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**Assessing the Association of Acculturation, Racial Discrimination, Social Support,
and Breastfeeding Intention with Postpartum Depression: Findings from the 2012-2014
Pregnancy Risk Assessment Monitoring System Among Latinas**

A DISSERTATION

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

by

Diana L. Cabezas

Montclair State University

Montclair, NJ

January 2021

Dissertation Chair: Dr. Pauline Garcia-Reid

MONTCLAIR STATE UNIVERSITY
THE GRADUATE SCHOOL
DISSERTATION APPROVAL

We hereby approve the Dissertation
**Assessing the Association of Acculturation, Racial Discrimination, Social Support, and
Breastfeeding Intention with Postpartum Depression: Findings from the 2012-2014
Pregnancy Risk Assessment Monitoring System Among Latinas**

of

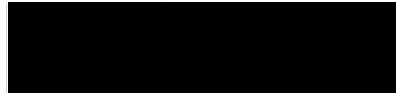
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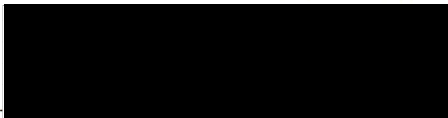
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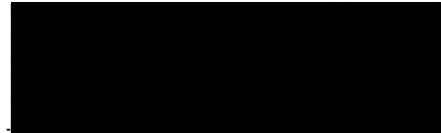


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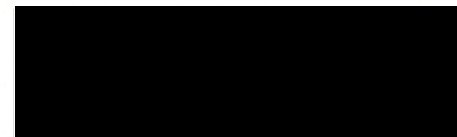
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December 15, 2020
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Abstract

Assessing the Association of Acculturation, Racial Discrimination, Social Support, and Breastfeeding Intention with Postpartum Depression: Findings from the 2012-2014 Pregnancy Risk Assessment Monitoring System Among Latinas

by Diana L. Cabezas

Postpartum depression (PPD) nearly doubles among immigrants. When we consider that Latinas are densely represented in the United States, the need to explore the risk and protective factors that may be associated with PPD onset among Latinas is critical. A consideration of racial discrimination, social support, and breastfeeding practices may aid in incorporating contributors that may be prevalent among Latinas. In particular, breastfeeding practices have differed by acculturation, yet there are inconclusive relations with depressive symptoms, therefore, examining the relationship with predictors may shed light on the intersection among individual, cultural, and societal factors by acculturation among Latinas. This dissertation examined the intersection of risk and protective factors with PPD and breastfeeding practices in three separate papers, with the inclusion of intersectionality and the convoy model of social networks. The first paper examined PPD risk through an intersectional lens that included the individual, cultural, and macro level contexts. The second paper, a quantitative secondary analysis using the NYC PRAMS dataset, explored the relationship between PPD, racial discrimination, and social support. Lastly, the third paper, a quantitative secondary analysis of the NYC PRAMS dataset, examined the relationship between risk and protective factors with PPD and breastfeeding practices. Outcomes for the studies reveal differences and an overlap between the risk and protective factors and their association with PPD and breastfeeding practices when considering acculturation among Latinas. The papers incorporated cultural and societal factors that are

paramount within this population. Recommendations for research, practice, and policy were addressed in each of the papers.

Keywords: social support, postpartum depression, intersectionality, PRAMS, Latinas

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during these years. To the prayer team, you have been with me since I started, and I could not even begin to say how thankful I am for the way in which each of you have been a blessing in my life.

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Dedication

For my parents Gulloower and Holger Cabezas, and to cousin Miguel Angel who filled our lives with joy and compassion. I will always treasure you in my heart.

“Fear not, for I have redeemed you; I have called you by name, you are mine”

- Isaiah 43:1

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CHAPTER I

Introduction

In the United States, the statistics for perinatal mood disorders reveals that postpartum depression (PPD) has been identified as one of the most common childbirth complications (Seyfried & Marcus, 2003; Centers for Disease Control and Prevention [CDC], n.d.). PPD is a perinatal mood disorder in which women experience depressive symptoms following childbirth up to the first year postpartum (O'hara & Swain, 1996; King, 2012; Skalkidou et al., 2012). Surveys from *The National Center for Health Statistics* reveal that self-reported depressive symptoms were the second highest (9.3%) among women of childbearing age (Pratt, & Brody, 2015; Muraca & Joseph, 2014). In 2019, the Centers for Disease Control and Prevention (CDC) estimated that 1 in every 7 women experience depressive symptoms after childbirth. Rates are reported to be higher among immigrant Latinas with whom the percentage of cases almost doubles (Lucero, et al., 2012; Shellman et al., 2014). Due to the prevalence of PPD, *Healthy People 2020* has set a developmental objective to decrease the percentage of women that experience depressive symptoms during the postpartum period (U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion [HHSODPHP], 2019).

Literature on postpartum depression has extensively explored the risk factors that may contribute to the probability of developing PPD (Abdollahi et al., 2014; Ahmed et al., 2019; Diaz et al., 2007; Goyal, et al., 2010; Heilemann et al., 2004; Hobfoll et al., 1995; Liu et al., 2016; Muraca & Joseph, 2014; Suh et al., 2015; Stone et al., 2015). It is necessary to view the numerous interlocking sets of socially constructed identities and their interaction with structures of power, as these fluidly change depending on the social spaces (Andersen & Collins, 2013). Yet, few have sought to incorporate intersectionality as a theory to critically explore the risk and

protective factors of interlocking powers of oppression among Latinas (Collins et al., 2010; Tobin et al., 2017). For example, common risk factors for PPD include financial hardships, lack of support, history of depression, NICU stay, discrimination, and acculturation (Anderson et al., 2017; Horowitz et al., 2005). To form a better understanding of their experience and overall well-being, it is timely and essential to consider the individual, social, cultural, and sociopolitical contexts that Latinas inhabit (Torres, Mata-Greve, Bird, et al., 2018). In particular, common stressors imposed by structural systems and cultural values have to be considered as these are relevant with this population.

