THE EFFECT OF MATERNAL SOCIAL SUPPORT AND RELIGIOUS COMMITMENT ON PRENATAL HEALTH BEHAVIORS AMONG MEXICAN-AMERICAN WOMEN IN NORTH CENTRAL TEXAS

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To the Dean of the Graduate School:

I am submitting herewith a dissertation written by Lauren Jansen entitled "The Effect of Maternal Social Support and Religious Commitment on Prenatal Health Behaviors Among Mexican-American Women in North Central Texas." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Health Studies.

Kristin L. Wiginton, Major Professor

We have read this dissertation and recommend its acceptance

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ABSTRACT

LAUREN JANSEN

THE EFFECT OF MATERNAL SOCIAL SUPPORT AND RELIGIOUS COMMITMENT ON PRENATAL HEALTH BEHAVIORS AMONG MEXICAN-AMERICAN WOMEN IN NORTH CENTRAL TEXAS

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This study explores the Latina Paradox, a phenomenon that purports that newly immigrated Mexican women have little prenatal care, but have birth outcomes similar to their non-Hispanic White counterparts who have prenatal care. A convenience sampling technique recruited 138 Mexican or Mexican-American women from a hospital, local Women's, Infant's, and Children's Office, and two obstetrician's offices. They were at least 18 years of age and either pregnant at the time of the survey or been pregnant within the last 12 months. The participants filed out an anonymous survey which included demographic data, questions were taken from the Maternal Social Support Index and the Religious Commitment-10 Scale. Data was entered into an Excel database and then analyzed using PASW (version 18.0). T-tests, binary regression, and discriminate analyses were used to determine results. Higher levels of support were not indicative of healthy prenatal behaviors in mothers with children in the home, whereas, higher levels of support prompted women with no children in the home to practice healthier prenatal behaviors. Being born in Mexico, being Catholic, and having a high school education

predicted the use of folic acid, scheduling a dental appointment during pregnancy and not using unhealthy substances. Being in the United States longer than 10 years, married, and between the ages of 18-24 were more predictive of maintaining a healthy diet and exercise during pregnancy. Those women reporting higher levels of religious commitment were more likely to practice healthier prenatal behaviors than those with lower levels of religious commitment. Findings of this study emphasize the importance of obtaining a prenatal health assessment by the community health educator and healthcare providers. It is important to include a thorough cultural assessment at the same time in order to ensure a holistic approach to meeting the needs of the Mexican-American woman during the child-bearing years.

TABLE OF CONTENTS

Page

COPYRIGHT iii

ACKNOWELEDGMENT iv

ABSTRACT v

LIST OF TABLE viii

LIST OF FIGURES xi

Chapter

I.INTRODUCTION 1

Purpose of the Study 3
Research Questions 3
Null Hypotheses 4
Delimitations 4
Limitations 5
Assumptions 5
Definition of Terms 5
Importance of Study 6

II.REVIEW OF THE LITERATURE 8

Maternal Social Support 9
Composition, Expectations, and Roles of The Mexican-American Family 9
Importance of Maternal Social Support during Pregnancy 11
Religious Commitment 16
Catholic Church, Family, and Procreation 17
Folklore and Superstition in the Mexican-American Church 16
Development of the Mexican-American Catholic 19

Health and the Mexican-American Catholic Church 21
Prenatal Health Behavior Care and Education 26
Western View of Prenatal Health Care and Education 26
Mexican-American View of Prenatal Health Care and Education 30
Facilitators and Barriers to Prenatal Health Care Behaviors 34
Covariates and Prenatal Health Care Behaviors 37
Theoretical Framework 44
Description 44
Application of Theory to Research Study 47

III.METHODOLOGY 49

Procedures 49
Protection of Human Participants 50
Instrumentation 50
Population and Sample 52
Demographics 52
Religion 55
Prenatal Behaviors 57
Data Analysis 59

IV.RESULTS 61

Research Question 1 61
Research Question 2 62
Null Hypothesis I 63
Participants with no children in the home (Non-Child Score) 63
Participants with children in the home (Child Care Score) 64
MISSI (Total Social Score) 68
Null Hypothesis II 71
Null Hypothesis III 77
Discriminant Analyses for Prenatal Care Behavior Using RC-10 and the Maternal Social Support Index 90
Summary 92

V. SUMMARY, CONCLUSIONS, AND DISCUSSION 96

Summary 96

Discussion of Findings 99
Research Question 1 99
Research Question 2 100
Application of Theory to Study 110
Implications 116
Limitations of the Study 118
Recommendations for Future Research 119
Recommendations 120

REFERENCES 122

APPENDICES

A. Social Ecologic Model 138
B. Institutional Review Board Approval 140
C. Agency Approval Letters: 142
D. Cover Letter/Survey-English 147
E Cover Letter/Survey-Spanish 156
F . Research Flyers-English/Spanish 165

LIST OF TABLES

Table Page

1. Parity 54
2. Participant Demographics 55
3. Religious Commitment 56
4. Prenatal Education 58
5. Prenatal Care 59
6. Frequency of Healthy Prenatal Activities among Mexican-American Women in North Texas 62
7. Independent-Samples t-Tests of Prenatal Activity by Non-Child Care Scores (Participants with No Children At Home) 68
8. Independent-Samples t-Tests of Prenatal Activity by Child Care Scores (Participants with Children at Home) 68
9. Independent Sample *t*-Test of Prenatal Activity by Total Social Scores 69
10. ANOVA of Non-Child (those without children at home) Participant Scores by Entry into Prenatal Care. *70*
11. Tukey's HSD Post-hoc Comparison of Non-Child Participant Scores by Entry into Prenatal Care. 70
12. Independent Sample t-Test of Prenatal Activity by Interpersonal Subscale Scores (RC-10) 73
13. Independent-Samples t-Test of Prenatal Activity by Intrapersonal Subscale Scores (RC-10) 74
14. ANOVA Comparison of Interpersonal and Intrapersonal Subscales of RC-10 and Entry into Prenatal Care 77

15. Tukeys Honestly Significant Difference (HSD) Post-Hoc Comparison of Interpersonal and Intrapersonal Subscales Based on Entry into Prenatal Care ... 77

16. Individual X^2 Results for Length of Residency in Relation to Maintaining a Balanced Healthy Diet ... 79

17. Individual X^2 Results for Education in Relation to Maintaining a Balanced Healthy Diet ... 79

18. Individual X^2 Results for Age in Relation To Maintaining a Healthy Diet ... 80

19. Individual X^2 Results for Length of Residency In Relation to Exercise ... 81

20. Individual X^2 Results of Marital Status in Relation to Exercise ... 81

21. Individual X^2 Results for Age in Relation to Exercise ... 82

22. Individual X^2 Results for Marital Status in Relation to Taking Prenatal Vitamins ... 83

23. Individual X^2 Results for Place of Birth in Relation to Taking Prenatal Vitamins ... 83

24. Individual X^2 Results for Birth Place in Relation to Taking Folic Acid ... 84

25. Individual X^2 Results for Education in Relation to Taking Folic Acid ... 84

26. Individual X^2 Results for Church Attendance in Relation to Taking Folic Acid ... 85

27. Individual X^2 Results for Place of Birth in Relation to Having a Dental Appointment ... 86

28. Individual X^2 Results for Praying to La Virgin de Guadalupe in Relation to Having a Dental Appointment 87

29. Individual X^2 Results for Religious Affiliation in Relations to Having a Dental Appointment 87

30. Individual X^2 Results for Age in Relation to Having a Dental Appointment 88

31. Individual X^2 Results for Religious Affiliation in Relation to Substance Use 88

32. Pearson's X^2 Analysis of Praying to La Virgin De Guadalupe in Relation to Taking Better Self-Care 89

33. Pearson's X^2 Analysis of Place of Birth in Relation to Better Self Care 90

34. Pearson Correlation between Prenatal Behaviors and the MSSI and Subscales of RC-10 92

35. Null Hypotheses 99

LIST OF FIGURES

Figure Page

1. Mean differences of entry into prenatal care as reflected by the non-child participants score of the MSSI 71

2. Mean differences of entry into prenatal care as reflected by Interpersonal Subscale of the Religious Commitment Scale (RC-10) 75

3. Mean difference of entry into prenatal care as reflected by Intrapersonal Subscale of the Religious Commitment Scale (RC-10) 76

4. Social Ecologic Model and Research Constructs 98

CHAPTER I

INTRODUCTION

Research has shown (CDC, 2009; Office of Minority Health, 2007) that birth outcomes, such as low birth weight (LBW) and prematurity among immigrated Mexican-American women and their non-Hispanic white counterparts in the United States are similar even though prenatal care is often delayed or not sought among the immigrant population. This phenomenon is referred to in the literature as the Latina paradox (Buekens, Notzon, Kotelchuck, & Wilcox, 2000; Gallager, 2008; Page, 2004; Sherraden & Barrera, 2005) and suggested there is a perinatal advantage or protective factor or factors affecting the health of immigrated pregnant Mexican-American women and their fetuses.

A study by Zambrana, Scrimshaw, Collins and Dunkel-Scheeter (1997) concluded that those Mexican-American women born in the United States did not appear to have this protective effect on birth outcomes. The incidence of LBW and prematurity were statistically higher than their non-Hispanic white counterparts. These authors also found in their study that as these women became more acculturated to the non-Hispanic white culture; they began to lose the protective factor advantage. They theorized this was partly related to less social support, and lower socioeconomic status.

An answer to this paradox may be found in traditional Mexican cultural practices and values. It has been suggested in the literature that traditional cultural beliefs and practices perpetuated by social support, familismo, (Kemp, 2005) and identification with the Virgin Mary, marianismo, and (Rodriquez, 1994; Stevens, 1973) may have an impact on health behaviors among Mexican-Americans especially pregnant Mexican-American women (Koenig, 2004; Magana & Clark, 1995; Page, 2004).

Pregnancy for Mexican-American women is considered a time of vulnerability (Martinez-Schallmoser, MacMullen, & Telleen, 2005). At this time, the pregnant woman is surrounded by denser and larger family units, often relying on informal networks for help (Barrio, 2000; Logsdon, 2001). These social networks may include family, friends, or community. McGlade, Saha, and Dahlstrom (2004) concluded in their study that social support networks provide a protective effect as evidenced by the similar birth outcome of those Mexican-American women who receive prenatal care from the informal systems compared to those who seek the westernized form of prenatal care. It is also recognized that a religious commitment to the Catholic Church and its emphasis on procreation may provide a protective barrier for unhealthy prenatal behaviors (Franzini et al., 2002; Rodriquez, 1994).

Religion, especially Catholicism, is an integral part of Mexican-American culture in both traditions and beliefs (The Handbook of Texas Online, 2008). Catholic scripture and canon law place great emphasis on procreation and the sanctity of life as blessings from God (Scripture Catholic, 2007). Hawthorne (2009) wrote that the foundation of the

Mexican value system is based on the Catholic religion and is a mixture of folk systems from both Aztec and Spanish ideologies. In this way, the Mexican form of Catholicism differs from other canonical interpretations. Spector (2004) concluded that health in the Mexican-American population is often integrated with religion into magicoreligious practices such as visiting shrines, offering medals and candles, and prayers to seek protection from ill health.

Purpose of the Study

The purpose of this cross-sectional study was to measure the effects of maternal social support and religious commitment on prenatal health behaviors of Mexican-American women in North Central Texas. Covariates of age, educational level, parity, gestational age in which prenatal care was sought, length of residency in the United States, and marital status were also measured as well to determine if one or more of these variables may predict prenatal health behaviors.

Research Questions

The research questions for this study included:

1). What are the prenatal health behaviors of pregnant or recently pregnant Mexican-American women in North Central Texas?

2). What are the effects of maternal social support and religious commitment on prenatal health behaviors among pregnant or recently pregnant Mexican-American women in North Central Texas?

Null Hypotheses

The following null hypotheses were tested among pregnant or recently pregnant Mexican-American women in North Central Texas at the .05 level of significance.

H_{01} – There is no relationship between maternal social support and prenatal health behaviors among Mexican-American women.

H_{02} – There is no relationship between religious commitment and prenatal health behaviors among Mexican-American women.

H_{03} – Descriptive covariates (age, educational level, parity, gestational age when prenatal care was sought, length of residency in the United States, and marital status), social support, or religious commitment will be neither predictive nor protective of prenatal behavior among Mexican-American women participating in recommended prenatal health behavior.

Delimitations

This study had the following delimitations:

1). Participants in this study must be 18 years of age or greater.

2). Participants must live in North Central Texas as defined by the Texas Department of State Health Services, Region 2/3.

3). Participants must self identify as Mexican-American women who are pregnant or recently pregnant within the last 12 months.

4). Participants must be able to speak and read either English or Spanish.

Limitations

This study had the following limitations:

1). The use of a convenience sample may limit generalization of the results.

2). Given the population to be studied, immigration status may discourage participation or providing accurate information.

3). Recall and social desirability bias may occur and affect the results of the study.

Assumptions

The following assumptions for this study included:

1). Participants will be truthful in responding to questions.

2). Individuals are influenced by multiple influences in their physical and social environments (Stokols, 1996).

3). Human environments are multidimensional and complex (Stokols, 1996.).

4). An individual's environment should be studied at varying levels (Stokols, 1996).

Definition of Terms

Mexican-American women – a citizen or resident of the United States of Mexican birth or descent that self-identifies as Mexican-American (Office of Minority Health, 2007).

Parity – number of deliveries after 24 weeks of gestation (Lowdermilk & Perry, 2007); this may differ from state to state.

Pregnant– self-reported by population under study; conception and implantation of human Fertilized embryo in the uterus (Lowdermilk & Perry, 2007).

Prenatal Health Behaviors – as described by the Public Health expert Panel on the

Content of Prenatal Care includes cutting down or stopping use of alcohol and tobacco, taking prenatal vitamins, not using illegal drugs, and seeking formal or informal prenatal care and education (Sable & Herman, 1997).

Promotoras – respected women within the Mexican community who are trained to educate mothers about pregnancy and risks to be avoided such as drinking alcohol and smoking (de la Rosa, 2002).

Religious Commitment – "a participation in or endorsement of practices, beliefs, attitudes, or sentiments that are associated with an organized community of faith (Craigie, Larson, & Liu, 1990 and Leven & Schiller, 1987 as cited by Mathews, McCullough, Larson, Koening, Sawyers, & Milano, 1998, p3)".

Social Support – "activities directed at assisting others in mastering emotional distress, sharing tasks, giving advice, teaching skills, and providing material aid (Bacerra, 1981, p. 73)".

Importance of Study

Results of this study provide the health educator with an understanding of the effect maternal social support and religious commitment may have on prenatal health behaviors among Mexican-American women. It also affords them the opportunity to develop programs incorporating religiosity and the importance of familial/social networks. The results of this study will assist the health educator in formulating effective communication strategies including working through traditional and non-traditional channels, such as a *partera*, midwife, or *cuarandera*, a faith healer (Spector, 2004), who

combine elements of maternal social support and religion with healthcare to provide interventions which are both culturally competent and culturally appropriate.

CHAPTER II

REVIEW OF THE LITERATURE

The Latina paradox (Gallagher, 2008) has aroused interest in the literature as to what existed as a protective factor for immigrated Mexican-American women and their pregnancy outcomes. What is not clear in the literature is whether family and social networks alone are strong and pervasive enough to provide this protection or do other factors such as religious commitment play a role. It was possible through a social-ecological lens to identify the role each factor plays at each level of influence. A literature review of maternal social support, religious commitment, prenatal health behaviors, and the Social Ecological Model resulted in a number of previous studies and descriptions of the role these variables have played in the lives of pregnant Mexican-American women.

The literature review addressed several facets of maternal social support, including composition, expectations, and roles of the Mexican-American family network as well as the function of the family network in the perpetuation of cultural traditions and practices. Several studies were reviewed regarding care of pregnant family members and the ramifications if these networks were not in place.

The literature search for religious commitment among pregnant Mexican-American women was sparse. A review of the doctrines and canon law of the Catholic

Church helped in understanding the role the Church plays in procreation. Additionally, descriptions and a few studies were found that explained the difference in the worldview between the Mexican, Mexican-American and non-Hispanic white churches. This difference became evident in the search for a relationship with health, especially prenatal healthcare behaviors.

The Social-Ecologic Model offered a unique opportunity to consider generational cultural perpetuation. Review of theoretical application in the literature provided a framework for examining maternal social support, religious commitment, and the role they play in prenatal heath behaviors of the pregnant Mexican-American woman. Alexander and Cornely (1987) suggested that covariates such as age, educational level, parity, gestational age when prenatal care was sought, length of residency in the United States, and marital status may predict prenatal health behaviors within this population. As a result of this finding, these covariates will also be examined.

Maternal Social Support

Composition, Expectations, and Roles of the Mexican-American Family

The Mexican-American family is a strong collectivist network that extends beyond the nuclear family to include aunts, uncles, cousins, *padrinos* (godfathers), *padrinas* (godmothers), and close friends (Caban & Crespo, 2008; de la Rosa, 2002; Doherty, n.d.). Family decisions often include the consensus of the extended family. Whereas non-Hispanic whites may depend on friends in the absence of relatives, Mexican-Americans will seek out relatives regardless of their geographic location (n.d.).

Doherty (n.d.) observed that Mexican-Americans tended to migrate to areas where family members were located or the barrios where other Mexican-Americans resided. The author suggested that more research is needed with rural migrations in contrast to urban stresses. Rural areas may prove to be more difficult to find cultural ties especially if separated from family or social networks.

Marin and Marin (1991) define the sense of family (*familismo*) as "(a) a perceived obligation to provide material and emotional support to the extended family, (b) reliance on relatives for help and support, and (c) the perception of relatives as behavioral and attitudinal referents" (pp. 13-14). These authors also purported that in this type of collectivistic arrangement, the needs of the individual are often sacrificed for the needs of the family. Marin and Marin described family cohesion through the presence of the extended family at rituals such as attending mass, Sunday meals, *quinceaneras* (15^{th} birthday) of young girls, and baptisms. They may also seek the support of community members such as *curanderAs* (healers), *santeros* (worshipers of Catholic saints), *parteras* (midwives), and family priests. Campos et al. (2008) studied 31 foreign-born Latinas, 68 U.S.-born Latinas and 166 European American women in a prospective study measuring familialism, social support, stress, and pregnancy anxiety during their second trimester of pregnancy. The associations of familialism with social support and stress were significantly higher among Latinas than European Americans.

Gender roles within the Mexican-American family are important determinants in the nuclear and extended families. *Machismo* and *marianismo* are key role expectations

(Kemper, 2010; Stevens, 1973). Morales (1996) described machismo as being the responsibility of the man to support and defend his family, whereas, Falicov (1998) portrays machismo as being hard-working and family oriented. In the Mexican-American culture, the male is clearly the one who holds the power, although some studies have found the power to be egalitarian (Baca-Zinn, 1975, 1976; Ybarra, 1982). The male is often depicted in non-Hispanic white literature, however, as being aggressive, abusive, and concerned about sexual prowess (Castro, 2001).

Marianismo depicts characteristics related to the Virgin Mary (Stephens, 1973). These characteristics include virtue, nurturing, self-sacrificing, and devoting oneself to one's family (Lopez-Baez, 1999). The term Mariology is also found in the literature to describe a following of Mary or *Morenita,* the brown Mary, as *La Virgen de Guadalupe* is also called (Rodriquez, 1994). Although the woman may have a submissive role to her husband, she is the undeniable power of the household and of the children (1994).

Importance of Maternal Social Support during Pregnancy

Results of reviewed studies were found to improve birth outcomes, reduce depression, physical abuse, stress, and risky behavior, as well as provide cultural support through prenatal care, advice, and education. In their in-depth analysis of current empirical research regarding Mexican-American immigrant women, Padilla and Villalobos (2007) found social support to be a predictor of birth weight. They also found that factors such as poverty and poor use of prenatal care were not contributing factors to birth outcomes. The authors explained this relationship as a basic cultural value among

Mexican-American families. It is based on mutual expectations among family members and represents a sense of family care as well as obligation. These findings corroborated earlier findings by Marin and Marin (1991).

Feldman, Dunkel-Schetter, Sandman and Wadhwa (2000), in their prospective study of 247 singleton births, demonstrated through use of a structural equation modeling analysis that a latent social support factor significantly predicted fetal growth. This study validated maternal social support as a protective factor in guarding against low birth rates. The authors recognized that gestational age must also be considered in determining low birth weight and prematurity, as well as behavioral and biological factors.

Hessol and Fuentes-Afflick (2000) reviewed 1,439, 583 births between 1990-1993 in California to determine if there was a perinatal advantage among Mexican-born women as compared to white non-Hispanic women. Findings concluded that incidence of low birth weight and prematurity were similar to their white counterparts although Mexican-born women were younger, had less education and income, and were more than twice as likely to have unmarried parents. Hessol and Fuentes-Afflick attribute this paradox to cultural beliefs in which risky behavior such as smoking and alcohol consumption are discouraged.

In a prospective longitudinal study of postpartum depression in 66 multiparous Mexican-American women, Martinez-Schallmoser, Telleen, and MacMullen (2003) identified the social support structure of the pregnant Mexican-American woman as including relatives and friends foremost, but may be expanded to include special

neighbors and close family friends. This network provides support for the pregnant woman via babysitting, giving advice, or providing social company (Martinez-Schallmoser et al., 2003; Mendoza & Fuentes-Afflick, 1999) thus reducing the stress for those not speaking English, lacking mobility and postpartum support. Maternal social support is especially important during the observance of la cuarentena (the forty days after delivery). Within the Mexican culture the mother is believed to be very delicate and vulnerable at this time (Martinez-Schallmoser, et al.).

Dunkel-Schetter, Sagrestano, Feldman, and Killingsworth (1996) proposed after an extensive review of the literature regarding social support and pregnancy that social support during pregnancy provides the mother with emotional, informational, and material resources. By doing this, the mother is relieved of unnecessary stress, both physical and emotional. These authors identified social support to include the traditional family and baby's father, as well as the traditional extended family unit.

