).

As an example, first-generation non-native Mexican women in Detroit, Michigan reported that social support played a crucial role in their moves to the United States; however, they were not asked to specify who they were thinking of when considering their social networks. Second-generation Mexican American women reported having

larger social networks which included extended family and friends (Viruell-Fuentes & Schulz, 2009). Coburn et al. (2016) asked pregnant Mexican American women in Arizona about their social support networks; most notably, who they sought out for emotional support, advice, and companionship. However, perceived social support was measured using items from the Medical Outcome Study (MOS; Sherbourne & Stewart, 1991) which did not allow for women to elaborate on the relationships between themselves and the individuals they identified as social support (Coburn et al., 2016). Therefore, further research is necessary to identify how family relationships impact prenatal health in non-native Mexican American women.

Family Relationships

The research regarding familial relationships and health outcomes for Hispanic adults, especially for pregnant women, is sorely lacking. Family relationships are complex and often heavily influence individuals within the Mexican culture (Perez & Cruess, 2014). Family relationships have been considered protective factors for pregnant Mexican American women as "strong family bonds, a commonly identified aspect of traditional Mexican culture, have been found to discourage deviant and risky behaviors that lead to dubious health or psychosocial outcomes" (Balcazar et al., 2001, p. 63).

Family relationships are made up of relational patterns, conflict, hierarchies, closeness, distance, and many other factors which may contribute to health behaviors. And, family resources available to pregnant non-native Mexican and Mexican American women often vary at different levels of acculturation (Gress-Smith et al., 2013). Balcazar

et al. (2016) found that Mexican American women who were less acculturated and had higher levels of family cohesiveness tended to receive lower quality prenatal care; however, other indicators such as conflict levels, thoughts surrounding gender-roles, and timing of prenatal services would have improved the study. Additionally, Coburn et al. (2016) asked pregnant Mexican American women three questions regarding family interpersonal stress and four questions about partner interpersonal stress as they relate to postpartum depressive symptoms. Coburn et al. (2016) found that positive romantic partner relationships were important for pregnant Mexican American women; however, their study included women who were already receiving prenatal care, thus, there was no indication as to whether or not familial or partner relationships affected this sample's access to or desire for prenatal care, nor did it specify further prenatal health outcomes.

Prenatal Care

Prenatal care is a preventative health service that significantly reduces unfavorable outcomes in pregnancy. Prenatal care is important for immigrant populations because they have "higher fertility rates than US-born citizens and are more likely to be of low income and uninsured" (Fuentes-Afflick et al., 2014, p. 689). Immigrant populations may lack access to prenatal care due to their time of migration to the United States and/or their access to resources (Santiago & Figueiredo, 2015). The Alliance for Innovations in Health Care is an organization dedicated to educating low-income Hispanic women about the health risks involved in pregnancy, highlighting the need for prenatal education specific for this population. Those involved in this program

are encouraged to implement healthy pregnancy behaviors in their daily routines (Luecken, Purdom, & Howe, 2009).

Women are encouraged to seek prenatal care within the first trimester of their pregnancies; however, it is common for low-income, minority women to fall behind in seeking prenatal care (Luecken et al., 2009). Access to prenatal care for non-native Mexican American women is also important because this population has higher levels of pregnancy-related anxiety (Fleuriet & Sunil, 2014). One study found that that familism and romantic partner support are associated with how early women enter into prenatal care; however, the sample was made up of lower-acculturated women, all participants were Medicaid eligible, and immigration status was unknown (Luecken et al., 2009). Gress-Smith et al. (2013) suggested that Mexican American women's expectations about prenatal care are directly linked to acculturation and family ties. Gress-Smith et al. (2013) found three dominant themes, including support from the baby's father, support from family, and maternal role fulfillment, that affected prenatal expectations among Mexican American women.

It is important to consider how women perceive the quality of their prenatal care rather than just the number of visits; some Hispanic women have reported experiencing discrimination regarding their cultural and religious practices (Santiago & Figueiredo, 2015). Fuentes-Afflick et al. (2014) found that less acculturated Mexican American women reported receiving higher quality prenatal care. In contrast, their American-born counterparts reported less favorable prenatal care experiences. Fuentes-Afflick et al.