Familismo is a cultural value that has been found to be a protective factor among Latinas, providing a perception of loyalty, reciprocity, and solidarity among family members and others (Marín & Marín, 1991). The positive perception of having a network of social support, such as relatives, comadres, and community members, is correlated with better mental health outcomes among Latinas (Martinez-Schallmoser et al., 2003; Zapata Roblyer et al., 2017). However, Latinas living in the United States may have limited family ties and support from informal and formal networks due to the barriers of distance, transportation, isolation, distrust, and demanding work schedules (Hurtado-de-Mendoza et al., 2014).

Another cultural construct that is relevant is marianismo, which describes how Latinas should exemplify the Virgin Mary by being passive and self-sacrificial, placing the needs of others above their own (Le et al., 2009). New mothers may feel the pressure to abide by socially constructed gender roles while facing additional stressors placed by power ladders that may jeopardize their well-being. In particular, practices during the postpartum period are such that the self-perception of self-efficacy and providing for their child is paramount. For instance, when it comes to breastfeeding practices, Latinas have the highest breastfeeding initiation compared to

other racial or ethnic groups, yet their breastfeeding continuation decreases with increased time spent in the United States (Alghamdi et al., 2017).

Literature indicates that the lack of support from family and others, including providers, decreases breastfeeding intention (Bigman et al., 2018). Even if women intend to breastfeed during pregnancy, and do so after delivery, the limited support may increase the risk of depressive symptoms (Henshaw et al., 2015). Incorporating social support with variables that account for acculturation and cultural values are necessary. Additional factors such as discrimination need to be added and further explored as they are not consistently included in research studies that examine PPD risk among Latinas (Luis Sanchez et al., 2020; Pao et al., 2018).

The stressor of racial discrimination, in particular, has been linked with poor maternal and child health outcomes among women of color (Braveman et al., 2017; Bower et al., 2018). Racial discrimination has been minimally included in studies exploring the risk of PPD (Stepanikova & Kukla, 2017), especially among Latinas. It has also been reported to be associated with depressive symptoms among ethnically and racially diverse postpartum women, with the most significant outcomes seen in women that have limited access to education (Stepanikova & Kukla, 2017).

Racial discrimination may serve as a risk factor, but the interaction with acculturation is not yet well understood. Among Mexican and Mexican American pregnant women, the frequency of discrimination served as a predictor for postpartum depressive symptoms, especially if women had low educational attainment and were younger in age, though acculturative stress did not appear to be significant (Walker et al., 2012). Examining the

interaction of racial discrimination with additional variables could help expand the intersections of individual, cultural, and structural contexts to comprehensively assess PPD risk.

The use of acculturation in perinatal mental health research, however, has provided inconsistent outcomes, as researchers have utilized a variety of proxies (e.g., language preference, length of stay, and nativity) where one or few measures have been used (Beck, 2006). Acculturation has been related to negative mental health outcomes, especially among Latinas who have resided in the United States for a lengthier time (Martinez-Schallmoser et al., 2003) for which outcomes related to PPD vary (Davila et al., 2009; Escobar et al., 2000).

The use of language preference has been used as an acculturation measure in which women that primarily speak Spanish are considered to be less acculturated, and women who primarily speak English are considered to be more acculturated (Sebastian et al., 2019). The discrepancies in the literature reveals different outcomes, as well as a need to incorporate a multidimensional measure that considers acculturation and risk factors (Beck, 2006; Alhasanat & Giurgescu, 2017).

Given that the present political climate has imposed strict immigration policies and stoked hostile sentiments toward Latinos (Young, 2018), it is necessary, if not urgent, to integrate intersecting factors that Latinas may encounter. It is in consideration of *Healthy People 2020's* goal to reduce the prevalence of PPD (HHSODPHP, 2019), as well as the knowledge that Latinas have comparatively high live birth rates (Childtrends, 2019), that this dissertation seeks to explore the risk and protective factors associated with PPD among Latinas. By including individual, cultural, and sociopolitical contexts, this dissertation seeks to further develop and inform research, practice, and policy.

Definition and Theories of Postpartum Depression

The new *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* has identified PPD as depression with peripartum onset (American Psychiatric Association [APA], DSM-5, 2013). PPD is defined as the experience of clinical major depressive symptoms that affects functioning after birth (APA, 2013; O'Hara & Wisner, 2014). Key symptoms of this mood disorder are: changes in appetite, sleep, mood swings, sadness, constant crying, anxiety, feelings of worthlessness, guilt and helplessness, irritability, and intrusive thoughts of harming self or the infant (CDC, 2019; Patel et al., 2012). Symptoms can be classified as somatic, affective, or cognitive. Somatic symptoms relate to symptoms that pertain to physical changes such as change in appetite, weight, and sleep fluctuations (APA, 2013). Affective symptoms describe feelings of sadness, depression, and guilt. Meanwhile, cognitive symptoms present as intrusive suicidal or infanticidal thoughts, and a lack of interest in activities (APA, 2013). Depressive symptoms may hinder women from bonding with their infant, interrupting daily living activities and diminishing mother-baby interaction (Leis et al., 2013; Slomian et al., 2019).