Barrio (2000) examined the affect of acculturation on mental illness among Mexican-born and Mexican-Americans living in the United States. After a review of research and practice literature, she reported that those of Mexican-origin had lower incidences of various illnesses such as depression than Mexican-Americans who had higher levels of acculturation. As a result of her review, Barrio suggested the development of a network of community-based mini clinics to assist Mexican-Americans in connecting with a provider of the same ethnicity. This has implications for depressive disorders of pregnancy as well.

Logsdon (2001) reviewed studies in the literature that focused on social support during pregnancy. She found that women with high life stress and low psychosocial support tended to have complication rates as high as three times as those with similar stress and high psychosocial supports. These findings were later affirmed by a prospective study conducted by Elsenbruch et al. (2007). Elsenbruch et al. studied 896 women during the first trimester of pregnancy. The researchers divided the participants into groups of low, medium and high social support. Results indicated that those with low social support reported more symptoms of depression than did those with higher levels of support. McNamara, Orav, Wilkins-Haug and Chang (2006) examined a cohort of 200 pregnant women using the Maternal Social Support Index to evaluate the degree, predictors, and consequences of social support. Using multivariate linear regression, the researchers found that maternal social support was not predictive of alcohol use or birth weight. Although race was used as a covariate, Mexican-American women were not specifically listed as a sub-population.

Lown and Vega (2001) established in their study of 1155 women of Mexican origin that the prevalence of self-reported physical partner abuse was higher among Mexican-Americans than those Mexican women who had recently immigrated. The researchers found that the presence of social support and regular church attendance served as protective factors. These authors acknowledged the stresses of acculturation, but also pointed to the stresses of adaptation to a new language and geographic setting among the newly immigrated.

De la Rosa (2002) conducted an extensive literature review in order to propose a possible explanation for this paradox studied by Hessol and Fuentes-Afflick. De la Rosa examined 61 studies and reviewed 34 related articles. Three possible explanations are reported: cultural, under-reporting, and bio-medical. Although evidence was found to support each of these explanations, De la Rosa found the cultural aspect to be a stronger predictor of optimal pregnancy outcomes. This research supports the theory that family and social networks play a significant role in determining prenatal health behaviors.

McGlade, Saha and Dahlstrom (2004) used secondary data from a 2000 Pregnancy Risk assessment and Monitoring System Survey and the results of a two year assessment of access and use of prenatal services by Mexican-born women to propose a plan to restructure prenatal care delivery in Oregon. These researchers found a strong tradition of knowledge transfer from one generation of women to the next. Other female members of the family would participate in this transfer of knowledge as well. This informal network worked not only to provide prenatal education, but prenatal care as well through diet, stress reduction, and pooling of resources. The researchers concluded that these informal networks provide benefits that serve as protective factors for the pregnant women. They did acknowledge, however, that these benefits begin to disappear with acculturation which was also reported in a previous review of data and research (McGlade & Saha, 2003) of Mexican-American women who had come to work the fields in Oregon. McGlade and Saha observed that these immigrant Mexican-American women were in a rapid transition from a collectivist culture in Mexico to an individualistic

culture in the United States. This new worldview was thought by these researchers to disrupt cultural traditions of close family networks and community as they found themselves isolated and being forced to acculturate to a culture that was foreign.

Martinez-Schallmoser, MacMullen and Telleen (2005) wrote in their article of the importance of acculturation in providing a deterrent to needed social support during pregnancy. They hypothesized that the more acculturated one became, the more likely one became estranged from previous cultural practices. Stress was found to be greater in Mexican-American women who did not speak English, lacked mobility and were separated from extended families and social networks.

Religious Commitment

Catholic Church, Family, and Procreation

Eighty-five percent of Mexican-Americans in Texas are Catholic (The Handbook of Texas Online, 2008) whereas 68% Mexican-Americans in the United States are Catholic (Pew Hispanic Center, 2007). Although there are differences among the non-Hispanic white Catholic Church and the Mexican Church, the basic tenets, liturgy, and sacraments are the same. The sacraments are observed by both churches, as well as directives of the Vatican.

Pope John Paul II (1995) wrote in his encyclical, *Evangelium Vitae* (1995) that the birth of a child is proclaimed as joyful news. He explained that the birth of the Savior was the source of this great joy and represented every human birth. Pope John Paul pointed out that the awe of a child in its mother's womb occurred several times in biblical

passages, especially in the Psalms. He explained the reverence of Mary as the spiritual mother of the church. Mary represented the beginning of the Gospel of Life which can only be emulated through the pangs and labor of childbirth. The view of the Church is that the child is the confirmation of the reciprocal self-giving among the parents and represents the image of their love. Pope John Paul II wrote in 1994 that "among many paths, the family is first and the most important" (p 1) and that the family should always remains in accordance with God's plan as the "sanctuary of life" (1995). These views are held by both the non-Hispanic white and Mexican-American Church.

Development of the Mexican-American Catholic Church

After the departure of Spain from Mexico, there were few Spanish priests left in Mexico to instruct the indigenous people. The responsibility of teaching the catechism and practices of the Church fell to lay men and women. As a result of this lay ministry, the Catholic Church in Mexico became a blend of religious doctrine and local folklore. The non-Hispanic white Catholic Church in the border areas with Mexico rejected these practices, thus marginalizing the Mexican Catholic Church. It is necessary to understand the syncretism of folklore and health superstitions in order to understand the divergent religious view of health and healthcare among the Mexican and Mexican-American people.

Castro (2001) described folk religious practices and rituals as a mixture of Aztec and medieval Catholicism from the 16th century. Mexicans and Mexican-Americans developed private and public manifestations of their spirituality. These can be seen

within families where sacramental and personal devotions were made. Public manifestations can be witnessed by the number of processions, fiestas, symbols, and symbolic actions that portray their Catholic beliefs. The celebrations and fiestas followed the liturgical calendar of the Church. According to Castro, the Church served as a powerful cohesive force in the lives of the Mexican-Americans. The Church offered them a place to speak Spanish and practice their religion as they wished. Being marginalized by the non-Hispanic white Catholic Church, the Mexican-American Church allowed them to stay connected to their cultural beliefs and to interpret those beliefs to fit their experiences (Steiner & Olson, 2004).

After compiling his history of the development of the Catholic Church, Roberto Trevino (2006) wrote that Mexican-Americans practiced what he refers to as "ethno-Catholicism" in which they create their own version of the Catholic religion. It is through these variations in Catholicism that Trevino theorizes Mexican-Americans preserve their identity. Trevino pointed out that the basic doctrine of the Church remains true to Vatican liturgy, but native culture influenced devotions and activities of Mexican Catholics. Trevino found that Mexican-Americans were more likely to worship privately with family or participate in community celebrations than to attend a formal mass. Samora and Simon (1993) illustrated these differences through celebrations such as the Feast of *Nuestra Senora de Guadalupe*, *La Posadas* (pilgrimage of Mary and Joseph), *El Dia de Los Reyes* (feast of the Epiphany), and *El Dia de los Muertes* (day of the dead). These celebrations are a few of the uniquely Mexican-American traditions that are not

found in the non-Hispanic white Catholic Church. These celebrations are observed in the United States, especially along the Border States. Trevino concluded in his history that the Mexican-American culture was centered in the Church which served as a source of community where all life events were to be experienced.

Cohen and Hill (2007) compared intrinsic and extrinsic religiosity as well as individualistic and collectivistic aspects of the Protestant, Jewish, and Catholic religions in their study. The Catholic religion was described as a collectivistic cultural experience in which people's behavior may be tightly regulated through ritual and tradition. In this way a community and identity is formed on moral obligation. This worldview fits comfortably with Mexican-American values and beliefs.

Folklore and Superstition in the Mexican-American Catholic Church

The Mexican experience with religion was grounded in the Aztec religion, which consisted of a cadre of gods and goddesses believed to have magical powers over nature, life, and death. After the forced conversion of the indigenous people of Mexico by the Spaniards, many of these gods and goddesses became absorbed into the Catholic religion as saints. The most notable and powerful is *La Virgen de Guadalupe* who is thought to represent both Mary and the Nahuatal (language of the Aztecs) goddess, *Tonantzin*, the patroness of midwives and healers (Castro, 2001).

La Virgen de Guadalupe became Patroness of Mexico in 1754 and Patroness of the Americas in 1900 (Kemper, 2010; Rodriquez, 1994). *La Virgen* soon became the key symbol of Mexican identity as well as an empowering force for Mexican-American

women through motherhood (Kemper, 2010; Rodriquez, 1994). Her image can be found in battle, public places, homes, and at almost every celebration (Wolf, 1956). Kemper (2010) wrote that there are at least 73 different fiestas associated with *La Virgen* and Castro (2001) reported that there is a shrine to *La Virgen* in every Mexican or Mexican-American community.

Rodriquez (1994) conducted a four prong study among 20 Mexican-American women. Her study measured the influence *of La Virgen* on the lives of acculturated Mexican-American women. Her criteria stated that the participants must be at least 2nd generation Mexican-Americans, Catholic, speak English, and be young married mothers. Through the use of questionnaires, scales, and interviews, Rodriquez found that the participants identified with *La Virgen* as a mother and felt they could tell her anything. Many talked to her each day and believed she was always there for them. For the women in the study *La Virgen* served as a model for motherhood.

Religious commitment in the Catholic Church is often thought to be measured in consistent attendance at masses and holy days of obligation. However, instead of formal attendance at mass, many Mexican-Americans may have *altarcitos* (Ricciardi, 2006) in their homes where they perform their daily prayers. An image of *La Virgen de Guadalupe*, who plays a pivotal role as the protector of women, especially during pregnancy and childbirth (Rodriquez, 1994) is commonly found in these homes. *La Virgen* is believed to empower women as she acknowledges women's lives, their suffering, and their capacity to create life (Ricciardi, 2006).

Various other saints are also found in these homes. Some are believed to protect the home of the family who owns it, while others are believed to perform miracles. Pictures, *milagros* (charms), and other personal belongings are often found on the altars. If some of these *milagros* or prayers are answered, friends and neighbors may ask to pray at these *altarcitos* and leave offerings as well (Oktavec, 1995). *Promesas* are made in exchange for a favor or miracle (Castro, 2001; Spector, 2004) and often consist of pilgrimage or service related to the Church. *Milagros* and *promesas* are placed at the foot of a favored saint seeking good health for a family member who may be ill. These saints can be found in churches, home altars, and grottos or small caves found in the side of a mountain or along a well traveled route.

Health and the Mexican-American Catholic Church

Williams (1990) studied third and fourth generation Mexican-American families in order to describe the basic traditional family unit, changes in the extended family and the redefinition of gender roles within married couples. A significant finding linked Mexican-American women as the caregivers of the religious belief system as well as determining basic health decisions for the family. Entry into the healthcare system appears to be made by Mexican-American women in the child-bearing years. Aliyu et al. (2009) studied singleton deliveries greater than 20 weeks gestation between the years of 1989-2000. Data was collected using the natality files of the National Center for Health Statistics. Data was stratified using age and maternal race. Results indicated that while birth rates were generally decreasing, the birth rate of Mexican-American women was

increasing. The researchers speculated on reasons why this trend may have occurred. Childbearing is an important function of the Mexican-American family. Most Mexican-Americans are Catholic and, as such, use of contraceptives is discouraged. Adherence to Church teachings is expected.

In a qualitative study of 22 Mexican-American men and women, Warda (2000) used interviews to identify culturally competent concepts as described by Mexican-American healthcare providers and recipients of care. As a result of this study, Warda was able to describe the dualism of health and religion in which both the power of God and the individual exert control over the lives of Mexican-American women. Warda termed this phenomenon as "dual spiritualism" (p. 216). She also found that those interviewed in focus groups presented their spiritual beliefs through four themes: (a) prayer, (b) faith-centered lives, (c) fatalism (God's will), and (d) the relationship between God's power and the ability of self to take control over their lives. Magana and Clark (1995) purported after a review of the literature that through their beliefs and practices of religiosity and spirituality, Mexican-American women may provide a protective barrier for themselves and their babies through the conceptual and antepartum phases of the reproductive cycle.

In a study of 2969 North Carolina residents by Koenig, George, Meador, et al. (1994), drug and alcohol disorders were found to be less frequent among those who attended church weekly. The hypothesis was that social support may be one of the mechanisms contributing to this phenomenon. Although not specific to Mexican-

Americans, there are implications of the social impact religious commitment and church attendance may provide. Koenig et al. contended that communities created by religion often provided the social support needed for an individual to comply with a treatment regimen. On the other hand, those who were isolated from any type of social support were often non-compliant with treatments. As this sense of isolation could easily be experienced by immigrant Mexican-Americans seeking work as day laborers in rural areas, Koenig et al. recommended faith-based interventions such as bible study or social support groups. In a review of research studies on spirituality in healthcare in 2004, Koenig proposed physicians and healthcare providers be trained to take spiritual histories as he found research to increasingly confirm a relationship between religious commitment and health. The phenomenon of spirituality and health was examined in a review of empirical literature from epidemiological and clinical studies by Matthew et al. (1998). Epidemiological and clinical studies regarding the relationship between religious factors and mental health status were examined. The data revealed that up to 75% of patients surveyed believed their physician should include a spiritual as well as a physical assessment as part of their care. They concluded that data suggest clinicians who address religious issues may improve health care outcomes.

In a study by Mendelson (2002), 13 Mexican-American women were interviewed using an ethnographic design regarding their perceptions of health. The researcher used three domains of health as the basis of her interviews. The domains included the physical body, emotional and finding balance. To these domains, Mendelson also considered

spiritual health. All volunteered their spiritual connection to health, stating they received a great measure of peace through daily prayers and conversations with God, the Virgin of Guadalupe, and St Francis. This ritual assisted them in coping with difficult situations and allowed them to restore a balance of emotional health.

Browner, Preloran and Cox (1999) interviewed 147 women and 120 partners of Mexican-origin regarding amniocentesis and possible abortion in the event of anomalies. Eighty-three percent of the sample population was Catholic. The criterion for enrollment was based on elevated alpha-feto-protein levels which indicated the possibility of chromosomal anomalies and neural tube defects (Health Resources and Services Administration, n.d.) such as spina bifida and anencephaly. Amniocentesis is used to either confirm or rule out a diagnosis. The Catholic Church opposes amniocentesis, stating it is a tool for abortion (Pope John Paul, 1995). Browner et al. (1999) found that 53.4% of those who accepted amniocentesis stated they would consider seeking an abortion. Those refusing the amniocentesis usually did so because of religious beliefs and values. Forty-two percent of those accepting amniocenteses stated that abortion was unacceptable. Those refusing an amniocentesis felt it was against God's will and were more prepared to place their faith in God, whereas, those who accepted the amniocentesis were more likely to depend on prayer. The Church's stand on abortion is clear (Pope John Paul, 1995), but the rule on amniocentesis is not as apparent. Cardinal Ratinger wrote in 1987 that an amniocentesis to improve or enhance the life of the unborn fetus is

acceptable, whereas, using an amniocentesis as a diagnostic tool to end a pregnancy is unacceptable.

In an address to an annual meeting of the American Public Health Association, Franzini et al. (2002) discussed a study of religion and its effect on the health of Hispanics, African-Americans, and non-Hispanic whites. The researchers investigated the influence of religiosity and spirituality on self-perceived health through interviews with 350 African-Americans, 1481 Mexicans-Americans, 211 Hispanics of other origins and 102 non-Hispanic whites. The researchers assessed religiosity by the frequency of attendance to religious services and attendance to other religious related activities. Spirituality was measured by how often they prayed, how important spiritual beliefs were to everyday life and how important those beliefs were as a source of meaning in life. The researchers found that religiosity and spirituality differed by race/ethnic group with Mexican-Americans scoring higher than non-Hispanic whites. Sixty-three percent of respondents self-identified as Catholic. The authors concluded that religiosity was not a significant predictor of health, whereas, spirituality negatively impacted self-perceived health. Franzini and colleagues' concluded that more research was needed to identify situations in which religiosity and spirituality affect health behaviors.

In the area of women's health issues, the United States Conference of Catholic Bishops (2008) remain quite active in state and federal policy. During the 110th Congress Second Session, this group quite actively supported such bills as HR 3129 in which pro-life pregnancy centers would receive assistance for women in crisis pregnancies and

S1810 which would provide assistance to families who receive a diagnosis of medical anomalies for their children. The Bishops actively opposed bills such S1173 which introduced legislation which would prohibit any state restrictions on abortion especially those placing restriction on public funding of abortions and HR 2560 which would permit the cloning of human embryos. In 2001, the United States conference of catholic Bishops recognized the need for adequate and appropriate prenatal care for women in order to eradicate the causes of high infant mortality.

Glover and Blakenship (2007) found in their review of the literature a link between religion and health through an integration of the supernatural into the religious beliefs of Mexican-Americans. For example, good health would indicate a firm adherence to their religious beliefs, whereas, ill health may indicate sinful behavior. This article demonstrated the difference between the magical thinking of the Mexican-American based on Aztec folklore.

Prenatal Health Behavior Care and Education

Western View of Prenatal Health Behavior Care and Education

Alexander and Kotelchuck (2001) attributed the development of organized prenatal care to J.W. Ballantyne before the turn of the last century. Ballantyne's interest was rooted in the prevention of fetal anomalies as well as fetal and maternal deaths. The prevailing thought of the day was that prenatal care could reduce poor outcomes such as LBW and prematurity. Prenatal care became the standard as a result of a policy paradigm issued by the Institute of Medicine in 1985. As a result of this perspective, prenatal care

became the public health intervention in reducing morbidity and mortality associated with LBW and prematurity (2001). However, these authors found through an extensive literature review and analysis of birth data that although infant mortality had decreased, LBW and premature births increased in the general population. Alexander and Kotelchuck (2001) reported that randomized clinical trials of interventions to prevent preterm births have been equivocal. They recommended research to better define what is meant by adequate prenatal care.

In 1973, the Kessner Adequacy of Prenatal Care Index (Kotelchuck, 1994) became the standard for determining adequacy of prenatal care. This index was a formula based on when prenatal care was initiated, such as trimester, and the number of accumulated visits during the pregnancy adjusting for gestation. This information was recorded on the birth certificate. Adequate care was reflected by initiation of prenatal care during the first trimester with at least nine recorded visits during the pregnancy. Inadequate prenatal care would be classified as initiation of prenatal care during the last trimester of pregnancy and accumulation of four or less visits. This would also include no prenatal care. Intermediate care would fall between these two classifications. Kotelchuck (1994) suggested that the Kessner system of categorizing prenatal care as adequate, intermediate, and inadequate was flawed and should be revised. His argument was that the Index was based on quantity and did not reflect the quality of care. He reported that the American Academy of Pediatrics (AAP) and the American College of Obstetrics and Gynecology (ACOG) required at least nine visits by the 36th week of

gestation and fourteen by the fortieth week. Kessner's Index fell below those requirements. Kotelchuck suggested a Proposed Adequacy of Prenatal Care Utilization Index which would record entry into prenatal care based on the month and then compare the number of visits during the pregnancy by ratio (number of visits/recommended visits by ACOG). The third factor in this Index included gestational age of the newborn. With this system, adequate care would be reflected by 80% or greater expected visits with inadequate being less than 50% of expected visits. Kotelchuck stated this was important because the present index did not accurately reflect prenatal care and in some cases overestimated the actual care received.

The Academy of American Pediatrics (2008) and Healthy People 2010 (2010) recommended that women begin receiving prenatal care in their first trimester. Healthy People 2010 set a goal of 90% of women entering prenatal care within their first trimester. However, minority women lagged behind their white, non-Hispanic counterparts. Seventy nine percent of white non-Hispanic women received prenatal care during their first trimester as compared to 66% of Mexican-American women and 69% of Black women (March of Dimes, 2009a). Prenatal health education was not addressed in either of these indexes.

Sable and Herman (1997) studied 2205 women who had delivered LBW infants and those who had delivered normal birth weight infants. The purpose of this study was to examine the relationship between prenatal education recommended by the Public Health Service Expert Panel on the Content of Prenatal Care and the risk of LBW. The

prenatal advice included seven health behavior risks which could lead to LBW. These risk behaviors include inadequate diet, nutrition, weight gain, minimal prenatal care, cigarette smoking, and illegal drug use. Sable and Herman found through secondary data and a survey that most physician offices and clinics did not have time to address all risks with patients. Those patients who reported receiving education on all seven risks had babies with higher birth weights than those who received education on only a few of the risks or received no education at all. These authors expressed concern that prenatal health education is too focused on medical issues and not on behavioral risks.

In Berman's study (2006) 59 pregnant minority women responded to two separate surveys regarding perceived learning needs and barriers to prenatal education. Fifty eight percent were from Central America with most of those from Mexico. A Perceived Barriers Survey and a Learning Needs Survey were administered. Berman found the assumption that adequate prenatal education was a given aspect of prenatal care was erroneous. She wrote that when these women received prenatal care from a hospital or community-based clinics, time for adequate prenatal education was limited and focused primarily on the physical aspects of the pregnancy. The researcher found that most prenatal education occurred in the waiting room with exchange of information occurring among patients. She termed this form of prenatal education as "bench clinics" (p 37). Berman also found that minority women generally preferred learning prenatal information from family members, but would consider formal classes if the instructor had

a similar cultural background and could speak the language. Multiparas or those having previous pregnancies were less inclined to attend classes due to transportation issues.

