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# Depression Among Pregnant Latinas In South Carolina

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DEPRESSION AMONG PREGNANT LATINAS IN SOUTH CAROLINA

by

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Bachelor of Science  
University of South Carolina, 2014

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## ABSTRACT

The aim of the study was to determine the prevalence of depression among pregnant Latinas. To bring to light the importance of prenatal depression prevention, we assessed the effect of the quality of healthcare providers among South Carolina Latinas (n=171). Women answered a validated CES-D and were categorized as depressed (score >16). In multivariate analyses, good perception of quality of healthcare was more likely among women who were not depressed; adjusted odds ratio of 0.75, 95% confidence interval 0.37 – 1.55. The findings show the need for tailoring healthcare to Latinas with prenatal depression prevention. It is imperative to understand the importance of the relationship with healthcare providers effecting pregnant Latinas.

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## CHAPTER 1

### INTRODUCTION

#### **Depression**

The prevalence of depression has substantially grown across the globe. Depression is a medical illness with physical, cognitive, and mood symptoms, which falls within the spectrum of affective disorders.<sup>1,2</sup> According to the World Health Organization, depression is frequently branded by a sadden mood, reduced interest in activities, trouble concentrating, weight gain or lost, exhaustion, unsuitable guilt, as well as recurrent thoughts of death<sup>3</sup>. As part of primary care, depression disorder is reliably identified and treated<sup>2</sup>. Since depression has a vast number of signs and symptoms, the American Psychiatric Association determined five or more symptoms must be present for an incessant period of at least two weeks<sup>4</sup>.

Depressive disorder is the most common mental disorder in the United States<sup>1</sup>. In 2006, more than 1 out of 20 Americans reported feeling depressed<sup>5</sup>. Transiting to 2012, this number has grown to roughly 7.6%. Undergoing one episode of depression places the individual at a 50% risk for experiencing another episode<sup>2</sup>. The more subsequent episodes an individual experience, the greater likelihood that more will occur<sup>2</sup>.

Depression poses a global burden, as the illness is likely to lapse into a chronic disease<sup>1</sup>.

According to findings from National Health and Nutrition Examination Survey, NHANES, individuals living below the poverty level were nearly 2.5 times more likely to have depression<sup>1</sup>. Recent studies have associated depression with behaviors such as smoking, alcohol consumption, physical inactivity and sleep disturbance<sup>2</sup>. However, studies report inconclusive evidence as to whether depression is the result of unhealthy behaviors or cause the behaviors themselves<sup>2</sup>.

Effective treatments for depression disorder are available, such as medication and psychotherapy<sup>7</sup>. Treatment begins with an examination by a physician to determine possible symptoms<sup>7</sup>. If depression is suspected, the patient is usually referred to a mental health professional for an official evaluation<sup>7</sup>. The level of depression disorder will determine the appropriate treatment. Major depressive disorder is the classic condition which is characterized by discrete episodes of at least two weeks of duration<sup>8</sup>. The more chronic form of depression is dysthymia, which is diagnosed in adults having mood disturbances for at least 2 years<sup>8</sup>.

Depression is also prevalent among women during pregnancy. According to the American Congress of Obstetricians and Gynecologists, between 14 to 23 percent of women will struggle with symptoms of depression during pregnancy<sup>9</sup>. Many cases go undiagnosed, which is dangerous for the mother and unborn baby<sup>9</sup>. Symptoms of prenatal depression are similar to classic symptoms of depression, which include depressed mood, loss of interest or enjoyment and reduced energy<sup>10</sup>.



## **Hispanic Population**

According to U.S. Census Bureau population estimates, there are roughly 54 million Hispanics living in the United States as of 2013<sup>11</sup>. The Hispanic population represents approximately 17% of the U.S. total population<sup>11</sup>. Individuals of Hispanic origin are the nation's largest growing ethnic or race minority and are estimated to reach 128.8 million, comprising nearly 31% of the U.S. population by 2060<sup>11</sup>. Due to the rapidly growing Hispanic community, public health issues central to this population need to be addressed.

## **Depression Among Latinos**

Latinos are the largest minority group in the United States who experience mental health disparities<sup>12</sup>. A screening questionnaire in place is the validated CES-D tool. However, the absence of treatment for depression in this population is a severe problem<sup>12</sup>. Literature shows that common factors related to depression are poverty, number of chronic illness and perceived stress/stigma<sup>12</sup>. Many Hispanics are more susceptible to depression due to their demographic characteristics such as lower monthly income, level of education and quality of health care.<sup>12</sup> Since Hispanics suffer from mental health disparities, research is necessary to better understand the factors associated with depression.