Researchers continue to explore the etiology and risk factors that contribute to the development of PPD, and several theoretical explanations have addressed the physiological, psychosocial, and environmental factors (Luskin et al., 2007). The most commonly used theoretical frameworks and underpinnings have been biological; psychosocial; psychodynamic; cognitive psychological; social and interpersonal; and behavioral and evolutionary theories (Abdollahi et al., 2017; Beck, 2002; Bloch et al., 2000; Davidson et al., 2004; Hagen, 1999; Halbreich, 2005; Johnson & Greenberg, 1988; Stuart & O'Hara, 1995). Additionally, midrange theories, such as the teetering model of PPD, have sought to view individual factors and the mother's need for attachment with others (Beck, 1993). Although these theories have helped

advance the understanding of PPD, it is important to highlight that most emphasize the individual's characteristics and their attachment with others, while few studies include large number of Latinas (Lara-Cinisomo et al., 2015).

For instance, biological concepts relate to the genetic predisposition to develop PPD, while attachment theories indicate the bond, or lack thereof, between individuals and their primary caregiver. Research has provided a strong linkage between biological changes that may occur during the postpartum period (Yim et al., 2015) and numerous theories connected with perinatal research that focused on aspects of the individual. It is necessary to view how structural oppression intersects with the well-being of Latinas (Torres, Santiago, Walts, & Richards, 2018; Lara-Cinisomo, Clark, &, Wood, 2018). Theoretical frameworks that expand from the individual to include social and cultural structures and systemic issues (Rouland Polmanteer et al., 2016; Posmontier & Waite, 2010) have been on the rise, yet very few incorporate groups of Latinas that account for intersecting cultural and social factors. Research that includes a theoretical framework that involves power and privilege with the individual, cultural, and sociopolitical factors is needed to understand the emotional well-being of marginalized populations (Viruell-Fuentes et al., 2012).

Intersectionality as a framework was, therefore, used to explore the interactions of risk and protective factors of acculturation, racial discrimination, social support, and breastfeeding intention with postpartum depressive symptoms among Latinas. The theory assisted in incorporating systematic powers of oppression. Additionally, it is important to consider protective factors, such as familismo, as social support within different types of social networks. This may aid in developing a more comprehensive understanding of risk and protective cultural factors, as well as their interaction with depressive symptoms. To incorporate the protective

factor of familismo, the theory of convoy model of social networks will be used to understand the protective factor of social support among various networks, which are salient among Latinas. Familismo will be examined through the support received from family members.

Positionality

My interests in mental health diaspora among Latinas has been one that I embraced early in my career and continue to seek to understand as a student, researcher, and professional. Arriving in the United States at a young age, I encountered experiences, conversations, and reflections that related to migration, adjustment, and mental health. Seeing, first-hand, friends and women that I have worked with who experienced mental health illnesses, or who knew of someone that did, encouraged me to become immersed in understanding the prevalence, services, and interventions available for Latinas.

The conviction that I had the necessary passion to understand mental health issues facing immigrant families motivated me to seek opportunities to help immigrant women and families from diverse ethnic backgrounds. In these spaces, women shared their migration, birth, and postpartum experiences. This work led me to constantly question the prevalence of PPD among Latinas and the stressors that may be particularly salient among this population. As I continue to learn and grow as a student, I find myself questioning and unpacking the structural and societal layers that Latinas may be exposed to. My involvement in this work has inspired me to be an advocate for perinatal mental health. It is in seeking to better comprehend the relationships between the risk and protective factors that are particular to Latinas, that we may be able to enhance PPD theory, research, and practice.

Gaps in the Literature

In the United States, Latinas are at high risk of experiencing PPD after birth. Research has sought to explore factors that may be linked with an increased risk of PPD, yet the inclusion of cultural and structural contexts that may intersect with Latinas' social identities have hardly been explored (Viruell-Fuentes et al., 2012; Torres, Mata-Greve, Bird, et al., 2018). Although there is inconsistent research that includes social support and acculturation, few have embedded racial discrimination and breastfeeding intention to study the risk of PPD. As samples of Latinas are underrepresented in perinatal mental health research (Tobin et al., 2017), this dissertation examined the intersection among acculturation, breastfeeding intention, racial discrimination, and social support, with postpartum depressive symptoms.

Current Papers

This dissertation utilized three papers that encompass the risk and protective factors that may be present during pregnancy and in the postpartum period so as to examine their interaction with depressive symptoms. This dissertation included a theoretical paper and two quantitative research studies. The first paper proposed the inclusion of intersectionality as a theory to explore the individual, cultural, and sociopolitical factors associated with PPD that are prevalent among Latinas. To view the intersecting factors of acculturation, racial discrimination, and social support with depressive symptoms, the researcher conducted a secondary analysis of the Pregnancy Risk Assessment Monitoring System (PRAMS) from the years 2012-2014. The PRAMS data used was from New York City, a metropolitan region that is considered to have high live birth rates from self-identified Latinas (Pew Research Center, 2017a).