Mexican-American View of Prenatal Health Behavior Care and Education

Statistics provided by the March of Dimes (2009a) indicated that in 2006, 26.2% of all women either received inadequate or no prenatal care. The years 2005 and 2006 showed an increase in the percentage of women receiving inadequate care (March of Dimes, 2009d). The March of Dimes (2009b) reported that those women who received little or no prenatal care were at greater risk for premature delivery and LBW babies. Texas Department of State Health Services (2005) indicated that 57.4% of Mexican-American women did seek prenatal care during the first trimester. These women were born in the United States and represented at least a 2nd generation. This same report indicated that 14.2% of Mexican-American women either sought prenatal care late or did not receive care at all from either formal or informal sources (2006). Most of these women had recently immigrated to the United States. Overall, 18.7% of Hispanic women received inadequate prenatal care (March of Dimes, 2009d) and a majority of the women were Mexican-American. The statistics are of particular importance to Texas, as Hispanics comprise nearly 33% of the population with 75% of them being Mexican-American (United States Department of Commerce, Bureau of Census (2001).

Guendelman et al. (1999) studied birth certificates of 285,371 Mexico-born mothers and 3,131,632 U.S.-born mothers. White mothers (2,537,264) were used as a reference group in order to exclude other minorities known to have health disparities.

Also studied were North African nationals and Belgian and French mothers. Those results will not be discussed. Results confirmed similar studies in that those who were newly immigrated had better birth outcomes. The newly immigrated women were healthier and less likely to smoke or abuse substances deemed dangerous to fetal health. The researchers also found that pregnancy in some cultures was not considered a medical event; and, thus, prenatal care was deemed unnecessary.

Sarnoff and Adams (2001) studied initiation of prenatal care in the first trimester and whether the decision to begin prenatal care in the first trimester was associated with maternal race or ethnicity. A stratified random sample of 4987 women was selected using data from the California Pregnancy Risk Assessment Monitoring System. These researchers found that Mexican-born women were more likely to enter prenatal care later in their pregnancy. Perceptions of need for timely prenatal care among this sub-population did not seem to be in accordance with public health interventions. The researchers also reported that although immigrant Mexican-American women avoided risky behaviors such as smoking and drinking alcohol, there was an increased prevalence of related health risks such obesity (Duffy et al., 1996) and gestational diabetes which needed to be addressed earlier in the pregnancy.

Guendelman, Thornton, Gould and Hosang (2005) examined hospital discharge and birth certificate data to assess and compare morbidities between Mexican-born women and U.S.-born White non-Latina women in California. The researchers found that newly immigrated Mexican-American women had lower incidences of low birth

weight (LBW) with later entry into prenatal care than their non-Latina white counterparts. They also concluded that Mexican-American women experienced a comparable degree of third and fourth degree perineal lacerations, urinary tract infections, and gestational hypertension.

McGlade and Saha (2003; McGlade et al., 2004) observed in their study that 60% of Mexican-American women sought prenatal care in the first trimester whereas 40% entered prenatal care either in the third trimester or received no prenatal care. Eighty percent of Mexican-American women stated they began prenatal care when they felt it was timely and appropriate. Through interviews, the researchers found a lack of awareness for the need for prenatal care among the newly immigrated, whereas, those who had become more assimilated into the non-Hispanic white culture valued the need for prenatal care. These authors also discovered that the majority of Mexican-American women received prenatal care from health department clinics (50%), whereas only 15% used a private physician. In addition to these formal systems of prenatal care, McGlade and Saha identified informal prenatal care systems such as supportive grandmothers, female relatives, extended family members, life partners, and community-based parteras (midwives) and promotoras (lay health promoters). These informal systems provided the majority of prenatal education in areas of poverty and where access to prenatal care is limited. These informal networks also imparted advice on healthy dietary traditions, cultural support and approval of pregnancy, expectation of self-sacrificing motherhood, and the cultural prohibition of unhealthy behaviors. Finally, McGlade and Saha

concluded in their study that a combination of formal and informal prenatal care may improve birth outcomes, acculturation may erode informal systems of care and cultural protective factors, and health systems that integrate some components of the informal system may save lives and money.

Sanchez (2007) used Kleinman's cultural model of healthcare systems to study various ways in which Mexican-American women sought healthcare. Using five grandmother, mother, and daughter triads, she found that there are three ways by which the Mexican-American woman sought healthcare: self-care/non-self-care, lay/popular/folk medicine, and professional healthcare. Non-self-care refers to a greater power such as God or one of the saints. Lay/popular/folk medicine includes family, friends and unlicensed non-professional healthcare providers. In most cases, the researcher found that Mexican-American women used a combination of these. In pregnancy, the Mexican-American woman typically used all three ways such as self, female family members, friends, or neighbors and the professional healthcare arena which may be a clinic or hospital-based. Sanchez found that it usually was the woman's mother who provided physical as well as emotional support which consisted of prenatal care, dietary and health advice and prayer. In the absence of the mother, the grandmother or other close female relative filled this role. In interviews with the triads, Sanchez was told that one of the grandmothers performed an external version on her granddaughter whose fetus was in the breech position which is a risky maneuver even by a physician. Some participants in the study reported receiving prenatal care from *parteras* who are lay

midwives. Some of these midwives work outreach with professional healthcare providers and some are independent practitioners. In New Mexico, 32% of babies are delivered by *parteras* or midwives (University of New Mexico, 2004). Due to the limited number of physicians, poor road conditions in some remote areas, cultural preference, and poverty, the *parteras* became an integral part of the medical team. The partera program is financially supported by the New Mexico legislature. Biomedicalization of the birthing process, however, has lessened the role of the partera in both Mexico and the United States (Davis-Floyd, 2001).

Balcazar, Aoyama and Cai (1991) critically reviewed literature related to LBW and prenatal care among Mexican-American women. The purpose of this review was to formulate perinatal programs to meet the needs of this population. These authors concluded that prenatal care in Mexican-American women may be operating differently. It may be more an indication of maternal behavior than health care intervention as the Mexican-American mother may not seek early prenatal care if she feels well. Clarification of the type of prenatal care received is important in order to better understand the program needs of Mexican-American women.

Facilitators and Barriers to Prenatal Health Care Behaviors

Sotomayor, Dominguez, and Pawlik (2007), in reporting on the interventions of the Latino Education Project (LEP) reiterated the importance of the lay health educators, such as *promotoras de salud.* LEP is a community capacity-building approach to diabetes that was granted to 12 coastal Texas counties by the Centers for Disease Control and

Prevention (CDC). In the review of the LEP project, the authors emphasized the importance of lay educators to outreach programs. The authors found these educators to be most successful in one-to-one interventions with individuals especially those with high risk conditions such as gestational diabetes. The suggested focus of these lay educators is on involving the entire family network in educational interventions as most often the risk is shared by the family. According to Sotomayor et al., the promotoras are more than facilitators of education. They also assist the individuals to navigate the health care and human services systems, provide neighborhood resources, as well as provide encouragement for lifestyle changes. Although these types of programs have been successful in reaching underserved populations, there are barriers.

Luecken, Purdom, and Howe (2009) reported that as a result of the Perinatal Periods of Risk study, the Alliance for Innovations in Health Care (AIHC) was organized to look at the low utilization of prenatal care among Mexican-American women in the South Phoenix area. It was found that the low rate of utilization and the excess feto-infant mortality rate were higher in this area than the other parts of Phoenix. Despite the Latina Paradox, the AIHC determined that the benefits of early entry in prenatal care not only identified problems such as pregnancy-induced hypertension, gestational diabetes, and bleeding disorders, but also served to integrate this population into the medical system. Barriers identified by the AIHC included language differences, transportation, accessibility, child-care and financial constraints. Moore and Hepworth (1994) identified similar findings in their earlier study of 308 Mexican-American and 312 non-Hispanic

white mother-infant dyads. Their study examined mothers enrolled in Arizona's Medicaid program. They also found that less assistance from support systems served as a barrier to healthcare.

Kalofonos and Palinkas (1999) used a mixed methods research approach to answer the question as to whether it was for economic or cultural reasons that Mexican and Mexican-Americans did not seek prenatal care. The researchers examined birth records of 173 Mexican and Mexican-American women who had given birth in San Diego, California as well as 30 interviews with homeless women receiving care at a clinic for the underserved. They identified three major themes depicting inadequate prenatal care: lack of trust in formal versus informal institutions, wanted versus unwanted pregnancies, and the importance of a social network. Their findings suggested that participants did not receive prenatal care due to reasons other than economics.

Through the use of focus groups, Warda (2000) found that Mexican-American women emphasized the need for healthcare providers to acknowledge the importance of the family and family obligation as well as cultural practices such as the use of folk healers and economic restraints. Berry-Caban and Crespo (2008) examined cultural competence as a skill for healthcare providers and what impact a lack of competence had on prenatal behaviors of Mexican-American women. After a literature review on cultural competence, they theorized that skill incompetence deterred Mexican-American women from seeking prenatal care. They recommended that healthcare providers consider the importance of the family, maintain respect for the individual and family, and secure the

trust of the patient through personal qualities that reflect genuineness, empathy, and flexibility. These authors defined the essential elements of cultural competence. These included knowledge of the culture, impact of socioeconomic class on health issues, health-seeking behaviors, language, and professional values which may conflict with the needs of a diverse population. Berry-Caban and Crespo also recommend being able to communicate in the language of the patient or be able to effectively work with a translator.

Fullerton, Nelson, Shannon, and Bader (2004) identified factors which were facilitators to prenatal care as well as those factors which were barriers through descriptive analysis. Postpartum interviews and chart reviews of 493 Mexican-American women in the El Paso border region were used. In their study they found that support from the family network, common language, easy to understand instructions, friendly staff, and a close location for the prenatal clinic were factors that enabled women to seek and keep prenatal care appointments. On the other hand, lack of finances, long waits for appointments, pregnancy too advanced, and fear of the Immigration and Naturalization Service finding out their illegal status posed barriers.

Covariates and Prenatal Health Care Behaviors

Alexander and Cornely (1987) identified several factors which predicted utilization of prenatal health care in North and South Carolina. After studying the birth records of 430,349 women, these researchers concluded that age, ethnicity, parity, educational level, and marital status played a role in determining who would seek

prenatal care and when. These covariates will be used in this study to predict prenatal usage by Mexican-American women in North Texas. Length of residency in the United States, parity, and gestational age at initiation of prenatal care will also be examined. Length of residency and acculturation will be considered in the same context although acculturation may be influenced by other factors as well as length of residence.

Age. Statistics provided by the March of Dimes (2009d) indicated that the rate of inadequate or non-existent prenatal care was about two times higher in pregnancies to women less than 20 years of age across all ethnicities. Giachello and Luz (1994) found in their study of prenatal care utilization that in Mexican-American women of all ages, usage of prenatal care and family planning services fell well below the number of non-Hispanic whites. These authors also found that Mexican-American teens were less likely than women over the age of 20 to seek prenatal care in the first trimester, but were more likely than their white counterparts to seek care in their final trimester or receive no care at all. Zambrana, Scrimshaw, Collins, and Dunkel-Schetter (1997) studied prenatal health behaviors of 911 Mexican origin and Mexican-American women. Through face-to-face interviews and administration of scales, the researchers concluded that Mexican-Americans were younger at delivery and had completed more education than their Mexican counterparts. They found the mean age of delivering Mexican immigrants was 21.81 years as compared to 20.08 years of the Mexican-American woman. These statistics are similar to results in Texas where the 2005 natality report (Texas Department of State Health Services, 2006) indicated that more Mexican-Americans deliver their first

babies before the age of 24 than their non-Hispanic white counterparts. Blacks, however, are found to deliver earlier and in greater percentages than Mexican-Americans.

Fraser, Brockert, and Ward (1995) found in their study of 134,088 women in Utah that young maternal age correlated with poor pregnancy outcomes. Women aged 13-17 had a higher risk of delivering an infant of LBW. These authors based their analysis on the fact that many of these young women have not reached their reproductive growth resulting in infantile uterine and cervical blood development. These findings were independent of confounding socioeconomic factors. Sub-populations were not identified in this study so it is difficult to ascertain if results would be the same for Mexican-American women. Kierman (2006) reported in her review of the literature that when the first and second birth to the same mother is compared, teenagers have equal outcomes to older mothers. In other words, successive pregnancies in young mothers had improved outcomes. Cooper, Leland, and Alexander (1995) studied data from single births of 127,668 primiparas in Minneapolis, Minnesota. Logistic regression was used to control for confounding factors. These researchers found that as maternal age increased, prevalence of LBW and prematurity decreased. Other factors related to LBW and prematurity included being single, inadequate prenatal care, low educational status and urban residence.

Educational level. Educational attainment of women has been shown to have a profound effect on the number of births and the risk of poor outcomes (CDC, 2006). Women with higher educational attainment have fewer births, seek early prenatal care,

and participate in fewer risky behaviors such as smoking and drinking alcohol or using illicit drugs (2006). Those with lower education levels were at a higher risk for poor pregnancy outcomes (Cooper, Leland, & Alexander, 1995). In contrast, Feldman et al. (2000) found that greater educational attainment was only marginally related to higher birth weights. In a study of 1552 multiparous women in Scandinavia, Schei and Hoffman (1997) found that maternal and paternal education levels of less than nine years was found to be related to lower birth weights. Although this was a Norwegian study, the implications may have reliability across ethnicities. Zambrana et al. (1997) reported that the Mexican immigrant had 8.18 years of education as compared to 10.49 of the Mexican-American woman. Klepinger, Lundberg, and Plotnick (1995) interviewed 2,795 women to determine educational attainment at age 25. They found that having a child before age 20 significantly reduced educational attainment by three years among Whites, Blacks, and Hispanic women.

Parity. Pagnini and Reichman (2000) researched data on 90,000 Medicaid recipients who had participated in New Jersey's Health Start Program. These authors found that non-Hispanic whites, Hispanic, and Mexican-American women who had given birth previously were more likely to recognize the importance of early prenatal care. However, they were often prevented from seeking earlier prenatal care because they lacked resources for child care. The researchers also found that extreme poverty, substance abuse, depression and domestic violence had the greatest impact on entry into prenatal care.

Aliyu et al. (2005) purported in their study on birth trends across high-parity groups that minority women, particularly Mexican-American, had more pregnancies than non-Hispanic white women. They also continued to reproduce until later in life. Aliyu et al. attributed this fact to less use of contraceptives due to religious objections and the likelihood of having children to care for them in their old age. Childbearing is an important family role and responsibility in the Mexican and Mexican-American family (Williams, 1990). Although nulliparous (first pregnancy) women over 35 years of age were found to access prenatal care more readily, they tended to have higher rates of complications (Prysak, Lorenz, & Kisly, 1995).

Unger and Molina (1997) conducted an interesting study of 432 Hispanic women between the ages of 18-50 in Los Angeles, California. The purpose of the study was to examine desired family size and son preference for Hispanic women of low socioeconomic status. Through the use of survey questionnaires, the researchers found that those women who were over 30, had less than an 8th grade education, were unmarried, had a large family of origin and were born outside the United States were more likely to desire sons over daughters. These findings would confirm that the level of acculturation has an impact on parity. The researchers also found that many women will continue to have children until the desired number of sons was acquired regardless of financial burden.

Marital status. Pagini and Reichman (2000) deduced from their study that marital status has an important effect on Mexican-American women and their decision to

seek prenatal care. These authors found that married women initiated prenatal care earlier than unmarried women. The infants of married mothers were reported to have lower rates of LBW and mortality than babies born to single women. This was also found by Feldman et al. (1996) in their study of the effect of social support on fetal birth weight and growth. They also found that married women had higher birth weight babies than unmarried women. Zambrana et al. (1997) observed that the relationship with the baby's father correlated with early entry into prenatal care and more visits. Ahmed (1990) concluded in his study of 36,608 singleton births that unmarried mothers had a 34% higher incidence of LBW as well as a 35% higher incidence of infant mortality. He calculated the odds ratio for low birth weight was 1.18 for infants of unmarried mothers. Although this study is older, current findings are similar. Kirchengast, Mayer, and Voigt (2007) observed in their study of 179,830 women between 1999 and 2004 that there was an increased rate of LBW infants among single women. The researchers concluded that the increased rate of LBW was related to the stress of being an unmarried woman. Lower socioeconomic status and education were controlling factors. De la Rosa (2002) found in his review of the literature that babies born with Spanish surnames were more likely to have been born to married couples. He also reported that Mexican-born Spanish surnamed mothers were more likely to be older, have more children and to have received prenatal care later in the pregnancy. The author concluded that this may be directly related to differences in cultural beliefs regarding parental attitudes and childrearing as dictated by the marital state.

Length of residency. Collins and David (2004) performed a stratified analysis on computerized vital records of Mexican-American infants in Illinois. They compiled data on 2203 first generation infants and 4192 second or more generation infants. They found that those with shortest length of residence in the United States had fewer incidences of LBW; with the greatest incidence of LBW occurring in first generation infants. The researchers also found that LBW decreased in second or more generational born to approximate those of Mexican-born women. Collins and David attributed this phenomenon to the loss of close family and social supports early in the acculturation phase. Those who are second or more generational-born are most likely to have begun assimilating into the new culture and have developed new support systems.

Scribner (1996) also observed in his editorial that although the immigrants tended to be poorer, less educated and medically underserved, they were healthier than those first generational born. He accredited the understanding of this phenomenon to an ecologic fallacy that is, making inferences at the individual level with correlations made at the group level. Zambrana et al. (1997) concluded in their study of prenatal health behaviors related to acculturation that Mexican-American women, as compared to Mexican immigrants, had higher levels of stress, greater drug and alcohol use, and less social support from the baby's father. They also attributed this finding to assimilation into the non-Hispanic white culture.

Gestational age at initiation of prenatal care. In 2005 (Texas Department of State Health Services, 2006), 57.4% of Mexican-American women sought prenatal care

in the first trimester as compared to 73.6% of non-Hispanic white women. Of those Mexican-American women, 7.8% sought care in their 3rd trimester with 6.4% receiving no prenatal care. Quelopana, Champion, and Salazar (2008) conducted a case-control study with 253 first time pregnant Mexican women in Monterrey, Mexico, to determine if there was a correlation between late entry into prenatal health care and domestic violence. Through the use of questionnaires presented at registration at the prenatal clinic, they found that violence did influence when the women sought prenatal care, however, it was also found that unintended and unwanted pregnancy played a role as well. Bivariate correlations were used to determine associations between self-reported violence and continuous variables. Multiple regressions were performed to detect predictors of negative attitudes toward pregnancy and initiation of prenatal care.

Theoretical Framework

Description

The framework for this study, the Social Ecological Model (SEM), has its origins with John Snow, Florence Nightingale, and Urie Bronfenbrenner (Green & Krueter, 2005). Researchers such as Stokols (1996), Gregson et al. (2001), and Krug, Dahlberg, Mercy, Zwi and Lozano (2002) have used some variation of Bronfenbrenner's original model in which he examined the systems of relationships within a child's development. His system of relationships included the *microsystem*, *mesosystem*, *exosystem*, *macrosystem*, and *chronosystem* (Bronfenbrenner, 1990).

The *microsystem* is closest to the individual and includes those influences which directly affect his environment such as family, church, or social contacts. Within the *microsystem* is something Bronfenbrenner called bidirectional influences. For example, the family can influence the individual's values and beliefs. This influence may be reciprocal as well. The *mesosystem* reflected the interactions between an individual's *microsystems*. This may involve the family and religion or religion and social contacts. *Exosystems* encompass the larger social system. These may include community based resources used by the individual and his or her family. Prenatal clinics are one example. The *macrosystem* is thought to filter down through and directly influence the *mesosystem*. Cultural values, customs, and traditions make up this layer of influence. The final system, the *chronosystem* relates to the dimension of time. Elements within this system may include situational or maturational events such as pregnancy, illness, or even death. Bronfenbrenner wrote that interactions with each of these levels were an individual response.

In 1996, Stokols compared behavioral, environmental, and social ecological approaches to health promotion and program planning. After extensive review of some of the more popular models, he theorized that the Health Belief Model and Self-Efficacy are based on cognitive processes, whereas theories of risk perception and fear arousal are based on affective process. Stokols further maintained that both neglect social and environmental influences of individual and communal behavior. He stated that individual behavior change is often hampered by economic, social and cultural constraints and

health promotion programs often lack theoretical framework. Stokols advocated the use of the Social-Ecologic Model in health promotion programs as it places a "greater emphasis on the role of persons, groups, and organizations as active agents in shaping health practices" (p. 283). He asserted that the environment can serve as an "enabler of health behavior...and exposure to cultural practices that foster health promotion behaviors" (p.284).

Gregson et al. (2001) used the SEM to evaluate and plan a nutritional and social marketing programs used by the Food Stamp program for low-income audiences. Gregson et al. demonstrated the variability and flexibility of the SEM model. These authors used five levels to examine nutritional education. These levels were *individual*, *interpersonal*, *institutional/organizational*, *community*, and *social structure, policy, and systems*. In this study, the *individual* level described those influences on behavior such as knowledge, attitudes, and beliefs. The *interpersonal* level scrutinized family, peers, and social networks. *Institutional/organization* looked at rules, regulations, and informal structures such as schools or religious groups. Social networks, norms, and standards are studied at the *community* level. *Social structure, policy, and systems* level considered local, state, and federal policies and laws which regulate or support healthy actions. The authors wrote, "Applying an integrative framework such as the SEM...holds tremendous potential for assessing the effects of nutrition education and social marketing activities, improving the quality of programs, and accelerating public health change" (p 513). By

using the SEM, the authors were able to identify influences at each level that provided barriers to an effective food stamp program.

Krug et al. (2002) used the SEM to identify biological and personal history that would lead to victimization through violence. This study was used by the CDC (2008) as an example of the SEM being used to identify inter-relational influences on behavior. Krug et al. used a more abbreviated format than Gregson et al. In this study, the authors identified four levels, the *individual*, *relationship*, *community*, and *societal* levels. The *individual* level considered factors such as age, education, income, substance use, or history of prior abuse. In examining the *relationship* level, the authors identified interactions among peers, intimate partners, or family members that could increase the risk of physical or psychological abuse. The third level, *community*, such as schools, workplaces, or neighborhoods, was explored to identify associations with or opportunities for abuse or violence. Finally, the fourth level, *societal*, looked at cultural and social norms that may encourage violence and abuse. Through the application of this model, the authors identified areas that facilitated abuse and was able to develop a program to both prevent abuse and promote healthy relationships.

