2015-07-14

Social Determinants of Depression among Hispanic Women

Giovanna Cecilia De Oliveira
University of Miami, g.deoliveira@umiami.edu

Follow this and additional works at: https://scholarlyrepository.miami.edu/oa_dissertations

Recommended Citation
https://scholarlyrepository.miami.edu/oa_dissertations/1496

This Embargoed is brought to you for free and open access by the Electronic Theses and Dissertations at Scholarly Repository. It has been accepted for inclusion in Open Access Dissertations by an authorized administrator of Scholarly Repository. For more information, please contact repository.library@miami.edu.
UNIVERSITY OF MIAMI

SOCIAL DETERMINANTS OF DEPRESSION AMONG HISPANIC WOMEN

By

Giovanna Cecilia De Oliveira

A DISSERTATION

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy

Coral Gables, Florida

August 2015
UNIVERSITY OF MIAMI

A dissertation submitted in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy

SOCIAL DETERMINANTS OF DEPRESSION AMONG HISPANIC WOMEN

Giovanna Cecilia De Oliveira

Approved:

Rosina Cianelli, Ph.D.  Nilda Peragallo, DrPH.
Associate Professor of Nursing  Dean and Professor of Nursing

Karina Gattamorta, Ph.D.  Dean of the Graduate School
Research Assistant Professor of Nursing

Norma Kowalski, Psy.D.
Clinical Neuropsychologist
Center for Advanced Neuropsychology
Tamarac, Florida
Depression is the number one cause of disability in the world, affecting over 350 million people. It is characterized by mood changes, alteration in self-attitude, cognitive functioning, sleep, appetite, and energy level, and causes impairment in social and occupational functioning and a decrease in the quality of life of the depressed person, family, and friends. Across different societies and social contexts throughout the world, depression affects significantly more women than men. The situation is similar in the U.S., where women are 70% more likely than men to experience depression during their lifetime. The age of onset of depression in women is around 32 years.

Hispanic women experience depression around twice the rate of Hispanic males and are at a higher risk for depression than Caucasian and African American women due to multiple social determinants of health that affect the individual, family, aggregates, and community. The social determinants of health refer to conditions in which people are born, live, grow, work, and age. Unfortunately, many times individuals do not have direct control over these conditions. There is a scarcity of research related to social determinants of depression among adult Hispanic women; therefore, the conduction of research in this area is urgently needed to contribute to the early identification of the illness and prompt engagement in treatment.
The first aim of this study was to explore the predictors of the intrapersonal level social determinants of depression among Hispanic women. These predictors include (a) income, (b) education, (c) acculturation, (d) health status, (e) health insurance status, and (f) employment status. The second aim of this study was to analyze the predictors of the interpersonal level social determinants of depression among Hispanic women. These predictors include (a) relationship status, (b) living with partner, and (c) living with children.

The social ecological model (SEM) of McLeroy and colleagues was used to guide this study. The social determinants of depression were organized in the first two levels of the model: (a) intrapersonal (individual or unique characteristics of a person), and (b) interpersonal associations (formal and informal with significant others, social networks, family, and friends). The Patient Health Questionnaire-9 (PHQ-9) was used to measure depression ($\alpha = .84$, English version; $\alpha = .85$, Spanish version).

This was a quantitative exploratory secondary analysis study that used cross-sectional data from SEPA III, a randomized controlled experimental study with sexually active Hispanic women between 18-50 years old conducted in South Florida (N = 280). The data were collected by SEPA III trained bilingual assessors using face-to-face interviews from May 2013 through October 2014. This secondary study obtained approval by the Florida Department of Health Institutional Review Board.

Statistical analyses were comprised of confirmatory factor analysis (CFA), independent $t$-tests, and multiple regression. Multiple models were analyzed to test the hypotheses of the study. Findings point out that depression is very prevalent among Hispanic women in South Florida (37.5%), when compared to other recent studies done
in the U.S. with similar populations. In addition, CFA showed that the item *living with partner* loaded significantly (*p* = .002) on the latent variable *interpersonal factors*, being the only item that predicted depression in the final model.

Independent *t*-tests was performed in order to compare the means between the two groups (of each categorical variable) and the dependent continuous variable *depression*. Findings revealed that the difference in the means of the variables education, health status, relationship status, and living with partner were statistically significant with regards to the depression. The multiple regression final model showed that education, health status, relationship status, and living with partner explained 16% of the variance in depression indicative of a medium effect size. The average PHQ-9 score for a woman who had less than high school education, poor/fair health status, and did not live with partner was 9.51 (value of close to 10 is indicative of moderate depression).

This study presents a particular way to explore multiple social determinants of depression using a social ecological framework to organize and explain the relationships. In addition to aiding in a meaningful organization of factors, the SEM underscores the interaction and importance of the multilevels on determining depression. The model helps understand the convoluting social analytical levels and how these affect depression.

Given the current prevalence of depression among Hispanic women, research in this field is critical and should continue. Based on an extensive literature reviewed, a culturally tailored risk assessment tool that highlights the social determinants of depression in Hispanic women is nonexistent. This tool could be used in conjunction with other screening tools, such as the PHQ-9, in settings where Hispanic women of reproductive age are seen. Other social factors that may be determinants or depression
among Hispanic women and merit exploration are *familismo, marianismo, machismo*, discrimination, separation from family, family and partner conflict.

Social factors of health/depression affect predominantly vulnerable people even before birth, through old age. Consequently, nurses, as health care professionals who spend more time with clients and families, need to become aware of the role these social determinants play in the development of depression and need to be proactive when it comes to further screening and referral. Findings of this study bring about multiple compelling implications for nursing practice, policy, education and research.
Dedication

This dissertation is dedicated to:

1) Jesus Christ, my Lord, and his mother, the virgin Mary. My faith has given me strength throughout my life.

2) My husband, who supported me, giving me motivation to continue on and believing in me. ¡Gracias querido César!

3) My parents, Mario and Rosa, for their constant dedication and guidance. My parents taught us that the sky is the limit and education is the key for success.

Gracias padres por darnos la mejor educación que pudieron y enseñarnos a los cuatro hijos a ser gente de bien.

4) My siblings, Rosse Marie, Rita and Mario; my niece Niccole and nephew Sven. They have encouraged me to continue until the end. I will make up the time lost.

5) To Drs. Juan Julio and Doris Geldres, my father’s medical school classmates. Thank you for opening your heart and home to me 23 years ago, when I landed alone in Michigan. Back then I had only one dream: to learn English and go back to Peru. I never thought nursing would become my career and lifetime passion.

6) To my American family, Dr. Suzanne Rivkin, and sons Ryan and Aaron. Thank you for being there for me and believing in me always.

7) To my SEPA III team, Tania, Rebeca, and Rut. You have made my research experience extremely pleasant, always sending good vibes. I will never forget my time with you at UMH collecting data for the study.
8) To all my mental health patients who suffer in silence. Having had the chance to work as a nurse and practitioner with people in severe depression helped me see the need for further research in order to learn how to better manage this illness.

9) Last but not least, my dear 84 year-old friend Rose, a Jewish survivor from Romania, who shared her wisdom and prayed for me during my PhD studies.
Acknowledgements

I would like to thank several people and organizations who have made contributions to this work in one way or another. First of all, my chair, Dr. Rosina Cianelli. She has guided me through every step of the way, giving invaluable feedback to all my work and encouraging me to continue on. She was available to me any time of the day and night, and even during the weekends. Her professionalism is truly admirable. As a researcher and a scholar, she will be forever a model to follow in my future endeavors. I will be forever grateful to Dr. Cianelli.

I would like to thank Dr. Peragallo, dean of the School of Nursing and Health Studies, for allowing me to become involved in the intervention SEPA III as an assessor, and being able to investigate depression with part of these data. Being a member of the SEPA III team allowed me to observe every step of the research process, which will be a strong foundation in my research endeavors. Thank you Dr. Peragallo for being part of my dissertation committee.

Thank you Dr. Karina Gattamorta. She has taught me two statistical courses during my PhD studies. I have learned new statistical concepts and interesting ways to analyze data. She has given me excellent feedback and advice since the very beginning of this dissertation process. Data analysis was made easier thanks to her expertise and guidance. Thank you for being part of my committee.

I also would like to thank Dr. Norma Kowalski, the outside expert member of my dissertation committee. Thank you for your cooperation to this work and for your motivation. Thank you also for giving excellent clinical care to your mental health patients on a daily basis.
Thank you Dr. Natalia Villegas for your guidance through the IRB process application. Thank you for your time and feedback when I requested your assistance. Thank you also Dr. Brian McCabe for your time and guidance with the statistical analysis for this dissertation. Your feedback was very much appreciated.

Thank you to all my PhD professors. The education I gained has made me a more capable and rounded professional. You all have served me as great role models in my professional career. Thank you specially Dr. Shonali Choudhary for believing in me and asking for my assistance with your study. Unfortunately, you are no longer physically with us, but you will forever be in my thoughts and prayers.

Thank you University of Miami writing center. The writing center was my second home during my PhD studies. My work with several of the tutors allowed me to improve my English writing skills. Special thanks to Drs. Josie Urbistondo and Roxane Pickens who ran the Dissertation Writing Group. They encouraged me to continue on and edited parts of this dissertation work. Thank you also to Ms. Pat Greenwood, for your invaluable cooperation with editing this dissertation study.

Last but not least, thank you to the Substance Abuse and Mental Health Services Administration (SAMHSA) Minority Fellowship Program at the American Nurses Association (ANA) for having selected me as a fellow in 2014 (Grant 2T06SM060559-04). Thank you Dr. Faye Gary and Ms. Janet Jackson for giving me the opportunity to gain critical knowledge in mental health and substance abuse, specially focused on serving the ethnic minority communities and elimination of health disparities in the field.
# Table of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF FIGURES</td>
<td>xiii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xiv</td>
</tr>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Depression: A Health Disparity in the U.S.</td>
<td>1</td>
</tr>
<tr>
<td>Depression: Its Incidence and Its Economic Burden in the World and in</td>
<td>2</td>
</tr>
<tr>
<td>the U.S.</td>
<td></td>
</tr>
<tr>
<td>Depression: Its Effects on Other Health Conditions</td>
<td>3</td>
</tr>
<tr>
<td>Hispanic Women and Depression</td>
<td>4</td>
</tr>
<tr>
<td>Social Determinants of Health</td>
<td>5</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>6</td>
</tr>
<tr>
<td>Significance of the Study</td>
<td>7</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>8</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>8</td>
</tr>
<tr>
<td>Theoretical Framework</td>
<td>14</td>
</tr>
<tr>
<td>Outline of the Original Model</td>
<td>14</td>
</tr>
<tr>
<td>Application of the SEM by McLeroy and Colleagues to this Study</td>
<td>18</td>
</tr>
<tr>
<td>Study Aims</td>
<td>19</td>
</tr>
<tr>
<td>Research Question and Hypotheses</td>
<td>19</td>
</tr>
<tr>
<td>Research Question 1</td>
<td>19</td>
</tr>
<tr>
<td>Subquestion 1.1</td>
<td>19</td>
</tr>
</tbody>
</table>
Subquestion 1.2 ........................................................................................................19

Study Hypotheses ..................................................................................................19

Summary ..................................................................................................................20

2. LITERATURE REVIEW .....................................................................................21

Depression in the U.S.: A Health Disparity ..........................................................21
Depression and its Gender Inequality ......................................................................25
Effects of Social Determinants on Depression in Hispanics .............................27
The Intrapersonal Level of Social Determinants ..................................................28
  Income ..................................................................................................................28
  Education .............................................................................................................30
  Acculturation ........................................................................................................34
  Health Status ........................................................................................................38
  Health Insurance Status ......................................................................................41
  Employment Status ..............................................................................................43
The Interpersonal Level of Social Determinants ..................................................45
  Relationship Status ............................................................................................45
  Living with Partner ...............................................................................................48
  Living with Children ............................................................................................50
Summary ..................................................................................................................51

3. RESEARCH DESIGN AND METHODS ...........................................................52

Purpose ...................................................................................................................52
Study Design ..........................................................................................................52
Sample ....................................................................................................................52
Variables .................................................................................................................. 53
Intrapersonal Level Factors .................................................................................. 53
Interpersonal Level Factors .................................................................................. 55
Depression ............................................................................................................. 56
Evolution of the SEPA Studies ........................................................................... 57
SEPA III: The Parent Study ................................................................................ 58
Protection of Human Subjects ........................................................................... 61
Hypotheses Testing .............................................................................................. 61
Data Analysis ........................................................................................................ 62
Dissemination of Findings .................................................................................... 63
Summary ................................................................................................................ 64

4. RESULTS ........................................................................................................... 65
Descriptive Statistics ........................................................................................... 65
Analysis of the Social Determinants of Depression ....................................... 68
   Intrapersonal Level Social Determinants of Depression .......................... 68
      Income ........................................................................................................ 68
      Education .................................................................................................. 68
      Acculturation ............................................................................................. 68
      Health Status ............................................................................................. 69
      Health Insurance Status ............................................................................ 69
      Employment Status ................................................................................... 69
   Interpersonal Level Social Determinants of Depression .......................... 70
      Relationship Status ................................................................................... 70
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living with Partner</td>
<td>71</td>
</tr>
<tr>
<td>Living with Children</td>
<td>71</td>
</tr>
<tr>
<td>Outcome Variable: Depression</td>
<td>72</td>
</tr>
<tr>
<td>Hypothesis 1</td>
<td>73</td>
</tr>
<tr>
<td>Hypothesis 2</td>
<td>75</td>
</tr>
<tr>
<td>Independent $t$-Test Analysis</td>
<td>78</td>
</tr>
<tr>
<td>Assumption 1: Independence of Observations</td>
<td>79</td>
</tr>
<tr>
<td>Assumption 2: Homogeneity of Variance</td>
<td>79</td>
</tr>
<tr>
<td>Assumption 3: Normality of Errors</td>
<td>79</td>
</tr>
<tr>
<td>Income and Depression</td>
<td>79</td>
</tr>
<tr>
<td>Education and Depression</td>
<td>79</td>
</tr>
<tr>
<td>Acculturation and Depression</td>
<td>80</td>
</tr>
<tr>
<td>Health Status and Depression</td>
<td>80</td>
</tr>
<tr>
<td>Health Insurance Status and Depression</td>
<td>80</td>
</tr>
<tr>
<td>Employment Status and Depression</td>
<td>80</td>
</tr>
<tr>
<td>Relationship Status and Depression</td>
<td>80</td>
</tr>
<tr>
<td>Living with Partner and Depression</td>
<td>80</td>
</tr>
<tr>
<td>Living with Children and Depression</td>
<td>81</td>
</tr>
<tr>
<td>Multiple Regression Analysis</td>
<td>81</td>
</tr>
<tr>
<td>Assumption 1: Sample Size</td>
<td>82</td>
</tr>
<tr>
<td>Assumption 2: Multicollinearity and Singularity</td>
<td>82</td>
</tr>
<tr>
<td>Assumption 3: Outliers</td>
<td>82</td>
</tr>
<tr>
<td>Assumption 4: Normality, Linearity, and Homoscedasticity</td>
<td>82</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Research Question 1</td>
<td>84</td>
</tr>
<tr>
<td>Subquestion 1.1</td>
<td>84</td>
</tr>
<tr>
<td>Subquestion 1.2</td>
<td>84</td>
</tr>
<tr>
<td>Summary</td>
<td>85</td>
</tr>
<tr>
<td>5. DISCUSSION</td>
<td>86</td>
</tr>
<tr>
<td>Discussion of Findings</td>
<td>86</td>
</tr>
<tr>
<td>Analyses of Social Determinants of Depression</td>
<td>89</td>
</tr>
<tr>
<td>Income</td>
<td>89</td>
</tr>
<tr>
<td>Education</td>
<td>90</td>
</tr>
<tr>
<td>Acculturation</td>
<td>90</td>
</tr>
<tr>
<td>Health Status</td>
<td>91</td>
</tr>
<tr>
<td>Health Insurance Status</td>
<td>92</td>
</tr>
<tr>
<td>Employment Status</td>
<td>92</td>
</tr>
<tr>
<td>Relationship Status</td>
<td>93</td>
</tr>
<tr>
<td>Living with Partner</td>
<td>93</td>
</tr>
<tr>
<td>Living with Children</td>
<td>94</td>
</tr>
<tr>
<td>Strengths and Limitations of this Study</td>
<td>94</td>
</tr>
<tr>
<td>Future Study Implications</td>
<td>96</td>
</tr>
<tr>
<td>Nursing Practice and Policy</td>
<td>97</td>
</tr>
<tr>
<td>Nursing Education</td>
<td>101</td>
</tr>
<tr>
<td>Future Research</td>
<td>102</td>
</tr>
<tr>
<td>Summary of Study’s Implications</td>
<td>104</td>
</tr>
<tr>
<td>Summary</td>
<td>106</td>
</tr>
</tbody>
</table>
REFERENCES ..............................................................................................................107

APPENDICES ..............................................................................................................123

A: SEPA Demographic Intake Form ...........................................................................123
B: Bidimensional Acculturation Scale .......................................................................126
C: Patient Health Questionnaire-9 ............................................................................128
D: SEPA III: Baseline Instruments ............................................................................129
E: Religion .....................................................................................................................130
List of Figures

1. Depiction of the SEM .................................................................17
2. Use of McLeroy et al.’s (1988) SEM in this Study .............................18
3. Social Determinants of Depression Hypothesized Model ..................64
4. Social Determinants of Depression Model ....................................77
List of Tables

1. Demographic Characteristics .................................................................67
2. Intrapersonal Level Social Determinants of Depression ............................70
3. Interpersonal Level Social Determinants of Depression ............................72
4. Depression ....................................................................................................73
5. Intrapersonal Factors CFA Findings ............................................................75
6. Interpersonal Factors CFA Findings ............................................................76
7. Depression Final Model Fit Indices and Loadings ........................................78
8. Independent $t$-Tests Social Determinants and Depression ......................81
9. Multiple Regression Analysis Findings .......................................................84
Chapter 1

Introduction

Depression: A Health Disparity in the U.S.

The National Prevention Strategy (NPS, 2010) proposes the elimination of health disparities as a strategic direction to prevent disease and promote health for all Americans throughout their lifespan. Hispanic Americans constitute a large number of people in this country: one of every three people in the U.S. will be Hispanic by mid-century, becoming the largest minority in the country (U.S. Census Bureau, 2011). The term Hispanics refer to people whose ancestors are from any country where Spanish is the primary language (Hispanic, 2015). Despite the growth in the number of Hispanics in the U.S. and NPS’s proposition to eliminate health inequities, disparities within this group persist.

Mental health in the U.S. is affected by disparities among ethnic/racial groups (Ertel, Rich-Edwards, & Koenen, 2011). Barriers to assessment in the Hispanic populations subsequently lead to poor care for mental health illnesses (U.S. Office of Minority Health [OMH], 2012). This is evident in the vast research on depression in Hispanics, which suggests that in the U.S., depression in this group is underdiagnosed and undertreated (Ertel et al., 2011; March et al., 2014). The underdiagnosis is in part due to an inadequate screening or assessment of the social factors that are linked to depression among Hispanics, such as level of education (which leads to poor health literacy), acculturation level (adaptation process to a new culture), immigration-related issues (family separation), etc. (Lewis-Fernandez, Das, Alfonso, Weissman, & Olfson, 2005). The inadequate treatment for depression includes less psychological counseling and a diminished number of prescribed antidepressants (OMH, 2012).
According to the Centers for Disease Control and Prevention (CDC) *Health Disparities and Inequalities Report* (CHDIR, 2011), some important disparities among Hispanics are: (a) they have lower levels of education and less income than other racial groups; (b) they are more likely to live in environments that do not meet requirements for ozone; (c) they have the highest prevalence of obesity among young males; (d) they have higher rates of preventable hospitalizations; and (e) they have a disproportionate burden of HIV diagnoses, among others.

**Depression: Its Incidence and Its Economic Burden in the World and in the U.S.**

Depression (referring to major depressive disorder [MDD] or unipolar disorder) is an illness characterized by mood changes as well as alteration in self-attitude, cognitive functioning, sleep, appetite, and energy level (American Psychiatric Association [APA], 2013). All these characteristics cause impairment in social and occupational functioning and a decrease in the quality of life of the depressed person (APA, 2013; Gonzalez et al., 2010). Despite depression being a common and treatable mental health illness, it is the number one cause of disability in the world, affecting over 350 million people (World Health Organization [WHO], 2012a). The CDC (2012) reports that one out of 10 adults report depression in the U.S. The lifetime prevalence of depression in the U.S. is around 17%, much higher than in other developed countries such as Japan, where this rate is around 3% (WHO, 2012a).