The second study examined the interaction between acculturation, social support, racial discrimination, and depressive symptoms by adapting the theories of intersectionality and the

convoy model of social relations. The third study explored which variables of breastfeeding intention, racial discrimination, and social support predict breastfeeding practices and depressive symptoms. Though the term Latina has been used, it is essential to acknowledge the diversity among Latinas, as women may differ within and across groups. For this dissertation the term Latina was used to describe women that were born or are descendants of families that were born in Central America, Mexico, South America, and Caribbean countries, who self-identified as Hispanic in the NYC PRAMS survey. Due to the nature of secondary data analysis, the information of the region that women were born was not provided. It is undetermined if women that were from Brazil self-identified as Latinas and might have filled out the survey in Spanish. Nonetheless, despite the limitation of nativity, the studies assisted in providing information on how risk and protective factors associated with PPD outcomes.

Research Questions

Paper 1

RQ1: How does the theory of intersectionality provide an understanding of the intersecting factors that relate to the individual, cultural, and sociopolitical contexts associated with postpartum depression among Latinas?

The first paper seeks to incorporate the theoretical framework of intersectionality to examine the prevalence of PPD among Latinas. The theory will view both risk and protective factors that are relevant with this population.

Paper 2

RQ1: Is there a difference in the sources of support (partner, family, and community), racial discrimination, and risk factors by acculturation that predict depressive symptoms among Latinas?

H1: There will be no difference in the types of social support from partner, family, and community or in risk factors by acculturation among Latinas with depressive symptoms.

H2: Types of social support from partner, family, and community will vary by acculturation, and those with less social support and increased risk factors will have positive relationship depressive symptoms.

RQ2: What is the interaction between racial discrimination, social support (partner, family, and community), and acculturation on self-reported depressive symptoms among Latinas?

H1: There will be no change in self-reported depressive symptoms among Spanish and English-speaking Latinas. The level of support and risk factors will not interact with depressive symptoms.

H2: Racial discrimination will have an interaction with depressive symptoms among Latinas.

H3: Social support in all three layers of partner, family, and community will have an inverse interaction with depressive symptoms and will differ by acculturation.

Paper 3

RQ1: Does breastfeeding intention, racial discrimination, and/or social support (partner, family, and community) predict depressive symptoms by acculturation among Latinas?

H1: Lower breastfeeding intention will predict depressive symptoms.

H2: Racial discrimination will predict depressive symptoms.

H3: Less social support (partner, family, and community) will predict depressive symptoms.

RQ2: Does breastfeeding intention, racial discrimination, acculturation, and/or social support (partner, family, and community) predict breastfeeding continuation by acculturation among Latinas?

H1: Breastfeeding intention will predict continued breastfeeding practices.

H2: Racial discrimination will predict cessation of breastfeeding practices.

H3: Breastfeeding practices will differ by acculturation.

H4: Increased social support will predict breastfeeding continuation.

CHAPTER II

Intersectionality and Postpartum Depression Among Latinas

The Latino population is by far the largest group represented in the United States, accounting for 18.5% percent of the nation's population (U.S. Census Bureau, 2019). In 2019, there were 60.6 million Latinos (Pew Research Center, 2020), and numbers may be larger as an estimated 11.3 million undocumented immigrants live in the United States (Migration Policy Institute, n.d.). An estimated 8.6 million undocumented immigrants are represented from regions in Mexico, Central America, South America, and the Caribbean (Migration Policy Institute, n.d.). Historically, the population has been classified as one large group, yet there is much diversity. This is a heterogeneous group where, although most speak Spanish, regions have diverse dialects, beliefs, and practices. Until recently, there have been slight differences in the number of immigrants migrating to the United States due to the great recession and changing immigration policies (Pew Research Center, 2017b), yet it is imperative to recognize the health of this population as macro level factors may intersect with their well-being. Latinas may migrate to the United States for a variety of reasons, several of which may include political turmoil, poverty, stressful or traumatic events, and the need to seek better work opportunities in order to provide for their families (Ornelas & Perreira, 2011).

Despite the national birth rate decline, Latinas have one of the highest birth rates in the United States (López et al., 2018). Considering that this population represents a large portion of postpartum women nationally (Migration Policy Institute, n.d.), it is important to understand perinatal mental health outcomes. Prevalence of PPD in the general population is estimated to be between 10% to 20%, which means that 1 in every 7 women may experience postpartum

symptoms (Gavin et al., 2005; CDC, n.d.). But the rates among low-income women of color may be much higher.

Concerns regarding maternal health disparities are evident and valid as there continues to be a gap in health outcomes among women of color (Wheeler, & Bryant, 2017). For example, patient, provider, and institutional factors intersect with health outcomes as systems of oppression are found in the healthcare system (Wheeler & Bryant, 2017). Barriers that women face may relate to disadvantages such as limited education attainment, lower socioeconomic status, lack of insurance (Kanotra et al., 2007), and lack of providers that speak their native language (Tobin et al., 2017).

A combination of stressors makes it difficult for families that are marginalized to get proper health care. It is well documented in research that both African Americans and Latinas in the United States have higher prevalence of negative health outcomes (Kohler et al., 2015; Wheeler & Bryant, 2017). Moreover, the scope of literature that include Latina samples, include both English and Spanish speaking Latinas, but the distinctions among both need to be further explored (Howell et al., 2005). Current literature has examined the prevalence of PPD, but only a slight number have included theoretical frameworks that involve risk and protective factors that intersect with cultural and sociopolitical contexts. Given that PPD may have a detrimental effect with child development (Slomian et al., 2019), seeking to understand the risk and protective factors of PPD with Latinas through theory, research, and practice is necessary.