Application of Theory to Research Study

The SEM has shown to be flexible as the names of the levels have changed, the focus on inter-relationships and the influences those relationships may have on behavior have been retained. The model posted by the CDC and used by Krug et al. was used for this study (See Appendix A). The model was succinct and could be effectively applied to

this research study. The *individual* level addressed demographic information which included age, education, parity, marital status, and length of residence. This provided information regarding levels of knowledge and acculturation as well as data to be analyzed for predictors of prenatal health behavior. The *relationship* level identified maternal social support and the influence those networks had on healthcare decision-making by the individual. The *community* level will identify both access and barriers to prenatal health behaviors and care and how those have influenced healthcare behaviors. The *societal* level looked at the influence of the Church and religious commitment, as well as how influential these institutions may be in the healthcare behaviors of both social supports and individuals.

CHAPTER III

METHODOLOGY

Procedures

Mexican-American women who were either pregnant at the time of the survey or had been pregnant no more than twelve months before administration of the survey were recruited with permission (see Appendix A) from the local Women, Infant, and Children's (WIC) clinics, selected physician offices, and the local hospital. To recruit participants, a flyer was placed at each site two weeks before survey administration began (see Appendix B). Three hundred and twenty-five surveys were initially distributed with an additional 50 being distributed to female family members and friends of the initial participants. Of the 375 surveys distributed, 152 (41%) were completed and returned. Of the 152 surveys returned, 14 (4%) only included the second surveys and, thus, were not used for analysis.

The volunteers who agreed to participate in the study were given the survey with a cover letter and a self-addressed and stamped envelope. The participants were asked to return the completed survey by mail to the principal investigator. The participant was given the option of answering the survey in either English (see Appendix D) or Spanish (see Appendix E).

Protection of Human Participants

Approval for the study was obtained from the Institutional Review Board at Texas Woman's University (see Appendix C). All pertinent documents in both Spanish and English were provided with the application for approval. Participants were also given a second identical survey, along with a self-addressed stamped envelope, to complete and return to the investigator two weeks after completion and return of the initial survey. The second survey was intended to test reliability of the instrument. The phone number of the principal investigator was provided in the event there were questions about the survey. Designated bilingual volunteers distributed the surveys at each site. Several participants requested and were given additional surveys for female family members and friends who met the criteria for enrollment.

Instrumentation

The survey included questions from the Maternal Social Support Index (MSSI) by Pascoe et al. (1988), the Religious Commitment Scale (RC-10) by Worthington et al. (2003), and demographic data. Both scales have been used with the Hispanic population, but not specifically with Mexican-Americans. Reliability of the Maternal Social Support Index is reported using two groups, those already with children in the home and those who do not have children in the home. The MSSI consists of 21 questions. The first 10 questions relate to support available within the home, with questions 1, 5, and 10 relating to availability of children in the home to assist in childcare. If the participant does not have children, the answer will be marked as "not applicable" and produce no score for

those questions, whereas, if the respondent has children, she will receive a score of one or two depending on the level of support present. Thus, for scores of support within the home, women with children present at home will be scored on items 1-10. Women with no children present at home will receive a '0' on items 1, 5, and 10, and will receive scores on items 2, 3, 4, 6, 7, 8, and 9. For purposes of this study, those women who have children in the home will be referred to as Child Care participants. Those women who do not have children in the home will be referred to as Non-Child Care participants. Questions 11-21 of the MSSI are related to support outside the home, such as neighbors, relatives, or community resources. The Total Social Scale is measured on a continuum from 0-39 depending on the weight of the responses for questions 1-21. Zero would indicate no support with higher scores indicating more support. Overall reliability was 0.66 using Cronbach alpha (Pascoe et al., 1988).

The RC-10 is a 5-point Likert scale with 1 being less and 5 being more religiously committed. There are 10 questions in the scale which measures religious commitment. There are two subscales within the RC-10 which measure Interpersonal ($\underline{\alpha}$ =.87) and Intrapersonal ($\underline{\alpha}$ =.92) commitment. Questions # 23, 24, 25, 27, 28, and 29 reflect the intrapersonal meaning of religious commitment to the individual versus questions # 26, 30, 31, and 32 which express the intrapersonal sharing of values within a religious community. Overall Cronbach alpha for the full scale was 0.93 (Worthington et al., 2003). Questions related to prenatal health behaviors were developed into either a yes/no or select all that apply format. Questions were based on perinatal guidelines

recommended by the American Academy of Pediatrics (AAP) and the American College of Obstetrics and Gynecology (ACOG) (AAP & ACOG, 2008). It is important to note that the recommended care is based on Westernized medical standards.

Survey questions were translated by the investigator and back translated by two Mexican-American students and two Mexican-American physicians, all of whom are fluent in Spanish. It was determined the survey was at a recommended 6th grade level (Oregon State University, 2000). Modification of some of the more complex questions was done in collaboration with the authors of the survey instruments, Dr. Worthington and Dr. Pascoe.

Population and Sample

Demographics. This study was comprised of 138 participants (see Table 1), of whom 32 (23.2%) were pregnant at the time of the survey and 106 (76.8%) had been pregnant within 12 months of being surveyed. Of the 32 participants who were pregnant at the time of the survey, 10 (7.2%) were primiparas and pregnant for the first time and 22 (15.9%) were multiparas, those who had delivered previously. Twenty-eight women (20.3%) had one child, 42 (30.4%) had two children, 18 (13.1%) had three children, 25 (18.1%) had four children, 3 (2.2%) had five children, and 12 (8.7%) had six or more children.

Due to the nature of the study only females who identified as being Mexican-American were enrolled in the study. Fifty-two (37.7%) of the participants reported being born in Mexico, whereas 81 (58.7%) reported being born in the United States. Five

participants did not respond to this question. When asked how long they had resided in the United States, 4 (2.9%) responded they had spent less than a year, 28 (20.3%) had spent between 2 and 5 years, 20 (14.5%) spent 6 to 10 years, and 84 (60.9%) had spent more than 10 years in the United States. Two participants did not respond to this question.

The age of respondents ranged from 18 years of age to 45 (see Table 2). Forty-three (31.2%) were between 18 and 24, 35 (24.5%) were between 25 and 30, 43 (31.2%) were between 31 and 35, 8 (5.8%) were between 36 and 40, and 9 (6.5%) were between 41 and 45. Of the participants, 56 (40.6%) were single, 74 (53.6%) were married, 4 (2.9%) were divorced, and 4 (2.9%) were widowed. When asked how much education the participants had acquired, it was found that 49 (35.5%) did not complete high school, 56 (40.6%) were high school graduates, 20 (14.5%) attended college, and 13 (9.4%) were college graduates.

Table 1

Parity

Category		Response	Frequency	%
Pregnancy status at time of survey				
		Pregnant	32	23.2
		Pregnant within last 12 months	106	76.8
Number of children (Parity)	n=138			
		0 (1st pregnancy-undelivered)	10	7.2
		1	28	20.3
		2	42	30.4
		3	18	13.1
		4	25	18.1
		5	3	2.2
		6	12	8.7

Table 2

Participant Demographics

Category	Response	Frequency	%
Place of birth			
	Mexico	52	37.7
	United States	81	58.7
Length of residency			
	Less than one year	4	2.9
	2 – 5 years	28	20.3
	6-10 years	20	14.5
	Greater than 10 years	84	60.9
Age			
	18-24	43	31.2
	25-30	35	24.5
	31-35	43	31.2
	36-40	8	5.8
	41-45	9	6.5
Marital status			
	Single	56	40.6
	Married	74	53.6
	Divorced	4	2.9
	Widowed	4	2.9
Education level Completed			
	Did not complete high school	49	35.5
	High school	56	40.6
	Some college	20	14.5
	Bachelor's or higher	13	9.4

Religion

Of the 138 participants surveyed (see Table 3), 89 (64.5%) were Catholic, 15 (10.9%) indicated they were Pentecostal, and 34 (24.6%) identified as being Protestant, which included primarily Baptist and Methodist. One hundred and sixteen (84.1%) were the same religion as their parents, and 22 (15.9%) were not the same religion. Additionally, 46 (33.3%) did not attend church on a weekly basis, 78 (56.6%) attended

once per week, 10 (7.2%) attended twice per week, and 4 (2.9%) attended more than twice per week. When asked how often they prayed, 103 (74.6%) responded with daily and 35 (25.4%) prayed when things were not going well. Twenty-eight (20.3%) responded that they had an *altarcita* (home altar) in their home which allowed them to pray as often as they wished. One hundred and six (76.8%) prayed to God, 19 (13.8%) prayed to the Virgin Mary, 88 (63.8%) prayed to the Virgin of Guadalupe, and 5 (3.6%) prayed to another saint or deity. Moreover, 63 (45.7%) believed God would punish them if they smoked, drank alcohol, or did drugs during pregnancy. There was some overlap in these numbers as many of the respondents marked more than one answer.

Table 3

Religious Commitment

Category	Response	Frequency	%
Religion			
	Catholic	89	64.5
	Pentecostal	15	10.9
	Protestant	34	24.6
Religion of parents			
	Same	116	84.1
	Different	22	15.9
Weekly church attendance			
	0	46	33.3
	1	78	56.6
	2	10	7.2
	More than 2	4	2.9
Frequency of prayer			
	Daily	103	74.6
	Only when things not going well	35	25.4

(continued)

Table 3

Religious commitment (continued)

Category	Response	Frequency	%
Presence of altarcita			
	Yes	28	20.3
	No	110	79.7
Pray to			
	God	106	76.8
	Virgin Mary	19	13.8
	Guadalupe	88	63.8
	Other	5	3.6

Prenatal Behavior

Participants were asked about where they received prenatal education (see Table 4). Two (1.4%) reported receiving information from no one, 30 (21.7%) took prenatal classes, 60 (43.5%) got information from their mothers or grandmothers, 23 (16.7%) looked to a female relative for information, 27 (19.6%) relied on a female friend, 115 (83.3%) obtained educational instruction from a doctor, and 30 (21.7%) were educated by nurses. Participants were asked when they began prenatal care (see Table 5). Twenty-three reported (16.7%) they received no prenatal care, 69 (50%) stated they received prenatal care within 4 to 16 weeks following gestation, 34 (24.6%) started prenatal care between 17 to 28 weeks after conception, and 12 (8.7%) commenced prenatal care in the 29 to 38 week range. Those participants responding that they had not received prenatal care may have been confused by the lack of a "not pregnant" choice. In reviewing the data, only one person reported not having received prenatal care.

The participants were asked about activities performed during pregnancy. One hundred and twenty responded they (87%) had regular prenatal care with a physician or nurse, 3 (2.2%) received prenatal care from a *partera*, *curandera*, or family member, 63 (45.7%) ate a well balanced diet, 52 (37.7%) exercised, 117 (84.8%) took prenatal vitamins, 46 (33.3%) took folic acid, and 44 (31.9%) visited a dentist.

When asked about substance use during pregnancy, such as smoking, alcohol, use of non-prescribed over-the-counter medications and street drugs, 12 (8.7%) reported drinking alcohol during their pregnancy, 4 (2.9%) used tobacco, 1 (0.7%) used marijuana, 17 (12.3%) took unprescribed over-the-counter medications such as Tylenol. No one reported using either cocaine or heroin. Finally, 121 (87.7%) felt they took better care of themselves when pregnant as compared to when not pregnant.

Table 4
Prenatal Education

Category	Response	Frequency	%
Source of Prenatal Education			
	No one	2	1.4
	Prenatal class	30	21.7
	Mother/Grandmother	60	43.5
	Female relative	23	16.7
	Female friend	27	19.6
	Physician	115	83.3
	Nurse	30	21.7

Table 5

Prenatal Care

Category	Response	Frequency	%
Timeframe for prenatal care			
	None	23	16.7
	4-16 weeks	69	50.0
	17-28 weeks	34	24.6
	29-38 weeks	12	8.7
Activities			
	Prenatal care by physician	120	87.0
	Prenatal care by *partera*, *curandera*, family member	3	2.2
	Balanced diet	63	45.7
	Exercise	52	37.7
	Prenatal vitamins	117	84.8
	Folic acid	46	33.3
	Dentist visit	44	31.9
	Alcohol	12	8.7
	Tobacco	4	2.9
	Marijuana	1	0.7
	Cocaine/heroin	0	0.0
	Unprescribed over-the-counter medications	17	12.3
	Took better care of themselves	121	87.7

Data Analysis

Survey data were collected, coded, and entered into an Excel spreadsheet. Data were analyzed using descriptive statistics, *t*-tests, binary regression analyses, and discriminate analyses. PASW (version 18.0) was used to analyze the data. The data between the various groups derived from the demographic questions related to prenatal health care, were compared for the RC-10 and the Maternal Social Support Index using independent-samples *t*-tests. Additionally, binary regression analyses were employed to

see if the descriptive covariates could be used to predict prenatal health care behaviors. Furthermore, discriminate analyses were used to determine if differences in prenatal health care could be found using the RC-10 and Maternal Social Support Index.

CHAPTER IV

RESULTS

This study asked two research questions to determine prenatal health behaviors, and the effects of social support and religious commitment on those behaviors. The survey responses were statistically analyzed and the results are reported in this chapter.

Research Question 1

The first research question asked, "What are the prenatal health behaviors of pregnant or recently pregnant Mexican- American women in North Central Texas?" Participants were asked about healthy prenatal activities which had been recommended by the American College of Obstetrics and Gynecology (ACOG) (2008) (see Table 6). Although, 81.9% reported receiving prenatal care, neither time of entry or length of care was addressed in the survey. Consistency of balanced diets and exercise regimen were not addressed here as well. As addressed in Chapter III, the ACOG guidelines were changed after initiation of this study. These low numbers may reflect those changes.

Table 6

Frequency of Healthy Prenatal Activities among Mexican-American Women in North Texas.

Activity	*Frequency (N-138)*	*%*
Prenatal care	123	81.9
Balanced diet	63	45.7
Exercise	52	37.7
Vitamins	117	84.8
Folic acid	46	33.3
Dentist	44	31.9

Research Question 2

The second research question asked, "What are the effects of maternal social support and religious commitment on prenatal health behaviors among pregnant or recently pregnant Mexican-American women in North Central Texas?" All three null hypotheses are related to the second research question. The first null hypothesis stated that there was no relationship between maternal social support and prenatal health behaviors among Mexican-American women. The second null hypothesis stated that there is no relationship between religious commitment and prenatal health behaviors among Mexican-American women in North Central Texas. The third null hypothesis stated that descriptive covariates (age, educational level, parity, gestational age when prenatal care was sought, length of residency in the United States, and marital status), social support, or religious commitment will be neither predictive nor protective of prenatal behavior among Mexican-American women participating in recommended prenatal health behavior.

Null Hypothesis I

The Maternal Social Support Index results in a score for those women who have children at home (Child Care score), a score for those women who do not have children at home (Non-Child Care score), and a Social Total Score. Thus, each participant had two scores that were used with the descriptive covariates from the demographic questionnaire to evaluate the differences between social support and prenatal health care.

Participants with no children in home (Non-Child Care Score; Table 7). These analyses revealed a significant difference ($t = 2.685$, $p = .008$) in regular prenatal care with a physician or nurse practitioner between those with higher Non-Child Care scores ($M = 4.41$, $SD = 1.836$) and individuals with lower Non-Child Care scores ($M = 5.79$, $SD = 1.626$). Participants who did not receive regular prenatal care with a physician or nurse had higher Non-Child Care scores. This finding indicated the participant was likely pregnant with her first child and may not have entered prenatal care at the time of the survey. Yet, the higher Non-Child Care scores reveal she received in-home support from immediate family or a female friend. This finding was supported by the following results. Individuals who received prenatal education from a female friend ($M = 5.48$, $SD = 1.673$) scored higher on the Non-Child Care items than participants who did not receive this education from a female friend ($M = 4.23$, $SD = 1.854$) ($t = -3.193$, $p = .002$).

When questioned about the use of alcohol during pregnancy, participants who drank alcohol during the pregnancy ($M = 2.75$, $SD = 1.215$) scored lower on the Non-

Child Care items score when compared to those who did not drink ($M = 4.70$, $SD = 1.808$) during pregnancy ($t = 3.654$, $p = .000$). Among the participants, these findings would indicate that being pregnant for the first time and having less social support in the home may predispose one to drinking alcohol during pregnancy. When questioned about other substance use during pregnancy, participants who used other unhealthy substances had lower Non-Child Care scores ($M = 2.94$) than non-users ($M = 4.69$) ($t = 3.769$, $p = .000$). Those who scored higher indicated a higher level of support within the home and were less likely to use unhealthy substances during pregnancy.

When individuals who had an appointment with the dentist and those who did not have a dentist appointment were compared, significant differences were seen on the Non-Child Care scores ($t = 2.375$, $p = .019$). Those who did not have an appointment with the dentist scored higher on the Non-Child Care items ($M = 4.73$, $SD = 1.885$) than those who did have an appointment with the dentist ($M = 3.93$, $SD = 1.771$).

Participants with children in home (Child Care Score; Table 8). Among participants with children at home, those who maintained a balanced diet scored lower on the Child Care items ($M = 2.60$, $SD = .959$) than those who did not maintain a balanced diet ($M = 2.91$, $SD = .408$). Although the finding was significant ($t = 2.486$, $p = .014$), it's important to note that the mean scores for both groups are similar. This finding could indicate that those with children and a higher level of immediate social support find it more difficult to maintain a balanced diet during pregnancy. Participants who took folic acid supplements scored lower on the Child Care items ($M = 2.48$, $SD = 1.090$) than

participants who did not take folic acid ($M = 2.91$, $SD = .382$) ($t = 3.436$, $p = .001$). Those participants with more in-home support were less likely to take folic acid supplements. There were changes in the guidelines after the survey was implemented which may have affected the results of this question. Another significant difference ($t = 4.919$, $p = .000$) was found on the Child Care participant scores between individuals who took a prenatal class ($M = 2.23$, $SD = 1.278$) and those who did not take a prenatal class ($M = 2.92$, $SD = .365$). Those participants who scored higher on support within the home were less likely to take prenatal classes. It is probable that these women did not perceive it to be necessary since they had a higher level of support at home. Scores on the Child Care participant score were also significantly different ($t = 2.929$, $p = .004$) when comparing individuals who got pregnancy information from a mother or grandmother ($M = 2.57$, $SD = .981$) to people who did not receive information from this source ($M = 2.92$, $SD = .387$). Those participants who scored higher on support within the home reported they did not receive prenatal education from mothers or grandmothers. It is possible these participants did not see the need for this resource as they had experienced pregnancy and childbirth previously.

In a comparison of participants who saw a dentist and those who did not see a dentist, significant differences were observed on the Child Care scores ($t = 3.328$, $p = .001$). Those who did not have an appointment with the dentist had greater level of support at home ($M = 2.90$, $SD = .365$) when compared to those who did have an appointment with the dentist ($M = 2.48$, $SD = 1.110$). It is possible that those with greater

support may be more dependent on the advice of family and friends than those who have less support who may have to make independent decisions.

MSSI (Social Total Score; Table 9). The Social Total Score also showed a significant difference (t = -2.764, p = .006) between women who exercised (M = 26.79, SD = 4.036) and those who did not exercise (M = 24.62, SD = 4.716). Those women with higher levels of social support may have had greater assistance from others and resources to exercise independently or with friends. A significant difference (t = -2.818, p = .006) was seen on the Social Total Score between individuals who used over-the-counter medication without caregiver's direction (M = 28.29, SD = 2.995) and individuals who did not use over-the counter medication without direction (M = 25.03, SD = 4.629). Those women with higher levels of social support were more likely to take OTC preparations without physician advice. This may be due to advice given by trusted family members or friends. Combining the substance related questions to create a dichotomous variable related to substance use during pregnancy revealed a significant difference (t = -2.554, p = .012) on the Social Total Score with individuals who used substances during pregnancy having higher scores (M = 27.28, SD = 3.929) than individuals who did not use substances during pregnancy (M = 24.97, SD = 4.627). These findings are surprising in that those women with broader levels of support are more likely to take unhealthy substances than those who had less support.

Obtaining prenatal education from doctors was another area where significant differences were present on the Social Total Score (t = -2.920, p = .004) with individuals

who were educated by doctors scoring higher (M = 25.93, SD = 4.432) than individuals who were not educated by physicians (M = 22.96, SD = 4.597). Being educated by a nurse also showed differences on the Social Total Score (t = -3.413, p = .001), where individuals who were educated by a nurse scored higher (M = 27.87, SD = 4.313) than those who were not educated by a nurse (M = 24.76, SD = 4.438). Participants who received prenatal information from female relatives revealed higher Social Total scores (M = 28.96, SD = 3.350) when compared with those who did not receive prenatal education from female relatives (M = 24.73, SD = 4.477) (t = -4.288, p = .000).

In contrast to the findings from the Non-Child Care and Child Care items, the Social Total Score was higher for individuals who did have a dental appointment (M = 26.59, SD = 4.437) (t = -2.052, p = .042) than women who did not have a dental appointment (M = 24.89, SD = 4.568). Thus, greater overall support from within and outside the home had a positive influence on prenatal dental visits.