(2014) suggested that less acculturated women may not understand what to assess for when considering good quality versus poor quality prenatal care. Further research is needed to identify whether these women reported higher quality care due to interpersonal and educational encounters with health providers or because they were reporting based on their limited access to care (Fuentes-Afflick et al., 2014).

A Systemic Approach: Interactions Among the Constructs

Acculturation, family relationships, and prenatal care are all factors which collide and affect pregnant Mexican immigrant women; it would be difficult to consider one aspect without the others.

Family Relationships and Acculturation

Miranda and Matheny (2000) emphasized the various influences on Mexican acculturation to the United States. Research shows that family relationships can buffer or potentiate the acculturative stress experienced by Mexican immigrants (Miranda & Matheny, 2000). However, it is less clear which aspects of familial relationships provide a foundation for non-native Mexican American women to seek prenatal care during their pregnancies.

Cultural and familial traditions are often some of the most influential aspects of life that immigrant women carry with them. However, there is conflicting research regarding whether or not social or family support act as buffers against greater levels of acculturative stress (Perez & Cruess, 2014). Social support offers women a sense of attachment and belonging; it can also be a method through which they receive resources.

The support they receive from religious groups, government agencies, local groups, and their native culture has the potential to influence their health behaviors and their physiological and psychological well-being (Viruell-Fuentes et al., 2013).

In contrast, Lueck and Wilson (2011) identified family relationships as one of the greatest predictors of acculturative stress. In some instances, familism affects how quickly individuals acculturate to the host country. According to Lueck and Wilson, some families may not support an individual who is changing his or her lifestyle to fit that of their new country (2011). Further, pregnant women are often tangled up in trying to adapt to the host country's expectations for their health versus the traditions of their family of origin (Santiago & Figueiredo, 2015).

Family Relationships and Prenatal Health

Luecken et al. (2009) discussed the importance of considering the aspect of Mexican culture which celebrates motherhood and therefore, may provide support for healthy pregnancy behaviors. However, it may be difficult for pregnant Mexican American women to receive the care they need if they do not feel connected to their families (Perez & Cruess, 2014). Active participation by the family, most notably the child's father, is directly linked to early prenatal care and better birth outcomes (Luecken et al., 2009). It is imperative to study non-native Mexican American women's access to prenatal care, and investigate predictors of this care, as "prenatal care has been shown to be an important predictor of several [health] outcomes among Mexican American women" (Balcazar et al., 2001, p.68).

Acculturation and Prenatal Health

Horevitz and Organista (2012) found a positive relationship between length of time in the United States and mental disorders, substance use, anxiety disorder, and affective disorders. Social support, at times, conceptualized as part of acculturation, is also linked to maternal and infant health. The less connected a non-native Mexican American woman is with her native culture the more likely it is that she will experience feelings of isolation and loneliness; thus, higher levels of acculturation may lead to greater prenatal stress (Ceballos & Palloni, 2010).

In addition to cultural influences, acculturation, division between old and new cultural traditions and differences, play a large role in immigrant women's access to care (Santiago & Figueiredo, 2015). Research shows that more often language creates a barrier for Hispanic women seeking prenatal care rather than non-Hispanic women (Tandon, Parillo, & Keefer, 2005). For example, women who are less acculturated and do not speak the language of the host country are likely to experience setbacks when trying to obtain health insurance, set up appointments, and may not be provided information regarding screenings and tests in a manner or language they understand (Santiago & Figueiredo, 2015).

It is imperative that women have the resources they need to receive adequate prenatal care. Shaffer (2002) found that Hispanic pregnant women reported language barriers, cultural insensitivity, and lack of access as three main reasons that they did not receive prenatal care. It is unknown whether family relationships act as moderating

factors in these circumstances or if quality family relationships may have acted as buffers against further negative impacts of acculturative stress for these women. Critically, Tandon et al. (2005) found that Mexican American women, more than any other ethnic group, reported feeling a lack of patient-centered care when seeing their physicians. Research regarding the lack of quality prenatal care for immigrant women, and the effects of their familial relationships on care access, in conjunction with acculturative stress, is necessary.