Depression affects two major social factors: health care utilization and work productivity (Donohue & Pincus, 2007). Health care utilization results in higher dollars spent in health care, most of these not directly used on depression treatment. Depression
costs translate into 34 billion dollars of yearly workplace expenditure in direct (medical and pharmaceutical treatment of the disease) and indirect (absenteeism, short- and long-term disability, family and medical leave, worker’s compensation, and turnover) costs (Johnston, Westerfield, Momin, Phillippi, & Naidoo, 2009; National Alliance on Mental Illness [NAMI], 2010, 2014a).

Out of all the mental health and substance abuse disorders, depressive illnesses (including unipolar and bipolar depression) account for the greatest number of years lived with disability (YLDs) and disability-adjusted life years (DALYs) in the U. S. and the world. This is over 40% (31.7-49.2) of all DALYs caused by mental health and substance abuse disorders (Whiteford et al., 2013). It is predicted that by 2030, depression will be the number one cause of DALYs in high income countries such as the U.S. (Johnston et al., 2009). This is due to depression being very prevalent, chronic, appearing early in life, and affecting the overall functioning of the affected person (Donohue & Pincus, 2007).

**Depression: Its Effects on Other Health Conditions**

Mental illness has been shown to affect physical health, and an adequate balance between these two is needed for maintaining well-being and diminishing mortality and morbidity (NPS, 2010). For example, depression and coronary artery disease (CAD) have been found to have a bidirectional relationship: CAD can cause depression, and at the same time, depression is an independent risk factor for CAD (i.e., cardiac patients with depression are more likely to die of a heart attack than others) (Khawaja, Westermeyer, Gajwani, & Feinstein, 2009). In addition, depression coexists with conditions such as substance abuse, cancer, Parkinson’s disease, post-traumatic stress disorder, and eating
disorders (National Institute of Mental Health [NIMH], 2012). Ultimately, mistreated and non-treated depression can lead to suicidal and homicidal ideations, which in many cases turn into actual deaths (Doornbos, Zandee, & DeGroot, 2012). In fact, around 15% of all people suffering from clinical depression end up committing suicide (NAMI, 2014a).

**Hispanic Women and Depression**

According to the WHO (2012a), depression causes significant burden for women all over the world. In the U.S., women are 70% more likely to experience depression during their lifetime than men (NIMH, 2012). Women ages 18 through 45 account for the largest group diagnosed with clinical depression (NIMH, 2009). Around 42% of disabilities due to neuropsychiatric disorders are related to depression in women compared to 29% in men (WHO, 2014a).

Research has suggested that genetic, biological, chemical, environmental, psychological, and social factors contribute to the development of depression, and the latter affect women more than men in part due to women’s tendency to respond to stressful situations differently than men (Nolen-Hoeksema, Larson, & Grayson, 1999). Moreover, multiple responsibilities related to women’s function at work and at home may trigger depression such as taking care of the children, aging parents, abuse, and poverty (Nolen-Hoeksema et al., 1999). Depression alters not only the functionality of the woman, but also her quality of life and the life of the woman’s family members (NAMI, 2014a).

Hispanic women have more than half the rate of depression of Hispanic men and are more likely to experience depression than Caucasian or African American women in
Factors such as occupational, marital, and family-related circumstances seem to contribute to depression among Hispanic women (Vermeesch et al., 2013). Moreover, due in part to the cultural values such as *machismo* (social male dominance) and *marianismo* (submission of women to men), Hispanic women tend to suffer in silence and generally do not seek treatment for mental health disorders (Cianelli, Ferrer, & McElmurry, 2008; Vermeesch et al., 2013). Women have higher thresholds for adversity or suffering and fear being stigmatized due to mental illness (Afifi, 2007; Ferrer, Cianelli, & Peragallo, 2004).

**Social Determinants of Health**

Factors that affect the individual and community health are called determinants of health (WHO, 2012b). Among these are social, economic, political, cultural, and environmental factors (WHO, 2012b). In other words, health is determined in part by the context in which people live, and many times individuals are not able to directly control some of the determinants of health (WHO, 2014b).

The social determinants of health are defined by the WHO (2014b) as “conditions in which people are born, live, grow, work and age” (n.p.). These are defined or shaped by money, power, and other resources at multiple levels, from local to global. The WHO (2012a) has recognized that dealing with these social determinants is fundamental and a priority in order to improve the physical and mental health of people around the world. Discrimination, economic, and other social factors have been pointed out as possible social determinants of mental health in minorities in the U.S. (Doornbos, Zandee, DeGroot, & De Maagd-Rodriguez, 2013). Hispanics face a number of substantial
socioeconomic stressors that put them at risk for depression (Alegria et al., 2008; Cook, Alegria, Lin, & Guo, 2009). These stressors are related to occupational/economic, marital, immigration, and family/cultural factors (De Santis, Gonzalez-Guarda, & Vasquez, 2012; Vermeesch et al., 2013).

**Statement of the Problem**

Research of depression among Hispanic women in South Florida is particularly important because this area has a large population of Hispanics (65% in Miami-Dade County), and more than half of these are women (City-Data.com, 2014). Recent research on depression among Hispanic women has been focused on the genetic and biological causes of depression (Kendler & Gardner, 2014; Matthews et al., 2007; Ruiz et al., 2012), and have included samples of postnatal and elderly Hispanic women (Al Snih et al., 2012; Connelly, Hazen, Baker-Ericzén, Landsverk, & Horwitz, 2013; Glasheen, Colpe, Hoffman, & Warren, 2014; Hartley, Barroso, Rey, Pettit, & Bagner, 2014; Liu & Tronick, 2014; Parmelee, Harralson, McPherron, DeCoster, & Schumacher, 2012). However, there is a scarcity of research in identifying the social determinants of depression among Hispanic women between the ages of 18 to 50 years who are not necessarily in a postnatal period. Women in this age group are at a greater risk for developing depression, considering that the highest prevalence of depression is within that age group and that the average onset of depression is at 32 years of age (NIMH, 2009, 2012). Therefore, an exploration of the social determinants of depression among these women may aid in early identification of the condition and prompt engagement in treatment.
Significance of the Study

This study presents an innovative way to look at social determinants of depression in Hispanic women. It will analyze the social determinants using a socioecological lens: multiple environmental factors determine a specific phenomenon. The study will evaluate different intrapersonal and interpersonal level factors that may determine depression in our population of interest. Moreover, Miami-Dade County is in close proximity to Latin regions such as Central and South America and the Caribbean Islands, which allows for a heterogeneous sample of women for this study.

Among the determinants of depression among Hispanic women, social factors such as level of income, level of education, health status, and acculturation, among others, may play a crucial role in the development or exacerbation of the condition (Doornbos et al., 2013). The results of this study can serve as a starting point to develop a culturally tailored social risk assessment tool for depression among Hispanic women, which is currently nonexistent in the literature reviewed. The study will highlight the social determinants associated with depression in the target population.

Further research will be needed in order to include other social variables and possible determinants of depression in order to fully develop the screening tool. By having this tool, nurses and nurse practitioners, as well as other health care providers, may be more capable of identifying risks for the onset and/or exacerbation of depression among these women. A sudden change in certain social determinants can certainly worsen the depressive symptoms (NIMH, 2012).
The effort to maximize health outcomes related to depression is undoubtedly multidisciplinary. However, registered nurses and practitioners are in a unique position to bridge health disparities given that they spend more time in direct patient care than any other health professional (OMH, 2002). Nurses can assess for these social determinants, helping in the prompt diagnosis and adequate treatment of this prevalent illness.

**Purpose of the Study**

This study will use data from SEPA III (Principal Investigator: Nilda Peragallo): The Effectiveness Trial (2P60MD002266-06 National Institute on Minority Health and Health Disparities, NIH/NIMHD). SEPA III is a randomized controlled experimental study that evaluates a culturally tailored intervention to prevent HIV risky sexual behaviors among Hispanic women. SEPA stands for *Salud, Educacion, Prevencion, y Autocuidado*, or Health, Education, Prevention, and Self-Care.

This secondary study has the following purpose: to analyze the social determinants of depression among Hispanic women in South Florida. Social determinants include intrapersonal factors (income, education, acculturation, health status, health insurance status, and employment status), and interpersonal factors (relationship status, living with partner, and living with children). Research with Hispanic women has suggested that they may determine depression among that population (CDC, 2012; Institute of Medicine, 2012; National Council of La Raza, 2005).

**Definition of Terms**

The following are the conceptual and operational definitions for the study variables:
(1) Intrapersonal Factors

Conceptual Definition: Refers to the individual or unique characteristics of a person (McLeroy, Bibeau, Steckler, & Glanz, 1988).

Operational Definition: Individual factors are operationalized as income, education, acculturation, health status, health insurance status, and employment status.

(a) Income

Conceptual Definition: The U.S. Internal Revenue Service (IRS, 2015) defines income as the wages, salaries, and/or tips that you earn when working for someone, or when you own or run a business.

Operational Definition: Level of income is operationalized as the woman’s response to the following two open-ended questions from the Demographic Intake Form (DIF) (see Appendix A):

- Last month, what was the total amount of money you and your family lived on, including public assistance (after taxes)?
- How many people in this country lived from this money?

The monthly family income will be divided by the number of people that lived from this money in order to calculate the per capita income.

(b) Education

Conceptual Definition: Merriam-Webster’s Dictionary defines level of education as “a degree, of knowledge, skill, and understanding that you
get from attending a school, college, or university” (Education, 2015, n.p.).

Operational Definition: Level of education is operationalized as the woman’s response to the following open-ended question from the DIF:

– How many years of education have you completed?

(c) Acculturation

Conceptual Definition: Acculturation has been defined as the process related to changes in several aspects of the original culture (i.e., changes in language preference, adoption of values of the dominant culture or vice versa, membership in common social groups, etc.) that can lead to intercultural exchange and conflict (Berry, Poortinga, Segall, & Dasen, 1992; Marin & Gamba, 1996) and which takes place over time.

Operational Definition: It is operationalized looking at the two subscales: Hispanicism and Americanism, from the Bidimensional Acculturation Scale (BAS) (Marin & Gamba, 1996). The scale contains 24 items that refer to language, linguistic proficiency and electronic media. Options for answers are: almost never, sometimes, often, and almost always (see Appendix B).

(d) Health Status

Conceptual Definition: The U.S. Department of Health and Human Services (DHHS, 2014) defines health status as a measure of how a person perceives his or her health.
Operational Definition: Health status is operationalized as the woman’s answer to the following question from the DIF:

– How would you describe your health in the past three months?

Options of answer for this question are: poor, fair, good, or very good.

(e) Health Insurance Status

Conceptual Definition: Health insurance is the coverage that provides the person compensation payments due to sickness or injuries (Health Insurance Providers, 2014).

Operational Definition: It is operationalized as the yes/no answer to the question from the DIF:

– Do you have health insurance?

(f) Employment Status

Conceptual Definition: Employment status refers to whether a person is employed making wages or salary (U.S. Bureau of Labor Statistics, 2008).

Operational Definition: It is operationalized as the yes/no answer to the following from the DIF:

– Are you currently employed?

(2) Interpersonal factors

Conceptual Definition: Refers to the associations, formal and informal, with significant others, social networks, family, and friends (McLeroy et al., 1988). Significant others can impact one’s decisions related to engaging in health
promotion behaviors, for example, such as timing of doctor’s visits, acquisition or maintenance of substance abuse/alcohol and others, nicotine use, etc.

Operational Definition: Interpersonal factors are operationalized as relationship status, living/not living with the partner, and having/not having children apart.

(a) Relationship Status

Conceptual Definition: The relationship status is the civil status of each individual in relation to the marriage laws, unions, or customs of the country (Organization for Economic Co-operation and Development, 2014).

Operational Definition: Relationship status is operationalized using the answer from the DIF:

– What is your current relationship status? The options are: single, divorced, in a relationship (not legally married), married, separated, widowed.

(b) Living with partner

Conceptual Definition: Living with partner means that a male and a female (cohabitating) are living together (U.S. Census Bureau, 2014).

Operational Definition: This variable is operationalized using the woman’s answer of yes/no to the following question from the DIF:

– Are you currently living with spouse or partner?
(c) Living with children


Operational Definition: Uses the woman’s answer to whether or not they live with their children (from the DIF):

– Do they (your children) live with you? (yes/no)

(3) Depression

Conceptual Definition: Mood disorder, considered a medical illness that affects how the person feels with persistent sadness and loss of interest in activities that used to give pleasure which can lead to emotional and physical problems (APA, 2013).

Operational Definition: Depression is operationalized as the woman’s overall score to the Patient Health Questionnaire-9 (PHQ-9), which is a quick depression assessment tool (see Appendix C). This questionnaire has nine items and describes behaviors/feelings the woman experienced in the past two weeks. The options for answers are: not at all (0 points), several days (1 point), more than half the days (2 points), and nearly every day (3 points). This questionnaire also determines the severity of the depression, from minimal (from 1 to 4 points overall) to severe (from 20 to 27 points overall) (Kroenke, Spitzer, & Williams, 2001).
The PHQ-9 is a quick self-reported screening tool, and as such it does not provide with a definite diagnosis of clinical depression. A definite diagnosis is made by a trained clinician.

**Theoretical Framework**

As stated earlier, depression is a devastating illness which affects the person’s ability to enjoy life overall by altering how the person sleeps, eats, studies, and engages with other people (NIMH, 2014). Researchers continue to study the causes of this illness, which are likely due to the interaction of multiple factors: genetic, biological, psychological, and environmental (NIMH, 2014). In order to better understand the social determinants associated with depression, a comprehensive social ecological model (SEM) will be used.

The SEM (McLeroy et al., 1988) looks at the environment from a social perspective, and postulates that a phenomenon is influenced by multiple levels. Social determinants are then part of this environment, as an individual interacts with other people in this physical environment (Greenfield, 2012). The original theoretical article has become a classic in public health, including in studies about engagement in health promotion behaviors, which was the first target of the authors (Glanz & Bishop, 2010). Ecological models help to explain how multiple factors contribute to a specific phenomenon, as there is no one single factor that can determine people’s health behaviors (Glanz & Bishop, 2010).

**Outline of the original model.** Ecological models are being used in social, medical, and nursing sciences and are increasingly important because they view personal
behaviors affected by and affecting the social environment (McLeroy et al., 1988). One of the first ecological models was developed by Brofenbrenner (1979), which depicted interactions among nested systems called micro-, meso-, exo-, and macrosystems. Each one of these systems exerts some type of influence on behavior (McLeroy et al., 1988).

McLeroy and colleagues (1988) developed the SEM using Brofenbrenner’s (1979) model as a conceptual framework and combined it with the work of Belsky (1980), who integrated ecological concepts to study child maltreatment. The SEM was developed initially to use in health promotion endeavors as public health was becoming of utmost social interest since the late 1950s (McLeroy et al., 1988). One of the principles of the SEM is to create an environment conducive to change in order to assist the individual to adopt healthy behaviors (Glanz & Bishop, 2010).

McLeroy and colleagues (1988) envisioned behavior as an outcome which was influenced by intrapersonal, interpersonal, institutional, community, and public policy factors. By analyzing each level and potentially changing or altering what needs to be altered, interventions for health promotion would be facilitated (McLeroy et al., 1988). The first factor, the intrapersonal, includes the unique characteristics of an individual, such as the social determinants that will be studied in this research (level of income, level of education, acculturation, health status, health insurance status, and employment status). Lack of or poor individual education could be targeted with educational programs or mass media; for example, with the purpose that an individual become more aware of the need to engage in a specific health promoting behavior (Glanz & Bishop, 2010).
The second factor, the interpersonal, refers to the processes, associations, and interactions of an individual with his/her formal and informal work and social network, such as friends, family, etc. (McLeroy et al., 1988). Social relationships are crucial as the individual needs of resources to function in a society. These relationships provide emotional support, information, access to other contacts and support systems, and can act as mediators of life stress and aid in the overall well-being of the person (McLeroy et al., 1988). Interactions with others can impact many aspects of health behavior, such as how an individual copes with stress, risk for mental illness, attitudes to engage in health promotion behaviors, etc. Social determinants at this level that will be analyzed in this study include relationship status, living with partner, and living with children.

The following factors of the SEM are not going to be examined in this study. The third factor, the institutional, refers to the organizations, institutions, and rules and regulations for operations, being formal or informal (McLeroy et al., 1988). The fourth factor, community, represents relationships among organizations and institutions. The last factor, public policy, depicts laws and policies at the local, state, and federal levels (McLeroy et al., 1988). See Figure 1 for further explanation of each factor or level.
McLeroy and colleagues’ (1998) SEM has been used extensively with the Hispanic population and their mental health. Recent studies with this population have used this theory to look at the relationships between depression and women breast cancer survivors (Ashing-Giwa, Rosales, Lai, & Weitzel, 2013; Lopez-Class, Gomez-Duarte, Graves, & Ashing-Giwa, 2012), depression and Latino adolescents’ perceptions of
discrimination, neighborhood risk, and parenting (Behnke, Plunkett, Sands, & Bámaca-Colbert, 2011), and depression and culturally adapted behavioral approaches for Latinas (Kanter, Santiago-Rivera, Rusch, Busch, & West, 2010).

**Application of the SEM by McLeroy and colleagues to this study.** For the current study, an adapted version of the original SEM by McLeroy and colleagues (1988) was used, focusing on the first two layers of the model: the intrapersonal and interpersonal factors that may determine depression (see Figure 2). Each one of these factors was investigated and statistically evaluated.

---

**Figure 2.** Use of McLeroy et al.’s (1988) SEM in this study.
Study Aims

The specific aims of this study are to:

1. Explore the predictors of the intrapersonal level social determinants of depression among Hispanic women. These predictors include (a) income, (b) education, (c) acculturation, (d) health status, (e) health insurance status, and (f) employment status.

2. Analyze the predictors of the interpersonal level social determinants of depression among Hispanic women. These predictors include (a) relationship status, (b) living with partner, and (c) living with children.

Research Question and Hypotheses

Research question 1. What are the social determinants of depression among Hispanic women in South Florida?

Within the context of this question, two subquestions were explored:

Subquestion 1.1. What are the predictors of the intrapersonal level social determinants of depression among Hispanic women?

Subquestion 1.2. What are the predictors of the interpersonal level social determinants of depression among Hispanic women?

Study Hypotheses

1. Predictors at the intrapersonal level social determinants of depression include income, education, acculturation, health status, health insurance status, and employment status.
2. Predictors at the interpersonal level social determinants of depression include relationship status, living with partner, and living with children.

Summary

This chapter highlighted depression as a health disparity, its incidence, and economic burden in the U.S. Prevalence of depression among Hispanic women, possible causes for depression, and gender differences in the condition were also explored based on the literature. Chapter 1 also presented a discussion of social determinants of health, and more specifically of depression among Hispanic women. This preamble made the statement of the problem and significance of the study more evident. The SEM of McLeroy et al. (1988) was presented, and the adaptation of this model to this study was also explained. Ultimately, study research question, subquestions, and hypotheses were clearly delineated. Chapter 2 presents extensive research on each of the predictors to be analyzed and presented in this chapter.
Chapter 2

Literature Review

This chapter presents an overview of depression in the U.S.: its incidence, gender and race inequality, and social determinants among Hispanic women. Social determinants will then be explored at the intrapersonal and interpersonal levels, following the SEM of McLeroy et al. (1988).

Depression in the U.S.: A Health Disparity

Studies showing racial/ethnic differences on the incidence of depression in the U.S. have found striking results. Researchers from the CDC used the Behavioral Risk Factor Surveillance System (BRFSS), a state-based random-digit-dialed telephone survey for data collection (Gonzalez et al., 2010). The BRFSS is the world’s largest ongoing telephone survey system. Surveys of 235,067 adults included an anxiety and depression optional module. These adults were noninstitutionalized U.S. civilian population from the 29 participating states, Washington, D.C., Puerto Rico, and the U.S. Virgin Islands.