Table 7

Independent-Samples t-Tests of Prenatal Activity by Non-Child Care Scores (Participants with No Children At Home)

Categories	Mean	SD	*t*	*p*
Regular prenatal care	4.41	1.836	2.685	.008
No prenatal care	5.79	1.626		
Dental visit	3.93	1.771	2.375	.019
No Dental visit	4.73	1 .885		
Drank alcohol	2.75	1.215	3.654	.000
Did not drink alcohol	4.70	1.808		
Education from female relative	5.43	1.754	-2.735	.007
Education not from female relative	4.29	1.853		
Education from female friend	5.48	1.673	-3.193	.002
Education not from female friend	4.23	1.854		
Education from doctor	4.69	1.774	-2.999	.003
Education not from doctor	3.43	2.085		
Education from nurse	5.60	1.429	-3.878	.000
Education not from nurse	4.17	1.877		

Table 8

Independent-Samples t-Tests of Prenatal Activity by Child Care Scores (Participants with Children at Home)

Categories	Means	SD	*t*	*p*
Balanced diet	2.60	.959	2.486	.014
No Balanced diet	2.91.	.408		
Folic Acid	2.48	1.090	3.436	.001
No Folic Acid	2.91	.382		
Dental visit	2.48	1.110	3.328	.001
No Dental visit	2.90	.365		
Prenatal class	2.23	1.278	4.919	.000
No prenatal class	2.92	.365		
Education from mother/grandmother	2.57	.981	2.929	.004
Education not from mother/grandmother	2.92	.387		

Table 9

Independent-Samples t-Tests of Prenatal Activity by Total Social Scale Scores

Categories	Means	SD	*t*	*p*
Exercise	26.79	4.036	-2.764	.006
No Exercise	24.62	4.716		
Dental visit	26.59	4.437	-2.052	.042
No Dental visit	24.89	4.568		
OTC Meds	28.29	2.995	-2.818	.006
No OTC meds	25.03	4.629		
Education from female relative	28.96	3.350	-4.288	.000
Education not from female relative	24.73	4.477		
Education from doctor	25.93	4.432	-2.920	.004
Education not from doctor	22.96	4.597		
Education from nurse	27.87	4.313	-3.413	.001
Education not from nurse	24.76	4.438		
Substance use	27.28	3.929	-2.554	.012
No substance use	24.97	4.627		

One-way Analyses of Variance (ANOVAs) (see Table 10) (see Figures 1 and 2) were also used for the scales of the Maternal Social Support Index to see if differences were present between the categories distinguishing when the participants started prenatal care. These analyses revealed a significant difference among those who did not have children at home (Non-Child Care); $F(3, 134) = 3.642$, $p = .014$ ($\omega^2 = .05$). The subsequent Tukey's Honestly Significant Difference (HSD) post-hoc comparisons (see Table 11) showed significantly higher scores on in home support (HSD = 1.192, p = .012) for individuals who sought prenatal care 4 to 16 weeks after gestation ($M = 4.93$,

SD = 2.158) when compared to individuals who sought prenatal care 17 to 28 weeks into the gestational period (*M* = 3.74, *SD* = 1.377).

Table 10

ANOVA of Non-Child (those without children at home) Participant Scores by Entry into Prenatal Care.

	4 – 16 Weeks		*17-28 Weeks*				
	M	*SD*	*M*	*SD*	*f*	*p*	ω^2
Non-Child Score	4.93	*2.158*	3.74	1.377	(3, 134) 3.642	.014	.05

Table 11

Tukey's HSD Post-hoc Comparison of Non-Child Participant Scores by Entry into Prenatal Care.

	4 – 16 Weeks		*17-28 Weeks*			
	M	*SD*	*M*	*SD*	*HSD*	*p*
Non-Child Score	4.93	*2.158*	3.74	1.377	1.192	.012

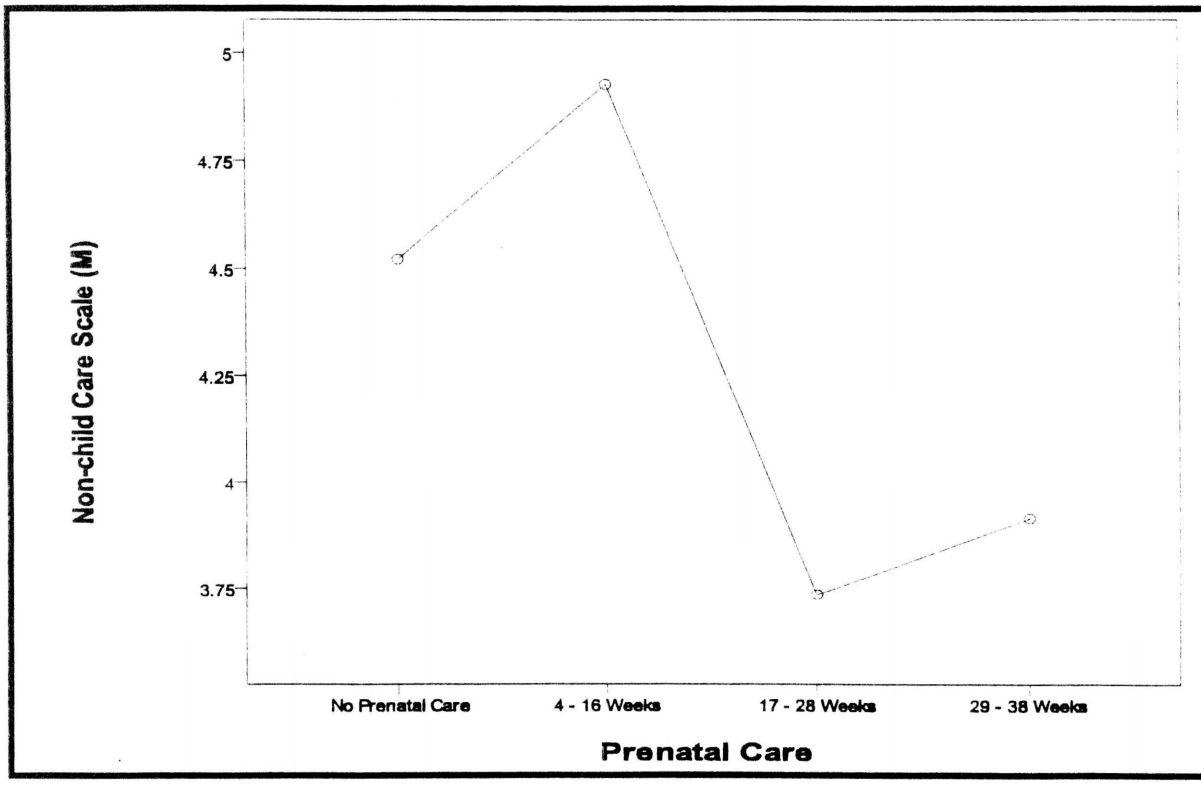

Figure 1. Mean differences of entry into prenatal care as reflected by the non-child participant score of the MSSI. The graph shows that those participants with the highest non-child participant score were more likely to enter prenatal care during 4-16 weeks of gestation. The largest difference is between 4-16 weeks and 17-28 weeks gestation.

Null Hypothesis II

In considering the relationship between religious commitment and prenatal health care, the Interpersonal and Intrapersonal Scales of the RC-10 were used along with the descriptive covariates to assess if differences exist between the groups. Findings were similar for both subscales. This analysis revealed significant differences in religious commitment between individuals who took vitamins and people who did not take

vitamins for the Interpersonal Subscale (t = -2.515, p = .013 (see Table 12) and Intrapersonal Subscale (t = -2679, p = .008) (see Table 13). The Interpersonal Subscale had higher scores among individuals who took vitamins (M = 11.92, SD = 6.128) as compared to participants who did not take vitamins (M = 8.33, SD = 5.370), and the Intrapersonal Subscale showed a similar trend with individuals who took vitamins during pregnancy (M = 7.49, SD = 3.986) scoring higher than people who did not take vitamins (M = 4.95, SD = 4.031). Another set of significant differences were found on the Interpersonal Subscale (t = -2.436, p = .016) and Intrapersonal Subscale (t = -2.155, p = .033). This analysis revealed individuals who went to the dentist reported higher levels of religious commitment for the Interpersonal Subscale (M = 13.20, SD = 5.805) and Intrapersonal Subscale (M = 8.18, SD = 4.304) as compared to individuals who did not have a dentist visit while pregnant (Interpersonal Subscale, M = 10.52, SD = 6.132; Intrapersonal Subscale, M = 6.60, SD = 3.895). Those who took a prenatal class (Interpersonal Subscale, M = 14.37, SD = 4.664; Intrapersonal Subscale, M = 8.93, SD = 3.591) scored significantly higher on religious commitment (Interpersonal Subscale, t = -3.110, p = .002; Intrapersonal Subscale, t = -2.850, p = .005) than participants who did not take a prenatal class (Interpersonal Subscale, M = 10.55, SD = 6.257; Intrapersonal Subscale, M = 6.59, SD = 4.079). Also, a significant difference (t = 3.016, p = .003) was found on the Interpersonal Subscale between those who received prenatal education from a female friend (M = 5.04, SD = 3.069) as compared to those who did not receive this form of education (M = 7.60, SD = 4.150). Receiving prenatal education from a doctor

also revealed significant differences on the Interpersonal Subscale ($t = 2.437$, $p = .016$) and the Intrapersonal Subscale ($t = 3.069$, $p = .002$). Participants who received prenatal education from a physician had lower scores on the Interpersonal Subscale ($M = 10.82$, $SD = 5.765$) and Intrapersonal Subscale ($M = 6.63$, $SD = 3.735$) as compared with those individuals who did not receive education from a physician (Interpersonal Subscale, $M = 14.17$, $SD = 7.253$; Intrapersonal Subscale, $M = 9.43$, $SD = 4.962$). Education from a nurse revealed a similar finding on the Intrapersonal Subscale ($t = 2.636$, $p = .009$) with individuals receiving prenatal education from a nurse scoring lower ($M = 5.40$, $SD = 3.024$) than individuals who were not educated by a nurse ($M = 7.57$, $SD = 4.221$).

Table 12

Independent-Samples t-Tests of Prenatal Activity by Interpersonal Subscale Scores (RC-10)

Categories	Means	SD	*t*	*p*
Vitamins	11.92	6.128	-2.515	.013
No vitamins	8.33	5.370		
Dental visit	13.20	5.805	-2.436	.016
No dental visit	10.52	6.132		
Prenatal class	14.37	4.664	-3.110	.002
No prenatal class	10.55	6.257		
Education from female friend	5.04	3.069	3.016	.003
No education from female friend	7.60	4.150		
Education from a doctor	10.82	5.765	2.437	.016
No education from a doctor	14.17	7.253		

Table 13

Independent-Samples t-Tests of Prenatal Activity by Intrapersonal Subscale Scores (RC-10)

Categories	Means	SD	*t*	*p*
Vitamins	7.49	3.986	-2679	. 008
No vitamins	4.95	4.031		
Dental visit	8.18	4.304	-2.155	.033
No dental visit	6.60	3.895		
Prenatal class	8.93	3.591	-2.850	.005
No prenatal class	6.59	4.079		
Education from a doctor	6.63	3.735	3.069	.002
No education from a doctor	9.43	4.962		
Education from a nurse	5.40	3.024	2.636	.009
No education from a nurse	7.57	4.221		

One-way Analyses of Variance (ANOVAs) (see Figure 2 and Figure 3) were also used for the scales of the RC-10 to determine if differences were present between the categories distinguishing when the participants started prenatal care. These analyses revealed no significant difference on the Interpersonal Scale; $F(3, 134) = 2.619$, $p = .053$ ($\omega^2 = .03$); and a significant difference on the Intrapersonal Scale; $F(3, 134) = 2.883$, $p = .038$ ($\omega^2 = .04$) (see table 14). The subsequent Tukey's Honestly Significant Difference (HSD) post-hoc comparisons for the Interpersonal Scale showed no significant differences between individuals who never sought prenatal care and individuals who got prenatal care within 17 to 28 weeks (HSD = 3.922, $p = .080$) (see Table 15) as well as individuals who initiated prenatal care at 29 to 38 weeks (HSD = 5.054, $p = .091$). In comparing the mean scores for each group, the group that did not receive prenatal care

(M = 14.30, SD = 7.131) scored higher than the 17 to 28 week group (M = 10.38, SD = 5.700) and the 29 to 38 week group (M = 9.25, SD = 6.744). The follow-up Tukey's Honestly Significant Difference (HSD) post-hoc comparisons for the Intrapersonal Scale showed a moderately significant difference (HSD = 3.670, p = .053) between individuals who never got prenatal care (M = 9.09, SD = 5.044) and individuals who initiated prenatal care at 29 to 38 weeks (M = 5.42, SD = 4.055.). There was no significant difference (HSD = 2.420, p = .062) between individuals who never had prenatal care (M = 9.09, SD = 5.044) and individuals who received care at 4 to 16 weeks (M = 6.67, SD = 3.845).

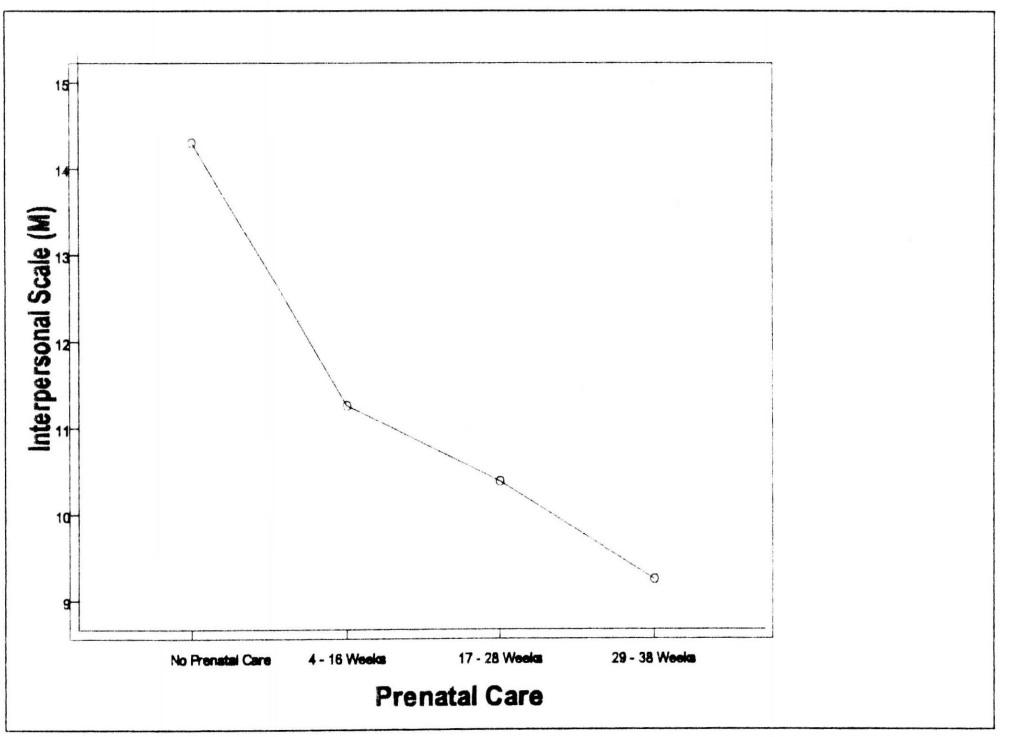

Figure 2. Mean differences of entry into prenatal care as reflected by the Interpersonal Subscale of the Religious Commitment Scale (RC-10). Graph shows that the higher the Interpersonal Subscale score, the more likely one is to not seek prenatal care or to enter prenatal care in the first

4-16 weeks of gestation. Those with lower inter-reflective scores (interpersonal) are more likely to enter prenatal care toward the end of the pregnancy.

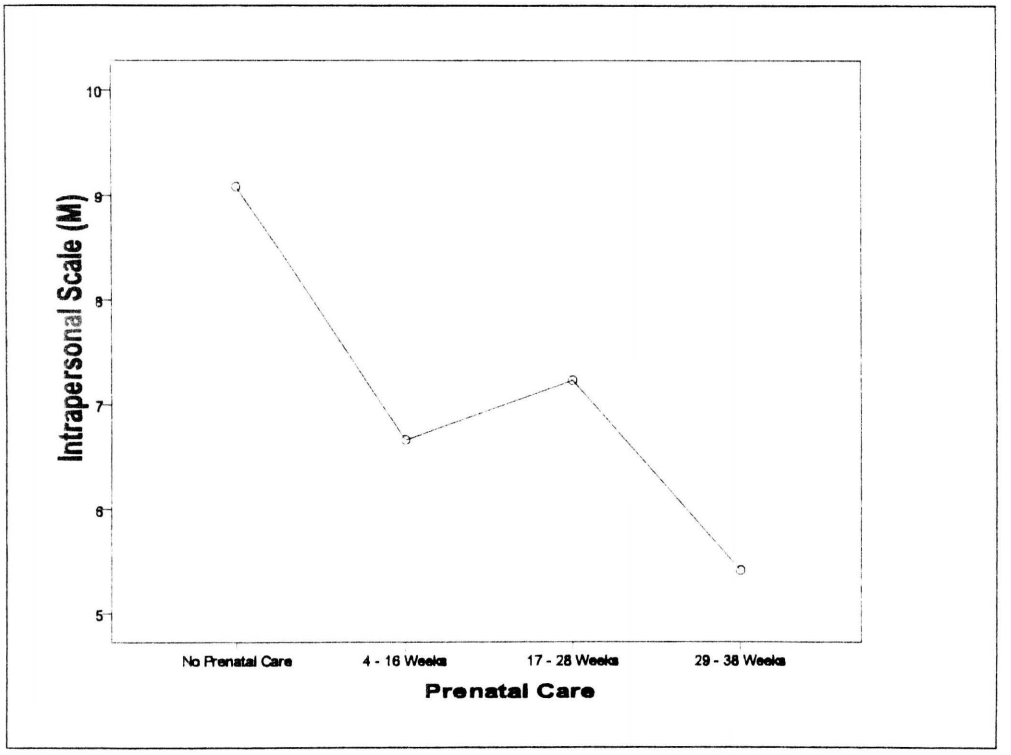

Figure 3. Mean differences of entry into prenatal care as reflected by the Intrapersonal Subscale of the Religious Commitment Scale (RC-10). The graph shows that those women with higher intrapersonal scores, community sharing of values, are more likely to not seek prenatal care or enter care in the 17-28th week of gestation than those with lower scores who are more likely to enter prenatal care in the first 4-16 weeks or 29-38 weeks of gestation.

Table 14

ANOVA Comparison of Interpersonal and Intrapersonal Subscales of the RC-10 and Entry Into Prenatal Care.

Scale	*f*	*p*	ω^2
Interpersonal Scale	(3, 134) 2.619	.053	.03
Intrapersonal Scale	(3, 134) 2.883	.038	.04

Table 15

Tukey's Honestly Significant Difference (HSD) Post-Hoc Comparison of Interpersonal and Intrapersonal Subscales Based on Entry Into Prenatal Care

Scale	*Categories*	*M*	*SD*	*HSD*	*p*
Interpersonal Scale					
	29-38 Weeks	9.25	6.744	*5.054*	*.091*
	No prenatal care	14.30	7.131		
	17-28 Weeks	10.38	5.700	*3.922*	*.080*
	No prenatal care	14.30	7.131		
Intrapersonal Scale					
	4-16 Week	6.67	3.845	2.420	.062
	No prenatal care	9.09	5.044		
	29-38 Week	5.42	4.055	3.670	.053
	No prenatal care	9.09	5.044		

Null Hypothesis III

The third null hypothesis stated that descriptive covariates (age, educational level, parity, gestational age when prenatal care was sought, length of residency in the United States, and marital status), social support, or religious commitment will be neither

predictive nor protective of prenatal behavior among Mexican-American women participating in recommended prenatal health behavior. Binary logistic regressions were used to examine the relationship between the descriptive covariates (e.g., age, place of birth, education, marital status) and prenatal health behaviors (e.g., maintaining a well-balanced diet, visiting a dentist, taking prenatal vitamins, exercising). These analyses revealed significant differences among the identified healthy prenatal health behaviors. These differences included maintaining a well-balanced diet (χ^2 (8) = 49.646, p = .000), exercising (χ^2 (8) = 73.713, p = .000), taking prenatal vitamins (χ^2 (8) = 36.266, p = .000), using folic acid (χ^2 (8) = 64.845, p = .000), visiting a dentist (χ^2 (8) = 63.501, p = .000), using substances (χ^2 (8) = 34.782, p = .000), and taking better care of the self (χ^2 (8) = 92.119, p = .000). These prenatal health behaviors will be given specific consideration in the following paragraphs. Maintenance of a well-balanced diet had several significant contributing factors: age (Wald = 15.441, p = .000, Exp (B) = .377), years in the United States (Wald = 8.537, p = .003, Exp (B) = 7.885), education level (Wald = 13.309, p = .000, Exp (B) = 4.387), marital status (Wald = 4.319, p = .038, Exp (B) = .320), and religion (Wald = 13.307, p = .000, Exp (B) = .114). Each of these variables was further evaluated using separate χ^2 analyses for each variable in relation to diet and the reliably significant results are presented below. These revealed a significant difference (χ^2 (1) = 10.434, p = .001) in maintaining a well-balanced diet. This difference was present between individuals who had been in the United States more than 10 years and individuals who had been in the United States less than 10 years; specifically, the

individuals who had been in the United States less than 10 years were less likely to maintain a healthy diet (see Table 16). Also, women with higher levels of education were more likely to maintain a healthy diet (χ^2 (2) = 9.234, p = .010) (see Table 17). The results for age were unreliable due to the 41 and older category not having enough individuals in each cell. This lack of reliability was addressed by combining the oldest two categories so that the last category for age was 36 and older. The results using this categorization showed a significant difference (χ^2 (3) = 7.969, p = .047) (see Table 18).

Table 16

Individual χ^2 Results for Length of Residency in Relation to Maintaining a Healthy Diet.

		Diet					
		Did not maintain	Did Maintain	Total	χ^2	*df*	*p*
Years in United States	Less than 10	37 (71.2%)	15 (28.8%)	52	10.434	1	.001
	More than 10	36 (42.9%)	48 (57.1%)	84			
Total		73	63	136			

Table 17

Individual χ^2 Results for Education in Relation to Maintaining a Healthy Diet.

		Diet					
		Did not Maintain	Did Maintain	Total	X^2	*df*	*p*
Education	Did not finish	33 (67.3%)	16 (32.7%)	49	9.234	2	.010
	High School	31 (55.4%)	25 (44.6%)	56			
	College	11 (33.3%)	22 (66.7%)	33			
Total		75	75	138			

Table 18

Individual X^2 Results for Age in Relation to Maintaining a Healthy Diet.