## **Correlation Between Depression and Latinas**

Current studies have offered explanation of depression such as interpersonal problems such as economic difficulties and discrimination<sup>13</sup>. Studies have also revealed

that depression is higher in the female gender<sup>12</sup>. In fact, depression is the leading cause of disease-related disability among women<sup>14</sup>. Looking at Hispanics, Latinas have a higher occurrence of depression than Hispanic men<sup>15</sup>. Hispanic women are two times more likely to likely to face depression than their male counterparts<sup>15</sup>. If Hispanic women are already more susceptible for depression, their chances for depression while pregnant might be elevated as well.

Factors such as poor antenatal care, poor nutrition and stressful life events contribute to depression among pregnant women<sup>16</sup>. Perinatal depression is recognized as a prevalent clinical condition<sup>17</sup>. Incidence rates of depressive symptoms among pregnant women can reach upwards of 15%<sup>17</sup>. Current research in place has found that routine screening for depression in primary or prenatal care settings is necessary to lower the prevalence of depression in women<sup>18</sup>. Although screening for depression among postpartum women is routine in many clinical settings, perinatal depression is not<sup>14</sup>. Although screening tools are in place for the general population, they may not be tailored to fit the needs of Latinas.

### **Healthcare and Latinas**

In the United States, twenty-four percent of Spanish speakers are linguistically isolated which can affect their access to health care<sup>12</sup>. Research also consistently shows Latinas experience disparities in quality of care and especially in mental health care<sup>19</sup>. Knowledge of the correlation between healthcare providers and Latina immigrants is necessary to begin to reduce these disparities.

Some researchers may argue these disparities cannot be fully explained by lack of insurance or language barrier. A difference in cultural or religious values and the lack of provider understanding the importance of these values may affect the mental state of these pregnant Latinas<sup>13</sup>. Research is key to understand if these cultural differences are increasing the prevalence of depression among Latinas.

### **Objective and Research Questions**

The overall objective of this paper is understanding the severity of prenatal depression in Latin women in South Carolina. My main research questions are the following:

1. What is the prevalence of depression among pregnant Latinas in South Carolina?
2. Is there an association between depression among pregnant Latinas and their relationship with healthcare providers?

### **Importance**

It is well documented that poor maternal health has adverse effects on fetal development and neonatal outcome<sup>17</sup>. Maternal depression during pregnancy has been correlated with numerous outcomes for the child, such as disorders and poor cognitive development<sup>20</sup>. Previous studies show that fetuses and neonates of depressed mother show elevated heart rates and increased physiological reactivity<sup>21</sup>. Newborns of depressed mothers typically perform less optimally on behavior assessment scales<sup>21</sup>. Recent studies also suggest that infants of depressed mothers have “depression-like”

behaviors from birth<sup>22</sup>. Newborns of depressed mothers have also shown inferior motor development, lower activity levels and greater irritability<sup>22</sup>.

Perinatal depression is also a risk factor for postpartum depression among women<sup>17</sup>. However, little research has been conducted with Hispanic women. With the rapid growing rate of the Hispanic population and gaps in the literature, it is necessary to address this public health issue in order to safeguard the well-being of mother and baby.

## CHAPTER 2 LITERARY REVIEW

### **Prenatal Depression**

Pregnancy is an intense period in women's lives. Many women experience symptoms of depression. However, prenatal depression often remains unrecognized. Maternal depression during pregnancy is a debilitating illness<sup>23</sup>. Among the general population, it is estimated that upwards of 15 percent of women face depression during the prenatal period<sup>23</sup>. However, studies have shown this estimate increasing to a range of 17 to 60 percent of Latina mothers<sup>23</sup>. The question raises what specific stressors are contributing to these high rates of maternal depression.

Beginning, it is imperative to explore the actual perception of depression among Latinas. A study out of Stanford, California collected information from pregnant Spanish- speaking Latinas of Mexican origin who were received perinatal service from a Regional Public Health Center<sup>24</sup>. The study looked to explore the understanding of maternal depression among a sample of 24 women. The small study had two focus groups conducted in Spanish that guided women through questions about their past experiences and their emotions during pregnancy<sup>24</sup>. The focus groups were taped, transcribed and analyzed<sup>24</sup>. The Latinas expressed familiarity with maternal depression and even reported having either experienced it or knew someone who had depression<sup>24</sup>. When questioned about the availability of social support, the women confirmed the lack

of support from their partners, family and healthcare providers<sup>24</sup>. The focus groups established the need for research in how the social environment of Latinas might have an effect on the prevalence of prenatal depression<sup>24</sup>.