Gonzalez and colleagues (2010) included data from the 2006 survey in the analysis along with data from the 16 states that participated in the 2008 survey. Nine states (Hawaii, Kansas, Louisiana, Maine, Mississippi, Nebraska, North Dakota, Vermont, and Washington) participated in both years, but only their 2008 data were included. Five states (Kentucky, New Jersey, North Carolina, Pennsylvania, and South Dakota) did not participate in either year. The purpose of the study was to provide a sociodemographic descriptive analysis of the people who suffered from depression in the U.S. The study found a 4% rate of reporting depression among ethnic minorities (Hispanics and non-Hispanic African Americans), which was statistically significant

21
when compared to Caucasians, who had a rate of 3%. Conclusions of the study emphasized the importance of early assessment and treatment of depression having cultural considerations in mind.

Another factor for disparity in mental care among different ethnic groups in the U.S. is socioeconomic status (SES). Studies in the U.S. have linked SES to depression. Walsh, Levine, and Levav (2012) ran a 27-year longitudinal community study in the U.S. Data were obtained from a national survey of youth (NLSY 79). The purpose of the study was to evaluate if the SES of parents and ethnic affiliation during adolescence were related to depression during adulthood. Information about the SES of the parents of the adolescents was obtained during baseline; the participants were 18 years of age on average.

The scale for assessing depression from the Center for Epidemiological Studies (CES-D) was re-administered 27 years later to 8,331 participants. Around half of the sample (49.2%) was composed of ethnic minorities: African Americans and Hispanics. Out of the 367 people who were identified as having depression (per CES-D), the rates were higher for Hispanics (5.5%), followed by African Americans (5%), and other (3.5%). In addition, low parental SES increased the risk of depression during adulthood (based on CES-D scores) across ethnic groups. In Hispanics, for example, the risk of depression for the low parental SES was higher (OR = 2.89, 95% CI 1.92-4.36) than for the high parental SES (OR = 1.97, 95% 1.00-3.88). The study highlighted the effect that growing up in poverty may have on adulthood depression.
Racial discrimination has been associated with depression among minorities in the U.S. (Anglin, Lighty, Greenspoon, & Ellman, 2014; Huynh, Devos, & Dunbar, 2012; Ong, Fuller-Rowel, & Burrow, 2009). Anglin and colleagues (2014) collected cross-sectional data from self-reported questionnaires to 650 ethnic minority young adults from a large public university in the northeast U.S. The main goal of the study was to analyze the relationship between racial discrimination experiences and attenuated positive psychotic symptoms. Researchers suggested that depression and anxiety symptoms commonly occur prior to the onset of psychosis. Depression in this study was measured using the CES-D. The sample was composed of African Americans, Asians, and Hispanics (at least 25% of the sample composed by each group, and the rest of other ethnicities). Investigators found that at least 70% of the Hispanic subset of the sample had self-reported racial discrimination, and that racial discrimination may be associated with depression ($r = 0.18$, $p < .001$).

Ornelas and Perreira (2011) studied the relationship between depression and premigration, migration, and postmigration, as well as the social support factors among Hispanic immigrant parents ($n = 281$) with children ages 12 to 18 in the state of North Carolina. Data were taken from a population-based study of mental health, migration, and acculturation (LAMHA). Among the factors found to have contributed the most to the development of depression among these parents, researchers pointed to (a) high levels of poverty premigration (OR 9.42, 95% CI 1.55-53.67); (b) stressful experiences during migration (OR 4.38, 95% CI 1.65-11.65); and (c) racial problems/discrimination in the neighborhood upon arriving to the U.S. (OR 4.06, 95% CI 1.42-11.58).
The mental health needs of racial and ethnic minorities (African Americans, Hispanics, and Asian Americans) are not met when compared to Caucasians in the U.S. (Jang, Yoon, Chiriboga, Molinari, & Powers, 2014). A recent report presented data on the prevalence of maternal depressive symptomatology and its sociodemographic correlates among women from various races and ethnicities in the U.S. Foreign-born and U.S.-born mothers \((n = 7,676)\) participated in a nine-month survey conducted by the National Center for Education Statistics of the U.S. Department of Education (Huang, Wong, Ronzio, & Yu, 2007). Findings from the report concluded that women who were born outside the U.S. or belonged to racial/ethnic minorities were less likely to seek medical care \((OR: 2.2 \text{ to } 2.5)\) or think that they needed it for their emotional problems \((OR: 1.9 \text{ to } 2.2)\) compared to non-Hispanic Caucasian women.

Gonzalez and colleagues (2010) analyzed data from the Collaborative Psychiatric Epidemiology Surveys (CPES) of 15,762 adult residents of 48 U.S. states. Data were collected face-to-face using computer-assisted interview technology. In this national study of depression care, researchers concluded that the lowest rates of use of pharmacotherapy and psychotherapy for depression were among Mexican Americans and African Americans. This relates to findings from other recent studies which have found that minorities seem to underutilize services related to mood disorders (Alegria et al., 2008; Lee, Xue, Spira, & Lee, 2014; Strine et al., 2008), causing a great burden for the U.S.

Other barriers to proper mental health care and access, and specifically to depression among Hispanics, include the lack of mental health care professionals who are
Spanish speaking or Hispanic providers and language barriers due to a large influx of immigrants that continue to arrive to the U.S. (NAMI, 2014b). One of the last complete reports of mental health care professionals in the U.S. showed that there were 29 Hispanic mental health care providers per 100,000 Hispanics in the country, while there were 173 Caucasian providers per 100,000 in 1999 (DHHS, 2001). In addition, only 1% of certified psychologists in the U.S. self-identifies as Hispanic (Dingfelder, 2005).

Monolingual households continue to be a reality in the U.S. as Hispanic immigrants continue to arrive to the country. According to the latest census, only 15% of households spoke solely English, and more than 40% of all households spoke English less than very well (Isabelli, Pan, & Lubkeman, 2012). Given these language limitations, therapeutic communication is frequently not effectively established with the Hispanic patient, which in turn can lead to misdiagnosis and/or undertreatment.

**Depression and its Gender Inequality**

In the U.S., women are 70% more likely to experience depression during their lifetime than men (NIMH, 2009, 2012). Women have a 21% lifetime prevalence of depression, which is characterized by relapse, recurrence, and chronicity (Accortt, Freeman, & Allen, 2008). Social, psychological, and biological factors seem to play a role in the etiology and recurrence of depression in women. Research shows that multiple variables contribute to women being more vulnerable to depression than men: (a) psychosocial stressors, (b) gender-related roles, (c) ruminating coping strategies, and (d) effects of sex-related hormones and genetic factors (Accortt et al., 2008).
Psychosocial stressors seem to affect women differently than men (Freeman, 2013). These factors include (a) marital discord, (b) conflict, (c) divorce, and (d) separation (Bebbington, 1998; Bruce & Kim, 1992). A study looked at the effects of divorce on major depressive episodes for men and women (probability sample of 5,034 adults, ages 18 to 60) living in the New Haven, CT region (Bruce & Kim, 1992). The sample was subdivided into three categories: (a) separated/divorced, (b) happily married, and (c) unhappily married. Results from logistic regression models found that 39% of women who were separated or divorced ($n = 53$) reported a major depressive episode during baseline collection, much higher than the other groups (8.7% of happily married and 16.4% of unhappily married). Among men, those who were separated or divorced ($n = 24$) did not differ significantly from the other groups as far as number of reported major depressive episodes during baseline.

Gender-related roles of women as mothers and wives also pose a stressor for women who do not work outside the house (Bebbington, 1998). Women tend to care for children, older parents, and husbands, many times focusing more on others rather than on themselves (Bebbington, 1998). Other life stressors such as interpersonal conflict and lack of social support have also shown to play an important role in the onset and recovery aspects of depression in women (Accortt et al., 2008). Kendler, Thornton, and Prescott (2001) investigated the gender difference of prevalence in major depression. Data from male-male, male-female, and female-female pairs of twins from the state of Virginia were collected. This information came from a population-based registry of people who were interviewed in person at the time that any of the 18 personal or social stress-related
events and episodes that can onset major depression occurred. Researchers concluded that women had significant higher rates of life events such as housing problems, loss of confidant, and problems getting along with people in their close network (i.e., spouse, parent, siblings) when compared to their twin brothers (Kendler et al., 2001).

Ineffective coping skills among women, such as rumination, also hinder their recovery when depressed. Rumination refers to focusing constantly on one’s negative emotions without problem-solving the causes and consequences of these emotions (Nolen-Hoeksema, 2012). Tamres, Janicki, and Helgeson (2002) ran a meta-analysis with empirical studies from 1990 to 2000 with more than 2,000 participants in the combined sample (50 studies were selected for analysis). Findings state that women had a statistically significant higher tendency to ruminate than men (in three out of five studies that analyzed this variable). In addition, men in most of the studies engaged in problem-solving and reappraisal in order to control their emotions, while women appraised the stressors as more severe than men (Tamres et al., 2002).

**Effects of Social Determinants on Depression in Hispanics**

As stated earlier, multiple social determinants affect Hispanics’ mental health in the U.S. Intrapersonal and interpersonal levels of social determinants are related to depressive symptoms among Hispanics (NAMI, 2014b). Intrapersonal level social determinants, such as living in poverty, have demonstrated to be significantly associated with mental illness in general. Minorities such as Hispanics have demonstrated to belong to a lower SES than Caucasians (anywhere from 16.2% and 26.3%, compared to 11.6%)
People from a low SES have a two- to threefold higher risk of having a mental health disorder (NAMI, 2014a).

Research has pointed out other social determinants of depression among Hispanic women in the U.S. such as (a) lower levels of education, (b) acculturation, (c) poor health, (d) lack of health insurance, (e) unemployment, (f) divorce or separation, (g) single parenthood, and (h) having children living apart (Lozano-Vranich & Petit, 2004; NAMI, 2014b). Research that discusses social determinants at each level and their relationship to depression among Hispanic women in the U.S. will be presented next.

Most or all of the women in the selected studies were within the ages of 18 to 50, similar to the ages of the women in this study. McLeroy et al.’s (1988) SEM will be used to group the determinants at each level, according to the definitions of these levels presented in Chapter 1.

**The Intrapersonal Level of Social Determinants**

This section will explore the following social determinants: (a) income, (b) education, (c) acculturation, (d) health status, (e) health insurance status, and (f) employment status.

**Income.** Most of the recent studies point out that low-income Hispanics have a higher rate of depressive symptoms than Hispanics with higher incomes or Caucasians. Leung, LaChapelle, Scinta, and Olvera (2014) surveyed 90 Hispanics from a southern city of the U.S. The sample consisted of mostly Mexican women (42 years of age on average) with an annual income of $30,000 or less. Results of a chi-square test demonstrated that a dramatic loss of income had a statistically significant relationship
with depressive symptoms. People concerned with loss of income were more likely to have depressive symptoms than people who were not \( \chi^2(1, N = 61) = 3.237, p = .034 \).

Sternberg and Lee (2013) analyzed data belonging to 94 Hispanic women (ages 40 to 50) out of a larger study with multi-ethnic women in the San Francisco, California area. The purpose of this secondary data analysis was to investigate the sociodemographic factors that influenced depression in premenopausal Hispanic women. Using the CES-D to assess depression, researchers concluded that women with higher scores on the CES-D scale (indicating moderately severe and severe depression) had significantly less overall family income \( r = -.278, p = .007 \), and this income was insufficient to cover essential daily needs \( r = -.370, p < .001 \). This study included homogeneous numbers of U.S.-born Hispanics and immigrants.

A secondary analysis of cross-sectional data taken from the National Epidemiological Survey of Alcohol and Related Conditions collected in 2001-2002 (Ertel et al., 2011) yielded similar results to the study of Sternberg and Lee (2013). Researchers studied the public burden of MDD among mothers \( n = 8,916 \) with data nationally representative of the U.S. population. About one fourth of the sample of the women self-identified as Hispanic \( n = 2,149 \), and the average age was 35 years. These Hispanic women were more likely to have suffered multiple adversities (e.g., being fired, unemployment, financial crisis, separated, or divorced) when compared to other ethnicities (Caucasians, Asian, and Native Americans). In addition, lower levels of income among Hispanic women correlated with higher risks for depression \( \text{OR} = 1.53, 95\% \text{ CI} = 1.09-2.15 \).
In Massachusetts, researchers investigated the risk factors associated with depression among Hispanic women \((n = 921)\) during early pregnancy (Fortner, Pekow, Dole, Markenson, & Chasan-Taber, 2011). The study examined only women of Puerto Rican and Dominican heritage. These women were interviewed face-to-face in the language of their preference (Spanish or English). About 30% of these women had depressive symptoms, and 48% had an annual income of less than $30,000. Bivariate analysis demonstrated that women with lower levels of household income (less than $15,000 annually) had a statistically significant higher number of severe depressive symptoms (39%) when compared to people with household incomes greater than $30,000 (23%). Other factors found to be related to lower risk of depressive symptoms were higher levels of education and living with a spouse/partner.

Farr, Bitsko, Hayes, and Dietz (2010) examined data from the 2006-2007 BRFSS to estimate the prevalence of depression and serious psychological distress among nonpregnant women of reproductive age (18-44). These data were nationally representative and included Hispanics from any origin. The total number of women analyzed was \(n = 38,875\) in 2006 and \(n = 36,347\) in 2007. Univariate analysis of depression in Hispanic women revealed that women with a household annual income of less than $15,000 had a higher prevalence of major and minor depression as well as a higher prevalence of serious psychological distress. This study used an 8-item depression scale, which was adapted from the PHQ-9.

**Education.** A vast majority of research studies done with Hispanic women in the U.S. indicates that women with higher levels of education have a lower number of
depressive symptoms. For example, researchers ran a cross-sectional data analysis to examine the prevalence and correlation of depressive symptoms among Hispanics of Caribbean origin with poorly controlled diabetes (March et al., 2014). In this randomized controlled trial, 358 Hispanics were studied. The participants were diabetics from the state of New York, mostly women of ages 35 to 70 (61.7%). Depression was found to be significantly negatively correlated to the number of years of education ($\beta = -0.10, p < .001$). Multivariate correlations demonstrated that people who had more years of formal education (coded as a continuous variable) had fewer depressive symptoms and vice versa.

In Texas, a prospective observational design was used to study predictors of depression among 515 pregnant Hispanic women who were mostly low-income, identified as Mexican or Mexican-Americans, and had an average of 24.6 years of age (Walker, Ruiz, Chinn, Marti, & Ricks, 2012). Women filled out psychosocial surveys; the survey results looked at various predictors of depression among Hispanic women. Significant predictors of depression in a linear regression model were (a) education, (b) frequency of discrimination, (c) age, and (d) Anglo marginality, $F(6, 458) = 8.36, p < .001$. Interestingly, researchers found a curvilinear relationship between education (measured in years) and depression (measured with the Beck’s Depression Inventory [BDI]). The BDI increased until around 12 years of education and then decreased.

Moreover, a recent study out of California with Hispanic women of reproductive age ($n = 94$) sought to describe the frequency of depressive symptoms in premenopausal Hispanic women as well as to compare sociodemographic factors between Latinas born
in the U.S. vs. immigrants. Results found that Hispanic women with lower levels of education had higher levels of depression (measured with the CES-D), and this was statistically significant, $r = -0.369$ (Sternberg & Lee, 2013). Other factors found to positively correlate with depression among these women were body mass index (BMI), work-related stress, and insufficient income to meet daily needs.

Among a large multistage sample of Hispanic mothers ($n = 2,149$), investigators analyzed data from a larger study of women ($n = 8,916$) (Ertel et al., 2011). Data came from a National Epidemiologic Survey of Alcohol and Related Conditions from civilian U.S. population in 2001-2002. The purpose of the study was to analyze the public burden of major depression among mothers as well as to investigate the ethnic disparities in depression. The study found that the risk for depression was higher in women who had less than high school education (13%) than in women who completed four-year college (6%) (Ertel et al., 2011). Other factors negatively correlated with depression were income and not being married.

Researchers in Massachusetts interviewed 921 Hispanic women during early pregnancy (Fortner et al., 2011). The goal was to study various factors or predictors that could be associated with depression in these women. Thirty percent of these women showed depressive symptoms. Results indicated that women with less than high school education had statistically significant more depressive symptoms than the ones who had completed high school or had some college (college/graduate school vs. $< \text{less than high school}$: $RR = 0.60$, 95% CI = 0.41-0.86).
Similar results were obtained by Farr and colleagues (2010) who analyzed data from the BRFSS (years 2006 and 2007): \( n = 42,444 \) in 2006 and \( 39,121 \) in 2007. This was a sample of nonpregnant women of reproductive age, including a large portion of Hispanics (25%). A validated 8-item depression scale was used to measure depression (PHQ-8). Minor depression was defined as answering positive to 2-4 questions overall (e.g., little pleasure doing things, feeling down, hopeless, etc.), and major depression was defined as positive answers to five or more questions overall. The highest prevalence of minor (14.3%) and major depression (11.8%) was found in women with less than high school education, compared to women with college education (5.3% and 2.4%, respectively).

Lara, Le, Letechipia, and Hochhausen (2009) investigated the prevalence of depression and its associated factors among pregnant Hispanic women in the U.S. (\( n = 108 \) from Washington, D.C.) and from Mexico City (\( n = 117 \)). Data for the U.S. subsample were taken from medical charts of low-income Hispanic patients residing in the Washington, D.C. metropolitan area (community clinic). The results of this study were interestingly different than the majority of studies that looked at the same variables/predictors for depression among Hispanic women. Separate multiple logistic regressions in the U.S.-born Hispanics showed that higher levels of education were associated with higher risk for depressive symptoms (\( OR = 5.3 \)).

Data from a group of community sample of Hispanic women from south Florida (\( n = 82 \)) were analyzed by Gonzalez-Guarda, Peragallo, Vasquez, Urrutia, and Mitrani (2009). Women (ages 18 to 60) who participated in the project Drugs and Violence in the
Americas (DYVA) were personally interviewed. The purpose of the study was to explore the experiences of these women with violence, substance abuse, and sexual risky behaviors. Depressive symptoms were measured using the CES-D scale. Researchers concluded that women with higher depression reported lower levels of education ($b = -0.07, p = .044$).

Bromberger, Harlow, Avis, Kravitz, and Cordal (2004) examined data obtained from the Study of Women’s Health Across the Nation (SWAN). This study was multiethnic, multisite, and longitudinal, and evaluated 3,302 women aged 42 to 52 years. Researchers investigated differences in significant depressive symptoms among women from different ethnic and racial backgrounds. There were 249 women who self-identified as Hispanics in the sample. The study results suggested that the group of Hispanic women had the highest prevalence (43%) of severe depressive symptoms, measured by the CES-D, when compared to African Americans, Japanese, Chinese, and Caucasian. Researchers suggested that this could have been due to the high percentage of Hispanics (45%) with less than high school education.

**Acculturation.** Acculturation is a very complex concept, and multiple factors may be associated with it. Research findings with childbearing Hispanic women in the U.S. and acculturation have been inconsistent, as evidenced by the literature review that will be presented here. While studies reveal that Hispanics can acculturate (acquire cultural elements of the U.S. society) and enculturate (selectively adhere and/or acquire values and practices to identify as Hispanic), research shows that these immigrants have a
higher risk of depression during the acculturation process (Hernandez & Organista, 2013).

Hispanics confront multiple stressors when they arrive in the U.S., such as lack of language skills, lack of legal status, low health literacy, lack of or inadequate health insurance coverage, etc. (Coffman & Norton, 2009). All of these factors can reduce the health status of immigrants in various aspects (physical, psychological, and social) (Marsiglia, Kulis, Perez, & Bermudez-Parsai, 2011). These same factors make Hispanic women a higher risk for depression (Hernandez & Organista, 2013).

Lorenzo-Blanco and Cortina (2013) analyzed data from the National Latino Asian American Study (a nationally representative household survey) which included 2,554 Hispanics (48% were women with a mean age of 38). They analyzed multiple variables involved with higher rates in depression. Acculturation was measured by English language proficiency and the number of years lived in the U.S. Researchers found that women with higher degrees of acculturation to the Anglo-American culture had more family conflict and dealt with more discrimination than the less acculturated. In addition, women in this study were twice as likely to meet criteria for lifetime MDD when compared to men. Higher levels of acculturation were in turn associated with higher degrees of depressive symptoms. Researchers suggested that this could be in part due to loss of cultural values and family cohesion.