		Diet					
		Did not Maintain	Did Maintain	Total	X^2	*df*	*p*
Age	18-24	17 (39.5%)	26 (60.5%)	43	7.969	3	.047
	25-30	25 (71.4%)	10 (28.6%)	35			
	31-35	24 (55.8%)	19 (44.2%)	43			
	36+	9 (52.9%)	8 (47.1%)	17			
Total		75	63	138			

Exercising also had several significant contributing factors: age (Wald = 12.960, p = .000, Exp(B) = 3.424), praying to the Virgin of Guadalupe (Wald = 7.156, p = .007, Exp(B) = 6.032), years in the United States (Wald = 11.516, p = .001, Exp(B) = 14.131), marital status (Wald = 11.361, p = .001, Exp(B) = 6.855), and church attendance (Wald = 9.111, p = .003, Exp(B) = .131). Again, the relationship of each of these factors with exercise was considered individually by using follow-up χ^2 statistics which showed significant differences for years in the United States (χ^2 (1) = 16.554, p = .000) and marital status (χ^2 (2) = 11.312, p = .003). In regards to years in the United States, individuals who had been in the United States less than 10 years were less likely to exercise regularly (see Table 19). Pertaining to marital status, participants who were single were less likely to regularly exercise (see Table 20). Again, the age categorization with the two oldest groups combined was used, and a significant difference (χ^2 (3) = 26.456, p = .000) was found between the age groups (see Table 21).

Table 19

Individual χ^2 Results for Length of Residency in Relation to Exercise.

		Exercise					
		No Regular Exercise	Regularly Exercise	Total	X^2	*df*	*p*
Years in U.S.	Less than 10	44 (84.6%)	8 (15.4%)	52	16.554	1	.000
	More than 10	42 (50.0%)	42 (50.0%)	84			
Total		86	86	136			

Table 20

Individual χ^2 Marital Status in Relation to Exercise.

		Exercise					
		No Regular Exercise	Regular Exercise	Total	X^2	*df*	*p*
Marital Status	Single	44 (78.6%)	12 (21.4%)	56	11.312	2	.003
	Married	39 (52.7%)	35 (47.3%)	74			
	Divorced or Widowed	3 (37.5%)	5 (62.5%)	8			
Total		86	52	138			

Table 21

Individual χ^2 Results for Age in Relation to Exercise

		Exercise					
		No Regular Exercise	Regular Exercise	Total	X^2	*df*	*p*
Age	18-24	36 (83.7%)	(16.3%)	43	26.456	3	.000
	25-30	27 (77.1%)	8 (22.9%)	35			
	31-35	17 (39.5%)	26(60.5%)	43			
	36+	6 (35.3%)	11 (64.7%)	17			
Total		86	52	138			

Two factors, place of birth (Wald = 6.348, p = .012, Exp(B) = 9.238) and marital status (Wald = 4.692, p = .030, Exp(B) = 6.089) significantly contributed to taking prenatal vitamins. The implications of these significant factors in relation to vitamin regimen can be seen in the subsequent χ^2 results; these indicate marital status is significant (χ^2 (2) = 13.282, p = .001) with single people being less likely to regularly take prenatal vitamins (see Table 22). Of course, there are fewer than 5 individuals in one of the cells so the reliability of this finding is questionable. Concerning birth place, a difference which approached significance (χ^2 (1) = 3.410, p = .065) was found, and individuals born in Mexico were more likely to not take prenatal vitamins regularly (see Table 23).

The place of birth (Wald = 9.760, p = .002, Exp(B) = .065), praying to the Virgin of Guadalupe (Wald = 4.287, p = .038, Exp(B) = 4.451), level of education (Wald = 17.976, p = .000, Exp(B) = 8.848), religion (Wald = 8.012, p = .005, Exp(B) = 7.879), and church attendance (Wald = 4.281, p = .039, Exp(B) = 3.749) all contributed

significantly to distinguishing between individuals who used folic acid supplements from those who did not use them. The follow-up analyses demonstrated a significant difference

Table 22

Individual χ^2 Results for Marital Status in Relation to Taking Prenatal Vitamins.

		Prenatal Vitamin					
		Not Regularly	Regularly	Total	X^2	*df*	*p*
Marital Status	Single	16 (28.6%)	40 (71.4%)	56	13.282	2	.001
	Married	5 (6.8%)	69 (93.2%)	74			
	Divorced or Widowed	0 (0.0%)	8 (100%)	8			
Total		21	117	138			

Table 23

Individual χ^2 Results for Place of Birth in Relation to Taking Prenatal Vitamins.

		Prenatal Vitamin					
		No vitamins	Vitamins	Total	X^2	*df*	*p*
Born	Mexico	12 (23.1%)	40 (76.9%)	52	3.410	1	.065
	United States	9 (11.1%)	72 (88.9%)	81			
Total		21	21	133			

(χ^2 (1) = 5.050, p = .025) for birth place, as individuals born in Mexico were more likely to regularly take folic acid (see Table 24). Education also appeared to be a significant factor (χ^2 (2) = 36.423, p = .000) with individuals in the high school graduate category being most likely to regularly take folic acid (see Table 25). It must again be noted that

the reliability may be impacted by the lack of at least 5 people in each cell. Due to this potential impact, education was also considered as a dichotomous variable, and this test revealed a result which was not significant (χ^2 (1) = .717, p = .397). Church attendance also showed a significant difference (χ^2 (1) = 4.174, p = .041) with individuals who attended church being more likely to take their folic acid (see Table 26).

Table 24

Individual χ^2 Results for Place of Birth in Relation to Taking Folic Acid.

		Folic_Acid					
		Did not Take	Did Take	Total	X^2	*df*	*p*
Born	Mexico	28 (53.8%)	24 (46.2%)	52	5.050	1	.025
	United States	59 (72.8%)	22 (27.2%)	81			
Total		87	87	133			

Table 25

Individual χ^2 Results for Education in Relation to Taking Folic Acid.

		Folic_Acid					
		Did not Take	Did Take	Total	X^2	*df*	*p*
Education	Did not finish	48 (98.0%)	1 (2.0%)	49	36.423	2	.000
	High School	24 (42.9%)	32 (57.1%)	56			
	College	20 (60.6%)	13 (39.4%)	33			
Total		92	92	138			

Table 26

Individual χ^2 Results for Church Attendance in Relation to Taking Folic Acid.

		Folic_Acid					
		Did not Take	Did Take	Total	X^2	*df*	*p*
Church Attendance	No	36 (78.3%)	10 (21.7%)	46	4.174	1	.041
	Yes	56 (60.9%)	36 (39.1%)	92			
Total		92	46	138			

Visiting the dentist had several contributing variables. These variables specifically included: birth place (Wald = 7.624, p = .006, Exp(B) = .097), age (Wald = 4.596, p = .032, Exp(B) = 1.732), praying to the Virgin of Guadalupe (Wald = 5.234, p = .022, Exp(B) = 5.882), level of education (Wald = 7.570, p = .006, Exp(B) = 3.992), marital status (Wald = 4.151, p = .042, Exp(B) = 4.846), and religion (Wald = 5.124, p = .024, Exp(B) = 6.239); these contributed to the predictive equation related to making and keeping a dental appointment during pregnancy. The individual χ^2 results for these variables in relation to visiting the dentist showed a significant difference (χ^2 (1) = 13.157, p = .000) between being born in the United States as opposed to Mexico with individuals born in Mexico being more likely to seek dental treatment during the pregnancy (see Table 27). Another significant difference (χ^2 (1) = 6.959, p = .008) was found for the participants based on if they prayed to the Virgin of Guadalupe or not. This difference showed participants who prayed to the Virgin of Guadalupe were more likely to visit the dentist during their pregnancy (see Table 28). A further significant difference

was found between Catholics and non-Catholics (χ^2 (1) = 4.212, p = .040) with Catholic participants being less likely to visit a dentist (see Table 29). Age with the combined age categories showed a significant difference (χ^2 (3) = 14.724, p = .002) in visiting the dentist (see Table 30). Multiple factors significantly contributed to the usage of unhealthy substances such as drinking alcohol and smoking. These factors included praying to the Virgin of Guadalupe (Wald = 3.840, p = .050, Exp(B) = 3.245), years in the United States (Wald = 9.091, p = .003, Exp(B) = 10.665), marital status (Wald = 6.538, p = .011, Exp(B) = .194), religion (Wald = 3.196, p = .074, Exp(B) = 2.793), and church attendance (Wald = 4.455, p = .035, Exp(B) = 3.963).

Table 27

Individual χ^2 Results for Place of Birth in Relation to Having a Dental Appointment.

		Dentist					
		No dental appt.	Dental appt	Total	X^2	*df*	*p*
Born	Mexico	27 (51.9%)	25 (48.1%)	52	13.157	1	.000
	United States	66 (81.5%)	15 (18.5%)	81			
Total		93	93	133			

Table 28

Individual χ^2 Results for Paying to La Virgin de Guadalupe in Relation to Having a Dental Appointment.

		Dentist					
		No dental appt.	Dental appt	Total	X^2	*df*	*p*
Pray to La Virgin de Guadalupe	No	41 (82.0%)	9 (18.0%)	50	6.959	1	.008
	Yes	53 (60.2%)	35 (39.8%)	88			
Total		94		138			
			94				

Table 29

Individual χ^2 Results for Religious Affiliation in Relation to Having a Dental Appointment.

		Dentist					
		No dental appt.	Dental appt	Total	X^2	*df*	*p*
Religion	Catholic	66 (74.2%)	23 (25.8%)	89	4.212	1	.040
	Other	28 (57.1%)	21 (42.9%)	49			
Total		94	94	138			

Table 30

Individual χ^2 Results for Age in Relation to Having a Dental Appointment.

		Dentist					
		No dental appt	Dental appt	Total	X^2	*df*	*p*
Age	18-24	34 (79.1%)	9 (20.9%)	43	14.724	3	.002
	25-30	26 (74.3%)	9 (25.7%)	35			
	31-35	29 (67.4%)	14 (32.6%)	43			
	36+	5 (29.4%)	12 (70.6%)	17			
Total		94	44	138			

These results may be more readily understood through the follow-up χ^2 analyses which displayed a significant difference (χ^2 (1) = 11.395, p = .001) in substance use between individuals who were Catholic and those who were not Catholic. The Catholic participants were less likely to use substances (see Table 31).

Table 31

Individual χ^2 Results for Religious Affiliation in Relation to Substance Use.

		Substance Use					
		Did not use substance	Did use substance	Total	X^2	*df*	*p*
Religion	Catholic	76 (85.4%)	13 (14.6%)	89	11.395	1	.001
	Other	28 (59.6%)	19 (40.4%)	47			
Total		104	104	136			

The mothers' sense of taking better care of themselves was also considered; however, while there was an overall significant difference, there were no significant contributing factors. The lack of significant individual contributing factors may be related to the conservative nature of the Wald χ^2 statistic. Further testing was completed by considering all of the descriptive covariates from the initial analysis of the data in separate Pearson's χ^2 analyses in order to look for significant differences on these levels. This testing illustrated a significant difference (χ^2 (1) = 13.587, p = .000) between individuals who pray to the Virgin of Guadalupe (see Table 32) and those who do not pray to her with those who do not pray being more likely to indicate they do not take better care of themselves. Additionally, a significant difference (χ^2 (1) = 12.513, p = .000) was found between individuals born in the United States and individuals born in Mexico. In regard to this difference, individuals born in Mexico were more likely to indicate they took better care of themselves than individuals born in the United States (see Table 33).

Table 32

Pearson's χ^2 Analyses of Praying to La Virgin de Guadalupe in Relation to Taking Better Self Care

		Better Care					
		Did not take better care	Did take better care	Total	X^2	*df*	*p*
Pray to La Virgin de Guadalupe	No	13 (26.0%)	37 (74.0%)	50	13.587	1	.000
	Yes	4 (4.5%)	84 (95.5%)	88			
Total		17	17	138			

Table 33

Pearson's χ^2 Analyses of Place of Birth in Relation to Taking Better Care of Self.

		Better Care					
		Did not take better care	Did take better care	Total	X^2	*df*	*p*
Born	Mexico	0 (0%)	52 (100%)	52	12.513	1	.000
	United States	17 (21.0%)	64 (79.0%)	81			
Total		17	17	133			

Discriminate Analyses for Prenatal Care Behavior using RC-10 and Maternal Social Support Index

The scores for the individual scales of the RC-10 and Maternal Social Support Index are continuous variables; thus, they were analyzed using discriminate analyses to assess if they could be used to predict prenatal behaviors (see Table 34). This inspection showed an almost significant function (χ^2 (5) = 11.039, p = .051) for diet, and this function accounted for 8.0% of the overall variance in diet. In regards to the contributing data, the Child Care (children in the home) score was most correlated with the function (r = .726). In assessing the relationship between the predictive variables and folic acid consumption, a significant function (χ^2 (5) = 20.773, p = .001) was found, which accounted for 14.4% of the variance in folic acid use during pregnancy. Once again, the Child Care score was the primary correlate (r = .718). When considering dental visits, a significant function (χ^2 (5) = 37.987, p = .000) was derived, and this function explains

24.8% of the variance in dentist visits. The contributing scores were more even in their correlation with this function: Child Care score (r = .497), Interpersonal (r = -.364), Non-Child Care score (no children in the home) (r = .355), Intrapersonal (r = -.322), and Social Total (r = -.307). These numbers seem to indicate the behavior related to visiting a dentist increases when support related to child care and non-child care is high and while religious commitment is low. A final significant function (χ^2 (5) = 15.506, p = .008) was found for substance use, and the various scales were able to explain 11.2% of the variance in substance use during pregnancy. The strongest correlating scales with this function were Social Total Score (r = .624) and the Child Care score (r = .444); thus, as social support, especially child care support, increased so did the behavior related to substance use. Findings in comparisons of means between those who internalize their religious values and commitment with those who share those values and commitment are similar in

Table 34

Pearson Correlation between Prenatal Behaviors and the MSSI and Subscales of the RC-10.

Scale	*Substance Use*	*Better Care*	*Folic Acid*	*Dentist*	*Prenatal Vitamins*	*Exercise*	*Diet*
Interpersonal							
Pearson Correlation	-.050	.030	.057	.204*	.211*	.040	.084
Sig. 2-tailed	.562	.724	.507	.016	.013	.640	.328
N=	136	138	138	138	138	138	138
Intrapersonal							
Pearson Correlation	-.004	-.029	.016	.182*	.224**	.050	-.030
Sig. 2-tailed	.965	.739	.849	.033	.008	.557	.727
N=	136	138	138	138	138	138	138
Child Care							
Pearson Correlation	.155	-.089	-.283**	-.274**	-.108	.125	-.208
Sig. 2-tailed	.071	.297	.001	.001	.209	.144	.014
N=	136	138	138	138	138	138	138
Non Child Care							
Pearson Correlation	-.075	.119	-.057	-.200	.022	.121	-.071
Sig. 2-tailed	.386	.164	.503	.019	.798	.158	.409
N=	136	138	138	138	138	138	138
Social Total Score							
Pearson Correlation	.215*	.055	.118	.173*	.085	.231**	-.020
Sig. 2-tailed	.012	.521	.168	.042	.324	.006	.813
N=	136	138	138	138	138	138	138

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Summary

Findings from this study confirm that immediate social support is significant for first time mothers as a source of prenatal education and as a protective factor against unhealthy behaviors such as smoking, drinking alcohol, or taking illegal drugs.

unhealthy behaviors such as smoking, drinking alcohol, or taking illegal drugs. Immediate social support included spouses, significant others, and domestic partners. First time mothers with high levels of support within the home were more likely to receive prenatal education from a female friend or relative, a physician, or a nurse and to enter prenatal care during 4-16 weeks of gestation. Those women who had children at home and high levels of support within the home were less likely to maintain a healthy diet, take folic acid, visit a dentist during pregnancy, and take a prenatal class or use mothers or grandmothers for prenatal education. Both first time mothers and those with children who had overall higher social scores, reflected by broader support, were more likely to exercise, visit a dentist, and to depend on female relatives, physicians, and nurses for prenatal education. This broader level of support included close relatives, neighbors, and community resources. This broader level of support, however, did not protect against substance use in relation to prenatal behaviors. Both groups of women with high levels of total social support were more likely to take prenatal vitamins, have dental visits during pregnancy and take prenatal classes. Both groups were less likely to receive prenatal education from female friends or healthcare providers. Those women with higher scores on shared values and commitment were more likely to either not receive prenatal care or to initiate prenatal care within 4-16 weeks of gestation. Those women who scored higher on internalized values and commitment either did not seek prenatal care or sought care in the 17-28th weeks of gestation.

Covariate predictors of prenatal health behaviors found that those women who had resided in the United States for longer than 10 years were more likely to maintain healthy diets than those women who had been in the United States for less than 10 years. Women who had some college education were also more likely to maintain a healthy diet than those who either graduated from high school or did not finish high school. Those women who did not finish high school were more likely to not maintain a healthy diet than the others. Those women between the ages of 18-24 were more likely to maintain a healthy diet, whereas, those women between the ages of 25 and 30 were less likely to maintain a healthy diet.

When asked about exercise, women who had been in the United States for longer than 10 years were more likely to participate in exercise than those who had been in the United States for less than 10 years. Interestingly, about one-half of those women who had been here longer than 10 years also reported that they did not exercise regularly during pregnancy. Married women were more likely to exercise, whereas, single women were less likely to exercise. Those women 36 years and older were more likely to exercise regularly than those younger. Women in the age group 18-24 were less likely to exercise regularly during pregnancy.

Married women and women born in the United States were more likely to take prenatal vitamins. In contrast to these findings women who were born in the United States were less likely to take folic acid than those women born in Mexico. Women who graduated from high school were more likely to take folic acid than those who either did

not finish high school or had some college. As mentioned earlier, the guidelines for folic acid had changed shortly after the initiation of the survey. The practice in Mexico had not changed, however, which accounted for the higher number of Mexican women taking folic acid than those born in the United States. Interestingly, those women who did not take folic acid were less likely to attend church than those who did attend.

The question relating to dental visits produced some interesting results. Women born in the United States were less likely to have a dental visit during their pregnancy than those women who were born in Mexico. Those participants who prayed to La Virgin de Guadalupe were more likely to schedule a dental appointment during pregnancy than those who did not pray to Guadalupe. Catholic women were less likely to have a dental appointment than women of other denominations. Women were 36 years old or greater were more likely to have a dental appointment during pregnancy. Women in the age range of 18-24 were less likely to visit the dentist during pregnancy.

Catholic women were less likely to use unhealthy substances during their pregnancy than those of other denominations. Consistent with these findings, women who prayed to La Virgin de Guadalupe reported that they took better care of themselves than those who did not pray to Guadalupe. Those women born in Mexico were more likely to take better care of themselves during pregnancy than those women born in the United States. Most of the women born in Mexico are both Catholic and reverent of La Virgin de Guadalupe.

CHAPTER V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

Summary

The Latina paradox has intrigued healthcare providers for some time. Is there a protective factor at work here, or does non-traditional healthcare received from informal networks provide healthier opportunities for Mexican-American women than westernized medical care? The purpose of this study was to investigate the effect maternal social supports and religious commitment has on initiation of prenatal health behaviors with this population. To determine the effect of maternal social support and religious commitment, the Maternal Social Support Index (MSSI) and the Religious Commitment Scales (RC-10) were used. Demographic information and questions related to prenatal health behaviors were ascertained.

The intent of the MSSI is to measure the level of social support experienced by the participants both within their households and within their social networks. The scale is based on a continuum of scores ranging from low (less support) to higher (more support). The Non-Child score (those with high levels of support within the home and no children) and the Child Care score (those with high levels of support within the home and children) were used in order to examine differences in prenatal behavior between those who had children at home and those who were pregnant for the first time and did not have children at home at the time of the survey.

The RC-10 used a Likert Scale to show one's degree of religious commitment. A continuum of scores ranged from low (little or no religious commitment) to higher (denoting a higher degree of commitment). Two subscales of the RC-10 were evaluated, the Interpersonal Scale and the Intrapersonal Subscale. The Interpersonal Subscale measured religious commitment at a community level whereas the Intrapersonal Subscale measured personal religious commitment.

A convenience sampling technique was used to recruit participants who had recently delivered at a local hospital, clients of the local WIC program, and patients of two local physicians' offices. Participants were given a survey and a return self-addressed and stamped envelope. Of the 375 distributed, 138 participants returned surveys. Data were analyzed using *t*-tests, ANOVAs, Tukey's post-hoc comparisons, binary regression, and discriminant analysis. Analysis of the data provided some surprising findings which resulted in rejection of all three hypotheses (see Table 15). Findings were integrated into the Social Ecologic Model (See Figure 4) in order to a have a better understanding of the inter-relationship of the research constructs. These findings will hopefully help community health educators to plan and implement culturally appropriate programs for Mexican-American women.

Social Ecologic Model and Research Constructs

Modified from: CDC, 2010; Krug, E., Dahlberg, L., Mercy, J., Zwi, A., & Lozano, R., (Eds) (2002). *World Report on Violence and Health* (pp. 1-56). Geneva, Switzerland: World Health Organization.

Figure 4. Modified Social Ecologic Model with research constructs.

Table 35

Null Hypotheses

Hypothesis	Accept/Reject
H_{01} - There is no relationship between maternal social support and prenatal health behaviors among Mexican-American women in North Central Texas	Rejected
H_{02} - There is no relationship between religious commitment and prenatal health behaviors among Mexican-American women in North Central Texas.	Rejected
H_{03} - Descriptive covariates (age, educational level, parity, gestational age when prenatal care was sought length of residency in the United States, and marital status), social support, or religious commitment will be neither predictive nor protective of prenatal behavior among Mexican-American women participating in recommended prenatal health behavior	Rejected

Discussion of Findings

Research Question 1

The first research question asked, "What are the prenatal health behaviors of pregnant or recently pregnant Mexican-American women in North Central Texas?" Prenatal health behaviors were defined and recommended by The American College of Obstetrics and Gynecologists (2008). Those behaviors recommended by this

with high levels of support and children in the home and first time mothers with high levels of support and Total Social support correlated positively with maintaining exercise during pregnancy. Correlations related to prenatal vitamins and exercise was both supported by the X^2. Higher levels of religious commitment appears to correlate positively with most prenatal behaviors, however, more research is needed.