Family Systems Theory

Pregnant Hispanic women are shaped by their environments and the relationships which make up their everyday lives. The research described above outlines the found associations between acculturative stress, family relationships, and prenatal health for Hispanic women. However, research has yet to link these three variables to examine the moderating effect of family relationships on the acculturative stress-prenatal health pathway. Therefore, the present project will utilize family systems theory as a guide for investigating the research question and ameliorating this gap in the literature.

Family systems theory emphasizes circular causality, avoids linear thinking, and focuses on the impact and influence of individuals on one another (Becvar & Becvar, 1999). It is imperative to understand the prenatal health of Mexican immigrant women in the context of their familial influences and interactions; they cannot be fully understood independent of the whole system (Cox & Paley, 1997). Subsystems exist within the family and those smaller systems create their own boundaries and interactions. The

relationships that non-native Mexican American women have with partners, nuclear family members, extended family members, and fictive kin each create a new subsystem worth identifying as these relationships may act as moderators between acculturation and prenatal health (Cox & Paley, 1997).

CHAPTER III

METHODOLOGY

Sample

This study provides an evaluation of pre-existing data found in the Fragile Families and Child Well-being Study (FFCWS). The FFCWS is an ongoing longitudinal, birth cohort study conducted by Princeton University and Columbia University for the purposes of collecting information about unmarried parents, the relationships between them, the well-being of their children, and external factors which may affect these families (Kimbro, Lynch, & McLanahan, 2008; Altschul & Lee, 2011). This study focused on data collected in the Baseline interviews, at the time of childbirth during 1998 and 2000. Participants were recruited from hospitals in 20 different U.S. cities (Reichman, Teitler, Garfinkel, & McLanahan, 2001) and their interviews took place while mothers were in the hospital (Kimbro et al., 2008). Of the full FFCWS baseline sample, 749 women reported that they were Mexican (Altschul & Lee, 2011); the present study will focus on non-native Mexican American women, a subsample of the 749.

Measures

Data were collected through self-report surveys. The Baseline interviews of the FFCWS asked questions regarding demographic variables as well as all other variables used in the present project, including acculturation, family relationships, and health.

Participants

The participants of this study were non-native Mexican American women (N = 364). Women's ages ranged from 15 to 43 (M = 25.8, SD = 5.6). In terms of education, 73.8% of women either had no formal schooling, attended eighth grade or less, or had some high school education; 17.4% of women received their GEDs or high school diplomas; 6.7% had some college education, received a Bachelor of Arts or Bachelor of Science degree, and/or attended graduate/professional school; 2.2% of women attended a trade or technical school. A majority of the women, 83.1%, reported they were Catholic while the other 16.9% identified as various other denominations (i.e. Baptist, Methodist, Jehovah's Witness, etc.). 82.4% of participants fell below 199% of the federal poverty levels, while only 17.5% were above 200% of the federal poverty levels. In regard to the ethnicity of the babies' fathers, 97% of women reported that their babies' fathers were of Hispanic/Latino decent (N = 351). Participants were asked to report whether they were married to their babies' fathers, indicating that 33.7% of women were married (N = 121) and 66.3% were not (N = 238).

Acculturation

Acculturation was assessed in Baseline, including preferred language, religious attendance, and traditional gender attitudes (Altschul & Lee, 2011; Kimbro et al., 2008). Each of these measures will be used for the present project.

First, participants were asked if they were Mexican, Puerto Rican, Cuban, or other Hispanic and if they were born in America. These items were used to identify which

participants were born in Mexico. In addition, an item indicating whether the interview was completed in Spanish were used to assess preferred language, replicating a process used by Kimbro et al. (2008).

Participants were also asked questions regarding religious practices. Frequency of attendance at religious services within the year was measured on a scale (1 = *more than once per week* to 5 = *never*). This item was reverse coded, such that higher scores on this measure will indicate less acculturation.