In another study that took place throughout the state of Texas, researchers designed a prospective study with pregnant Hispanic women (n = 470) (Ruiz, Stowe, Brown, & Wommack, 2012). The study looked at the effects of acculturation on various
psychosocial and biological factors. Acculturation was measured by generational status (first, second, or third generation), and depression was measured using the CES-D. Results of the study showed that as the woman’s generational status increased (suggestive of indicating higher degrees of acculturation), so did not only the depression scores, but also other psychosocial factors such as anxiety and stress.

Fortner and colleagues (2011) examined risk factors for prenatal depression among women of Puerto Rican and Dominican heritage in Massachusetts ($n = 921$). These women were interviewed during early pregnancy (mean was 13 weeks of gestation) as part of the Proyecto Buena Salud. This project attempts to examine the relationship between physical activity, psychological stress, and risk of gestational diabetes in Hispanic women. Depression was assessed using the Edinburgh Postnatal Depression Scale (EPDS), available in English and Spanish. Researchers analyzed acculturation factors such as language preference, birth place, and the score on a psychological acculturation scale to determine if acculturation was a risk factor for prenatal depression. Results of this study found at least 30% of the sample having depressive symptoms. Also, 31% of women who had a preference for the English language had depressive symptoms compared to 24% of the women who preferred Spanish, and this was statistically significant ($p < .05$). In addition, women who were second generation in the U.S. (which indicated higher degree of acculturation) were more likely to indicate depressive symptoms than women who were first generation (34% vs. 29%, $p = .02$).
When compared to non-Hispanic Caucasian women (NHC), Hispanics have also demonstrated higher degrees of depressive symptoms when more acculturated. Data from the SWAN study were evaluated, looking at multiple variables among women from different ethnicities (Green et al., 2010). The sample ($n = 419$) data were analyzed from Hispanic women of different origins interviewed in New Jersey, whose ages ranged from 42 to 52 years. Hispanic women in this sample demonstrated less acculturation and more depressive symptoms than NHC (both with $p < .001$). However, Puerto Rican women reported more acculturation (higher use of English) at a rate of 21% vs. 4.8% when compared to the other groups of Hispanics (Cuban, Dominican, Central and South American), and had higher frequency of depressive symptoms than the other groups.

Kiang, Grzywacz, Marín, Arcury, and Quandt (2010) investigated the mental health of 150 Mexican men and women (45.3%) residing in the U.S. for five years or less in rural North Carolina with an average age of 30 years. Specifically, the study focused on variables related to stressors (i.e., acculturative and normative stress) as well as protective factors for depression (i.e., resilience and self-efficacy). Results of the study suggested that normative and acculturative stressors (i.e., negative experiences associated with immigrating to a new culture) significantly increased depressive symptoms, after controlling for anxiety ($\beta$s = .36 and .17, respectively), especially in women.

In another study that used a community-based participatory research approach (CBPR), researchers surveyed Latinas ($n = 286$) living in northeastern New York (Jurkowski, Westin, & Rossy-Millan, 2010). Investigators partnered with people from the community who were familiar with the Latino medical and psychological needs and
developed an extensive questionnaire for the participants. Participants were recruited at community organizations and churches frequented by Hispanics. Most of the sample was composed of Puerto Rican women (57%), and the mean age was 44.8 years. Acculturation was measured with a 7-item National Health Interview Survey (NHIS) acculturation scale and depression using the PHQ-9. In this sample, results showed that out of the 130 women with self-reported depression and/or anxiety symptoms, 71.2% showed lower levels of acculturation.

In San Antonio, Texas, researchers conducted a secondary data analysis from the Metropolitan Health District with the purpose of evaluating acculturation and depressive symptoms in postpartum and pregnant Hispanic women (Davila, McFall, & Cheng, 2009). Woman in the sample (n = 439) were U.S.- or Mexican-born. Language use and place of birth were used to examine acculturation and the CES-D to examine depression in the sample. Findings of this study suggested that Hispanic women born in Mexico were significantly less likely to report moderate or severe symptoms of depression (17.9%) when compared to the women born in the U.S. (28.1%). Overall, women who were more acculturated to the Anglo-American culture (U.S.-born and interviewed in English) showed higher severity of depressive symptomatology (p = .04).

Health status. Recent research associating perceived or self-reported health status and depression showed that women with a worse perception of their health status have greater risk for depression. Brewer and colleagues (2013) investigated the relationship of self-reported health status and depression among a sample of 2,301 men and 3,201 women living in the Boston area. The Hispanic subsample was composed of 1,876
people, of which 53% were women, and the rest self-identified as African American or Caucasian. The sample was interviewed in person by bilingual interviewers using instruments available in both languages, Spanish and English. Hispanic women had a much higher self-report of poor or fair health status (33.9%) versus good, very good, or excellent when compared to African American (20.7%) or Caucasian (10.7%) women. Hispanics also had higher rates of depression measured with the CES-D (27.1%) when compared to Caucasians (13.1%) or African Americans (21.1).

With the purpose of analyzing immigration and sociodemographic factors related to depression among premenopausal healthy Hispanic women (ages 40 to 50), Sternberg and Lee (2013) analyzed data from the San Francisco, California region. Depression was analyzed using the CES-D at enrollment and at six months. Results in this sample (n = 94) indicated that women with higher scores of depression had worse general health perception (r = .365). Other variables significantly correlated with higher scores in the depression scale were lower levels of education (r = −.369) and higher BMI (r = .317).

A group of pregnant Hispanic women (n = 193) with low income and during their first 12 weeks of pregnancy was studied in California in order to assess the influence of multiple factors on postpartum maternal health (Sumner et al., 2011). Most of the sample was foreign-born (75%) and had more than 10 years living in the U.S. (39%). The women were reassessed after three months of giving birth. Semi-structured interviews were completed at baseline and during follow-up. Depression was measured using the Beck Depression Inventory Fast Screen (BDI-FS). Data for perceived general health as well as depression were obtained, among other factors. Women with better perceived general
health had lower scores in the depression scale (negatively correlated) at both points in time \( (p < .005) \). Overall health status was also positively correlated with lower levels of stress \( (p < .001) \) and being foreign-born \( (p < .003) \).

In another study with women of multiple ethnicities, researchers analyzed part of a longitudinal data to investigate racial differences in the prevalence of antenatal depression (Gavin et al., 2011). Data from 1,997 women were studied (nationally representative sample) of which over 10% were Hispanic with an average age of 28 years. Health status was measured by reporting of at least two chronic medical conditions (i.e., asthma, cardiac disease, etc.). Logistic regression models were used to analyze the data. Results indicated that the prevalence of antenatal depression among Hispanic women was significantly higher than in Caucasian, non-Hispanic women (15.3% vs. 3.6%). In addition, prevalence of medical preexisting conditions \( (\leq 2) \) was significantly associated with a higher risk for depression.

Researchers in San Francisco, California recruited a group of multiethnic women mostly using face-to-face techniques to study multiple variables associated with violence and depression (Humphreys & Lee, 2009). Self-report questionnaires of women between the ages of 40 and 50 were collected. Out of the total sample \( (n = 396) \), 94 women were Hispanic. Health status was measured by giving a list of common health conditions for women during that age, and these results were correlated with the women’s self-perception of general health. Depression was measured using the CES-D. Results indicated that women with a higher number of health problems had a worse perception of their health \( (r = .23) \), as well as a higher frequency in depressive symptoms \( (p < .002) \).
**Health insurance status.** Lack of health insurance has also been studied as a possible contributor to depressive symptoms among Hispanic women. Data from 2011 indicate that Hispanics are three times more likely not to have medical insurance than Caucasians nationwide (Robert Wood Johnson Foundation [RWJF], 2013). Not having health insurance, or having insurance that lacks proper mental health coverage, interferes with the ability to access adequate mental health, hindering the assessment, diagnosis, and treatment of depression.

Public data from national surveys on drug use and health were used to analyze pregnant and nonpregnant women ages 18 to 44 \( (n = 9,032) \) from multiple ethnicities who met criteria for having had a major depressive episode in the past year (Ko, Farr, Dietz, & Robbins, 2012). The researchers’ goals were to estimate the prevalence of undiagnosed depression, treatment modalities, and treatment barriers among women of reproductive age; 25% of these women were Hispanic. Results showed that women who had a high prevalence of undiagnosed depression were Hispanic (68%) and uninsured (65.8%). In addition, in both groups of women (pregnant and nonpregnant), people who were uninsured had more statistically significant major depressive episodes \( (p < .001) \) than people who had private or public insurance.

Data from the 2006-2007 BRFSS belonging to 18- to 44-year-old nonpregnant women \( (n = 81,565) \) were analyzed in a secondary study and revealed that most women without depression had health insurance (80.5%), while only 68% of the women with major depression and 71% of minor depression had insurance (Farr et al., 2010). Seventeen percent of Hispanic women had depressive symptoms. Moreover, Hispanic
women without health insurance had lower odds of receiving treatment for depression when compared to Caucasians (OR = 0.2, 95% CI = 0.1-0.5). In the sample, women who were from minorities (African American and Hispanics) or uninsured showed higher prevalence of undiagnosed depression (37%) compared to Caucasians (50%). Moreover, women from minorities showed a 57% higher prevalence of undiagnosed depression when compared to women with public or private insurance.

Researchers investigated racial differences in depression prevalence analyzing data from a cross-sectional study (belonging to the 2006 National Inpatient Sample). A total of 877,579 women who presented for delivery at a hospital were studied (Shen, Lin, & Jackson, 2010). A total of 180,724 women from this sample were Hispanic (20.5%). Health insurance status was categorized as private, Medicaid, and uninsured. Results of this study showed that Hispanic women had the highest rates of being on Medicaid (63.5%) or uninsured (10.6%) when compared to Caucasians (30% and 2.2%, respectively) or African Americans (59.6% and 3%). In addition, when compared to private insurance, women with Medicaid had a higher risk for depression (OR = 1.47). In this sample, uninsured women from the overall sample had a lower risk for depression than women with private insurance (OR = .79).

Surveys from a population from the Boston area (n = 5,503) attempted to examine rates of underinsurance and uninsurance among men and women of different ethnicities (Link & McKinlay, 2010). The goal of the study was to examine the sociodemographic and health characteristics of people who had poor insurance coverage and thus were having difficulties paying for medications through health care. In this sample, n = 1,877
were Hispanics and \( n = 3,202 \) were women. Multiple medical and psychological comorbidities were studied in relation to health insurance status. From the sample, a total of 30% of Hispanic men and 19% of Hispanic women did not have health insurance. In addition, being employed did not necessarily mean having health insurance, as 25% of Hispanic men and 25% of Hispanic women who were employed did not have health insurance. Results suggested that Hispanic women who were underinsured or uninsured had the highest prevalence of depression when compared to women of other ethnicities under the same insurance conditions \((p < .005)\).

**Employment status.** Employment status has been studied as a possible predictor or risk factor for depression in Hispanic women. Research shows that women who are unemployed or underemployed tend to have a higher prevalence of depressive symptoms as well as more severe symptoms. A recent study analyzed a large sample of women from multiple ethnicities and U.S. states \((n = 16,106)\) from the 2006 BRFSS (Dougé, Lehman, & McCall-Hosenfeld, 2014). Six percent of these women were of Hispanic origin. Multiple psychosocial and sociodemographic variables were studied. Prevalence and severity of depression in this sample was assessed using the Patient Health Questionnaire-8 (PHQ-8). Results from this study indicated that employment status independently predicted severity of symptoms of depression—Hispanic women who were unemployed had greater odds of more severe depression than Hispanic women who were employed \((OR = 1.17)\). Lower levels of education, higher BMI, and poor social support were also associated with higher levels of depression among the sample.
Researchers analyzed data from the SWAN study in order to study the relationship among depression, unemployment, and central adiposity. This study was longitudinal, multiethnic, and multisite, with nationally representative data. Participants were midlife women (ages 42 to 52) who completed an average of 7.2 assessments over 10 years of follow-up, from 1996 to 2008 (Appelhans et al., 2014). Data from 3,220 women and over 23,000 observations were studied. The subsample of Hispanic women was comprised of 263 people. Results showed that unemployed Hispanic women had the highest prevalence of depressive symptoms (measured by the CES-D) versus the full- or part-time employed women in general ($p = .02$).

Researchers in New York City analyzed data from a cross-sectional community health random digital-dialed phone survey held yearly by the New York City Department of Health and Mental Hygiene. The secondary analysis was done of 25,518 women over the age of 18 years old (Schwarz, McVeigh, Hoven, & Kerker, 2012). Stratified analyses were used to look into the surveys of women that took place from 2002 to 2008. A large number of these women were Hispanic ($n = 7,343$). Multiple variables were analyzed in order to investigate the racial and ethnic differences in depression among these women. Hispanic women in the unemployed group had a significantly higher prevalence of depression (41%) when compared to employed Hispanic women (31.7%) or to Caucasian women (24.8%) or African American women (29.4%) who were also out of work. Depression was measured using the Kessler’s K-6 scale, a tool that has proved its validity with studies across different cultures and languages (Schwarz et al., 2012).
Cross-sectional data of nationally representative mothers \((n = 8,916)\) were analyzed in order to examine the rates and risks of depression among the sample (Ertel et al., 2011). The data were collected using in-person structured interviews conducted by the National Institute of Alcohol Abuse and Alcoholism during the years 2001 and 2002. The sample had a large subset of Hispanic women \((n = 2,149)\) older than 18 years of age. In order to measure depression, researchers used a structured protocol based on *Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)*. Results demonstrated that 33.37% of Hispanic women who had been fired during the last year or were unemployed showed depressive symptoms \((p < .02)\). Other risk factors associated with maternal depression in the sample were life adversities, poverty, separation or divorce, and financial constraints.

**The Interpersonal Level of Social Determinants**

**Relationship status.** Recent studies have suggested that women who are divorced or widowed have a higher depression risk than women who are married or in a stable relationship. A group of researchers from Harvard University analyzed cross-sectional data from the National Epidemiologic Survey of Alcohol and Related Conditions (Ertel et al., 2011). The goal of the study was to determine the prevalence and demographic patterns of maternal depression. The nationally representative sample consisted of women \((n = 8,916)\) who were mothers of at least one minor (< 18 years old) at the time of the survey. Over 2,300 of the sample were women of Hispanic origin. Multiple factors were analyzed with respect to maternal depression. Marital status (categorized as *married, living together, widowed, divorced or separated, and never married*) results
showed that women who were divorced or separated had a higher risk for depression than women who were married \((OR = 1.87)\), and a higher risk than women belonging to the other marital statuses.

Another study looked at women from different ethnicities in order to analyze depression based on partner status and the presence of children in the house (Schwarz et al., 2012). Data from a cross-sectional survey of 25,518 women (from which \(n = 7,343\) were Hispanic) were studied. Partner status was classified initially in six categories: \textit{married, never married, divorce, separated, widowed, and member of an unmarried couple}. These groups were categorized as \textit{formerly married} (composed by women who were separated, divorced, or widowed) and \textit{single or partnered status}. Single women were formerly married or never married, and partnered women were the ones in the married group and in the member of an unmarried couple group. Partner status was significantly associated with depression in Hispanics \((p = .0001)\) after adjusting for age, nativity, poverty level, employment, education, general health, and health insurance. In addition, results of this study showed that single Hispanic women had higher odds of depression when compared to partnered women with children \((OR = 1.58, p < .0001)\). Interestingly, it was found that the presence of children in the house strengthens the relationship between single status and depression.

Marital status has been also linked to depression among Hispanic women during early pregnancy. Researchers from Massachusetts examined data coming from 921 pregnant women in order to evaluate sociodemographic, psychosocial, and acculturation predictors of depression (Fortner et al., 2011). Women were interviewed in person during
early pregnancy. Marital status was classified as *never married, married,* and *
divorced/separated/widowed.* Depression was measured using the EPDS. Results
indicated that women who were never married (*n* = 228) have the highest prevalence of
severe depressive symptoms when compared to women who were married (*n* = 19) or
divorced/separated/widowed (*n* = 21). This was statistically significant, *p* = .02.

In another study, data from depressed women (*n* = 133) and nondepressed women
(*n* = 62) immigrants from Central and South America living in the U.S. were used in
order to evaluate risk factors and relationships among depression, trauma, and post-
traumatic stress disorder (Kaltman, Green, Mete, Shara, & Miranda, 2010). The data were
taken from a randomized control trial of depression treatment. The average age of these
women was 30 years and the average number of years living in the U.S. was eight.
Marital status was classified as *married, had a partner, never married, separated,*
*divorced,* and *widowed.* Results of the study indicated that the women who were not
married had an increased risk of being in the depressed group as well as in the comorbid
groups (trauma and post-traumatic stress disorder) with a *p* < .001.

Farr and colleagues (2010) investigated the prevalence of depression and
psychological distress among women of reproductive age (18 to 44 years of age). Data
were taken from the BRFSS and belonged to 75,222 U.S. women, of which 20% were
Hispanic. The marital status in this study was classified as *married, never married,*
*divorced-separated-widowed,* and *unmarried.* Depression was assessed using the PHQ-9
in this sample. The highest incidence of major depression (12%) and minor depression
(11%) in the sample was found among the women belonging to the divorced-separated-
widowed group. Other variables associated with higher prevalence of depression were unemployment, annual yearly household income of less than $15,000, and those with less than high school education.

**Living with partner.** Most recent studies have indicated that Hispanic women living with their partners have fewer depressive symptoms than women who do not. A recent quantitative study done with pregnant low-income women in Oklahoma ($n = 31$, 3% Hispanic) sought to identify how close relationships affected women’s ability to cope with stressful situations and overall health (Byrd-Craven & Massey, 2013). Women for this study were recruited during prenatal visits, and data were collected during face-to-face interviews. Participants were of low SES and in their second or third trimester of pregnancy. Results showed that women in a more committed relationship (cohabitating with the baby’s father) had significantly fewer depressive symptoms as well as greater emotional well-being ($p < .05$).

Researchers examined data (cross-sectional) from Proyecto Buena Salud, which offers ambulatory obstetrical services to Hispanic women in Massachusetts (Fortner et al., 2011). These data were obtained during the baseline face-to-face interviews with the participants. Living situation (i.e., with partner) was a factor studied as a possible risk for depression among women during early pregnancy ($n = 921$). Interestingly, a total of 30% of these Hispanic women had depressive symptoms (measured by the EPDS). Statistical analysis suggested that women who did not live with their partner/spouse reported higher prevalence of major (34%) depressive symptoms compared to women who lived with their partner (26.7%), and this was statistically significant.
A larger study examined nationally representative data taken from the Collaborative Psychiatric Epidemiology Surveys (total \( n = 16,228 \) adults, and \( n = 3,264 \) Hispanics) to analyze variations in depression among races (Lee, 2011). Half of the total sample were women and the mean age of the sample was 42.6 years. Subjects were asked if they ever had an onset of MDD and at what age this happened. Marital status was subdivided in three categories: *married or cohabiting*, *divorced/separated/widowed*, and *never married/living alone*. Results indicated that the divorced/separated/widowed group was more likely to have had an onset of depression in their lifetime than the married or cohabiting group (\( p < .001 \)).

Another quantitative study examined changes in trajectory of perinatal depressive symptoms in low-income Hispanic women (\( n = 69 \)) from California (Diaz, Le, Cooper, & Muñoz, 2007). Marital quality was examined as an interpersonal factor that could affect depression. Women in the sample were very young (15 to 30 years old), monolingual (Spanish only), and in very early stages of pregnancy. Depression was measured with the CES-D. Data were collected face-to-face during antenatal and postnatal periods. Results indicated that women who lived with their partners demonstrated to have better marital quality and more support before and after delivery. Women with more social support had a higher drop in depression scores than women with low levels of social support (\( p < .0005 \)). In addition, results showed a significant decline in depressive symptoms (from before to after delivery) among the women who reported better postnatal marital quality when compared to the group with better prenatal marital quality (\( p < .0005 \)).
Living with children. One of the major causes of psychological distress among Hispanic immigrants is separation from their family and/or friends as well as a lack of community (Caplan, 2007; Shattell et al., 2008). Recent studies corroborate the fact that Hispanic women who are separated from their children (due to issues such as immigration or finances) have an increased risk for depression when compared to mothers who live with their children.

Hispanic migrant and seasonal farmworkers from North Carolina with a history of prior depressive or anxiety symptomatology underwent surveys during focus groups in order to convey qualitative data about stressors and coping methods (Winkelman, Chaney, & Bethel, 2013). The small convenience sample consisted of 57 people, of which five were women, and 60% of the total sample was less than 40 years of age. One of the major themes that emerged as a precursor to depression was separation from their family, especially their children. The women farmworkers especially verbalized that they missed their children immensely and when they thought of them they felt lonely, hopeless, and depressed, to the point of crying.