To address the limited research, and to integrate a framework that examines the shifting culture and sociopolitical landscapes that intersect with Latinas, this research used Intersectionality theory. The theoretical framework assisted to critically examine the risk and protective factors associated with PPD among Latinas (Knapp, 2009). The theory was used to

explore the power dynamics that may be present at the familial, cultural, and institutional levels, as past theoretical underpinnings have been limited when exploring risk and protective factors with PPD among this group (Christensen et al., 2011; Viruell-Fuentes et al., 2012).

Literature Review

Leading theoretical frameworks and concepts that have been used to explain the development of PPD have utilized biological, psychosocial, and attachment underpinnings. Feminist theoretical perspectives have also been proposed (Jebali, 1993; Nicolson, 1986; McMahon & Taylor, 1997). An extant number of studies have used biological models to explain hormonal changes with depressive outcomes during pregnancy (Amiel Castro et al., 2018; Brummelte & Galea, 2016; Patel et al., 2012) and after delivery (Bloch et al., 2000), though outcomes have varied (Massey et al., 2016). The complexity of microbiological changes differs across women, and the physical changes result in diverse outcomes as other samples have revealed no correlation between hormonal sensitivity and PPD onset (Haywood et al., 2007). Although physiological differences do occur across women, it is unclear why some women may develop PPD, while others who have experienced hormonal changes do not.

The environmental context may play a role in maternal mental health. Psychosocial concepts account for stressors or protective factors that have been linked with mental health outcomes. During pregnancy and in the postpartum period, risk factors such as history of depression (Guintivano et al., 2017), unplanned pregnancy (Biaggi et al., 2016), acculturation (D'anna-Hernandez et al., 2015; Heilemann et al., 2004), financial hardships (Liu et al., 2016), loss of a family member, or relocation (Liu et al., 2016) have been correlated with depressive symptoms in diverse samples (Patel et al., 2012). Additionally, factors that relate to power laden

roadblocks, such as limited access to education (Salm Ward et al., 2016), marital conflict (Salm Ward et al., 2016; Stone et al., 2015), violence (Valentine et al., 2011), discrimination (Luke et al., 2009; Menéndez Alarcón & Novak, 2010), low socioeconomic status (Mukherjee, et al., 2017), and trauma related stressors (Qobadi et al., 2016), have been correlated with negative health outcomes. Consequently, the exposure to various risk factors may play a role in postpartum mental health, and Latinas who may be of lower socioeconomic status are at an increased vulnerability (Gavin et al., 2011). Most of the research maps out the potential factors, but a common criticism is that the intersections of cultural, sociopolitical, and protective factors among Latinas are limitedly explored (Torres, Santiago, Walts, & Richards, 2018).

Theoretical frameworks that integrate the social structures and systemic issues associated with PPD among diverse samples of women (Jackson-Best, 2016; Rouland Polmanteer et al., 2016; Postmontier & Waite, 2010) have gradually increased. For instance, Rouland Polmanteer, and colleagues (2016) have incorporated Womanism theory to explain PPD among low-income women of color. The theory aids in understanding the systematic forms of oppression that women may encounter with systematic barriers and the socially constructed role of mothering (Rouland Polmanteer et al., 2016). However, the culturally relevant variables that pertain to Latinas were not explored. Factors such as familismo, which is considered to be a protective factor, and acculturation are needed to understand how they may interact with PPD. Scholars have advocated for the need to use the theory of intersectionality when studying mental health (Torres, Mata-Greve, Bird, et al., 2018) and perinatal outcomes among Latinas (Stevens et al., 2018).

Yet, limited research has incorporated the intersections of culturally salient factors and sociopolitical contexts that Latinas may face (Albuja et al., 2017; O'Mahony & Donnelly,

2013; Viruell-Fuentes et al., 2012; Zapata Roblyer et al., 2017). This paper seeks to conceptualize and integrate the function of intersectionality with research and practice.

Intersectionality as a framework was used to understand the intersections of individual, cultural, and sociopolitical constructs associated with PPD among Latinas. The theory critically examines systemic powers of oppression while considering protective factors, such as familismo.

Intersectionality Theory

The concept of intersectionality emerged from feminist and critical race theories. It included the complexities of power and privilege, while incorporating the individual, social, and political standpoints (Cho et al., 2013). Intersectionality derived from Black feminist scholars who criticized White feminist conceptualization that geared towards White, middle class, and heterosexual women (Cole, 2009). Instead, Black feminists put forth a movement to view the intersectionality of Black women's experience with multiple contexts related to their status (Allen, 2016; Cole, 2009). The term coined by legal scholar Kimberly Crenshaw in the late 1980's called out the intersections and oppression that Black women experienced within the legal system (Crenshaw, 1989). Though feminist scholars have written about intersectionality (Allen, 2016; Crenshaw, 1989; Gordon, 2016), the concepts of the theory have been addressed in the past (May, 2015).

The theory has challenged the status quo, addressing the diversity within and across groups while accounting for demographic, institutional, and sociopolitical factors. Intersectionality describes how individuals have a set of socially constructed identities that place them in different positions of power, functioning within the societal context (Andersen & Collins, 2013). The power and value of the individual may fluidly shift depending on the social space. The theory has been used to indicate the interlocking systems of oppression that

individuals may face (Few-demo, 2014). The social location concept indicates the layers of oppression based on the person's position of power, which is influenced by the different socially constructed categories (e.g., race, class, and gender). The person is seen with the interlocking set of identities of race, class, and gender, as well as other social locations that interact with privilege and oppression put forth by institutions of power (Andersen & Collins, 2013; Crenshaw, 1989). The framework assists in accounting for the historical and institutional power dynamics that are seen through concepts of intersectionality, oppression, and social locations, which are necessary when examining populations that have been marginalized.