Traditional gender attitudes were assessed through a measure of marriage attitudes. This measure included specific questions regarding beliefs about the institution of marriage and traditional gender roles: "The important decisions in the family should be made by the man of the house" and "It is much better for everyone if the man earns the main living and the woman takes care of the home and family" (1 = *strongly disagree* to 4 = *strongly agree*). Similar to Kimbro et al. (2008), these two items were summed to create a scale for traditional gender attitudes; a higher score indicates less acculturation.

Questions regarding cultural engagement were not asked of the mothers in the Baseline interviews; therefore, this study used the answers provided by the same participants in Year 1 interviews, from years 1999 to 2001. Participants' answers from Year 1 interviews were merged with the Baseline data in order to ensure the answers were reported by the same participants. Replicating procedures used by Kimbro et al. (2008), the measure of cultural engagement will be created by summing answers to two items: (1) I feel an attachment towards my own racial or ethnic heritage, and (2) I

participate in cultural practices of my own group, such as special food, music, or customs (1 = *strongly agree* to 4 = *strongly disagree*). Responses were reverse coded such that a higher score indicates less acculturation to the U.S.

Family Relationships

Participants were asked questions regarding the quality of their relationships with focal children's fathers and supportive relationships with extended kin.

Father-mother relationship quality will be assessed using four items, which were asked to both partnered mothers and mothers reporting on relationships with fathers to whom they were no longer partnered. Specifically, mothers were asked about the frequency that the father displays/displayed the following behaviors in the relationship: "is fair and willing to compromise when [they] have a disagreement," "expresses affection or love toward [her]," "insults or criticizes [her] or [her] ideas (coding reversed)," and "encourages or helps [her] to do things that are important to [her]." Participants responded using 1 (never), 2 (sometimes), or 3 (often). Items will be averaged to calculate relationship quality; higher scores on this measure will indicate greater relationship quality. This measure, and its scoring, replicates items used collectively to assess relationship quality by Carlson & VanOrman (2017), who substantiated the assessment using factor analysis.

Participants were also asked questions regarding kin support, or, types of support received (or perceived) from relatives of the mother and father participants. Types of received support included financial support, a place to live, and child care. Replicating

methods used by Limb, Shafer, and Sandoval (2014) who similarly used these items from the FFCWS baseline wave, yes/no responses to these items will be summed, producing scores from 0 = no kin support to 3 = high kin support. Further, participants were asked whether or not they felt they could turn to family members for a loan, place to live, or help with their children in the next year. Participants answered yes or no to each of these types of perceived support. Responses were summed identical to the types of received support listed above. Items assessing support were averaged to create a variable representing overall family support.

Prenatal Care and Health Behaviors

Participants were asked if they visited a doctor during their pregnancy (1 = *yes*, 2 = *no*) and if so, in which month of pregnancy they sought professional care. Kimbro (2008) recommended incorporating both the fact of prenatal care and the timing of the care during pregnancy to determine the adequacy of prenatal care. Following Kimbro's (2008) scoring method, women who reported no prenatal care or reported their first visit was in their third trimester of pregnancy (months 6 – 9) will be coded as "inadequate prenatal care received."

In addition, participants answered questions regarding their health behaviors during pregnancy, including questions about alcohol consumption (1 = *nearly every day* and 5 = *never*), use of drugs such as marijuana, crack cocaine, and heroin (1 = *nearly every day* and 5 = *never*), and number of cigarettes smoked (1 = *2 or more packs a day* and 5 = *never*). Similar to Kimbro's (2008) process, answers to items assessing smoking

and illicit drug use will be used to categorize participants as having engaged in risky prenatal health behaviors (i.e., any smoking versus no smoking, any illicit drug use versus no drug use). Unlike Kimbro (2008), any alcohol use (versus no alcohol use) will be classified as risky (i.e., as opposed to treating the response "less than one time per month" as non-risky). This is reflective of current health behavior recommendations in pregnancy, such that any drink during pregnancy has the potential to harm the baby in a myriad of ways; for example, low body weight, speech and language delays, vision or hearing problems (CDC, 2016). Subsequent to classifying each health behavior as risky, answers were summed to create an overall score of engaging in risky health behaviors during pregnancy.