Separation from family can affect women and men differently. Researchers in North Carolina collected data via face-to-face-structured interviews with 150 Hispanic immigrants from Mexico (82 men and 68 women) in order to assess gender differences in anxiety and depression in this population (Hiott, Grzywacz, Arcury, & Quandt, 2006). The sample had been living in the U.S. for fewer than five years and had a mean age of 29.6 years. Depression was measured using the CES-D. Statistical analysis demonstrated that separation from family (including children) was associated with more depressive
symptoms among the Hispanic women ($p < .10$), but it was not a stressor associated with depression in men ($p < .94$).

Miranda, Siddique, Der-Martirosian, and Belin (2005) screened low-income, pregnant, and postpartum Hispanic women ($n = 5,122$) in Los Angeles. The main purpose of the study was to analyze the risk for depression among immigrant women who were separated from their children. To assess for depression, the Primary Care Evaluation of Mental Disorders (PRIME-MD) was used. Interestingly, almost 12% of the women in the sample screened positive for major depression. Women who were separated from their children had $1:52$ odds of depression than the women who lived with their children.

**Summary**

A review of the most recent research in the variables of interest has provided a broader view among the relationships between social determinants and depression. While some of these variables are consistently negatively correlated with depressive symptoms among Hispanic women (such as income and education), other variables such as acculturation and marital status seem to be more complex, and therefore findings in recent studies are not consistent. This study will add to the body of knowledge about the relationship between depression in the target population and social determinants.

This study is a very important contribution to the current body of knowledge in this population by (a) examining intra- and interpersonal variables as possible social determinants of depression, and (b) serving as a start point for the development of a screening tool for depression (which currently does not exist) by assessing the social determinants associated with the illness among Hispanic women.
Chapter 3
Research Design and Methods

This chapter presents the study purpose, design, sampling, instrumentation, data collection procedures, data analysis, and protection of human subjects.

Purpose

The purpose of this study is to analyze the social determinants of depression among Hispanic women in South Florida. Social determinants include (a) intrapersonal factors (income, education, acculturation, health status, health insurance status, and employment status); and (b) interpersonal factors (relationship status, living with partner, and living with children).

Study Design

This study is a secondary analysis study that uses cross-sectional data from SEPA III: The Effectiveness Trial. SEPA stands for Salud, Educacion, Prevencion y Autocuidado, which translates to Health, Education, Prevention, and Self-Care. SEPA III, the parent study, is a randomized controlled experimental study with adult Hispanic women in Miami-Dade County. It compares SEPA (the intervention group) to a delayed intervention control group ($n = 300$). The collection of data for SEPA III started in May 2013 and is currently ongoing. For this study, data from the baseline assessment were used.

Sample

The sample of this study was $n = 280$ self-identified Hispanic women who completed baseline assessments from May 2013 to October 31, 2014. In addition to being
self-identified Hispanics, inclusion criteria included: (a) between the ages of 18 to 50, and (b) having been sexually active within the last three months prior to enrollment.

**Variables**

The classification for each variable is listed below.

**Intrapersonal level factors.** The SEPA DIF is a 21-item form that has been used in prior SEPA studies with Hispanics and was developed at the research center where the first SEPA study was conducted (Mitrani, McCabe, Gonzalez-Guarda, Florom-Smith, & Peragallo, 2013). The form is available in Spanish and English. The majority of the intrapersonal factors were obtained from this DIF: (a) level of income, (b) level of education, (c) health status, (d) health insurance status, and (e) employment status.

The following items were selected for analysis:

( INCOME )  

_Last month, what was the total amount you and your family lived on, including public assistance (after taxes)? (DIF13)_

Continuous variable (Ratio data)

( INCOME )  

_How many people in this country lived from this money? (DIF14)_

Continuous variable (Ratio data)

The monthly family income will be divided by the number of people who live from this money, obtaining the per capita monthly income. The median for the sample will be calculated and the new variable will be categorized as (a) below the median to median ($\leq 500.00$), and (b) above the median ($> 500.00$).
(EDUCATION)

How many years of education have you completed? (DIF10)

Continuous variable (Ratio data)

This variable will be categorized as (a) high school or less education (≤12 years), and (b) more than high school (13 years or more).

(HEALTH STATUS)

How would you describe your health in the past three months?

Poor, fair, good, very good (DIF21)

Categorical variable (Nominal data)

This will be subcategorized in two groups: (a) fair/poor health, and (b) good/very good health.

(HEALTH INSURANCE STATUS)

Do you have health insurance?

Yes/No (DIF15)

Categorical binary variable (Nominal data)

(EMPLOYMENT STATUS)

Are you currently employed?

Yes/ No (DIF11)

Categorical binary variable (Nominal data)

Acculturation is a factor at the intrapersonal level that will be measured using the responses to the BAS (Marin & Gamba, 1996). The BAS was developed in both English
and Spanish in the original study (Marin & Gamba, 1996). The original sample used for the development of the BAS consisted of 254 Hispanic men and women from California, mostly of Central American (52.8%) and Mexican (24%) origin. The average length of residence in the U.S. was 15.9 years.

This scale consists of 24 items and three subscales: (a) 6 items within a language subscale, (b) 9 items within a linguistic proficiency subscale, and (c) 6 items within an electronic media subscale. The scale is bidimensional because it has two subscales that measure how acculturated a person is to the Anglo-American culture (non-Hispanic subscale) and how acculturated the person is to his or her Hispanic culture of origin, which is the Hispanic subscale (Vasquez, Gonzalez-Guarda, & De Santis, 2011). Answers to each question range from almost never (1 point) to almost always (4 points). After obtaining all answers, a mean score for each subscale is calculated. According to the authors, a score of 2.5 can be used as a cutoff, where scores less than 2.5 indicate a lower level of acculturation than scores greater than 2.5. Prior studies using this measure with Hispanics showed high reliability consistency in Hispanics (α = .90, α = .95) and non-Hispanics (α = .96, α = .85) (Marin & Gamba, 1996; Mitrani et al., 2013; Peragallo et al., 2005; Peragallo, Gonzalez-Guarda, McCabe, & Cianelli, 2012; Vasquez et al., 2011). The variable will be divided into two groups: (a) highly acculturated to the Anglo-American culture, and (b) not highly acculturated to the Anglo-American culture.

**Interpersonal level factors.** The DIF will be used to obtain part of these data: relationship status, living with partner, living with children.
The following items were selected for analysis:

(RELATIONSHIP STATUS)

*What is your current relationship status? (DIF3)*

Categorical (Nominal data)

(LIVING WITH PARTNER)

*Are you currently living with your spouse or partner?*

*Yes/No (DIF4)*

Categorical binary variable (Nominal data)

(LIVING WITH CHILDREN)

*Do your children live with you?*

*Yes/No (DIF5a)*

Categorical binary variable (Nominal data)

**Depression.** Depression and its levels of severity was measured by using this self-administered version of the PRIME-MD diagnostic instrument for common mental disorders. It was developed by Spitzer, Kroenke, and Williams in 1999. The PHQ-9 is the depression module, which scores each of the nine DSM-IV criteria as 0 (not at all) to 3 (nearly every day). The diagnostic validity of the tool was established in various primary care and obstetrical clinics, and scores of $\geq 10$ have 88% of specificity and sensitivity for depression (Kroenke et al., 2001). The questions refer to how the person felt in the previous two weeks. This screening instrument was originally developed in English and then translated into Spanish and many other languages (Wulsin, Somoza, & Heck, 2002). The feasibility of the Spanish version of the PHQ-9 was tested with a group of 199
Honduran mothers (Wulsin et al., 2002). Results of this study showed that the PHQ-9 had a 77% of sensitivity and 100% specificity when compared to the structured clinical interview for DSM-IV mood disorder module.

The questions in the PHQ-9 concern fatigue, concentration, depressive complaints, thoughts of death, etc. The PHQ-9 can be used to screen patients for MDD, specifically according to the DSM-V criteria. A recent study with 479 Hispanic American women from California using the PHQ-9 to screen for depression revealed good reliabilities for the English (α = .84) and Spanish (α = .85) versions of the tool (Merz, Malcame, Roesch, Riley, & Sadler, 2011). Sample questions from the PHQ-9 include, “Over the last 2 weeks, how often have you been bothered by any of the following problems: (1) little interest or pleasure doing things….” The options for answer are not at all, several days, more than half the days, and nearly every day.

**Evolution of the SEPA Studies**

The first SEPA study was a randomized clinical trial of an HIV risk reduction intervention among low-income Mexican and Puerto Rican women living in Chicago (Peragallo et al., 2005). The purpose of this study was to evaluate a culturally tailored and theoretically-based HIV-prevention intervention among Hispanic women. SEPA I recruited 657 sexually active Hispanic women, whose ages ranged between 18-44 years. These women were also required to have been sexually active three months prior to recruitment in order to meet the inclusion criteria for the study. Recruitment took place from February 1999 to October 2000. Results showed improvement in several variables such as HIV knowledge, communication with partner, risk-reduction behavioral
intentions, condom use, and a decrease in the perception of barriers to condom use (Peragallo et al., 2005).

An adaptation of the first SEPA study was SEPA II, which took place in South Florida with Hispanic women in the years of 2008 and 2009 (Peragallo et al., 2012). Women in this study were born in several countries, the top three being Colombia, Cuba and Peru, respectively (Mitrani et al., 2013). The purpose of this second randomized control trial was to evaluate the efficacy of SEPA on biological, behavioral, and sociocognitive risk for HIV and community prevention over a period of time of one year (Peragallo et al., 2012).

Inclusion criteria for SEPA II study included: (a) self-identifying as Hispanic, (b) being between 18 and 50 years of age, and (c) having sexual intercourse within three months prior to recruitment (Mitrani et al., 2013). Results showed that SEPA II had efficacy with several of the HIV risk factors studied. Improvements were noted on condom use, communication with partner, HIV-related knowledge, intentions to use condom, and community prevention attitudes. In addition, the intervention helped decrease substance abuse and intimate partner violence, positive urine samples with chlamydia, and barriers to the use of condoms (Peragallo et al., 2012).

**SEPA III: The parent study.** SEPA III is a trial of the effectiveness of the SEPA studies. The purpose of this randomized control trial is to examine the readiness and capacity for practice improvement. The study takes place in Miami, Florida. As a joint effort between the University of Miami and the Miami-Dade County Health Department (MDCHD), the intervention is incorporated at some of the MDCHD sites that serve
Hispanic women in the county. The total sample for this study is 300 women, who will randomized to control or intervention (SEPA).

Recruitment for the parent study is currently being done by bilingual study personnel located at MDCHD sites. They reach out to Hispanic women asking for participation in SEPA III. Sites used for recruitment include a county health department office and a refugee center, both located in the city of Miami. Recruiters also use flyers containing the study phone number for participants to call at their convenience.

Pre-screening is completed following the inclusion criteria: (a) self-identified Hispanic women, (b) ages 18 to 50, and (c) reporting having sexual activity in the last three months. Women are excluded from participation if they have ever participated in a SEPA intervention or participated in another structured HIV program in the past six months. Once the participant is eligible, she is given an appointment for the baseline assessment. Retention strategies are used in order to minimize attrition, such as the use of multiple email and telephone contacts with the participants and by obtaining a contact person for the study in case the participant is unable to be reached.

Participants of the study are interviewed three times over a period of one year: (a) at baseline, (b) six months, and (c) 12 months post-baseline. Assessors describe procedures, answer all questions participants may have, and obtain informed consent. Assessors administer health and behavior measures using face-to-face interviews and a research management software system (Velos) to save the data. The use of Velos allows for electronic storage and accessibility of the data, while not allowing any measure to be completed unless all items are marked.
These assessors or data collectors are well trained bilingual female personnel who offer the questionnaires in the participant’s language of preference (i.e., English or Spanish). Baseline assessments take approximately three hours to complete and follow-up approximately two hours. Participants receive compensation for their participation during assessments and intervention sessions if randomized to be a part of the SEPA intervention. This researcher is an active assessor for SEPA III and is very familiar with data entry, data collection, and participants, as well as with the instruments used in the study.

Several demographics, biological, and behavioral measures are used in the study. These measures have been used in prior research with Latin populations (Peragallo et al., 2005, 2012). Among the instruments used in SEPA III are (a) SEPA DIF; (b) BAS (Marin & Gamba, 1996); (c) PHQ (Spitzer et al., 1999); (d) communication with partner (Catania, 2013); (e) conflict tactic scale (revised short version); (f) HITS tools for intimate partner violence screening (Sherin, Sinacore, Li, Zitter, & Shakil, 1998); (g) health and sexual history (Peragallo, 1998); (h) HIV knowledge questionnaire (Heckman et al., 1995); (i) substance abuse behaviors (adaptation from Kelly et al., 1994); (j) a revised partner table, self-efficacy, condom self-efficacy, and sexual relationship power scale (Pulerwitz, Gortmaker, & Dejong, 2000); and (k) use of technology. In addition, biological tests that assess for the presence of gonorrhea, chlamydia, Trichomonas, Gardnerella, Candida, and HIV rapid test and counseling are also offered during each of assessments. Refer to Appendix D for a complete list of measures used during the baseline assessments of SEPA III.
Protection of Human Subjects

This is a secondary analysis study that uses cross-sectional data from SEPA III: The Effectiveness Trial. The parent study obtained Institutional Review Board (IRB) approval prior to beginning recruitment. Informed consent for SEPA III is obtained in the language of preference of the participant (English or Spanish) and all questions participants may have are answered accordingly. Each participant is assigned a study number, which is used to identify them. The database does not contain names, protecting the confidentiality of the participant. Only the principal investigators have access to a locked location where the master list that associates the numbers with names is kept. Additionally, IRB approval from the Florida Health Departments was obtained for this study. All files were downloaded using IBM Statistical Package for the Social Sciences (SPSS®) Version 22.0. The datasets were stored on a computer and protected with a password. There is no access to the data on paper.

Hypotheses Testing

Given the purpose of the study, the present study tests the following hypotheses:

1. Predictors at the individual level social determinants of depression include income, education, acculturation, health status, employment status, and health insurance status.

2. Predictors at the interpersonal level social determinants of depression include relationship status, living with partner, and living with children.
Data Analysis

The cross-sectional data from the baseline assessment of SEPA III were checked for missing values. SPSS was used to run frequencies and analyze descriptive statistics (percentages, means, and/or standard deviations), accordingly.

The software MPlus version 7 (Muthen & Muthen, 2012) was used to analyze the aims of the study (see Chapter 1). Confirmatory factor analysis (CFA) will be used to map the measures onto theoretical constructs (based on prior research as detailed in Chapter 2). Factor analysis looks at the correlations of variables to identify a larger construct that these variables are supposed to represent (Musil, Jones, & Warner, 1998).

The data were then analyzed in two steps. First, CFA evaluated the following measurement models: (a) predictors of the intrapersonal level of social determinants of depression, and (b) predictors of interpersonal level social determinants of depression. The proposed intrapersonal level predictors of depression (latent variable or underlying construct) are composed by the observed variables: income, education, acculturation, health status, health insurance status, and employment status (all categorical). The proposed interpersonal level of depression (latent variable) is composed by the observed variables: relationship status, living with partner, and living with children (all categorical).

Secondly, a measurement model (using CFA) for the social determinants of depression (observed continuous variable) was analyzed using the intrapersonal and interpersonal level predictors of depression as factors (the ones with significant loadings during the first portion of the analysis). Then the hypothesized structural equation model
was estimated (see Figure 3). The evaluation of the fit indices was done by looking at the comparative fit index (CFI) value (acceptable if at least .90 or greater) and the root-mean-square error (RMSEA) values of less than .08 (indicating a fair fit). The CFI is a chi-square estimate that uses a maximum-likelihood solution, while the RMSEA measures the discrepancy per degree of freedom in the model (Musil et al., 1998). Parameters that will be interpreted and discussed in Chapter 4 include standardized coefficients (measure relationship between the observed variable depression and its factors), as well as the effect sizes for the explanatory relationships (R²). Should the factors not hold up (meaning the items do not load onto a single factor), the relationship between the measured variables and depression will be examined in a path analysis. Ultimately independent t-test analysis and multiple regression findings using SPSS will be presented.

**Dissemination of Findings**

Presentations at scientific conferences at the national and international level as well as publications in Spanish and English will be used to disseminate the findings of this study.
Summary

This chapter clearly presented the study design and methodology, discussing instrumentation in detail. An overview of the parent study SEPA III was presented to illustrate the social-related variables taken for this secondary data analysis. The statistical analysis via CFA was explained, and a figure of the hypothesized model was drawn, providing a visual aid. Procedures for protection of human subjects were detailed.
Chapter 4

Results

This chapter presents the results of the secondary data analysis done using data from SEPA III. To recapitulate, the aim of this study was to analyze the social determinants of depression among Hispanic women in South Florida. Social determinants were subdivided as (a) intrapersonal factors (income, education, acculturation, health status, health insurance status, and employment status); and (b) interpersonal factors (relationship status, living with partner, and living with children). Descriptive statistics will be presented (using IBM SPSS version 22.0) to show the characteristics of the study sample. Then, CFA models using Mplus (version 7.0) will be presented to answer the study’s hypotheses. Ultimately, independent t-tests and multiple regression analyses are performed and discussed.

As mentioned in Chapter 1, the PHQ-9 is a quick depression assessment tool. As such, a definitive diagnosis of clinical depression is only made by a trained clinician. The clinician takes into consideration other relevant information as well as rules out other conditions such as normal bereavement, bipolar disorder, a physiological disorder, medication, or other drug as possible cause/causes of the depressive symptoms (APA, 2013). Therefore, to reiterate, any reference to depression on this research study refers to depressive symptoms.

Descriptive Statistics

The sample for this study consisted of the 280 Hispanic women who participated in SEPA III: the effectiveness trial study. This was the number of complete cases by the time this researcher was ready to analyze the data for the current study. The data analyzed
belong to the baseline assessments only. The following variables will be presented in the
demographic Table 1: (a) age, (b) country of birth, (c) years living in the U.S.,
(d) number of children, (e) whether the woman has children living in another country,
and (f) religion. There were no missing data for any of these variables.

Ages for this sample ranged from 18 to 50 years ($M = 34.79, SD = 9.05$), with an
average of 8.49 years residing in the U.S. The average number of children for the women
who had children was 1.9, while 23.6% of women did not have any children. Out of the
women who had children, 16.1% had them living in another country. As far as the
nationalities are concerned, the majority of this sample of women were born in Cuba
(51.4%), followed by Nicaragua (10.4%), Honduras (9.3%), Colombia (8.9%), U.S.
(5%), and the Dominican Republic (4.6%). Other nationalities comprised 10.4% of the
sample and these included: Venezuela (2.5%), Peru (2.1%), Guatemala (1.1%), Mexico
(1.1%), El Salvador (1.1%), Panama (.7%), Argentina (.7%), Puerto Rico (.4%), Ecuador
(.4%), and Bolivia (.4%). Most women preferred the Spanish language (93.9%), while
4.6% preferred English, and 1.4% had no specific preference for a language.