In general, risk factors of prenatal depression include lack of social support, economic difficulties, stressful life events, previous history of depression and young maternal age<sup>25</sup>. A study out of Washington, DC sampled 108 women in the United States and 117 in Mexico aiming to analyze the prevalence of prenatal depression among this ethnic group<sup>25</sup>. Both were convenience samples investigating the prevalence of depression and risk factors during pregnancy. Using the CES-D scale, the investigators saw over 30 percent of US Latinas and Mexicans who were classified as depressed<sup>25</sup>. The authors reported both groups of women experienced associations between lower socio- demographics and social support with depression<sup>25</sup>. The authors discussed the need for future research in other risk factors, such as the effect of acculturative stress<sup>25</sup>. The US Latinas had stronger association that could be attributed to the varying degrees of cultural stressors<sup>25</sup>.

A recent study conducted in San Marcos, California examined if acculturative stress negatively impacts maternal depression symptoms in Mexican-American women during pregnancy<sup>23</sup>. The authors defined acculturative stress as “stress associated with acculturative experience and cultural adaptation”, such a new immigrants adopting new behaviors and customs while still maintaining their own home culture values<sup>23</sup>. Previous studies have not examined the contribution of acculturative factors to maternal mental

health<sup>23</sup>. The authors hypothesized that many Mexican-Americans experience acculturative stress in US culture, which can have deleterious health effects such as depression during pregnancy<sup>23</sup>. In the study, ninety-eight pregnant women of Mexican decent were recruited from a community hospital clinic during their first trimester and completed surveys on Mexican culture values, perceived stress and acculturative stress<sup>23</sup>. Acculturation was assessed by the Acculturation Rating Scale from Mexican Americans ARMSA-II<sup>23</sup>. Maternal depressive symptoms were measured using the verified CES-D scale<sup>23</sup>. The study found that discrimination during pregnancy was a risk factor for elevated maternal depressive symptoms in this sample. However, when acculturative stress was included in the model, only acculturative stress was predictive of maternal depressive symptoms<sup>23</sup>. The study highlighted the role of acculturative stress as a mechanism for discriminatory experiences<sup>23</sup>. The study reported findings of 40 percent of their sample of women were depressed according to the CES-D scale<sup>23</sup>.

While literature has shown discrimination during pregnancy can be associated with adverse perinatal outcomes in minority population, the question raises if this is true with Latinas in the US<sup>26</sup>. A study out of Austin, Texas took a convenience sample of 515 pregnant, low-income, self-identified Hispanic women who were between 22 -24 weeks gestation<sup>26</sup>. Participants were recruited through obstetrical clinics in Texas from 2008 to 2011<sup>26</sup>. The depression scale that was used was the Beck Depression Inventory (BDI)<sup>26</sup>.

A linear regression model was run with depression as the outcome variable and socioeconomic status, discrimination, acculturative stress, and marginalization as the predictor variables<sup>26</sup>. The study found that discrimination was a significant

predictor of depression even after taking into account age, education level, and acculturation<sup>26</sup>. The study also pointed out as age increased, depression scores decreased<sup>26</sup>. The study found that societal stressors, such as being younger, less educated women, played a role in prenatal depression<sup>26</sup>. The authors speculated that these younger women had limited access to resources, such as appropriate prenatal care, which could contribute to their depression<sup>26</sup>.

The Walker study was limited using self-reported data and how other predictor variables for depression were not examined<sup>26</sup>. However, the study contributed to the literature by providing data on the effects of discrimination variables on mental health outcomes among Latinas<sup>26</sup>. Literature has shown there is an impact of experiences of discrimination throughout the life course and correlation on depressive symptoms during pregnancy<sup>26</sup>. These disparities may not be fully explained by quality of life stressors. A difference in healthcare providers and their understanding the importance of Hispanic cultural values may also have an effect on the mental state of these pregnant Latinas<sup>13</sup>.