Specific to the current sample, 7% of respondents reported risky alcohol use (N = 25). Only .5% of participants reported using drugs during their pregnancies (N = 2) and 1.6% reported smoking (N = 6).

Analyses

Tests of the present moderation hypotheses were conducted. First, the hypothesis that acculturation is associated with prenatal care and health behaviors was examined using logistic regression to accommodate for the multiple measures of acculturation and prenatal health behaviors. Four components of acculturation, preferred language, religious frequency, traditional gender attitudes, and cultural engagement, were entered as predictors of whether or not mothers would receive adequate prenatal care (a dichotomous outcome). A second logistic regression was used to identify the relationship

between the acculturation components and whether or not mothers would partake in any health risk behaviors, including timing of doctor visits, alcohol consumption, drug use, and smoking.

To further examine these relationships, support and mothers' relationships with focal children's fathers were entered into the logistic regression equations to test for the presence of moderation. Moderation was considered present if the interaction term was a significant predictor of the outcome in the logistic regression analyses. In the context of this study, family relationships (both measures) are considered continuous moderators. The tests of moderation will be conducted to identify how the moderators (i.e., relationships with focal children's fathers and family relationship quality) reduce or increase the magnitude of the effect that acculturation has on prenatal care and health behaviors.

CHAPTER IV

RESULTS

Preliminary Checks

Preliminary analyses were conducted to determine the pattern of missing data. It was observed that out of 364 recorded cases, 256 cases contained missing data (70%). Out of 11 variables, 10 contained missing data (89%). A Little's Missing Completely at Random (MCAR) test was conducted to assess whether the pattern of missing data was random. The results revealed that the pattern of missing values in the data was MCAR, $\chi^2(285) = 308.62$, $p = 0.16$.

Regression Analyses

Several logistic regression analyses were conducted to examine how components of acculturation (i.e., preferred language, cultural engagement, religious frequency, and traditional gender attitudes) predicted both prenatal care and health risk behaviors during pregnancy. Results indicate that the acculturation variables were not significantly associated with prenatal care (see Table 1). However, the model predicting health risk behaviors indicated that increased religious attendance ($p = .01$) and Spanish as the preferred language ($p = .01$) significantly related to decreased odds of partaking in risky health behaviors during pregnancy (see Table 2).

Table 1

Summary of Binary Logistic Regression Analysis Predicting Prenatal Care

Predictor	β	*SE*	*Wald*	*Exp(B)*	*p*	95% CI *LL*	95% CI *UL*
Religious Attendance	.33	.21	2.61	1.39	.11	.93	2.09
Cultural Engagement	-.11	.19	.32	.9	.57	.63	1.3
Preferred Language	-19.13	5408.99	.00	.00	.99	.00	
Gender Attitudes	.12	.22	.3	1.13	.58	.73	1.75

Note. Model predicting providing adequate care (vs not providing adequate care). $\chi^2(4) = 12.54$, Nagelkerke $R^2 = .15$.
*$p = 0.014$.

Table 2

Summary of Binary Logistic Regression Analysis Predicting Risky Health Behaviors

Predictor	β	*SE*	*Wald*	*Exp(B)*	*p*	95% CI *LL*	95% CI *UL*
Religious Attendance	-.53	.21	6.17	.59	.01	.39	.89
Cultural Engagement	.08	.18	.17	1.08	.57	.75	1.55
Preferred Language	-1.65	.63	6.75	.19	.01	.06	.67
Gender Attitudes	.26	.24	1.14	1.29	.29	.81	2.08

Note. Model predicting engagement in risky health behaviors. $\chi^2(4) = 13.76$, Nagelkerke $R^2 = .16$.
*$p = 0.08$.

Next, logistic regression was used to test the interaction (i.e., moderation) between acculturation and both father relationship quality and family support. It was likely that the moderation effects would not be significant based on the results from previous analyses, which indicated that the main effects were not significant. Nevertheless, separate moderation analyses were conducted to examine the moderation effect of family support and mother's relationships with focal children's fathers on the association between acculturation and prenatal care and health behaviors.