With regards to religion and religiosity, descriptives indicate that over one third of
the sample defined themselves as Christians (36.8%), followed by Catholics (30%). In
addition, almost a third of the participants reported not to practice any religion (29.6%),
and a smaller number of women stated to practice non-Christian religions (3.6%). For a
further break down of religion, refer to Appendix E.
### Table 1

**Demographic Characteristics**

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>M</th>
<th>SD</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>34.79</td>
<td>9.05</td>
<td></td>
</tr>
<tr>
<td>Years in the U.S.</td>
<td>8.49</td>
<td>8.41</td>
<td></td>
</tr>
<tr>
<td>Number of children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td>66 (23.6)</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>94 (33.6)</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>75 (26.9)</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>32 (11.4)</td>
</tr>
<tr>
<td>4 or more</td>
<td></td>
<td></td>
<td>13 (4.7)</td>
</tr>
<tr>
<td>Children living in another country</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td>169 (60.4)</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td>45 (16.1)</td>
</tr>
<tr>
<td>Has no children</td>
<td></td>
<td></td>
<td>66 (23.6)</td>
</tr>
<tr>
<td>Place of Birth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuba</td>
<td></td>
<td></td>
<td>144 (51.4)</td>
</tr>
<tr>
<td>Nicaragua</td>
<td></td>
<td></td>
<td>29 (10.4)</td>
</tr>
<tr>
<td>Honduras</td>
<td></td>
<td></td>
<td>26 (9.3)</td>
</tr>
<tr>
<td>Colombia</td>
<td></td>
<td></td>
<td>25 (8.9)</td>
</tr>
<tr>
<td>U.S.</td>
<td></td>
<td></td>
<td>14 (5.0)</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td></td>
<td></td>
<td>13 (4.6)</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>29 (10.4)</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christian</td>
<td></td>
<td></td>
<td>103 (36.8)</td>
</tr>
<tr>
<td>Roman Catholic</td>
<td></td>
<td></td>
<td>84 (30.0)</td>
</tr>
<tr>
<td>None</td>
<td></td>
<td></td>
<td>83 (29.6)</td>
</tr>
<tr>
<td>Other Non-Christian</td>
<td></td>
<td></td>
<td>10 (3.6)</td>
</tr>
</tbody>
</table>

*Note.* Other demographic characteristics such as income and education are presented in Table 2.
Analysis of the Social Determinants of Depression

**Intrapersonal level social determinants of depression.**

*Income.* The median per capita monthly income for the sample is $500. Fifty-five percent (55%) of the women fell below the median. The variable was then dichotomized and incomes below the median were scored with a 0 and above the median incomes were scored with a 1. There was one missing item in this variable.

*Education.* More than half of the sample (56.1%) had more than 12 years of education, and 43.9% of the sample had an educational level of high school or less. Further analysis of the variable found that only one participant (0.4%) had less than the American equivalent of elementary school education (less than five years), and 45 participants (16.1%) had completed the equivalent of elementary school; however, they had not completed high school (in the range of 5 to 11 years of education). For the purpose of the statistical analysis, the continuous variable education (number of years of education completed) was dichotomized as *having high school or less* (from 0 to 12 years of education, scored as 0) vs. *having more than high school* (13 years of education or more, scored as 1). There were no missing data for this variable.

*Acculturation.* The biculturalism scores from the bidimensional acculturation scale were examined. Each of the two subscales (Americanism and Hispanicism) yields a mean score. A score of 2.5 is used as a cutoff, where scores less than 2.5 indicate a lower level of acculturation and scores equal or greater than 2.5 indicate a higher level of acculturation. A high score on the Hispanic domain and a low score on the Anglo-American domain would suggest low acculturation to the Anglo-American culture and a high score on the Anglo-American domain and a low score on the Hispanic domain.
would suggest low acculturation to the Hispanic culture. Then, a *biculturism* scale is computed based on these scores. This biculturism scale was further dichotomized as *highly acculturated* to the Anglo-American culture (scored as 0) and *not highly acculturated* to the Anglo-American culture (scored as 1) prior to using it in the CFA. The vast majority of women were not highly acculturated to the Anglo-American culture (98.2%).

**Health status.** This variable presented with four options as answers: *poor, fair, good,* and *very good.* This variable was dichotomized as follows: women who stated their health was fair or poor were scored as 0, and women who believed their health was good or very good were scored as 1. Table 2 presents all the four categories with percentages. There were no missing data for this variable. Eighty-five percent of the women reported to have had either good or very good health, and 15% reported fair or poor health in the past three months.

**Health insurance status.** This variable is a binary variable, with answers *yes* (scored as 1) or *no* (scored as 0). There were no missing data for this variable. Percentages indicate that more than half of the sample (55.7%) did not have insurance at the time of baseline assessment.

**Employment status.** This variable is binary, with answers *yes* (scored as 1) and *no* (scored as 0) to the question of whether or not the person is currently employed. Results indicate that the majority of women were unemployed at the time of the assessment (72.1%) and 27.9% were employed of a total of 280.
Table 2

*Intrapersonal Level Social Determinants of Depression*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$M$</th>
<th>Range</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per-capita monthly income</td>
<td>$581.07</td>
<td>0.00 - 2750.00</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>13.83</td>
<td>3 - 30</td>
<td></td>
</tr>
<tr>
<td>More than High School</td>
<td></td>
<td></td>
<td>157 (56.1)</td>
</tr>
<tr>
<td>High School or Less</td>
<td></td>
<td></td>
<td>123 (43.9)</td>
</tr>
<tr>
<td>Acculturation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not highly acculturated to the</td>
<td></td>
<td></td>
<td>275 (98.2)</td>
</tr>
<tr>
<td>Anglo American culture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highly acculturated to the</td>
<td></td>
<td></td>
<td>5 (1.8)</td>
</tr>
<tr>
<td>Anglo-American culture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good/very good</td>
<td></td>
<td></td>
<td>238 (85.0)</td>
</tr>
<tr>
<td>Fair/poor</td>
<td></td>
<td></td>
<td>42 (15.0)</td>
</tr>
<tr>
<td>Health Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td>156 (55.7)</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td>124 (44.3)</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td>202 (72.1)</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td>78 (27.9)</td>
</tr>
</tbody>
</table>

**Interpersonal level social determinants of depression.**

*Relationship status.* This variable is categorical and has six different options as answers to the relationship status of the participant: (a) single, (b) divorced, (c) separated, (d) widowed, (e) married, and (f) in a relationship but not legally married. The variable is further dichotomized for analysis as *in a relationship* (scored as 1) and *not in a relationship* (scored as 0). Women who stated to be single, divorced, separated, or
widowed were coded as not in a relationship. Women who were married or in a relationship but not legally married, were coded as in a relationship. No missing data were identified for this variable. The majority of the women (75%) were either married or in a relationship.

**Living with partner.** This variable is binary and options for answers are *yes* (scored as 1) and *no* (scored as 0). No missing data were identified. More than two thirds (67.5%) of women lived with their partners, which means only about 7.5% of women who were in a relationship did not live with their partners.

**Living with children.** This variable is a binary variable, which answers *yes* (scored as 1) or *no* (scored as 0) to whether the mother lives with each one of her children. The percentages in Table 3 are given based on a total of 206 answers (73.6% of total sample of 280 women). A total of 66 women had no children at all (see Table 2), and there were eight missing data for this variable.

Table 3 shows the findings for the interpersonal level social determinants of depression examined for this study.
Table 3

*Interpersonal Level Social Determinants of Depression*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship Status</td>
<td></td>
</tr>
<tr>
<td>In a relationship (not married)</td>
<td>105 (37.5)</td>
</tr>
<tr>
<td>Married</td>
<td>105 (37.5)</td>
</tr>
<tr>
<td>Single</td>
<td>40 (14.3)</td>
</tr>
<tr>
<td>Divorced</td>
<td>13 (4.6)</td>
</tr>
<tr>
<td>Separated</td>
<td>17 (6.1)</td>
</tr>
<tr>
<td>Living with Partner</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>189 (67.5)</td>
</tr>
<tr>
<td>No</td>
<td>91 (32.5)</td>
</tr>
<tr>
<td>Living with Children</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>141 (50.4)</td>
</tr>
<tr>
<td>No</td>
<td>65 (23.2)</td>
</tr>
</tbody>
</table>

**Outcome variable: Depression.** The PHQ-9 has nine items and describes behaviors/feelings the woman experienced in the past two weeks. The options for answers are: (a) not at all (0 points), (b) several days (1 point), (c) more than half the days (2 points), and (d) nearly every day (3 points). This questionnaire also determines the severity of the depression, from minimal (from 1 to 4 points overall) to severe (from 20 to 27 points overall) (Kroenke et al., 2001).

The answers to the PHQ-9 are scored and yield a continuous variable. For the purpose of the CFA analysis, the variable will be kept as continuous (from 0 to 27). Scores from 0 to 4 reflect minimal depression, and the majority of women in this study fell under this category (62.5%). On the other hand, 37.5% of women presented with mild
to severe depression (scores of 5 to 27). There were no missing data for this outcome variable. Normal distribution of this variable was analyzed using the Kolmogorov-Smirnov and Shapiro-Wilk tests of normality, as well as examining histograms and residual plots. The variable depression is not normally distributed based on these tests. See Table 4 for frequencies and percentages of this outcome variable.

Table 4

<table>
<thead>
<tr>
<th>PHQ Categories (Scores)</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal (0-4)</td>
<td>175 (62.5)</td>
</tr>
<tr>
<td>Mild (5-9)</td>
<td>71 (25.4)</td>
</tr>
<tr>
<td>Moderate (10-14)</td>
<td>20 (7.1)</td>
</tr>
<tr>
<td>Moderately severe (15-19)</td>
<td>11 (3.9)</td>
</tr>
<tr>
<td>Severe (20-27)</td>
<td>3 (1.1)</td>
</tr>
</tbody>
</table>

**Hypothesis 1.** Predictors at the intrapersonal level social determinants of depression include (a) income, (b) education, (c) acculturation, (d) health status, (e) health insurance status, and (f) employment status.

Prior research discussed in Chapter 2 suggested that income, education, acculturation, health status, health insurance status, and employment status are possible social determinants of depression (Doornbos et al., 2013; NAMI, 2014b). In order to confirm or reject these findings, CFA is used as a measurement model. These possible social determinants of depression were grouped in a latent variable named *intrapersonal factors*. All observed variables were binary categorical, and the WLSMV estimator was used (Muthen & Muthen, 2012). A CFA in Mplus 7 was used to test this model (Model
1). Initial model fit was not acceptable, $\chi^2 (df = 9) = 16.42$, $p = .058$, CFI = .820, RMSEA = .054.

Standardized factor loadings were evaluated for all six observed variables. Two items did not load significantly on the latent variable *intrapersonal factors*. These were acculturation, $\beta = .58$, $SE = .30$, $p = .058$, 95% CI [-0.02, 1.17], and health insurance status, $\beta = -.02$, $SE = .11$, $p = .812$, 95% CI [-0.23, 0.18]. These items were removed and the model was re-specified (Model 2).

A CFA was then used to test Model 2 with four observed variables: (a) income, (b) education, (c) health status, and (d) employment status. Model fit was acceptable and within the specifications described in Chapter 3: $\chi^2 (df = 2) = 3.71$, $p = .156$, CFI = .956, RMSEA = .055. However, one item did not load significantly on the latent variable. This item was health status: $\beta = .19$, $SE = .12$, $p = .114$, 95% CI [-0.05, 0.42]. In addition, the $R^2$ estimate value for the variable health status was *undefined* on the Mplus output. Therefore, this item was removed and Model 2 was re-specified with three observed variables.

A CFA was then used to test Model 3 with three observed variables: (a) income, (b) education, and (c) employment status. Model fit could not be assessed because the model was just identified with CFI = 1.000, RMSEA = .000. In addition, all three items loaded significantly on the latent *intrapersonal factors* variable: income, $\beta = .97$, $SE = .32$, $p = .002$, 95% CI [0.35, 1.60], education, $\beta = .44$, $SE = .15$, $p = .004$, 95% CI [0.14, 0.74], and employment status, $\beta = .33$, $SE = .14$, $p = .017$, 95% CI [0.06, 0.60].

The R-square values indicated that the latent *intrapersonal factors* explained 95% of the variation of income, 19% of the variation in education, and 11% of the variation in
employment status. Since not all the items loaded significantly on the latent variable, it is appropriate to reject the proposed hypothesis 1. Table 5 presents fit indices for the three models discussed.

Table 5

_Intrapersonal Factors CFA Findings_

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
<th></th>
<th>Model 3</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$B$</td>
<td>SE</td>
<td>$p$</td>
<td>$\beta$</td>
<td>$B$</td>
<td>SE</td>
<td>$p$</td>
<td>$\beta$</td>
<td>$B$</td>
<td>SE</td>
<td>$p$</td>
<td>$\beta$</td>
<td>$B$</td>
</tr>
<tr>
<td>Income</td>
<td>.83</td>
<td>.83</td>
<td>0.14</td>
<td>&lt;.001</td>
<td>1.11</td>
<td>1.11</td>
<td>0.38</td>
<td>&lt;.05</td>
<td>.97</td>
<td>.97</td>
<td>.32</td>
<td>&lt;.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>.51</td>
<td>.51</td>
<td>0.11</td>
<td>&lt;.001</td>
<td>.40</td>
<td>.40</td>
<td>0.15</td>
<td>&lt;.05</td>
<td>.44</td>
<td>.44</td>
<td>.15</td>
<td>&lt;.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>.31</td>
<td>.31</td>
<td>0.12</td>
<td>&lt;.05</td>
<td>.28</td>
<td>.28</td>
<td>0.13</td>
<td>&lt;.05</td>
<td>.33</td>
<td>.33</td>
<td>.14</td>
<td>&lt;.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health status</td>
<td>.28</td>
<td>.28</td>
<td>0.12</td>
<td>&lt;.05</td>
<td>.19</td>
<td>.19</td>
<td>0.12</td>
<td>.114</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acculturation</td>
<td>.58</td>
<td>.58</td>
<td>0.30</td>
<td>.058</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health insurance</td>
<td>-.02</td>
<td>-.02</td>
<td>0.11</td>
<td>.812</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 (df = 9) = 16.42, p = .059, \text{CFI} = .820, \text{RMSEA} = .054$

$\chi^2 (df = 2) = 3.71, p = .156, \text{CFI} = .956, \text{RMSEA} = .055$

$\chi^2 (df = 0) = 0.00, p < .001, \text{CFI} = 1.000, \text{RMSEA} = .000$

_Hypothesis 2._ Predictors at the interpersonal level social determinants of depression include (a) relationship status, (b) living with partner, and (c) living with children.

Research suggested that relationship status, living with partner, and living with children are possible social determinants of depression (Ertel et al., 2011; Fortner et al., 2011; Shattell et al., 2008). These were grouped in a latent variable named _interpersonal factors_. As for the testing of the prior hypothesis, all observed variables were binary categorical, and the WLSMV estimator was used (Muthen & Muthen, 2012).
A CFA was used to test this model. Model fit cannot be assessed because the model is saturated and there are no free parameters to test model fit. Standardized factor loadings and standard errors for all three items were evaluated. Values for relationship status and living with partner behaved almost identical (highly correlated). Theoretically, it appeared that most women who reported to be in a relationship status also reported to live with their partners (as mentioned earlier in this chapter, only 7.5% of women who were in a relationship status did not live with their partners).

Table 6

**Interpersonal Factors CFA Findings**

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>CFI</th>
<th>RMSEA</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living part</td>
<td>.000***</td>
<td>0</td>
<td>1.000</td>
<td>.000</td>
<td>.90***</td>
</tr>
<tr>
<td>Relation stat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.94***</td>
</tr>
<tr>
<td>Living child</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.21</td>
</tr>
</tbody>
</table>

*Note.*** $p < .001$

**$p < .05$**

Therefore, a decision was made to eliminate one of these items, and relationship status was dropped. Living with partner was a binary categorical variable to begin with, and therefore a more transparent variable (did not need transformation). Given that only two items were left, a CFA was no longer possible to test the latent variable interpersonal factors.

Given that the distribution of the dependent variable depression was not normal (as previously discussed), the variable was transformed to categorical. The dependent variable depression was categorized as having minimal or no depression (PHQ-9 score 0
to 4) and having mild to severe depression (PHQ-9 score of 5 or greater). This transformation was made considering that research suggests patients with PHQ-9 scores of 4 or less may not need treatment for depression (Spitzer et al., 1999). A combination of CFA and path analysis was used for this final model. The following model was tested:

![Social determinants of depression model](image)

*Figure 4. Social determinants of depression model.*

***p < .001, **p < .05

Table 7 shows the fit indices and the unstandardized loadings for this final model. The model was accepted given adequate fit indices. Results show that even though the three items (income, education, and employment status) loaded significantly on the latent variable *intrapersonal factors*, this variable does not predict depression (p = .096). In
addition, living with child did not predict depression ($p = .740$). The item living with partner was the only item that predicted depression in this model ($p = .002$).

Table 7

Depression Final Model Fit Indices and Loadings

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10.32</td>
<td>8</td>
<td>.946</td>
<td>.038</td>
</tr>
<tr>
<td>unstandardized</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INTRAPERSONAL BY
- Income: .84***
- Education: .55***
- Employment: .39**

DEPRESSION ON
- Intrapersonal: -0.22


depression

Living with partner: -0.61**
Living with child: -0.06

Note. ***$p < .001$
**$p < .05$

Independent t-Test Analysis

This analysis was performed in order to compare the means between the two groups (of each categorical variable) and the dependent continuous variable depression. It will test for differences in the means of the dependent variable depression broken down by the levels of each independent variable. Before running the analysis using SPSS 22.0, the assumptions were analyzed.
Assumption 1: Independence of observations. The assumption was met given the design of the study. Individuals were randomly assigned, and they were kept separated as not to influence each other (Field, 2009).

Assumption 2: Homogeneity of variance. This was analyzed using Levene’s test for each independent variable. Levene’s test was not statistically significant ($p > .05$) for all variables except health status, relationship status, and living with partner. Therefore, for these variables, equality of variances was not assumed, and the proper statistics are reported.

Assumption 3: Normality of errors. Histograms and normality test Kolmogorov-Smirnov values were evaluated to test this assumption.

Please note that depression refers to having depressive symptoms, as discussed earlier on in this chapter. A clinical diagnosis would require a personal evaluation by a trained clinician.

Income and depression. On average, participants with salaries below or equal to the median experienced greater levels of depression ($M = 4.58$, $SD = 4.95$) than participants with salaries above the median ($M = 3.98$, $SD = 4.40$). This difference was not significant, $t (277) = 1.06$, $p > .05$, and represents a small-sized effect $d = .13$.

Education and depression. On average, participants who had levels of education of up to high school experienced greater levels of depression ($M = 5.19$, $SD = 5.27$) than participants who had more than high school education ($M = 3.60$, $SD = 4.10$). This difference was significant $t (278) = 2.75$, $p < .05$, and represents a small-sized effect $d = .34$. 
**Acculturation and depression.** On average, participants with high levels of acculturation experienced greater levels of depression ($M = 7.00$, $SD = 4.36$) than participants with lower degree of acculturation ($M = 4.25$, $SD = 4.71$). This difference was not significant $t (278) = 1.29, p > .05$, and represents a medium-sized effect $d = .61$.

**Health status and depression.** On average, participants with fair or poor self-reported health status experienced greater levels of depression ($M = 7.67$, $SD = 5.57$) than participants with good or very good self-reported health status ($M = 3.71$, $SD = 4.29$). This difference was significant $t (278) = 4.38, p < .05$, and represents a large-sized effect $d = .80$.

**Health insurance status and depression.** On average, participants who did not have health insurance experienced greater levels of depression ($M = 4.31$, $SD = 4.72$) than participants with health insurance ($M = 4.30$, $SE = 4.72$). This difference was not significant $t (278) = .02, p > .05$, and represents a small-sized effect $d = 0$.

**Employment status and depression.** On average, participants who were not employed experienced lower levels of depression ($M = 4.05$, $SD = 4.66$) than participants who were employed ($M = 4.95$, $SD = 4.81$). This difference was not significant $t (278) = -1.43, p > .05$, and represents a small-sized effect $d = -.19$.

**Relationship status and depression.** On average, participants who were not in a relationship experienced greater levels of depression ($M = 5.87$, $SD = 5.41$) than participants who were in a relationship ($M = 3.78$, $SD = 4.34$). This difference was significant $t (278) = 2.93, p < .05$, and represents a small to medium-sized effect $d = 0.43$.

**Living with partner and depression.** On average, participants who did not live with their partners experienced greater levels of depression ($M = 5.67$, $SD = 5.31$) than
participants who lived with their partners \((M = 3.64, SD = 4.25)\). This difference was significant \(t(278) = 3.18, p < .05\), and represents a small to medium-sized effect \(d = 0.42\).

**Living with children and depression.** On average, participants who did not live with their children experienced greater levels of depression \((M = 5.03, SD = 5.04)\) than participants who lived with their children \((M = 4.53, SD = 4.83)\). This difference was not significant \(t(203) = .68, p > .05\), and represents a small-sized effect \(d = 0.10\).

Table 8 summarizes the independent samples t-tests findings.