### **Depression and Quality of Healthcare Providers**

According to the US Census Bureau, Latinas are less likely to use mental health care resources than other minority women<sup>27</sup>. Developing better access to health care is critical due to the rising population of Latinos in the US<sup>27</sup>. A study out of San Diego, California looked at interventions to overcome treatment barriers for Latinas for prenatal depression and to explore the various barriers Latinas face<sup>27</sup>. Latinas were identified or treated during the perinatal period who were selected from an ongoing



randomized control trial in local community obstetric clinics<sup>27</sup>. The authors found Hispanic woman experience service system barriers such as language, immigration status and availability of information about assistances<sup>27</sup>. The study discussed how the use of cultural sensitive mental health professionals would increase the engagement of low-income Latina women<sup>27</sup>. The intervention brought forth the need for more research studies looking at the quality of healthcare among Latinas during pregnancy<sup>27</sup>.

A study out of Chapel Hill, North Carolina chose focus groups where pregnant Latinas were recruited using networks established by a research partner and local Latinas mothers 'support group'<sup>28</sup>. The aim of the focus groups was to determine treatment preferences and barriers with healthcare providers<sup>28</sup>. Despite the growing awareness of prenatal and post-partum depression, these conditions are not readily recognized by the woman herself or diagnosed by her health care providers<sup>28</sup>. An explanation can be due to barriers of healthcare providers not being culturally sensitive in how Latinas are reporting their symptoms<sup>28</sup>. Structural barriers exist among this ethnic group, which include provider unavailability or responsiveness, and lack of information about services and overall respect for the patients<sup>28</sup>. The findings of the study indicated that although trusted health care professionals can be seen as a source of support, they are not cited as a trusted option for treating depression<sup>28</sup>. Both Spanish and English speaking participants cited lack of trust as a primary factor in the low levels of mental health participation among the Latin community<sup>28</sup>. The study's implications showed the importance of trusted formal support system in treating health issues among the Latina population<sup>28</sup>. However, due to the small sample size of 22 women,

generalizability was limited and not representative of the overall population<sup>28</sup>. Health care professional offering prenatal depression treatment should understand the need for trust when engaging Latinas<sup>28</sup>.

The gaps in the literature included Latinas being unaware of depression symptoms, social demographics characteristics not being fully explored and the lack of studies investigating how trust with healthcare providers may be associated with prenatal depression. Current research showed small sample sizes lacked generalizability to the Latinas community and larger studies need to be put into place. The overall gaps were understanding the prevalence of prenatal depression among larger sample sizes, the association between demographic characteristics such as years in the US and the correlation between quality of healthcare providers with depression.

Based on the literature review, studies showed the many Latinas did not feel respected for trusted their healthcare provider. Due to the lack of literature on the association between healthcare providers and prenatal depression in this type of sample, investigating this may demonstrate a correlation among Latinas.

## CHAPTER 3

### METHODS

The Empowering Latinas to Lash Out Against AIDS (ELLAS) study was conducted from the Consortium for Latino Immigration Studies in Arnold School of Public Health at the University of South Carolina. ELLAS enrolled a cross-sectional convenience sample of 171 Latinas who were receiving prenatal care in six rural counties in South Carolina. The survey sites in South Carolina included McLeod Medical Center in Dillon County, Medical Center in Marion County, Brookland-Cayce Medical Practice in Lexington County, Waverly Women’s Healthcare Center in Richland County and Black River Health Care OB Clinic in Williamsburg County. The original goal of ELLAS was to understand knowledge of perinatal HIV testing.

#### **Participants**

Pregnant Latinas were informed of the ELLAS study and offered to participate in the study after their first prenatal care visit. The study was reviewed and approved by the University of South Carolina’s Institutional Review Board. The following inclusion criteria were applied: pregnant woman ages 18 years and older with Hispanic origin with uninfected or unknown HIV status who enrolled into the project at the first prenatal care session at one of the survey sites.

## Measures

Upon data collection, questions on depression, perception of health care, relationship with healthcare provider and basic demographic information were gathered. The demographic variables included: age ( $\leq 28$ ,  $>28$  years), time in the United States ( $<7$  years,  $\geq 7$  years), marital status (single or divorced, married or living with partner), insurance (self-pay or no insurance, any insurance), living at or below the poverty level (yes, no) and type of education (less than high school, some high school or more). To address the prevalence of depression, the validated CES-D scale in the survey was used to classify women as depressed based on the literature recommendation of receiving a score of 16 or greater. The CES-D scale is a widely valuable screening tool used to measure depression.<sup>29</sup> Literature shows the scale has high consistency and validity, which will add strength to the analysis<sup>29</sup>. Based on recommendations, a score of 16 or higher will classify a woman as depressed<sup>29</sup>.