Each regression analysis included an acculturation variable and family support or relationships with focal children's fathers (main effects). The second step of the analyses included the interaction term for the two variables. The logistic regression analyses confirmed there was no moderation effect from either family support or relationships with focal children's fathers on the association between acculturation and prenatal care and health behaviors.

To further examine the relationships between the moderators (dad's relationship and family support) and prenatal care and risky health behaviors, two additional binary logistic regressions were conducted. As displayed in Table 3, neither relationships with focal children's fathers nor family support had a significant effect on whether the odds of participants having adequate prenatal care during pregnancy increased.

Table 3

Summary of Binary Logistic Regression Analysis Predicting Prenatal Care

						95% CI	
Predictor	β	*SE*	*Wald*	*Exp(B)*	*p*	*LL*	*UL*
Dad's Relationships	-.39	.58	.45	.68	.5	.22	2.1
Family Support	-.14	.36	.16	.87	.69	.43	1.74

Note. Model predicting association between relationships with focal children's fathers and family support (moderators) with prenatal care. $\chi^2(2) = 0.68$, Nagelkerke $R^2 = .01$.
*$p = .71$.

Lastly, improvements in dad's relationship ($p < .05$) decreased the odds of partaking in risky health behaviors during pregnancy (see Table 4).

Table 4

Summary of Binary Logistic Regression Analysis Predicting Risky Health Behaviors

						95% CI	
Predictor	β	*SE*	*Wald*	*Exp(B)*	*p*	*LL*	*UL*
Dad's Relationships	1.59	.5	9.99	4.93	.002	1.83	13.23
Family Support	.16	.34	.23	1.17	.64	.61	2.26

Note. Model predicting association between relationships with focal children's fathers and family support with health behaviors. $\chi^2(2) = 10.51$, Nagelkerke $R^2 = .11$.
*$p = 0.01$.

CHAPTER V

DISCUSSION

Clinical Implications

Health behavior research supports that social support has a powerful influence on immigrant health outcomes (Ceballos & Palloni, 2010; Fuentes-Afflick, Odouli, Escobar, Stewart, Hessol, 2014; Horevitz & Organista, 2012). Thus, it was important to determine what aspects of support are associated with positive health outcomes and how protective factors are created through these avenues of support. The foci of this research study were family support and how its interaction with acculturation was associated with the prenatal care and health behaviors of non-native Mexican American women. The results of this study provide a greater foundation for health professionals who are working with Hispanic immigrant women to consider the influences of romantic partner relationships and religious/spiritual involvement on women's health.

It is beneficial to understand how individuals operate inside the context of their family systems and the larger systems at work in their lives. As health professionals work to improve health and birth outcomes for U.S.-born women, they must consider the disparities among their birth outcomes versus those of non-native women whose outcomes are reportedly better (Ceballos & Palloni, 2010; Horevitz & Organista, 2012). Considering this will improve health professionals' understanding of protective factors that may prove resourceful for U.S.-born women and their children. The long-term

effects of adverse birth outcomes impact all families as they are likely to interact with the medical system more often than others (Harvey, Oakley, Yoon, & Luck, 2017). It is imperative that health professionals encourage others in their communities to generate resources and greater support for family education. This offers pregnant women opportunities for comprehensive and quality care from the first trimester to post-birth (Harvey et al., 2017).

The current study identified that for non-native Mexican American mothers, their relationships with focal children's fathers has a significant association with decreased engagement in risky health behaviors despite missing data from 126 participants. Existing research on this topic supports that romantic relationships are important to consider when studying women's health behaviors (Kimbro, 2008); this study shows that this is true for non-native Mexican American women. The present study also supports the need for systemic intervention for the improvement of relationship quality to impact health outcomes. Carr and Springer (2010) emphasized the important role of families on individuals' health outcomes naming families "among the most powerful influences on health…" (p. 743). Family health researchers and health professionals working with Hispanic immigrant women should take into account the role of a past, current, or future partner/spouse in the life of a mother when working with her and her children, specifically her baby's father.