The theory of intersectionality has been used with family science research as it seeks to incorporate familial and societal interactions, yet there is scarcity in research that includes intersectionality with mental health and Latina groups (Torres, Mata-Greve, Bird, et al., 2018). The use of intersectionality with PPD among Latinas provides a critical lens to address the intersections of individual, cultural, and sociopolitical influences associated with PPD outcomes. In particular, this theory accounts for the macro level oppressions that intersect with race and class which may contribute to mental health disparities.

Race and Class

Racism is defined as a socially constructed system of categorizing societal groups into races, where the dominant group belittles, disenfranchises, and disproportionately distributes societal resources and power to racially constructed groups (Bonilla-Silva, 1996). The race categorization leads to negative attitudes and beliefs of a group (stereotypes and prejudice) and different treatment (discrimination) toward the marginalized group by others and institutions (Williams, 2018). Scientific research has documented the correlation between continuous exposure to discrimination with negative health outcomes (Babyar, 2018; Beatty Moody et al.,

2014; Pager & Sheperd, 2008). In the current political polarization, rhetoric of negative sentiments, stereotypes, and hostility towards immigrants, including Latinos, have increased bias towards them (Crandall et al., 2018; Greene, 2018; Ledford et al., 2016). Nativism has fueled the anti-immigrant sentiment and may lead to resentment and unjust treatment towards immigrants by both individuals and institutions (Young, 2018).

The well-being of Latinas is concerning, as a national survey conducted by the Pew Research reported that more than half of the Latinos surveyed expressed experiencing discrimination due to their race/ethnicity (Krogstad & Lopez, 2016). In recent decades, literature identified the link between racial discrimination and diaspora with maternal and child health outcomes (Braveman et al., 2017; Bower et al., 2018; Alhusen et al., 2016). Furthermore, several quantitative studies have found racial discrimination as a significant predictor for depressive symptoms after childbirth (Bécares & Atatoa-Carr, 2016; Canady et al., 2008). However, the number of studies that view racial discrimination and PPD among diverse groups of postpartum Latinas continues to be small (Luis Sanchez et al., 2020; Viruell-Fuentes et al., 2012).

The intersection of oppression, apparent in layers of barriers, could be seen through an interlocking set of identities of class and race among Latinas. Findings highlight that women that are financially disadvantaged (Hobfoll et al., 1995; Scholle et al., 2003), have medicaid (De Marco et al., 2008), and lack access to education are more likely to experience discrimination and depressive symptoms, though acculturation was not a predictor (Walker et al., 2012). Compared to their White counterparts, Latino families experience higher poverty levels (Murphey et al., 2018), which may be linked to limited education outcomes, placing Latino families at a disadvantage with less access to resources and eligibility for higher wage jobs (Damaske et al., 2017). Structural barriers have been found to impede Latinos from pursuing and

advancing their education (Center for Immigration Studies, 2018). A recent study showed how foreign-born Latinos (31.5%) obtained less than a 9th grade education while a low percentage of U.S. born Latinos (29.7%) graduated high school (Pew Research, 2017b). Other researchers note that discrimination during pregnancy, regardless of age, ethnicity, or status, increases the risk of depressive symptoms (Stepanikova & Kukla, 2017). Latinas are more likely to work in low wage jobs with non-traditional hours, contributing to financial stressors and unstable employment compared to their nonminority counterparts (Zabkiewicz, 2010), and may place them at greater risk of PPD.

Societal level structural barriers place Latinas in vulnerable spaces in which they are at an increased likelihood of experiencing financial hardships (Liu et al., 2016), social isolation (Hurtado-de-Mendoza et al., 2014), violence, cultural imperialism (related to language and acquisition/use of English language), powerlessness (Ayón et al., 2018), and limited health insurance (Martin et al., 2018). Intersectionality aids in recognizing the layers of oppression in the interlocking set of social identities within class and race where Latinas may move through while experiencing discrimination, as well as a lack of resources and assistance (Tobin et al., 2017). Structural disproportions are set in place and these may intersect with women as they encounter a series of barriers that oppress and limit their opportunities to seek help. Furthermore, there may be cultural constructs that may serve as risk or protective factors during the postpartum period.

Cultural Constructs of Marianismo and Familismo

The cultural factors of marianismo and familismo are particularly salient among postpartum Latinas as these are greatly valued and practiced. Marianismo has been identified as a Latin American construct in which the female role is to embody the Virgin Mary, reflecting

passivity, purity, virtue, and strength while prioritizing the needs of others as opposed to their own (Le et al., 2008; Sirulnik et al., 2014; Stevens, 1973). The cultural construct has been correlated with negative emotional factors as women may not advocate their needs in order to maintain harmony with their partners, placing others' needs above their own, and giving precedence to serving their families (Nuñez et al., 2016). The socially constructed variable of marianismo needs to be examined as it has been significantly and indirectly associated with PPD, most notably among less acculturated Latinas in the postpartum period (Lara-Cinisomo, Wood, & Fujimoto, 2018).