Application of Theory to Study

The Social Ecologic Model, modified by Krug et al. (2002), was used in this study to explore and identify factors which may influence the participant in seeking healthy prenatal behaviors. Findings can be divided among the spheres of the model, *individual*, *relationships*, *community*, and *society*. The spheres of the model are illustrated by dotted lines representing porous boundaries (see Figure 4). These porous boundaries indicate the flow of the influences among the spheres. This study demonstrated how these influences may have a positive or negative impact on an individual's prenatal health behaviors.

The *individual* sphere represents personal characteristics of the individual. Biographical data such as age, education, parity, marital status, and length of residency provide a foundation for predicting prenatal health behaviors. Findings from this study revealed that a majority of respondents were between the ages of 18 and 35 years of age, had at least a high school education, were married, had at least two children, were born in the United States, and resided here greater than 10 years. Giachello and Luz (1994) found in their study that age was not necessarily predictive of prenatal care as Mexican-American women of all ages fell significantly behind their non-Hispanic white

found in their study that age was not necessarily predictive of prenatal care as Mexican-American women of all ages fell significantly behind their non-Hispanic white counterparts in seeking prenatal care. In this study, only one-half reported entering prenatal care during the first trimester and more than one-sixth reported receiving no prenatal care. The literature suggests that being young and having no prenatal care could result in poor pregnancy outcomes (Cooper, Leland, & Alexander, 1995; Fraser, Brockert, & Ward, 1995; Kierman, 2006). Age was significant in this study in regards to certain health behaviors. Being between the ages of 18-24 was predictive of maintaining a healthy diet and receiving dental care during pregnancy.

In addition to age, education was also a predictor of prenatal behaviors. Educational attainment has been shown to have a pronounced effect on the number of births and birth outcomes (CDC, 2006). In this study less than half of those surveyed reported graduating from high school and more than one-third reported not finishing high school. Data from the CDC (2006) revealed that women with higher educational attainment had fewer births, sought prenatal care earlier, and practiced healthier prenatal behaviors. The findings from this study support the CDC data. Those participants with less education were less likely to maintain a healthy diet or take folic acid. Klepinger, Lundberg, and Plotnik (1995) found that childbirth before the age of 20 years reduced educational attainment by three years; therefore education and childbearing influence each other.

Previous childbearing impacts prenatal health behaviors. Women with children in the home and high levels of support within the home were found to be less likely to

maintain a healthy diet, take folic acid, have dental care, or take prenatal classes. Pagnini and Reichman (2000) suggest this may be due to lack of childcare, transportation, or finances. It is also possible that women with prior pregnancies do not value prenatal care for the current pregnancy. Williams (1990) and Aliyu et al. (2005) reported that Mexican-American families had more children than their non-Hispanic counterparts because having large families was encouraged by the Church. Almost three-quarters of participants in this study met or exceeded the Texas average number of children in the family (Department of Commerce, 2001).

In prior research, married women sought prenatal care earlier and reported fewer negative birth outcomes (Pagnini & Reichman, 2000). Zambrana et al. (1997) suggested this may correlate with having a close relationship with the baby's father. More than one-half of the respondents in this survey were married. Although married women were more likely to take prenatal vitamins, single women were more likely to exercise. Other than taking prenatal vitamins, there were no significant findings in this study that married women entered prenatal care earlier or took part in healthy prenatal health behaviors.

Almost two-thirds of the participants in this study reported having lived in the United States for greater than 10 years. Unfortunately, those respondents also reported not maintaining healthy diets or exercising regularly. Martinez-Schallmoser, Macmullen, and Telleen (2005) hypothesized that with acculturation came an estrangement from traditional cultural practices. Zambrana et al. (1997) found that those women who had become more acculturated to the Anglo customs had more stress, greater alcohol and drug use, and less social support from a significant other. Ahmed (1990) and

Kirchenkast, Mayer, and Voight (2007) found that length of residency was important in birth outcomes. They found that women who had been in the United States less than one generation had better birth outcomes than those who were second and third generation. The current study did not address birth outcomes, however, prenatal health behaviors recommended by the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists (2008) were intended to improve outcomes. The characteristics within the *individual* sphere of the SEM are influenced by the encompassing sphere of *relationship.*

The *relationship* sphere is perhaps the most influential on the individual. Marin and Marin (1991) wrote that families have certain responsibilities, including emotional and material support and monitoring attitudes, beliefs, and values. Results from this study indicate that first time mothers with high levels of social support within the home and were less likely to drink alcohol and more likely to use female family members and friends as a source of prenatal information. Although they were more likely to enter prenatal care early, they were less likely to receive regular prenatal and dental care. Respondents with children in the home and high levels of support were less likely to maintain a healthy diet, take folic acid, have dental care, and take prenatal classes. This study found that higher levels of total social support, which also includes extended familial and social networks, allow mothers the opportunity to seek some healthy prenatal behaviors such as taking prenatal vitamins, seeking dental care, exercising, and entering prenatal care earlier. Higher levels of support both in the home and outside the home may facilitate access to healthcare by providing childcare, finances, or transportation and

removing any barriers the individual may encounter (Martinez-Schallmoser, Telleen, and MacMullen, 2003). Having higher levels of total social support may also expose the mothers to unhealthy behaviors such as taking over-the-counter medications without physician support, alcohol use and smoking. This study found that one-fourth of the respondents reported using unhealthy substances, which could be indicative of dysfunctional social support or relationships.

The *relationship* sphere provides more direct influences than the larger *community* sphere of influence within the model. The *community* sphere identified access and barriers to healthcare decision- making. Some examples of barriers to care include language differences; lack of transportation, accessibility and child-care; and financial constraints. Although this study did not specifically address barriers in the survey, findings such as no prenatal care and practice of unhealthy behaviors discussed in earlier sections may be directly related to those barriers. Kalofonos and Palinkas (1999) identified lack of trust in formal versus informal institutions, as a barrier to prenatal care. Warda (2000) found that Mexican-American women emphasized the need for healthcare providers to acknowledge the importance of the family and family obligation, cultural practices such as the use of folk healers, and economic restraints. Fullerton et al. (2004) used descriptive analysis to identify factors which were facilitators of prenatal care and factors which were barriers. In their study they found common language, easy-to-understand instructions, friendly staff, and a proximity to the prenatal clinic as factors that enabled women to seek and keep prenatal care appointments. Cultural differences

which accept the unhealthy prenatal behaviors may be a negative influence of the *community* sphere.

The *societal* sphere represents the influence of the Church and religious commitment. Trevino (2006) described the Church as the center for all of life's events. He described the Mexican Church as a blend of Catholicism and Aztec folklore. This was evident in this study where almost two-thirds of the respondents reported praying to La Virgen de Guadalupe, the patron saint of midwives. Guadalupe is a blend of the Aztec goddess Tonantzin and the Virgin Mary. The liturgical calendar of the Church is closely tied to the days of remembrance and/or celebration within the Mexican-American population. The Church leaders are as influential gatekeepers in societal affairs including promoting access to prenatal care (U.S Conference of Bishops, 2008).

The results of this study indicate that almost two-thirds of the respondents were Catholic, whereas the remaining one-third reported being either Protestant or Pentecostal. Perpetuation of religious beliefs and practices is most likely the result of one generation passing on religious cultural practices to the next generation. A strong indication of the perpetuation of religious beliefs and practices is that a majority of the respondents were the same religion as their parents. More than one-half of the respondents in this study reported attending services at least once a week, whereas, an additional one-third reported attending services but not regularly. One-fifth reported having *altarcitas* within their homes which allowed them to pray whenever they chose attesting to the fact that religious commitment pervades all spheres.

regular prenatal care. Almost one-half of those participating in this study believed God would punish them if they smoked, drank alcohol, or took drugs during pregnancy. Being Catholic and praying to Guadalupe were also more predictive of not using these unhealthy substance. The adherence to these beliefs is supported by Rodriquez (1994) in her study where it was reported by the respondents that Guadalupe was a source of empowerment to women and their capacity to create life (Ricciardi, 2006). In several of his writings, Pope John Paul (1994; 1995) emphasized the importance of preserving life and family through childbirth. Mendelson (2002) found in her study that the participants reported having a spiritual connection to health. By praying to various saints within the Church, they felt an inner peace which allowed them to maintain a balance of emotional health. This is supported by the findings of Franzini et al. (2002) in which they found that Mexican-Americans scored higher on a scale relating religiosity, spirituality, and health. Findings of this study have implications for health educators as they plan programs for this population.

Implications for Health Education Practice

Given the importance of religion in the Mexican and Mexican-American traditional culture, the community health educator has a unique opportunity to utilize faith-based programs in promoting health. These programs have been effective in promoting healthy behaviors (Koenig et al., 1994). The church is the social center for the Mexican and Mexican-American population (Trevino, 2006) and, as such, the church and neighborhood centers serve as central and convenient locations for community education (Castro, 2001). Health educators can use social and religious events such as celebrations

Mexican and Mexican-American population (Trevino, 2006) and, as such, the church and neighborhood centers serve as central and convenient locations for community education (Castro, 2001). Health educators can use social and religious events such as celebrations and fiestas to deliver health promotion messages. The health educator can work with faith- or community-based family programs to provide Mexican-American women the knowledge and skills to improve pregnancy outcomes. Berman (2006) acknowledged in his study on prenatal care that most physicians do not have the time to provide the information needed to address risk behaviors such as inadequate diet, weight gain, lack of prenatal care, smoking, or use of illegal and non-prescribed over-the-counter medications. Berman also found that minority women generally preferred to receive prenatal information from family members, but would consider formal classes if the instructor had a similar cultural background and could speak her language. Findings from this study emphasize the importance of obtaining a prenatal health assessment by a community health educator. Results from this study reveal that cultural beliefs, social support, and religious commitment must be considered and implemented as part of any prenatal education initiative for Mexican-American women.

Informal social networks consisting of family, friends, and *promotoras* (lay educators) are used frequently in border regions where medical care is more limited and/or inaccessible. The *promotoras* have been used to provide diabetic education to families in their homes. These informal systems provide the majority of prenatal education in areas of poverty and where access to prenatal care is limited. These informal networks also impart advice on healthy dietary traditions, cultural support and

education; they assist individuals in navigating the health care and human services systems, provide neighborhood resources and provide encouragement for lifestyle changes.

Health educators can use both the MSSI and the RC-10 to evaluate social support for teaching and maintaining compliance of health regimens. It is imperative for the health educator to become familiar with the teachings of the various religious denominations in order to gain an understanding of the meaning of procreation and life within this population and the traditions and culture that affect change of behaviors. Emphasis on the spiritual health of the individual and community is vital in planning health interventions. The *societal* influences, along with those of the *community* and *relationship* spheres of the SEM, affect the *individual* prenatal health behaviors.

Limitations of the Study

The study had several limitations. The survey was intended to take no more that 30 minutes, but respondents reported spending over an hour to complete it. The focus was too broad. It would have been less complicated to have used one scale instead of incorporating three. The scales were very different which may have confused the participants. Some questions did not have a "not pregnant" option. It was clear that many that were not pregnant did not know how to answer those questions.

Language in the survey may have been puzzling to the participants. Spanish words used in various parts of the Southwest and in Mexico may have different meanings. The return rate for the survey was low (37%). Although the participants were supplied with self-addressed stamped envelopes in which to return the survey and its

follow-up, many were not returned. The concept of test-retest was not understood by the majority of the population being studied. Many respondents returned the second survey unanswered with a note that they had already answered the questions previously.

Other limitations possibly included a failure to remember past events. It had been one year since some had been pregnant. Self-reporting of activities in the survey may not have been accurate. During the course of administering the survey, CDC guidelines for taking folic acid during pregnancy changed. This possibly led to results that were not valid.

Recommendations for Future Research

Several areas for additional research were identified at the conclusion of this study. These recommendations include:

- Emphasize importance of completing and returning both studies.
- Study each scale independently to avoid confusion among scales.
- Employ translators to facilitate survey completion.
- Include a co-investigator from the population being studied.
- Counteract recall bias by conducting a prospective study.
- Compare pregnancy behaviors with pregnancy outcomes.
- Compare prenatal behaviors between those participants with children and those who are pregnant for the first time to determine if they are significantly different.
- Examine the effect covariates of age, education, length of residency, parity, and marital status may have on pregnancy outcomes.

- Define the meaning of religiosity and spirituality in this population.
- Explore the role of religiosity and spirituality in pregnancy and how they can be used to improve pregnancy outcomes.
- Study how religiosity and spirituality can be assessed in prenatal visits.
- Extend exploration of religiosity and spirituality to include parenting behaviors.
- Apply the PEN-III Model to the study of Mexican-American women and usage of prenatal health behaviors.

Recommendations

The Social Ecologic Model provides a framework for the health educator to develop programs by taking into account the influences of the *individual*, *relationship*, *community*, and *societal* spheres on prenatal health behaviors. The Maternal Social Support Index and the Religious Commitment-10 scales may assist the health educator in assessing these influences. Understanding the convergence of religion and culture in the Mexican-American population may assist the health educator in developing working relationships with informal networks, such as family and friends. Networking through more formal channels, the health educator can work alongside community gatekeepers such as *promotoras, parteras,* clerics, Mexican-American community leaders and bi-cultural healthcare providers to deliver health messages and develop health promotion and disease prevention programs which are culturally appropriate and competent.

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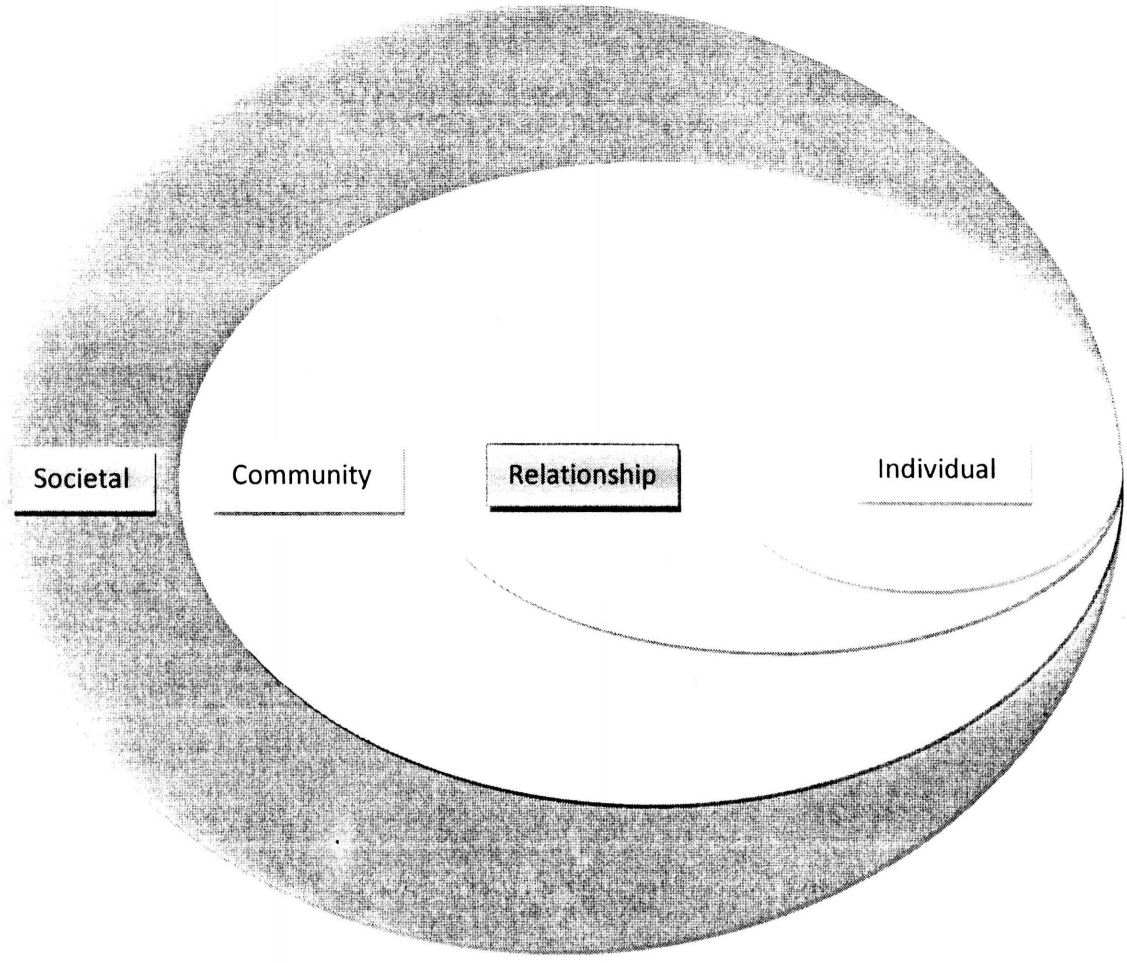
APPENDIX A

Social Ecologic Model

Social-Ecologic Model



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APPENDIX B

Approval from Institutional Review Board

TWU
TEXAS WOMAN'S UNIVERSITY
DENTON DALLAS HOUSTON

Institutional Review Board
Office of Research and Sponsored Programs
P.O. Box 425619, Denton, TX 76204-5619
940-898-3378 Fax 940-898-3416
e-mail: IRB@twu.edu

February 25, 2010

Ms. Lauren Jansen
4707 Stansbury Lane
Wichita Falls, TX 76310

Dear Ms. Jansen:

Re: The Effect of Maternal Social Support and Religious Commitment on Prenatal Health Behaviors Among Mexican-American Women in North Central Texas

The above referenced study has been reviewed by the TWU Institutional Review Board (IRB) and appears to meet our requirements for the protection of individuals' rights.

If applicable, agency approval letters must be submitted to the IRB upon receipt PRIOR to any data collection at that agency. A copy of the annual/final report is enclosed. A final report must be filed with the Institutional Review Board at the completion of the study. Because you do not utilize a signed consent form for your study, the filing of signatures of subjects with the IRB is not required.

This approval is valid one year from February 25, 2010. According to regulations from the Department of Health and Human Services, another review by the IRB is required if your project changes in any way, and the IRB must be notified immediately regarding any adverse events. If you have any questions, feel free to call the TWU Institutional Review Board.

Sincerely,

Kathy DeOrnellas, PhD

Dr. Kathy DeOrnellas, Chair
Institutional Review Board - Denton

enc.

cc. Dr. Gay James, Department of Health Studies
Dr. Anna Love, Department of Health Studies
Graduate School

APPENDIX C

Agency Approval Letters

TWU
TEXAS WOMAN'S UNIVERSITY
DENTON DALLAS HOUSTON

Institutional Review Board
Office of Research and Sponsored Programs
P.O. Box 425619, Denton, TX 76204-5619
940-898-3378 Fax 940-898-3416
e-mail: IRB@twu.edu

December 1, 2010

Ms. Lauren Jansen
4707 Stansbury Lane
Wichita Falls, TX 76310

Dear Ms. Jansen:

Re: The Effect of Maternal Social Support and Religious Commitment on Prenatal Health Behaviors Among Mexican-American Women in North Central Texas (Protocol #: 16036)

The TWU Institutional Review Board (IRB) has received the materials necessary to complete the file for the above referenced study. As applicable, agency approval letter(s), the final report, and signatures of the participants have been placed on file. As of this date, this protocol file has been closed.

Sincerely,

Dr. Kathy DeOrnellas, Chair
Institutional Review Board - Denton

cc. Dr. Gay James, Department of Health Studies
Dr. Anna Love, Department of Health Studies
√Graduate School

March 3, 2010

Texas Woman's University
Institutional Review Board
ACT, 7th Floor
304 Administration Drive
Denton, TX 76201

Re: Doctoral Research Survey

To Whom It May Concern,

Lauren Jansen has been given permission to distribute survey packets for her research study, "*The Effects Maternal Social Support and Religious Commitment Have on Prenatal Health Behaviors of Mexican-American Women in North Texas*" at our facility. This is based upon approval by the Institutional Review Board at Texas Woman's University in Denton, Texas. The approval letter has been provided to our facility so therefore, the study can begin at any time. Patients in our facility are available for the study until May 28, 2010.

Sincerely,

Pamela Bradshaw, RN
Vice President of Nursing and Clinical Services, CNO
United Regional Health Care System
Wichita Falls, TX 76301
940-764-3387

cc: Lauren Jansen

City of Wichita Falls

Wichita Falls-Wichita County Public Health District

February 15, 2010

Texas Woman's University
Institutional Review Board
ACT, 7th Floor
304 Administration Drive
Denton, TX 76201

Re: Doctoral Research Survey

To Whom It May Concern,

Lauren Jansen has been given permission to place flyers announcing her research study, "*The Effects Maternal Social Support and Religious Commitment Have on Prenatal Health Behaviors of Mexican-American Women in North Texas*" and to distribute survey packets at our facility. This is contingent upon approval by the Institutional Review Board at Texas Woman's University in Denton, Texas. The approval letter must be made available to our facility before the study can begin.

Sincerely,

Lou Franklin

Lou Franklin R.N., B.S.N.
Director of Health
Wichita Falls – Wichita County Public Health District

VIREN MEHTA, M.D., M.S., F.A.C.O.G., (P.A.)