This study found that acculturation, specifically preferred language and frequency of attendance at religious services, has significant associations with a decrease in risky

health behaviors in non-native Mexican American mothers. Health professionals should consider preferred language when serving non-native Mexican American pregnant women for the purposes of providing sufficient and comprehensive education concerning health risks for mothers and their children (Ransford, Carrillo, & Rivera, 2010). Resources should also be made available for patients and clients who may be more comfortable speaking in their native tongues. Continuing education for health professionals who work extensively with immigrant populations may include basic language requirements as part of their cultural competency trainings.

The significance of religious involvement suggests that religious and/or spiritual support offer protective factors for non-native Mexican American mothers throughout their pregnancies. The use of the bio-psychosocial-spiritual approach to therapy and the inclusion of spirituality in health assessments by medical providers would be useful in assessing the role of religious and/or spiritual support in the lives of pregnant women. Facilitating affirming and supportive conversations with these women may lead to protective factors in times of adversity and/or offer avenues for change based on beliefs that are important to them (Wright, Watson, & Bell, 1996). Doherty (2003) also emphasized the important role religion and spirituality play in helping people overcome their difficulties. Additionally, collaboration with the leaders of various religious and spiritual groups offers health professionals and therapists a wider pool of resources to choose from when supporting their clients (Doherty, 2003). Ransford, Carrillo, and Rivera (2010) noted that churches provide alternative resources for people to receive

health screenings and education through church sponsored programs and/or clinics. These interventions, along with prayer and faith, may provide immigrants with greater feelings of control over their health (Ransford et al., 2010).

Limitations and Future Research

This study used secondary, cross-sectional, self-report data that focused on non-native Mexican American women from 1998 to 2000. Secondary data offers limited avenues by which to conceptualize and measure variables specific to the intended study. A study specific to the variables of family relationships, acculturation, prenatal care, and health behaviors would be more comprehensive and detailed. It was also impossible to determine mortality rates among this population as the data only reflects mothers and their children who survived giving birth. This dataset focuses on heterosexual individuals and couples which limits the generalizability of this research. Future research should include questions regarding sexual orientation in order to determine whether these findings would be the same for those individuals.

Future research may benefit from comparing longitudinal data that reports how these women, their children, and their family relationships are impacted long-term. Self-report questionnaires, including questions regarding family relationships, physician care, and health behaviors, may lead to social desirability bias as women may answer questions with the intention to present themselves in the best possible way. Participants reported that they did not engage in any risky health behaviors (i.e., drug use, alcohol

consumption, and smoking) during pregnancy. Future research may use instruments that assess relationship quality, stress levels during pregnancy, and health practices.

Future studies surrounding health and family relationships may benefit from comparing self-reports to observations from other family members. Further, qualitative research may prove helpful in identifying how non-native Mexican American women conceptualize their relationships in order to identify common threads among this population and the culture.

Questions regarding cultural engagement were not asked in Baseline interviews; the study above used responses to those questions from the Year 1 questionnaire from years 1999 to 2001. Failing to ask mothers about their ethnic and racial attachments and cultural participation practices did not allow for observations concerning how cultural engagement changed from the time of birth to the first year of their children's lives. Cultural engagement may have increased as mothers may find it important to raise their children in the culture. It is also probable that cultural engagement decreased as mothers find themselves struggling to make time for activities outside of their new roles and responsibilities. Considering these changes in behavior can prove valuable for future research as relationships and situations evolve over time and individuals are continually influenced by the systems around them.

The current political climate in the United States regarding healthcare reform is shaky at best. This is a larger example of how changes in systems influence behavior and opportunities for the people they impact. Baseline interviews were conducted before the

Affordable Care Act was implemented. The Trump administration is working toward eliminating the Affordable Care Act and implementing new health care policies. It will be imperative that health professionals and researchers consider how birth outcomes and health behaviors, especially for non-native Mexican American women, may change as a result of governmental policies.

Research evolves as systems in our world grow and change. The present study supports previous research that asserts the influence of romantic partner relationships on health behaviors and outcomes despite its limitations. It also provides developing ideas for future health research that focuses on family relationships and involvement in groups that offer outside support, specifically religious/spiritual groups. Healthcare professionals who work with both native and non-native Mexican American pregnant women would benefit from this and future studies with instruments and analyses more specific to the interaction between family relationships and prenatal care and health behaviors.

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