Within the ELLAS survey, the women had to answer questions concerning the friendliness, explanation of procedure and advice from their healthcare provider. The survey questions were classified in three categories, (Never, Sometimes, Always) for four variables of respecting their provider, trusting their provider, if their provider listens to them and if their provider is nice.

## Statistical Analyses

Since the four healthcare variables were closely related, we created a categorical variable for the perception of quality of healthcare. If the answer to the question was never, sometimes or always, the following scores were assigned: 0, 1, 2.

We collapsed the perception score into two levels for the analyses; good perception (perception score  $> 8$ ) and poor perception (perception score  $\leq 8$ ). The perception cutoff point was chosen after running a univariate procedure. Looking at the distribution, 8 was the median and at least 25 percent was in the lower quartile.

Analyses were conducted to describe characteristics of pregnant Latinas and to examine the effect of the perception scores. Beginning, an unadjusted odds ratio and 95% confidence interval was computed for the crude model of prenatal depression and perception. For the final model predicting prenatal depression, confounding and interaction with demographic variables was explored. We calculated adjusted odds ratios and 95% confidence interval using logistic regression for the association between prenatal depression and perception of quality of healthcare, controlling for age, years living in United States, education level, marital status, insurance and poverty. A model was also ran using perception as a continuous variable, but the results did not differ. Data was analyzed using SAS version 9.3.

CHAPTER 4  
PRENATAL DEPRESSION IN SOUTH CAROLINA  
ABSTRACT

The aim of the study was to determine the prevalence of depression among pregnant Latinas. To bring to light the importance of prenatal depression prevention, we assessed the effect of the quality of healthcare providers among South Carolina Latinas (n=171). Women answered a validated CES-D and were categorized as depressed (score >16). In multivariate analyses, good perception of quality of healthcare was more likely among women who were not depressed; adjusted odds ratio of 0.75, 95% confidence interval 0.37 – 1.55. The findings show the need for tailoring healthcare to Latinas with prenatal depression prevention. It is imperative to understand the importance of the relationship with healthcare providers effecting pregnant Latinas.

Key words: depression, healthcare, pregnant, Latina

## INTRODUCTION

According to U.S. Census Bureau population estimates, there are roughly 54 million Hispanics living in the United States as of 2013<sup>11</sup>. Individuals of Hispanic origin are the nation's largest growing ethnic or race minority and are estimated to reach 128.8 million, comprising nearly 31% of the U.S. population by 2060<sup>11</sup>. Latinos are the largest minority group in the United States who experience mental health disparities<sup>12</sup>. Due to the rapidly growing Hispanic community, public health issues central to this population need to be addressed.

The absence of treatment for depression in this population is a severe problem<sup>12</sup>. Many Hispanics are more susceptible to depression due to their demographic characteristics such as lower monthly income, level of education and quality of health care.<sup>12</sup> In the United States, twenty-four percent of Spanish speakers are linguistically isolated which can affect their access to health care<sup>12</sup>. Research consistently shows Latinas experience disparities in quality of care and especially in mental health care<sup>19</sup>.

It is well documented that poor maternal health has adverse effects on fetal development and neonatal outcome<sup>17</sup>. Maternal depression during pregnancy has been correlated with numerous outcomes for the child, such as disorders and poor cognitive development<sup>20</sup>. With the rapid growing rate of the Hispanic population

and gaps in the literature, it is necessary to address this public health issue in order to safeguard the well-being of mother and baby. Knowledge of the correlation between healthcare providers and Latina immigrants is necessary to begin to reduce these disparities.

## METHODS

The Empowering Latinas to Lash Out Against AIDS (ELLAS) study was conducted from the University of South Carolina. ELLAS enrolled a cross-sectional convenience sample of 171 Latinas who were receiving prenatal care in six rural counties in South Carolina. The original goal of ELLAS was to understand knowledge of perinatal HIV testing.

### **Participants**

Pregnant Latinas were informed of the ELLAS study and offered to participate in the study after their first prenatal care visit. The study was reviewed and approved by the University of South Carolina's Institutional Review Board. The following inclusion criteria were applied: pregnant woman ages 18 years and older with Hispanic origin with uninfected or unknown HIV status who enrolled into the project at the first prenatal care session at one of the survey sites.