Diplomate of American Board of

Obstetrics and Gynecology

1815 10th Street

Wichita Falls, Texas 76301

Telephone (940) 766-1079

February 15, 2010

Texas Woman's University
Institutional Review Board
ACT, 7th Floor
304 Administration Drive
Denton, TX 76201

Re: Doctoral Research Survey

To Whom It May Concern,

Lauren Jansen has been given permission to place flyers announcing her research study, "*The Effects Maternal Social Support and Religious Commitment Have on Prenatal Health Behaviors of Mexican-American Women in North Texas*" and to distribute survey packets at our facility. This is contingent upon approval by the Institutional Review Board at Texas Woman's University in Denton, Texas. The approval letter must be made available to our facility before the study can begin.

Sincerely,

H. GHANBARI, M.D.
Obsterics & Gynecology

February 15, 2010

Texas Woman's University
Institutional Review Board
ACT, 7th Floor
304 Administration Drive
Denton, TX 76201

Re: Doctoral Research Survey

To Whom It May Concern,

Lauren Jansen has been given permission to place flyers announcing her research study, "*The Effects Maternal Social Support and Religious Commitment Have on Prenatal Health Behaviors of Mexican-American Women in North Texas*" and to distribute survey packets at our facility. This is contingent upon approval by the Institutional Review Board at Texas Woman's University in Denton, Texas. The approval letter must be made available to our facility before the study can begin.

Sincerely,

APPENDIX D

Cover Letter and Survey in English

Texas Woman's University

Cover Letter

The purpose of this study is to determine the role acculturation, maternal social support and religious commitment play in prenatal healthcare practices among Mexican-American women in rural North Central Texas. The study involves the completion of a confidential survey. The time commitment will be no longer than 30 minutes. Participation in this study is voluntary. You may withdraw from the study at any time without penalty.

This is a survey. You will identified only by a number. Completion of this survey constitutes your informed consent to participate in this study. Please complete the following survey by coloring in the circles that best describes your answer for each question. Color only one circle per answer unless you are instructed to mark more than one. You may use either pen or pencil. This survey will be available in different locations. Please complete the survey only one time. If you wish to participate in the drawing for a $50 gift card, you will be given a ticket once the survey has been turned in and secured in a locked box. Half of the ticket with your name and a contact number will be placed in a jar. The drawing will occur once the study is completed.

If you have any questions, you may call either number below:

Investigator: Lauren Jansen.....940-397-4547

Advisor: Dr. Anna Love.....940-898-2865

Please check the box that applies to your present situation.

☐ **m pregnant at this time** ☐ **have been pregnant within the last 12 months**

How many weeks pregnant are you at this time_____

_____

Completion of this survey constitutes your informed consent to act as a participant in this research. Please mark the square that is most true of you.

1. Who lets your children know what is right or wrong? □ Not Applicable (no children) □ No one □ I do □ Someone else □ Someone else and I do
2. Who fixes meals? □ No one □ I do □ Someone else □ Someone else and I do
3. Who does the inside cleaning? □ No one □ I do □ Someone else □ Someone else and I do
4. Who pays the bills? □ No one □ I do □ Someone else □ Someone else and I do
5. Who puts your children to bed? □ Not Applicable (no children) □ No one □ I do □ Someone else □ Someone else and I do
6. How many people can you count on in time of need? □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □ 10 or more
7. Who fixes things around the house or apartment? □ No one □ I do □ Someone else □ Someone else and I do
8. Who does the grocery shopping? □ No one □ I do □ Someone else □ Someone else and I do
9. Who works outside around the house or apartment? □ No one □ I do □ Someone else □ Someone else and I do
10. Who takes your child to the doctor if he/she is ill? □ Not Applicable (no children) □ No one □ I do □ Someone else □ Someone else and I do
11. Who takes care of car problems at a moment's notice? □ No one □ I do □ Someone else □ Someone else and I do

12. How many relatives do you see once a week or more often?

□ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □ 10 or more

13. If you do not have a car, can you get transportation in a few hours if needed?

□ Yes □ No

14. How many people would be able to take care of your children for several hours if needed?

□ Not Applicable □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □ 10 or more

15. How many of these people are from your neighborhood?

□ None □ Some □ Most □ All

16. Do you have a boyfriend or a husband? □ Yes □ No

17. How happy are you in the way your boyfriend or husband lets you know what he feels or thinks?

□ Very happy □ Happy □ Unhappy □ Very unhappy

18. Are there adults other than your boyfriend or husband that you talk with regularly?

□ Yes □ No

19. Think about the person you talk with the most. Are you happy with the talks you have with this person?

□ Very happy □ Happy □ Unhappy □ Very unhappy

20. Would you like to see relatives?

□ More often □ Less often □ It is about right

21. How often do you attend meetings of the following groups:

A. Religious groups (altar society, bible study groups)

□ Do not belong □ Attend less than once a month

□ Attend at least once a month □ Attend more than once a month

B. Educational groups (PTA, school functions)

□ Do not belong □ Attend less than once a month

□ Attend at least once a month □ Attend more than once a month

C. **Social groups (family gatherings, social clubs)**

□ Do not belong □ Attend less than once a month

□ Attend at least once a month □ Attend more than once a month

D. Political groups (LULAC, etc)

□ Do not belong □ Attend less than once a month

□ Attend at least once a month □ Attend more than once a month

E. Other groups_____(specify)

□ Do not belong □ Attend less than once a month

□ Attend at least once a month □ Attend more than once a month

22. Are you a member of any committee or do you have any other duties in any of your groups?
□ Yes □ No

23. My religious beliefs guide my life.
□ Not at all true of me □ Somewhat true of me □ Moderately true of me
□ Mostly true of me □ Totally true of me

24. It is important to me to spend time thinking about my religion.
□ Not at all true of me □ Somewhat true of me □ Moderately true of me
□ Mostly true of me □ Totally true of me

25. Religion is especially important to me because it answers many questions about the meaning of life.
□ Not at all true of me □ Somewhat true of me □ Moderately true of me
□ Mostly true of me □ Totally true of me

26. I enjoy working in the activities of my religious organization.
□ Not at all true of me □ Somewhat true of me □ Moderately true of me
□ Mostly true of me □ Totally true of me

27. I try to better understand my faith.
□ Not at all true of me □ Somewhat true of me □ Moderately true of me
□ Mostly true of me □ Totally true of me

28. Religious beliefs influence my life.
□ Not at all true of me □ Somewhat true of me □ Moderately true of me
□ Mostly true of me □ Totally true of me

29. I often read books and magazines about my faith.
□ Not at all true of me □ Somewhat true of me □ Moderately true of me
□ Mostly true of me □ Totally true of me

30. I enjoy spending time with others of my religion.

□ Not at all true of me □ Somewhat true of me □ Moderately true of me

□ Mostly true of me □ Totally true of me

31. I donate money to my church.

□ Not at all true of me □ Somewhat true of me □ Moderately true of me

□ Mostly true of me □ Totally true of me

32. I am active in my church and people value what I say.

□ Not at all true of me □ Somewhat true of me □ Moderately true of me

□ Mostly true of me □ Totally true of me

33. Which of the following activities do you participate in during your pregnancy

(Mark all that apply to you)

□ Regular prenatal care with a physician or nurse practitioner □ Eat a well balanced diet

□ Prenatal care with a partera, curandera, or family member □ Exercise

□ Take prenatal vitamins daily □ Take folic acid □ Visit a Dentist

34.During your pregnancy, have you taken any of the following: (Mark all that apply)

□ Alcohol □ Tobacco □ Marijuana □ Cocaine □ Heroin

□ Over the Counter medications without caregiver's direction

List medications:

1 2

3 4

35. Do you feel you take better care of yourself during pregnancy than when not pregnant?

□ Yes □ No

36. Where were you born?

□ Mexico □ United States □ Other_____(Specify)

37. How long have you been in the United States?

□ Less than one year □ 2-5 years □ 6-10 years □ More than 10 years

38. How old are you?

□ 18-24 □ 25-30 □ 31-35 □ 36-40 □ Greater than 40

39. Education

□ Did not finish school □ Graduated from high school
□ Attended college □ Graduated from college

40. Marital status

□ Married □ Single □ Divorced □ Widow

41. What religion are you?

□ Catholic □ Pentecostal □ Protestant □ Other_____(Specify)

42. Are you the same religion as your parents? □ Yes □ No

43. How many times each week do you attend a church service?

□ None □ One time □ Two times □ More than two times

44. Do you feel God would punish you if you smoked, drank alcohol, or used drugs.

□ Yes □ No

45. Which of the following is true? Mark all that apply

□ I pray each day □ I pray only when things are not going well
□ I pray at an altarcita in my home

46. To whom do you pray when you need help?

□ God □ Virgin Mary □ Virgin of Guadalupe □ Other_____(Specify)

47. How old are each of your children now:

1st child: (months or years)_____

2nd child: _____

3rd child: _____

4thchild_____

5th child_____

6th child_____

48. From whom did you receive prenatal education with each pregnancy? (Mark all that apply)

□ No one □ Prenatal class □ Mother or Grandmother □ Female Relative
□ Female friend □ Faith healer □ Doctor □ Nurse

49. Who do you trust most to advise you about your health during your pregnancy? □ Mother □ Grandmother □ Female Relative □ Female Friend □ Faith healer □ God □ Doctor □ Nurse □ Other_____(Specify)
50. If you are pregnant now, are you receiving prenatal care now? □ Yes □ No □ Not pregnant at this time
51. If you are pregnant now and not receiving prenatal care, do you intend to seek prenatal care? □ Yes □ No
52. If you have delivered your baby in the last twelve months, when did you begin prenatal care? □ I did not receive prenatal care □ 4 weeks to 16 weeks gestation □ 17-28 weeks gestation □ 29-38 weeks gestation

APPENDIX E

Cover Letter and Survey in Spanish

Texas Woman's University

Carta de presentación

La finalidad de este estudio es determinar las funciones de apoyo social derivada de la maternidad y jugar el compromiso religioso en las prácticas de cuidado prenatal entre las mujeres mexicano-estadounidenses en la zona rural del Norte Central de Texas. El estudio incluye la realización de una encuesta anónima. El compromiso de tiempo no habrá más de 30 minutos. La participación en este estudio es voluntaria. Usted puede retirarse del estudio en cualquier momento sin penalización.

Esta es una encuesta anónima. Se le identifica sólo por un número. La realización de este estudio constituye su consentimiento informado para participar en este estudio. Por favor, complete la siguiente encuesta por la coloración en los círculos que mejor describa su respuesta para cada pregunta. De color sólo un círculo por respuesta, a menos que se le indique para marcar más de uno. Usted puede utilizar cualquiera de pluma o lápiz. Esta encuesta estará disponible en diferentes lugares. Por favor, complete la encuesta sólo una vez. Si usted desea participar en el sorteo de una tarjeta de regalo de $50, se le dará un boleto una vez que la encuesta se ha convertido en y asegurado en una caja cerrada. La mitad del boleto con su nombre y un número de contacto se colocarán en un frasco. El sorteo se producirá una vez que el estudio se ha completado.

Si usted tiene alguna pregunta, puede llamar a cualquier número que aparece abajo:

Investigador: Lauren Jansen ... ... 940 - 397-4547 Director: Dr. Anna Love 940-898-2865

Por favor marque la casilla que corresponda a su situación actual.

☐ estoy embarazada en este tiempo ☐ he estado embarazada en los últimos 12 meses

¿Cuántas semanas tienes de embarazo en este time_____

La realización de este estudio constitue su consentimiento informado para actuar como un participante en esta investigación. Por favor, marque la casilla que es más cierto de usted.

1. Que permite que sus hijos sepan lo que es correcto o incorrecto? □ no aplicable (sin niños) □ nadie □ yo □ alguien más □ alguien más y lo hago
2. ¿Que fija las comidas? □ nadie □ yo □ alguien más □ alguien más y lo hago
3. ¿Quién hace la limpieza en su interior? □ nadie □ yo □ alguien más □ alguien más y lo hago
4. ¿Quién paga las facturas? □ nadie □ yo □ alguien más □ alguien más y lo hago
5. ¿Quién se ocupa de que sus hijos se ponen a la cama? □ no aplicable (sin niños) □ nadie □ yo □ alguien más □ alguien más y lo hago
6. ¿Cuántas personas puede usted contar con que en tiempos de necesidad? □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □10 o más
7. ¿Que fija las cosas de la casa o apartamento? □ nadie □ yo □ alguien más □ alguien más y lo hago
8. ¿Quién hace las compras de comestibles? □ nadie □ yo □ alguien más □ alguien más y lo hago
9. ¿Que trabaja fuera de la casa o apartamento? □ nadie □ yo □ alguien más □ alguien más y lo hago
10. ¿Quién toma a su hijo al médico si él / ella está enferma? □ no aplicable (sin niños) □ nadie □ yo □ alguien más □ alguien más y lo hago
11. ¿Quién se ocupa de los problemas de coches en un momento dado? □ nadie □ yo □ alguien más □ alguien más y lo hago
12. ¿ Como muchos familiares es lo que ves una vez por semana o más a menudo? □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □10 o más

13. Si no tiene automóvil, puede conseguir transporte en unas horas si es necesario?

□ Sí □ No

14. ¿Cuánta gente sería capaz de cuidar de sus hijos durante varias horas si es necesario?

□ no aplicable (sin niños)
□ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8 □ 9 □10 o más

15. ¿Cuántas de estas personas son de su vecindario?

□ ninguno □ algunos □ la mayoría de todos □ todos

16. ¿Tienes un novio o marido?

□ Sí □ No

17. En caso afirmativo, qué feliz estás en la forma en que su novio o marido te permite saber lo que siente o piensa?

□ muy feliz □ feliz □ infeliz □ muy infeliz

18. ¿Hay otros adultos que no sea su novio o marido con quien tiene conversaciones regulares?

□ Sí □ No

19. Si es así, pensar en la persona de hablar con la mayoría. ¿Está satisfecho con las conversaciones que tenga con esta persona?

□ muy feliz □ feliz □ infeliz □ muy infeliz

20. ¿Te gustaría ver a sus parientes?

□ más a menudo □ con menos frecuencia □ que está sobre la derecha

21. ¿Con qué frecuencia asisten a las reuniones de los grupos siguientes?

A. Los grupos religiosos (altar de la sociedad, los grupos de estudio de la Biblia)

□ no pertenecen asistirá □ menos una vez al mes asistirá

□ por lo menos una vez al mes □ asistir a más de una vez al mes

B. Grupos de la Educación (PTA, las funciones de la escuela)

□ no pertenecen asistirá □ menos una vez al mes asistirá

□ por lo menos una vez al mes □ asistir a más de una vez al mes

C. Los grupos sociales (fiestas familiares, clubes sociales)

□ no pertenecen asistirá □ menos una vez al mes asistirá

□ por lo menos una vez al mes □ asistir a más de una vez al mes

D. Grupos políticos (LULAC, etc)

□ no pertenecen asistirá □ menos una vez al mes asistirá

□ por lo menos una vez al mes □ asistir a más de una vez al mes

E. Otros grupos_____ (especificar)

□ no pertenecen asistirá □ menos una vez al mes asistirá

□ por lo menos una vez al mes □ asistir a más de una vez al mes

22. ¿ Es usted miembro de algún comité o tiene otras funciones en cualquiera de sus grupos?

□ Sí □ No

23. Mis creencias religiosas guía mi vida

□ No del todo cierto □ Algo de mí de verdad me □ Moderadamente cierto de mí
□ Mayormente verdad para mí □ Totalmente cierto de mí

24. Es importante para mí pasar el tiempo pensando en mi religión

□ No del todo cierto □ Algo de mí de verdad me □ Moderadamente cierto de mí
□ Mayormente verdad para mí □ Totalmente cierto de mí

25. La religión es especialmente importante para mí, ya que responde a muchas preguntas sobre el significado de la vida.

□ No del todo cierto □ Algo de mí de verdad me □ Moderadamente cierto de mí
□ Mayormente verdad para mí □ Totalmente cierto de mí

26. Me gusta trabajar en las actividades de mi organización religiosa.

□ No del todo cierto □ Algo de mí de verdad me □ Moderadamente cierto de mí
□ Mayormente verdad para mí □ Totalmente cierto de mí

27. Trato de entender mejor mi fe

□ No del todo cierto □ Algo de mí de verdad me □ Moderadamente cierto de mí
□ Mayormente verdad para mí □ Totalmente cierto de mí

28. Las creencias religiosas influyen la vida.

□ No del todo cierto □ Algo de mí de verdad me □ Moderadamente cierto de mí
□ Mayormente verdad para mí □ Totalmente cierto de mí

29. Suelo leer libros y revistas acerca de mi fe

□ No del todo cierto □ Algo de mí de verdad me □ Moderadamente cierto de mí
□ Mayormente verdad para mí □ Totalmente cierto de mí

30. Me gusta pasar tiempo con otros de mi religión

□ No del todo cierto □ Algo de mí de verdad me □ Moderadamente cierto de mí
□ Mayormente verdad para mí □ Totalmente cierto de mí

31. Puedo donar dinero a mi iglesia

□ No del todo cierto □ Algo de mí de verdad me □ Moderadamente cierto de mí
□ Mayormente verdad para mí □ Totalmente cierto de mí

32. Estoy activo en mi iglesia y la gente valora lo que digo.

□ No del todo cierto □ Algo de mí de verdad me □ Moderadamente cierto de mí
□ Mayormente verdad para mí □ Totalmente cierto de mí

33. ¿Cuál de las siguientes acciones que participan en durante el embarazo.

(Marque todos los que se aplican a usted)
□ De atención prenatal con un médico p enfermera
□ Cuidado prenatal con una partera, curandera
□ Cuidado prenatal con un miembro de la familia
□ Comer una dieta bien equilibrada
□ Ejercicio algunos cada día
□ Tome vitaminas prenatales diarias
□ Tomar ácido fólico
□ Ir al dentista al menos una vez durante el embarazo

34. Durante su embarazo, ¿ha tomado alguna de las siguientes: (Marca todas las que correspondan) □ el alcohol □ el tabaco □ marihuana □ de cocaína de heroína
□ más de los medicamentos de venta libre (por favor lista)

1. 2.
3. 4.

35. ¿Se siente usted a cuidar mejor de sí mismo durante el embarazo que cuando no está embarazada?

☐ Sí ☐ No
36. ¿Dónde nació usted? □ México □ Estados Unidos □ Otro_____ (Especificar)
37. ¿Cuánto tiempo has estado en los Estados Unidos? □ Menos de un año □ 2-5 años □ 6-10 años □ Más de 10 año
38. ¿ Qué edad tienes? □ 18-24 □ 25-30 □ 31-35 □ 36-40 □ superior a 40
39. Educación □ No terminó la escuela secundaria □ Graduado de la escuela secundaria □ Asistido a la Universidad □ Graduado de la universidad
40. Estado civil: □ Casado □ Individual □ Divorciad □ Viudo
41. ¿Qué es su religión? □ católico □ protestante □ pentecostal □ Otro_____(Especificar)
42. ¿Es usted la misma religión que sus padres? □ Sí □ No
43. ¿Cuántas veces a la semana usted asistir a un servicio de la iglesia? □ Ninguno □ Uno □ Dos veces □ Más de dos veces
44. ¿ Se siente Dios castigará si fumaba, bebía alcohol, o drogas utilizadas? □ Sí □ No
45. ¿Cuál de las siguientes afirmaciones es cierta? Marque todos los que se aplican □ Pido cada día □ Pido sólo cuando las cosas no van bien □ Tengo una altarcita en una habitación en mi casa donde pido
46. ¿A quién reza cuando necesita ayuda? □ Dios □ La Virgen María □ La Virgen de Guadalupe □ Otro_____ (Especificar)

47. ¿Qué edad tiene cada uno de sus hijos ahora:

1st niño: (meses o años)_____ 2nd niño: _____
3rd niño: _____ 4th niño _____
5th niño _____ 6th niño _____

48. ¿De quién recibe educación prenatal en cada embarazo? Marque todos los que se aplican

□ De nadie
□ Prenatal clase
□ Su Madre
□ Su Abuela
□ Otro_____(Especificar)
□ Una(o)Amiga(o)
□ El doctor o la enfermera
□ Una partera
□ Una Mujer familiar

49. ¿En quién confía más para aconsejarle sobre su salud durante su embarazo?

□ Su esposo
□ Su novio
□ Su Madre
□ Su Abuela
□ Una mujer familiar
□ Una(o) amiga(o)
□ Una Mujer familiar
□ Una partera
□ El doctor o la enfermera
□ Dios
□ La Virgen María
□ La Virgen de Guadalupe
□ Otro_____(Especificar

50. Si usted está embarazada ahora, está recibiendo atención prenatal ahora?

□ Sí □ No □ No estoy embarazada en este momento

51. Si usted está embarazada y que no reciben atención prenatal, usted guión a buscar cuidado prenatal?

□ Sí □ No □ No estoy embarazada en este momento

52. Si usted ha entregado a su bebé en los últimos 12 meses, ¿cuándo comenzar el cuidado prenatal?

- □ No he recibido la atención prenatal
- □ De 4 semanas a 16 semanas de gestación
- □ De 17 semanas a 28 semanas de gestación
- □ De 29 semanas a 38 semanas de gestación

APPENDIX F

Flyers in English and Spanish

Research Opportunity

Mexican-American Women who are pregnant or have been pregnant within the last 12 months and are between the ages of 18-45 years of age to participate in a research study exploring the role acculturation, maternal social support and religious commitment play in prenatal healthcare practices

by Marta Sanchez

You may call 940-397-4547 with questions

Completion of an anonymous survey will entitle you to participate in a drawing for a $50 gift card from Wal-Mart. The survey will take approximately 30 minutes.

Oportunidad de investigación

Mexicano-americanos mujeres que están embarazadas o han estado embarazadas en los últimos 12 meses y están entre las edades de 18-45 años de edad a participar en un estudio de investigación a explorar el papel de la aculturación, la madre de apoyo

por Marta Sanchez

Usted puede llamar a 940-397-4547 con preguntas

Finalización de una encuesta anónima le dará derecho a participar en un sorteo de una tarjeta de regalo de $ 50 de Wal-Mart. La encuesta le tomará aproxima-damente 30 minutos.