<table>
<thead>
<tr>
<th>Table 8</th>
</tr>
</thead>
</table>

### Independent t-Tests Social Determinants and Depression

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group 1</th>
<th>Group 2</th>
<th>(t)</th>
<th>df</th>
<th>(p)</th>
<th>Cohen’s (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>4.58</td>
<td>3.98</td>
<td>1.06</td>
<td>2.77</td>
<td>&gt;.05</td>
<td>.13</td>
</tr>
<tr>
<td>Education</td>
<td>5.19</td>
<td>4.10</td>
<td>2.75</td>
<td>278</td>
<td>&lt;.05</td>
<td>.34</td>
</tr>
<tr>
<td>Acculturation</td>
<td>7.00</td>
<td>4.71</td>
<td>1.29</td>
<td>278</td>
<td>&gt;.05</td>
<td>.61</td>
</tr>
<tr>
<td>Health status</td>
<td>7.67</td>
<td>4.29</td>
<td>4.38</td>
<td>278</td>
<td>&lt;.05</td>
<td>.80</td>
</tr>
<tr>
<td>Employment</td>
<td>4.05</td>
<td>4.81</td>
<td>-1.43</td>
<td>278</td>
<td>&gt;.05</td>
<td>-.19</td>
</tr>
<tr>
<td>Health insurance</td>
<td>4.31</td>
<td>4.72</td>
<td>0.02</td>
<td>278</td>
<td>&gt;.05</td>
<td>0</td>
</tr>
<tr>
<td>Relationship status</td>
<td>5.87</td>
<td>4.34</td>
<td>2.93</td>
<td>278</td>
<td>&lt;.05</td>
<td>.43</td>
</tr>
<tr>
<td>Living with partner</td>
<td>5.67</td>
<td>4.25</td>
<td>3.18</td>
<td>278</td>
<td>&lt;.05</td>
<td>.42</td>
</tr>
<tr>
<td>Living with children</td>
<td>5.03</td>
<td>4.83</td>
<td>0.68</td>
<td>203</td>
<td>&gt;.05</td>
<td>.10</td>
</tr>
</tbody>
</table>

### Multiple Regression Analysis

Out of the variables analyzed, only education, health status, relationship status, and living with partner had a significant association with depression. The null hypothesis \((H_0)\) was rejected for these variables. Therefore, these four variables were included in a
simultaneous multiple regression using SPSS 22.0 version. For this portion of the analysis, only cases with complete data were analyzed (n = 205). The following assumptions were examined.

**Assumption 1: Sample size.** In order for the findings of the study to improve generalizability, the sample size should be adequate. Therefore, using the formula \( N > 50 + 8m \) (where \( m \) equals the number of independent variables), with four independent variables in the regression and 205 cases, this assumption is met (Tabachnick & Fidell, 2007).

**Assumption 2: Multicollinearity and singularity.** This addresses the relationships among independent variables. Collinearity statistics using VIF values were assessed. All values were less than 5, which means the assumption was met (Field, 2009).

**Assumption 3: Outliers.** This was analyzed using Mahalanobis and Cook’s distance values accordingly. This assumption was met (Field, 2009).

**Assumption 4: Normality, linearity, and homoscedasticity.** This was tested by looking at the histogram, normal probability plot, and a residual plot. This assumption was met.

The simultaneous multiple regression analysis was conducted having a continuous dependent variable (depression) and four categorical binary independent variables (education, health status, relationship status, and living with partner).

The first model ran with four independent variables was statistically significant. However, relationship status did not add a significant amount of variance in depression (\( p = .741 \)). This model’s findings were as follows: \( R^2 = 0.16 \), \( F (4, 200) = 9.503, p < .001 \). Theoretically, as discussed above, it made sense to eliminate this variable.
Therefore, a second simultaneous multiple regression was performed only with three independent variables: education, health status, and living with partner.

The second model summary table indicated that the $R^2$ was equal to 0.159, rounded to 0.16, which was statistically significant ($p < .001$). This means that education, health status, and living with partner explained 16% of the variance in depression among Hispanic women, ages 18 through 50, residing in South Florida. This indicates a medium effect size. The average PHQ-9 score for a woman who had less than high school education, poor/fair health status, and did not live with partner was 9.51. This value of close to 10 is indicative of moderate depression.

After analyzing the predictive values of each independent variable, the following were found:

1. Having more than high school education was negatively related to depression ($B = -1.288, p = .044$); therefore when all other variables are controlled, as the woman’s reaches a high school education, depression will decrease by 1.288.

2. Having self-identified fair/poor status health status was negatively related to depression ($B = -3.306, p < .001$); therefore, when all other variables are controlled, as the woman’s health status changes from poor/fair to good/very good, depression will decrease by 3.306.

3. Not living with partner was negatively related to depression ($B = -2.792, p = .006$); therefore, when all other variables are controlled, women who did not live with their partners had higher depression scores than women who did, and this score decreased by 2.792 units. Living with partner was the greatest
contributor to the variance of depression, with the greatest $\beta$ absolute value of 0.258.

Table 9

*Multiple Regression Analysis Findings*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized B</th>
<th>Standardized Beta</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>10.146</td>
<td>-</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Education</td>
<td>-1.288</td>
<td>-.132</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Health status</td>
<td>-3.306</td>
<td>-.246</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Living with partner</td>
<td>-2.792</td>
<td>-.258</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Given the previous results from multiple regression, the following can be answered:

**Research question 1.** What are the social determinants of depression among Hispanic women in South Florida?

They are education, health status, and living with the partner.

**Subquestion 1.1.** What are the predictors of the intrapersonal level social determinants of depression among Hispanic women?

Education and health status were both statistically significant intrapersonal determinants of depression in this study.

**Subquestion 1.2.** What are the predictors of the interpersonal level social determinants of depression among Hispanic women?

Living with the partner and relationship status were statistically significant interpersonal determinant of depression in this study.
**Summary**

Multiple models were analyzed in order to answer the research questions and test the hypotheses of this study. The final model, containing CFA and path analysis for both intra- and interpersonal level factors of the social determinants of depression, revealed that, even though the variables income, education, and employment status loaded significantly onto the latent *intrapersonal factors*, the latent variable did not significantly predict depression. In addition, *t*-tests and multiple regression were analyzed. Further discussion of these findings and implications will be presented in Chapter 5.
Chapter 5

Discussion

This secondary data analysis study used cross-sectional data to examine several social variables as possible social determinants of depression among Hispanic women in South Florida. The study explored intrapersonal level variables as possible social determinants of depression among these women: (a) income, (b) education, (c) acculturation, (d) health status, (e) health insurance status, and (f) employment status. In addition, interpersonal level variables were explored as possible social determinants of depression including (a) relationship status, (b) living with partner, and (c) living with children. McLeroy et al.’s (1988) SEM was used as a framework to explain the phenomenon of the multi-level variables that play a role on depression in the sample. This chapter summarizes and discusses the findings of this study in addition to exploring the strengths, limitations, and implications for future research.

Discussion of Findings

Statistical analysis of the data revealed that the prevalence rate of mild to severe depression for this study was much above the average (37.5%) when compared to findings in recent studies among Hispanic women of reproductive ages in the U.S. (Ertel et al., 2011; Farr et al., 2010; Fortner et al., 2011; Miranda et al., 2005; Wassertheil-Smoller et al., 2014). These findings highlight the current and alarming presence of depression in the population studied and the need to continue working on joint efforts to properly screen, diagnose, and treat depression in Hispanic women from South Florida.

Looking at the demographics of this sample, specifically the place of birth, findings indicate that the great majority of the sample (95%) were born outside the U.S.
Being foreign-born did not protect these women against experiencing higher levels of depression, as has been suggested in other studies (Davila et al., 2009; Wassertheil-Smoller et al., 2014). In addition, even though these women were foreign-born, they had lived in the U.S. an average of 8.49 years. Research findings suggest that the longer a woman lives in the U.S., the higher the risk for depressive symptoms, as there is an increased sense of loss in cultural values, norms, and family cohesion (Lorenzo-Blanco & Cortina, 2013). Cultural competence in nursing and health care professionals in general should be promoted in order to understand and respect differences in values and norms.

Demographics also showed that out of the total sample of women who had children ($n = 214$), 23.2% of women did not live with their children. Furthermore, out of this 23.2%, over 16% of women had children living in another country. This may suggest that most of the separation factors could have been due to immigration matters. Other factors for separation in this sample could be related to financial constraints, separation from partner, or having grown children. It is important to mention that separation from children is part of the subscale Immigrations Stress of the Hispanic Stress Inventory Scale, and this scale has been significantly related to depressive symptoms among Hispanic women (Vermeesch et al., 2013). However, statistical analyses in this study did not find that separation from children was a predictor of depression among this subset of women.

The effects of religiosity on stress and depression have been explored in prior research and have been shown to be inversely related to both stress and depression among immigrant Hispanic women (Kirchner & Patiño, 2010). Findings of this study showed that a good portion of women were Catholics (30% of the sample). This was expected,
given that about one third of Catholics in the U.S. are Latinos (Brown & Patten, 2013). This rate is actually decreasing, compared to the number of Hispanic Catholics in the U.S. back in 2012, when the rate was 57% (Brown & Patten, 2013). Although the number of Hispanic Catholics is decreasing, it was unexpected for this researcher to find that 29.6% of women reported not to practice any religion. This goes along with about the same percentage of women who described themselves as being not religious (28.2%). Therefore, low levels of religiosity may have also played a role in the high prevalence of depression in this study’s sample.

Social ecological models, such as the framework used in this study, depict several levels or layers that interact to influence health (McLeroy et al., 1988). In addition to intrapersonal and interpersonal factors, institutional, community, and public policy factors play an important role in mental health, and actions need to be taken across these levels. For example, at the institutional and community levels, the promotion of community and social service institutions that assist with services (e.g., transportation and language) to Hispanic immigrants aid in the promotion of mental health (Ornelas & Perreira, 2011). Local and federal governments must work in alliance in order to diminish social inequalities that affect people’s overall well-being (physical and mental health).

In order to answer the research questions posed by this researcher, the SEM by McLeroy and colleagues (1988) was used to organize the variables and their relationships. This SEM sees behavior as determined by multiple level of factors: (a) intrapersonal, (b) interpersonal, (c) institutional, (d) community, and (e) public policy. Analyses for this study grouped social determinants in the first two levels:
(a) Intrapersonal: At this level, the education and health status of the Hispanic woman significantly predict depression. In addition, findings on all other variables studied under this level were congruent with prior research findings, except for employment status, as previously discussed. This brings about the importance of the intrapersonal variables, or the individual characteristics of a person, in the risk/developing of depression among the population studied.

(b) Interpersonal: At this level, relationship status (not being in a relationship) and not living with partner were significant predictors of depression. This demonstrates the interaction of this level (composed of family, friends, and social networks) and depression.

Therefore, in addition to aiding in a meaningful organization of factors, the SEM underscores the interaction and importance of the multiple levels on determining depression. The model helps understand the convoluting social analytical levels and how these affect a specific behavior or illness, in this case depression. By analyzing these multilevel factors, targeted and appropriated interventions to prevent the developing or worsening of depression can be developed using evidence-based findings in clinical practice.

**Analyses of Social Determinants of Depression**

**Income.** Although income was not found to be a significant determinant of depression in this sample, women who had higher levels of income (above the median) experienced fewer depressive symptoms than women who had lower levels of income (negative correlation). Therefore, the findings of this study are similar with other studies...
with larger samples of Hispanic women (Ertel et al., 2011; Farr et al., 2010; Fortner et al., 2011).

**Education.** Most women in this sample were found to have more than high school education, and even though the range was wide (from three to 30 years), the mean for this sample was close to 14 years of education. It is interesting to mention that more than half of the sample were Cuban immigrants, and according to a recent publication, Cubans in general have higher degrees of educational levels than other Hispanic groups in the U.S. (Brown & Patten, 2013). Therefore, our findings reflect these latest descriptions of Hispanic immigrants in the U.S.

In this study, women with more than high school education had lower levels of depressive symptoms, which is similar to extensive recent studies (March et al., 2014; Sternberg & Lee, 2013; Walker et al., 2012). In addition, education was a significant predictor of depression among Hispanic women in this sample. This suggests that obtaining higher levels of education may be a protective factor against depression among Hispanic women.

**Acculturation.** The majority of women were found not to be highly acculturated to the Anglo-American culture (98.2%). This finding correlates with the fact that most of the women were foreign-born (95%). Results in this study showed that women with high levels of acculturation experienced greater levels of depression. This finding is compatible with most findings presented in the literature review (Fortner et al., 2011; Lorenzo-Blanco & Cortina, 2013; Ruiz et al., 2012). The acculturative process carries its own stress, such as dealing with family conflict and discrimination, which could
contribute to the positive correlation with depression, as well as anxiety levels (Lorenzo-Blanco & Cortina, 2013).

Research has suggested that immigrants continue to follow their own cultural norms when living in close proximity to their family members, despite the number of years living in the U.S. (Kiang et al., 2010). Miami-Dade County is composed of around 65% of Hispanics (City-Data.com, 2014), which aids in the perpetuation of the Hispanic cultural values and customs.

**Health status.** The great majority of the sample self-described their health as *good or very good* in the last three months. This can be explained by the young age of the sample overall (average age was 34 years). Findings of this study revealed a negative correlation between health status and depression. This is consistent with findings of other studies with Hispanic women (Brewer et al., 2013; Sternberg & Lee, 2013; Sumner et al., 2011). Women with good/very good health status had much lower levels of depression than women with fair/poor self-described health status. Health status was a significant predictor of depression for this study.

These results emphasize the intertwined and sometimes bidirectional relationship between physical and mental health. Chronic physical illness makes people vulnerable to depression, and depression can affect engagement in health promotion behaviors as well as interfere with adherence to management of acute and chronic illnesses (Brown et al., 2006; NAMI, 2014a). Hispanic women in this study’s sample are at an even higher disadvantage: they are mostly immigrants, belong to a minority group, and have higher prevalence rates of depression than the average sample in recent research studies.
Health insurance status. Just above 55% of the sample did not have health insurance, much above the national average for non-elderly Hispanics (30.4%), and even much higher than the average non-elderly Caucasians of 12% (CDC, 2015b). Women without health insurance experienced greater levels of depressive symptoms than women with health insurance. Results are concordant with the majority of studies presented in the literature review (Ertel et al., 2011; Farr et al., 2010). Underdiagnosis and undertreatment of depression is high in part due to the uninsured and underinsured status of the Hispanic population in the U.S. (Ertel et al., 2011).

Employment status. Over 70% of the sample of women analyzed did not work at the time of the baseline assessment. Even though most studies reviewed suggested that Hispanic women who were unemployed had higher levels of depression, results of this study differed. Findings suggest that women who were employed experienced higher levels of depression than women who were not, although this difference was not significant and had a small effect.

This may be due to the fact that while employment may give women a sense of self-worth and financial freedom, it can also create additional stressors. Women have multiple responsibilities at home and are usually the pillar of their families. Working outside the house reduces the time these women would like to spend with their families, making them vulnerable to depression. Trying to be supermoms certainly increases their psychological stress, which could trigger a depressive episode.

Another plausible explanation for this finding may be related to job disparities. Women could have been overqualified and working in low-skilled, low-paying jobs. This inadequate employment leads to job dissatisfaction, which can make Hispanic women
more prone to develop depressive symptoms (Castillo, Archuleta, & Van Landingham, 2006). The job disparity is in many cases related to language barriers and the fear of discrimination.

**Relationship status.** Seventy-five percent (75%) of the women analyzed were either married, or although not married, in a relationship. Analysis revealed that women who were not in a relationship (single, divorced, or widowed) had significantly higher prevalence of depressive symptoms when compared to women who were in a relationship. These findings are consistent with previous studies with Hispanic women as discussed in the literature review (Farr et al., 2010; Kaltman et al., 2010; Schwarz et al., 2012). This finding highlights the importance of companionship and partner support in the psychological well-being of these women.

**Living with partner.** Findings about this variable were congruent with other research findings: women who lived with their partners were significantly less depressed than women who did not. This variable was the greatest contributor to the variance of depression, according to the statistical analysis in this study. Spousal or partner support has been shown to lessen the stress related to family and work responsibilities among Hispanic women, regardless of other factors such as income or education (Fortner et al., 2011).

Hispanic women suffer many changes in their interpersonal environment. Immigrants have a significant geographical move: a new country, a new language, new friends, and separation from loved ones (role transitions). Non-immigrant Hispanic women are caught in between two cultures (Anglo-American and Hispanic) and at times feel pressured to continue on the values and norms of their ancestors, altering the
relationships with people in their environment. These changes in their interpersonal environment make women more susceptible and prone to develop depressive symptoms (Markowitz & Weissman, 2004). Living with a partner, based on prior research and confirmed by this study, serves as a protective factor against depression. Partner support diminishes the feeling of loneliness among Hispanic women, and lessens the risk of depression, especially among women with children (Schwarz et al., 2012).

Ethnicity-related cultures values (e.g., *familismo, machismo,* and *marianismo*) and sex-role norms and expectations have placed additional burden on Hispanic women from generation to generation (Amaro, Felipe, & Johnson, 1987; Cianelli et al., 2008). Therefore, especially among Hispanic immigrants (who make up most of our sample), having someone to rely and lean on while living in a foreign country provides a perceived balance and stability in their lives. As the stress lessens, so does the risk for depression (Lee, 2011).

**Living with children.** Women who lived with their children experienced fewer depressive symptoms than women who did not. Results were consistent with prior research (Hiott et al., 2006; Miranda et al., 2005; Winkelman et al., 2013). Immigration and economic constraints are some of the major reasons why women separate from their children (Miranda et al., 2005). Health care providers need to be mindful about this when running across immigrant Hispanic women who have left children behind and look for signs and symptoms of depression.

**Strengths and Limitations of this Study**

The study has several strengths. First of all, to the knowledge of this researcher, this study is the first conducted that looks at the social determinants of depression among
Hispanic women of South Florida, using an ecological framework to analyze the multilevel complexity of depression. In addition, this researcher had the opportunity to work as a research assistant for over two years in SEPA III, the parent study. Therefore, this researcher is very familiar with the instruments/scales, collection, and storage of data. This secondary study was efficient as it used available and current data for the analysis.

In addition, the sample size was adequate to perform the statistical analysis presented with the number of variables involved (nine independent variables) as discussed in Chapter 3. Additionally, the use of Velos for the collection of data minimized the amount of missing data for the analysis. Velos saves electronically, and also ensures data integrity and completeness.

Hispanics tend to minimize or avoid disclosing signs of depression, fearing they may be discriminated against due to having a mental condition (Leung et al., 2014). Therefore, one of the limitations of this study may include the possibility of underreporting depression-related symptoms. This may be true, even though the word *depression* is not mentioned prior to the questionnaire being asked.

As far as study design is concerned, being that this was a cross-sectional study, temporal relationships could not be established. Moreover, CFA using variables measured in interval or quasi-interval scales could have yielded a more successful performance (Floyd & Widaman, 1995). However, some of the variables called for *yes/no* answers, such as health insurance status, employment status, living with partner, and living with children.
In regards to sample nationality, although the sample of Hispanic women was heterogeneous as far as nationalities are concerned, two Hispanic subgroups in the U.S., Mexicans and Puerto Ricans, were underrepresented in the sample of this study. As expected, the sample was a reflection of the large Cuban community that live in South Florida.

**Future Study Implications**

Findings of this study point out several important aspects about depression and social determinants among Hispanic women living in South Florida. This study sought to explore the intra- and interpersonal social determinants of depression among Hispanic women, and although some of these social determinants had been studied separately among Hispanic women, these were not analyzed under a socioecological framework. Research of these social determinants among Hispanic women ages 18 through 50 was also scarce. Research in this age group is critical, as the average age for the onset of depression among women is 32 years.

In addition, based on an extensive literature reviewed, a culturally tailored risk assessment tool that highlights the social determinants of depression in Hispanic women is nonexistent. The APA (2013) clearly highlights the crucial importance of cultural issues for proper clinical practice in its DSM-V. Concepts such as cultural syndromes, cultural idioms of distress, and cultural explanation or perceived causes need to be taken into account during clinical encounters, as they assist in accepting or rejecting a specific diagnosis (APA, 2013).

Having taken this into consideration, this study will serve as a starting point to the development of such a screening tool, which could serve as a filter to help identify
Hispanic women who may be prone to depression. In order to develop a comprehensive tool, many other possible social determinants of depression need to be explored. Moreover, this tool would also need to be piloted, and checked for acceptance and feasibility. This study certainly informs and adds to the existent knowledge in order to effectively intervene and implement health care practices to reduce health disparities related to depression. Therefore, the findings of this study bring about implications for nursing practice, policy, education, and research, which will be discussed next.