Less acculturated Latinas may feel the pressure to fit the socially constructed gender role which can intersect with the struggle to seek help. Depressed women may feel obligated to bear with their symptoms in order to care for their newborn and family. Spanish speaking Latinas, in particular, are less likely to seek social support as they feel they are being a burden to others (Negron et al., 2013). Latinas may face pressure to conform to a gender role while experiencing a conjunction of stressors that could potentially place them at risk of PPD. In a recent study, Mexican women that abided traditional gender roles identified themselves as submissive and passive, traits which interacted with the way in which they perceived support from others (Albuja, et al., 2017). Including the cultural aspects of marianismo, while examining social support, can reveal the interaction among these cultural factors.

Similarly, the social structure of familismo is highly valued and important among Latino culture. The term familismo describes social support received from the nuclear or extended family members or others, which provide perceived feelings of loyalty, reciprocity, and solidarity among members (Marín & Marín, 1991). Immigrant Latinas who arrive in the United States often leave their families behind, experiencing a rupture of familial connections, which

may contribute to an increased risk of depressive symptoms (Zapata Roblyer et al., 2017).

Among Latinas, the perception of social support from their social network, partner (Coburn et al., 2016), peers (Leger & Letourneau, 2015), and community organizations (Negron et al., 2013) may be linked with decreased depressive symptoms. Findings propose that the presence of social support among diverse types of social networks may be instrumental in improving mental health outcomes (Cardoso et al., 2010; Hassert & Robinson Kurpius, 2011; Hayden et al., 2013). Familismo serves as a strong knitted support that has been commonly utilized during the postpartum period among Latinas in their native countries. But the reality may look different in the United States.

In the United States, Latinas may encounter structural barriers such as demanding work schedules and lack of trust, which diminish interactions with those in their social network, limiting the support received during the postpartum period (Hurtado-de-Mendoza et al., 2014). Women who have identified having two or more friends and or family members that provide support report less depressive symptoms; but if discrimination and financial hardships are present, then the risk of PPD increases (Surkan et al., 2006). Additionally, Latinas' relationship with their partner has an influence on their well-being. Conflict with their partner, regardless of whether they are married or cohabitating, may increase the risk of PPD (Sheng et al., 2010).

Further investigation of the use of social support is necessary to examine how it may be experienced among less acculturated Latinas. In several studies that included Spanish-speaking Latina samples, women had increased negative outcomes if they: had lower social support during pregnancy and in the postpartum period; believed in more traditional female roles (Albuja et al., 2017); and had low education attainment and income (Lara et al., 2013). Although it is important to consider that these studies were conducted in Mexico, they magnify the nuance that women

that held to more traditional female roles, and who had limited support during pregnancy and in the postpartum period, were more likely to experience depressive symptoms than those who held less traditional roles. Moreover, consistent with other findings, these studies echo the summation that significant risk factors increase risk of PPD. These include limited access to education and lower socioeconomic status.

Furthermore, Latinas in the United States that prefer to speak Spanish are more likely to identify support from their partner, community members, and others (Negron et al., 2013). Support from friends, comadres, and home visiting nurses have been identified within their support network (Martinez-Schallmoser et al., 2003). However, another study found that less acculturated Latinas in committed relationships indicated that, while many received support from their partners, some expressed dissatisfaction with the quality of support received due to their partners machismo-like behavior during pregnancy and in the postpartum period. This type of behavior was found to increase the risk of PPD (Sheng et al., 2010; Martinez-Schallmoser et al., 2003). Additionally, women who disclose having controlling partners or family members, are more likely to have limited support from individuals outside their networks, which can serve as a barrier to connecting with others and receiving needed support (Sheng et al., 2010). Investigating the support across different studies demonstrates that social support from networks is multilayered. Though many women may have a partner, it does not necessarily indicate that they perceive the support as helpful. Considering the social networks and the support while unpacking the stressors and layers of oppression that Latinas may encounter can provide a better understanding of how these intersect with emotional well-being.

Conversely, other studies have found no difference with regard to support among English and Spanish-speaking Latinas, as long as women identified two or more friends and/or family

members available within their network. However, if any experienced discrimination, then the likelihood of depressive symptoms increased, despite social support (Surkan et al., 2006).

Similarly, though no differences have been found among English or Spanish-speaking high-risk women that have numerous stressors, the presence of home visiting programs during pregnancy may help reduce depressive symptoms during the postpartum period for this group (Ruyak et al., 2017). Research also shows that childbirth outcomes, such as infant birth weight, decreases among women who are single, young, and of lower socioeconomic status, but that assistance from their social network, particularly from their partner, may mitigate low birth weight outcomes (Dyer et al., 2010).

Taking the outcomes into account, the trends appear to indicate that women who experience stressors, have barriers to education, and experience structural barriers may be at a higher risk of PPD. Though social support has been viewed as a protective factor, the interaction within social spaces and structurally imposed stressors may mitigate outcomes. Research has to expand the focus on protective factors and stressors that relate to social support while considering cultural and societal contexts such as discrimination and acculturation among Latinas.

Acculturation

Acculturation has been defined as the process in which immigrant or foreign-born individuals integrate into a new country or assimilate to mainstream practices (Escobar et al., 2000). In perinatal mental health research, acculturation has been measured through one or several proxies such as language preference, nativity, and length of time residing in the host country (Alhasanat & Giurgescu, 2017; Davila et al., 2009; Sumner et al., 2012), though there has been a rise in incorporating multidimensional measures of acculturation scales (Valentine et

al., 2011; Beck et al., 2005; Kuo et al., 2004). The use of acculturation has provided inconsistent outcomes as researchers have used a variety of proxies (Beck, 2006).