### **Measures**

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insurance, any insurance), living at or below the poverty level (yes, no) and type of education (less than high school, some high school or more). To address the prevalence of depression, the validated CES-D scale (included in survey) was used to classify women as depressed based on the literature recommendation of receiving a score of 16 or greater.

Within the ELLAS survey, the women had to answer questions concerning the friendliness, explanation of procedure and advice from their healthcare provider. The survey questions were classified in three categories, (Never, Sometimes, Always) for four variables of respecting their provider, trusting their provider, if their provider listens to them and if their provider is nice.

### **Statistical Analyses**

Since the four healthcare variables were closely related, we created a categorical variable for the perception of quality of healthcare. If the answer to the question was never, sometimes or always, the following scores were assigned: 0, 1, 2. We collapsed the perception score into two levels for the analyses; good perception (perception score  $> 8$ ) and poor perception (perception score  $< 8$ ). The perception cutoff point was chosen after running a univariate procedure and finding 8 was the median

Analyses were conducted to describe characteristics of pregnant Latinas and to examine the effect of the perception scores. Beginning, an unadjusted odds ratio and 95% confidence interval was computed for the crude model of prenatal depression and perception. For the final model predicting prenatal depression,

confounding and interaction with demographic variables was explored. We calculated adjusted odds ratios and 95% confidence interval using logistic regression for the association between prenatal depression and perception of quality of healthcare, controlling for age, years living in United States, education level, marital status, insurance and poverty. A model was also ran using perception as a continuous variable, however the results did not differ. Data was analyzed using SAS version 9.3.

## RESULTS

171 women were enrolled in the ELLAS study. The selected demographics for the Latinas are summarized in Table 4.1. 53.8% of women were 28 years old or younger; 59.5% had been living in the United States 7 years or less, 63.2% had less than a high school education, 83.0% reported being married or living with a partner, 82.9% did not have medical insurance and 89.7% were living at or below poverty. Table 4.2 displays the frequency of prenatal depression based on CES-D scale. 31.6% of the sample was classified as depressed. Table 4.3 and 4.4 shows the demographic characteristics and perception of quality of healthcare variables with the prevalence of prenatal depression. The frequency and percentage of the collapsed perception variable is displayed in Table 4.5. As Table 4.6 shows, women who perceived to have good relationship with provider were less likely to be classified as depressed (odds ratio 0.76, 95% confidence interval 0.39 – 1.46). The adjusted odds ratio for the final model did not differ much (adjusted odds ratio 0.75, 95% confidence interval 0.37 – 1.55), which is displayed in table 4.7.

**Table 4.1: Selected demographics of Latinas in ELLAS study**

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
Age, years		
≤28	92	53.80
>28	79	46.20
Years living in US		
<7	66	40.49
≥7	97	59.51
Educational Level		
<High School	108	63.16
>High School	63	36.84
Marital Status		
Married/Living with Partner	142	83.04
Single/Divorced	29	16.96
Insurance		
Yes (any type)	29	17.06
No	141	82.94
Poverty		
Yes	148	89.70
No	17	10.30

\* n=171

\*\*Poverty based on 2011 guidelines

**Table 4.2: Depression based on CES-D Scale in ELLAS study**

<b>Prenatal Depression</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	54	31.6
No	117	68.4

**Table 4.3: Selected demographics with prenatal depression of Latinas in ELLAS study**

<b>Characteristics</b>	<b>Depression</b>	<b>No Depression</b>
Age, years No (%)		
≤28	27 (15.79)	53 (30.99)
>28	27 (15.79)	64 (37.43)
Years living in US No (%)		
<7	19 (11.66)	47 (28.83)
≥7	31 (19.02)	66 (40.49)
Educational Level No (%)		
<High School	30 (17.54)	78 (45.62)
>High School	24 (14.04)	39 (22.81)
Marital Status No (%)		
Married/Living with Partner	42 (24.56)	100 (58.48)
Single/Divorced	12 (7.02)	17 (9.94)
Insurance No (%)		
Yes (any type)	10 (5.88)	19 (11.18)
No	44 (25.88)	97 (57.06)
Poverty No (%)		
Yes	49 (29.70)	99 (60.00)
No	4 (2.42)	13 (7.88)