**Nursing Practice and Policy**

Social factors can be determinants of mental health, including depression. These factors affect predominantly vulnerable people: the poor who live in a world of social inequalities and discrimination (WHO, 2014b). These social determinants can affect mental health even before birth, through old age. Nurses, as health care professionals in the front line who spend more time with clients, need to become aware of the role these social determinants play in the development of depression. This awareness is built mainly through continuing education.

Active practicing nurses should educate themselves on evidence-based practices and guidelines in depression care and practice proactively. Depression is one of the most common mental health disorders seen in primary care. A large portion of outpatient visits to primary care offices are somatic complaints, very frequently associated to depression (Clayton, Lieberman, & Susman, 2008). Therefore, it is crucial to routinely screen for depression and obtain an accurate diagnosis. For example, increasing awareness of these social determinants and how they affect depression in Hispanic women can assist nurses in identifying the patients at higher risk and proceed with the use of depression-specific
screening tools, such as the PHQ-9. The PHQ-9 will in turn aid in diagnosing as well as tracking the response to treatment of depression by the practitioner.

Nurses should show empathy and openness when performing clinical evaluations, building rapport through therapeutic communication and making patients to feel at ease to disclose their psychological distress. Referrals should be made to bilingual or culturally sensitive providers when possible, especially when language barriers are evident. This would also assist in decreasing the rates of misdiagnosis. Depression is incorrectly diagnosed in around 60% of people in the U.S. (Hirschfeld et al., 2003).

Results of this study also underscore the effect of social support from the woman’s partner in the development of depression. This finding also affirms the benefits of *interpersonal therapy* in the treatment of depression (Markowitz & Weissman, 2004). This therapy assesses the patients’ social patterns, including relationship with partner (i.e., disputes), social isolation, and encourages patients to regain control of their mood as well as daily functioning by working on these interpersonal deficits (Markowitz & Weissman, 2004). Practicing nurses in the mental health field could identify women with such interpersonal deficits and refer for further evaluation and consideration for interpersonal therapy.

Nurses can also foster the development of support groups for Hispanic women, in both English and Spanish. Findings of this study suggest that this may be of benefit especially to women who do not have partner support. Moreover, social support from family and the community fosters positive beliefs such as self-esteem, optimism, and empowerment. These beliefs have been proven to act as buffers against multiple stressors that cause alteration in physical and mental functioning (WHO, 2014b).
Nurses should also maintain and foster Hispanics’ cultural roots and values as they play an important role in the psychological stability and well-being of the community. Among important values to consider during encountering Hispanic clients include strong family values (familismo), respect for people with authority (respeto), politeness or kindness (simpatia), among others (CDC, 2015a). Familism, for example, acts a support system for depressed individuals and can lessen the intensity and frequency of the stressors associated with migration (Ornelas & Perreira, 2011; Siegel et al., 2012). In addition, linguistically and culturally appropriate services are certainly needed in mental health; subsequently the expansion of such services are critical to engage minorities in early depression screening.

This study also highlights the importance of education and health status in relation to depression among Hispanic women. These were significant predictors of depression in this sample. Health care professionals encountering Hispanic women in practice need to be aware that having lower levels of education (less than high school) and a fair or poor physical health put these women at higher risk for depression. This awareness would call for further action such as an overall social assessment, which may require further referral. The following potential social determinants of depression also need to be considered in clinical practice: (a) income; (b) employment (job dissatisfaction, unemployment); (c) acculturation; (d) whether the woman has health insurance or not to cover her medical needs; (e) relationship status; and (f) whether the woman has been separated from her children. Independent analytic findings from this study merit awareness of the relationship between all these factors and depression.
Society and its members have ongoing changes (i.e., new influx of Hispanic immigrants to the U.S.), and nurses need to gain further competencies in order to better adjust to these changes. The growing number of nurses in the U.S. means power in numbers: nurses make up the largest group of health care professionals (U.S. Department of Labor, 2014). Consequently, nurses conform a crucial group needed to teach and build up a *Culture of Health*, fostering the promotion and maintenance of health for all Americans (RWJF, 2015). One of the ways to do this is by promoting health equity through evidence-based practice.

Nurses who are employers can also aid in diminishing the stressors related to depression in the workplace. This could be done by ensuring a minimum wage, which will allow the employees to provide a better living for their families. In addition, lessening of the workload would promote job satisfaction and improve productivity (WHO, 2014b).

In order to advance mental health policies, nurses can join and actively participate in associations such as the American Psychiatric Nurses Association or the Association of Advanced Practice Psychiatric Nurses. These associations have representatives who lobby for funding and resources to be allocated to clinical care resources, research, and education in mental health. In addition, representatives lobby for advancement in nursing scope of practice. This is greatly needed, and will especially benefit groups such as Hispanic immigrants living in rural areas where the number of mental health care providers is limited (Mental Health America [MHA], 2015).

Most social factors are interrelated: better education results in higher paid jobs, good health insurance, increase in income, and better engagement in health promotion
behaviors, for example. Therefore, nurses as citizens must promote laws and regulations that diminish health disparities and eliminate social inequalities, practicing mindful of the public trust and well-being (ANA, 2003). Nurses can do so by communicating with their local policymakers individually or through their organizations, supporting laws that promote health equity.

**Nursing Education**

Cultural competence is vital in nursing nowadays, especially in the U.S., which has become more of a melting pot. As the number of Hispanics in the U.S. continues to grow, a greater number of culturally competent nursing professionals will be needed to care for this population. Health care professionals who are not culturally competent may actually deepen the disparity in mental health that exists in the U.S. (NAMI, 2015). According to the most recent survey from the National Council of State Boards of Nursing (Buden, Zhong, Moulton, & Cimiotti, 2013), only 3% of the registered nurse workforce in the U.S. is Hispanic. This percentage is very low considering that over 17% of the U.S. population was comprised by Hispanics or Latinos in 2013 (U.S. Census Bureau, 2015). Therefore, nursing educational institutions need to promote diversity, engaging and recruiting Hispanic students.

This lack of minority in nursing has been recognized and strategies to enhance diversity have been proposed by the American Academy of College of Nursing (AACN) and the RWJF. They call for an increase in doctoral prepared minority nurses (with PhD and DNP degrees) to act as role models or mentors for students and their communities, advancing education and research endeavors (RWJF, 2015). The Substance Abuse and Mental Health Service Administration (SAMHSA) also promotes the increase of minority
nurses in mental health, through its Minority Fellowship Program. These joint efforts will in turn significantly assist in filling the gap needed for mental health Hispanic nurses.

Nursing curricula need to include courses with emphasis in cultural differences from the entry-level nursing educational programs to the most advanced (DNP or PhD programs). For example, nursing students need to become aware early on during their education that Hispanics are at a disadvantage: they suffer from increased stress related to socioeconomic disparities, immigration, discrimination, and intrinsic cultural values that make them more vulnerable to conditions such as depression.

The establishment of the National Depression Screening Day in the U.S. back in 1991 (in October of each year) has increased the awareness about the illness. All nurses need to be educated about the joint efforts in screening and managing depression. These efforts should be multidisciplinary and multifaceted. Nurses can reproduce local alliances that acknowledge the social determinants of depression (Doornbos et al., 2013). Depression is one of the most common mental conditions seen in primary care settings; therefore, emphasis should be placed on teaching nursing students how to adequately perform social assessments and use the proper screening tools for quick engagement in treatment. Depression can be adequately treated in the majority of the cases when treated early on.

**Future Research**

In order to continue to explore and analyze the social determinants of depression among Hispanic women, research must go on. Future studies should recruit Hispanic women from different backgrounds in even quantities, especially from the highest subgroups in the U.S.: Mexicans, Puerto Ricans, and Cubans. Hispanics of Mexican
origin account for almost two thirds of all Hispanics in the U.S. (64.9%), and so it is crucial to study their patterns and associated factors with regards to depression. For example, it has been suggested in the literature that depression manifests itself differently among Hispanic subgroups. While the prevalence of depression is higher in Puerto Ricans, the intensity and chronicity of this condition is higher among Mexicans (Oquendo et al., 2001). In addition, a large and balanced sample of Hispanic immigrants and nonimmigrants would provide a better picture of the social determinants of depression that affect these groups.

Environmental factors and cultural factors are also part of the social determinants of mental health (WHO, 2014c). Acculturation, for example, is a factor that needs to continue to be explored, as it has yielded conflicting findings in the literature with regards to depression in Hispanic women. Acculturation could be further explored using qualitative studies that assess the positive and negative experiences of the immigrant Hispanics with U.S. society. In this way, sources of individual stressors and internal conflicts could be analyzed.

In addition, prior research has suggested that depression can also affect engagement in health promotion behaviors (Atkins, 2010; Brown et al., 2006; Cianelli et al., 2013; NAMI, 2014a). Behaviors such as condom use, substance abuse, and noncompliance with medication and dietary regimens have been affected by depression. Therefore, it would be interesting to study the mediating effects of depression in the relationship between its social determinants and engagement in health promotion behaviors. This will highlight the influence of depression in primary prevention and will give mental health a greater priority, which is needed worldwide (WHO, 2014c).
A prior HIV-prevention intervention among Chilean women showed a significant impact on depressive symptoms among Hispanic women (Cianelli et al., 2013). The authors suggested that this finding could be related to having women involved in social networks for discussion of topics such as depression, self-esteem, communication, *machismo*, etc., among women. Further research should analyze the repercussion of the parent study, SEPA III, on depression among Hispanic women of South Florida. These findings, if similar to the Chilean study, would highlight the importance of empowering women with knowledge on crucial topics to better engage in their social environments and networks.

This researcher is interested in continuing to research the development of a culturally tailored risk assessment tool that highlights the social determinants of depression in Hispanic women. This tool could be used in conjunction with other screening tools, such as the PHQ-9, in settings where Hispanic women of reproductive age are seen. Other social factors that may be determinants or depression and merit exploration are: *familismo, marianismo, machismo*, discrimination, separation from family, and family and partner conflict. Analysis of these would help to better understand their predictive or protective effect towards depression and inform the development of social risk assessment tool.

**Summary of Study’s Implications**

Nurses should:

1. Gain knowledge on cultural diversity and become competent in order to understand and respect differences in values and norms.
2. Maintain and foster Hispanics’ cultural roots, as this plays an important role in the psychological stability and well-being of the community.

3. Know that Hispanic women in particular are more prone to develop depression given numerous cultural and social factors. These social conditions can affect mental health even before birth, through old age.

4. Be proactive when encountering Hispanic women who have social disparities and proceed with further screening for depression when appropriate.

5. Know that when a Hispanic woman does not live with her partner, has an educational level of below high school, and has a fair or poor health, she may have a significantly higher risk of developing depression.

6. Know that Hispanics tend to minimize or avoid disclosing signs of depression, fearing they may be discriminated against due to having a mental condition.

7. Show empathy and openness when performing clinical evaluations, building rapport through therapeutic communication and making patients feel at ease to disclose their psychological distress.

8. Refer Hispanic clients to bilingual or culturally sensitive mental health providers when possible, especially when language barriers are evident.

9. Foster the development of English and Spanish support groups for Hispanic women.

10. Join and actively participate in nursing associations that promote and lobby for mental health parity in the U.S.
11. As citizens, promote laws and regulations that diminish health disparities and eliminate social inequalities.

12. Develop a culturally tailored risk assessment tool that highlights the social determinants of depression in Hispanic women.

13. Conduct more research related to social determinants of health in minority populations.

**Summary**

Social determinants have a significant influence in the development of several mental health disorders, including depression. Hispanic women are a vulnerable population with higher risk to develop depression, not only due to their gender, but also due to their social environment. Nurses need to practice proactively and become culturally sensitive to the needs of this group of patients when encountering them in daily practice. Findings of this study suggest that when a Hispanic woman does not live with her partner, has an educational level of below high school, and has a fair or poor health, she has a significantly higher risk of developing depression. Several other factors need to be further studied to better understand social determinants of depression among Hispanic women. Development of a culturally tailored risk assessment tool that highlights the social determinants of depression in Hispanic women is also essential, as it could be used as a standard practice in primary, psychiatry, and other appropriate settings.
References


Appendix A

SEPA Demographic Intake Form

1. Please tell me where you were born (country of birth).
   - United States
   - Costa Rica
   - Honduras
   - Puerto Rico
   - Argentina
   - Cuba
   - Mexico
   - Uruguay
   - Bolivia
   - Dominican Republic
   - Nicaragua
   - Venezuela
   - Brazil
   - Ecuador
   - Panama
   - Uruguay
   - Chile
   - El Salvador
   - Paraguay
   - Other
   - Colombia
   - Guatemala
   - Peru
   - (Specify)

   1a. Years living in U.S. __________

2. What is your preferred language?  ○ English  ○ Spanish

3. What is your current relationship status?
   ○ Single
   ○ In a relationship, not legally married
   ○ Married
   ○ Divorced
   ○ Separated
   ○ Widowed

4. Are you currently living with your spouse or partner?
   ○ YES  ○ NO  ○ Not Applicable

5. How many children do you have? __________  ○ None (SKIP to 6)

   5a. I am going to ask you some questions about your children

<table>
<thead>
<tr>
<th>Age</th>
<th>Do they live with you?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>○ Yes       ○ No</td>
</tr>
<tr>
<td></td>
<td>○ Yes       ○ No</td>
</tr>
<tr>
<td></td>
<td>○ Yes       ○ No</td>
</tr>
<tr>
<td></td>
<td>○ Yes       ○ No</td>
</tr>
<tr>
<td></td>
<td>○ Yes       ○ No</td>
</tr>
</tbody>
</table>

   If there are more than 5 children, bubble here: ○

   5b. Do any of your children live in another country?  ○ YES  ○ NO (SKIP to 6)
5b1. If yes, give their ages, country where they live, and number of years you have lived apart (in another country) from them. List from youngest to oldest. If there are more than 4 children living in another country, bubble here: ○

Child 1 Age _____  Country _____________________  Years apart _____
Child 2 Age _____  Country _____________________  Years apart _____
Child 3 Age _____  Country _____________________  Years apart _____
Child 4 Age _____  Country _____________________  Years apart _____

6. What religion are you?
○ Baptist  ○ Jehovah’s Witness  ○ Presbyterian
○ Christian  ○ Jewish  ○ Protestant
○ Episcopalian  ○ Methodist  ○ Roman Catholic
○ Evangelist/Pentecostal  ○ Muslim  ○ None
○ Other Christian (Specify __________________________)
○ Other Non-Christian (Specify __________________________)

7. How often do you attend religious services? Would you say...
○ More than once a week  ○ Less than once a month
○ Weekly  ○ Only on special days
○ Monthly (1+)  ○ Not at all

8. Do you consider yourself...? (INTERVIEWER: Read all choices)
○ Not religious  ○ Somewhat religious  ○ Very religious

9. How strongly do the beliefs of your religion influence your life? (INTERVIEWER: Read all choices)
○ Not at all  ○ Somewhat  ○ Very much  ○ Not Applicable

10. How many years of education have you completed? _________

11. Are you currently employed?  ○ YES  ○ NO

12. What is your main occupation/job title in this country?
____________________________________________________

13. Last month, what was the total amount of money you and your family lived on, including public assistance (after taxes)? $ ___________ dollars (provide an estimation of your monthly family income in dollars)
14. How many people in this country lived from this money? __________

15. Do you have health insurance?  ○ YES  ○ NO

16. How do you usually pay for your own health care? (Bubble only one)
   ○ Private Insurance Plan (not provided at work)  ○ Medicare
   ○ Private Insurance Plan (provided at work)  ○ Out of Pocket
   ○ Medicaid  ○ Don't Pay
   ○ Other (Specify ________________________________)

17. Where do you usually go when you are sick or want advice about your health? (Bubble all that apply)
   ○ Clinic  ○ Nurse Practitioner  ○ Doctor’s Office
   ○ Emergency Room  ○ “Curandero”  ○ Family Member, Friend, or Neighbor
   ○ Other (Specify: ____________________________)

18. Do you have a regular doctor or health care provider?  ○ YES  ○ NO

19. When was the last time you saw your doctor or health care provider?
   ____________ Months (enter the response in number of months, if less than 1 month enter the appropriate number: 1 week= 0.25 months, 2 weeks=0.5 months, 3 weeks= 0.75 months).

20. How many times were you in the emergency room in the past three months for your health problems? __________

21. How would you describe your health in the past three months?
   ○ Poor  ○ Fair  ○ Good  ○ Very Good
Appendix B

Bidimensional Acculturation Scale

<table>
<thead>
<tr>
<th>Question</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How often do you speak English?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. How often do you speak in English with your friends?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. How often do you think in English?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. How often do you speak Spanish?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. How often do you speak in Spanish with your friends?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. How often do you think in Spanish?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. How well do you speak English?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. How well do you read in English?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. How well do you understand television programs in English?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. How well do you understand radio programs in English?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. How well do you write in English?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. How well do you understand music in English?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. How well do you speak Spanish?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. How well do you read in Spanish?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. How well do you understand television programs in Spanish?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. How well do you understand radio programs in Spanish?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. How well do you write in Spanish?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. How well do you understand music in Spanish?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>almost never</td>
<td>sometimes</td>
<td>often</td>
<td>almost always</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------</td>
<td>-----------</td>
<td>-------</td>
<td>---------------</td>
</tr>
<tr>
<td>19. How often do you watch television programs in English?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>20. How often do you listen to radio programs in English?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>21. How often do you listen to music in English</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>22. How often do you watch television programs in Spanish?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>23. How often do you listen to radio programs in Spanish?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>24. How often do you listen to music in Spanish?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Appendix C

Patient Health Questionnaire-9

<table>
<thead>
<tr>
<th>Over the last 2 weeks, how often have you been bothered by any of the following problems: (Bubble only one response to the following questions)</th>
<th>Not at all</th>
<th>Several Days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little interest or pleasure doing things</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. Feeling down, depressed, or hopeless</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. Trouble falling or staying asleep, or sleeping too much</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. Feeling tired or having little energy</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. Poor appetite or overeating</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. Feeling bad about yourself- or that you are a failure or have let yourself or your family down</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. Trouble concentrating on things, such as reading the newspaper or watching television</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. Moving or speaking so slowly that other people could have noticed. Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. Thoughts that you would be better off dead, or of hurting yourself</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?</th>
<th>Not difficult at all</th>
<th>Somewhat difficult</th>
<th>Very difficult</th>
<th>Extremely difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>
Appendix D

SEPA III: Baseline Instruments

<table>
<thead>
<tr>
<th>Name of Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEPA Demographic Intake Form</td>
</tr>
<tr>
<td>Bidimensional Acculturation Scale (BAS)</td>
</tr>
<tr>
<td>Patient Health Questionnaire</td>
</tr>
<tr>
<td>Communication with Partner</td>
</tr>
<tr>
<td>Conflict Tactic Scale – short revised version</td>
</tr>
<tr>
<td>HITS Tool for Intimate Partner Violence Screening</td>
</tr>
<tr>
<td>Health and Sexual History</td>
</tr>
<tr>
<td>HIV Knowledge Questionnaire</td>
</tr>
<tr>
<td>Substance Abuse Behaviors</td>
</tr>
<tr>
<td>Partner Table, revised version</td>
</tr>
<tr>
<td>Self-Efficacy</td>
</tr>
<tr>
<td>Condom Self-Efficacy</td>
</tr>
<tr>
<td>Sexual Relationship Power Scale</td>
</tr>
<tr>
<td>Use of Technology</td>
</tr>
</tbody>
</table>
Appendix E

Religion

<table>
<thead>
<tr>
<th>Name of Religion</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roman Catholic</td>
<td>84 (30.0)</td>
</tr>
<tr>
<td>None</td>
<td>83 (29.6)</td>
</tr>
<tr>
<td>Christian</td>
<td>71 (25.4)</td>
</tr>
<tr>
<td>Other Non-Christian</td>
<td>10 (3.6)</td>
</tr>
<tr>
<td>Baptist</td>
<td>9 (3.2)</td>
</tr>
<tr>
<td>Evangelist/Pentecostal</td>
<td>8 (2.9)</td>
</tr>
<tr>
<td>Other Christian</td>
<td>7 (2.5)</td>
</tr>
<tr>
<td>Jehovah’s Witness</td>
<td>5 (1.8)</td>
</tr>
<tr>
<td>Episcopal</td>
<td>1 (.4)</td>
</tr>
<tr>
<td>Methodist</td>
<td>1 (.4)</td>
</tr>
<tr>
<td>Presbyterian</td>
<td>1 (.4)</td>
</tr>
</tbody>
</table>