\* n=171

\*\*Poverty based on 2011 guidelines

**Table 4.4: Perception of Quality of Healthcare of Latinas in ELLAS study**

Perception	Depression	No Depression	P-value
Respect No (%)	1 (0.59)	0 (0.00)	0.17
Never	1 (0.59)	7 (4.14)	
Sometimes	52 (30.77)	108 (63.91)	
Always			
Confident No (%)	2 (1.18)	2 (1.18)	0.65
Never	8 (4.73)	15 (8.88)	
Sometimes	43 (25.44)	99 (58.58)	
Always			
Listens No (%)	0 (0.00)	2 (1.19)	0.16
Never	10 (5.95)	35 (20.83)	
Sometimes	43 (25.60)	78 (46.43)	
Always			
Nice No (%)	1 (0.60)	0 (0.00)	0.31
Never	4 (2.38)	11 (6.55)	
Sometimes	48 (28.57)	104 (61.90)	
Yes			

\*P-values based on chi-square test

**Table 4.5: Perception of Quality of Healthcare of Latinas in ELLAS study**

	Frequency (%)
Perception	96 (56.47)
Good	74 (43.53)
Poor	

\*Good perception was defined as a score of greater than 8

**Table 4.6: Depression and Perception of Latinas in ELLAS study\***

Characteristics	Odds Ratio	95 % Confidence Interval
Perception	0.76	0.39, 1.46

\*Crude model

**Table 4.7: Depression and Perception of Latinas in ELLAS study**

<b>Characteristics*</b>	<b>Odds Ratio</b>	<b>95 % Confidence Interval</b>
Perception	0.75	0.37, 1.55
Age	0.71	0.34, 1.48
Years living in US	1.30	0.62, 2.73
Educational Level	1.56	0.63, 3.88
Marital Status	2.35	0.93, 5.95
Insurance	1.17	0.41, 3.35
Poverty	2.02	0.50, 8.18

\*Age ( $\leq 28$ ,  $>28$  years), time in the United States ( $<7$  years,  $\geq 7$  years), marital status (single or divorced, married or living with partner), insurance (self-pay or no insurance, any insurance), living at or below the poverty level (yes, no) and type of education (less than high school, some high school or more)

## DISCUSSION

In multivariate analyses, good perception of relationship with healthcare provider was more likely among women who were not depressed. The study found an adjusted odds ratio of 0.75, 95% confidence interval 0.37 – 1.55. The findings show the need for healthcare providers to understand the importance of the relationship with provider effecting pregnant Latinas.

Reducing the prevalence of prenatal depression in the US is an important public health care issue. Prenatal care providers are essential during pregnancy of a women. Although the findings were not significant, the study still suggests that women who perceived their relationship with healthcare provider as good was protective against prenatal depression among Latinas. The study found that 43.4% of the sample perceived their relationship with healthcare provider as poor; highlighting the existence of structural barriers such as overall respect for the patients<sup>28</sup>.

Strategies to improve quality of healthcare among pregnant women should include tailoring healthcare to fit the needs of Hispanic woman. A difference in cultural or religious values and the lack of provider understanding the importance of these values may affect the prevalence of depression.<sup>28</sup> Increasing linguistically diverse healthcare providers to care for this growing ethnic population could be beneficial for decreasing the prevalence of prenatal depression.

Literature has shown that Hispanic women experienced associations between lower socio-economic status and social support with depression<sup>25</sup>. 31.6% of the woman in the ELLAS study were classified as depressed, which is higher than the national

average.<sup>9</sup> Previous research has shown that stressful factors, such as low SES and younger age, may contribute to depression among pregnant women<sup>16</sup>. Looking at the ELLAS sample, roughly 90 percent of the women were living at or below the poverty level and over 53 percent were less than 28 years old. The study found women that had low SES were at an increased risk of being classified as depressed.

The study had a few limitations. Due to the small convenience sample of pregnant Latinas in South Carolina, the data may not be generalizable to Latinas in other areas of the United States. The sample was only taken from six rural counties in South Carolina. Another limitation is the potential of selection bias in the study. Unmeasured selection bias may have contributed to the sample including women who were willing to participate in research and had more favorable opinions with their quality of healthcare. The sample of study solely focused on Latina women, which adds strength to the scientific community.

Future studies with larger sample sizes are needed to more accurately display the prevalence of prenatal depression among Hispanic woman. Future interventions should target both pregnant Latinas and their prenatal care providers. With the growing population of Latinas, it is necessary to address this public health issue for the well-being of mother and baby.



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