In particular, language preference has been used as a proxy to measure acculturation. For instance, women who have a preference for speaking Spanish and fill out a questionnaire in Spanish are considered to be less acculturated, while those that choose to speak and have a preference for English are considered more acculturated (Sebastian et al., 2019). Measures such as language preference, though limiting, could provide information in regard to the intersections that Spanish and English-speaking Latinas encounter. Literature reveals that women that are more acculturated (who have resided longer in the U.S. and have a language preference for English) have an increased likelihood of experiencing higher depressive symptoms. As women acculturate, they may have to adopt American norms or maladaptive practices. For instance, women may redefine gender roles, challenging traditional roles and adopting American norms, which may cause conflict with partners and family members (D'Anna-Hernandez et al., 2015). Also, in a study with Mexican American women, those that experienced acculturative stress and perceived stress were more likely to experience depressive symptoms, especially when they were more likely to adopt American cultural values (D'Anna-Hernandez et al., 2015). During pregnancy, English-speaking U.S. born Latinas are more likely to report moderate to high depressive symptoms compared to foreign-born Latinas, and variables that significantly increase depressive symptoms include being single and pregnant (Davila et al., 2009). In addition, the level of social support, PPD, and acculturation measured through language has revealed that women that experience depressive symptoms may be more likely to receive less support from their partner, especially if they reside in homes where English is the primary language (Martinez-Schallmoser et al., 2003).

However, acculturation in other studies does not reflect similar findings (Beck, 2006; Zayas et al., 2003). A longitudinal study revealed a non-significant relationship between sense of social support and depressive symptoms with a diverse sample of Latinas from Puerto Rico, Dominican Republic, Central America, and Mexico, in which the majority spoke English (93%) (Zayas et al., 2003). The most significant predictors were negative life events and levels of depression during pregnancy, not acculturation (Zayas et al., 2003). Acculturation measures of language of preference and nativity found no difference in level of PPD symptoms among Latinas, while those who spent their childhood in the United States, compared to those in Mexico, had higher levels of depressive symptoms (Heilemann et al., 2004).

In other studies, immigrant women who had a shorter length of residence in the host country were at higher likelihood of experiencing depressive symptoms, especially if they encountered limited social support, relationship challenges with their partner, and financial hardships (Falah-Hassani et al., 2015). Acculturation measures provide different outcomes in studies that view acculturation and PPD. Instead, the perceived level of social support and health insurance coverage are some of the variables that may more accurately predict symptoms (Kuo et al., 2004). The inconsistent use of acculturation measures throughout the literature reveals that there are different outcomes (Beck, 2006; Alhasanat & Giurgescu, 2017). Unpacking the intersections of acculturation, with risk and protective factors demonstrates that acculturation in itself has to be examined in conjunction with additional variables that relate to support and structural barriers, especially when looking to explore the postpartum mental health of Latinas.

Furthermore, when accounting for sociopolitical contexts, in which immigration laws and sentiments toward Latinos are hostile, mental health outcomes may be affected. In a Pew survey prior to the presidential elections of 2016, one in every four Latinos expressed concern about the

situation of U.S. Latinos, with 33% of U.S. born Latinos expressing concern for the deportation of someone they knew (Pew Research Center, 2017c). Policies have a ripple effect that may in turn affect families that are already in a vulnerable position. Governmental institutions have established policies and structures that target and criminalize Latinos, increasing fear and lack of trust in systems among Latinos (Ayón et al., 2017). In mixed status families, the strict immigration policies have had a negative effect in the use of resources and possible support systems among women. Resources such as Women Infant and Children (WIC) services have experienced a decrease of enrollment among mixed status Latino families, with less use of services seen among Latinas after deportation heightened (Vargas & Pirog, 2016). Many Latinas have constant stressors of deportation and perceived discrimination (Ayón et al., 2017) and evidence of decreased use of services may affect the family as a whole. The intersectional perspective exposes the macro level factors that may monopolize the resources for Latinas.

Strengths and Limitations

The current application of intersectionality with PPD among Latinas has both strengths and limitations. One of the limitations is that, when adapting intersectionality, it is necessary to consider that there is heterogeneity within Latinas. Though addressed as a group in this paper, it is important to recognize that there is much diversity within this group. Second, it is necessary to incorporate intersectionality with frameworks that adapt social networks and support, such as familismo, a valuable and important factor that has been continually used among Latinas. Exploring the social networks and how these may interact with Latinas can assist in a broader view of the interaction between social support and PPD. Although familismo is a cultural construct that has been used to explore support from family and kin, Latinas may have different forms of support. Also, the construct of acculturation could provide a scope on the intersection

between less and highly acculturated Latinas as there may be differences as they adopt new cultural norms.

Nevertheless, the use of intersectionality provides an inclusive and comprehensive view of intersecting factors that Latinas experience by incorporating the individual, cultural, and structural contexts associated with PPD. The use of this theory provides researchers the opportunity to include a social justice perspective by uncovering the interlocking systems of oppression that may be present. Implementing intersectionality to examine PPD among Latina immigrants offers us the opportunity to recognize the barriers that are present.

Implications for Research, Practice, and Policy

Utilizing intersectionality as a framework to address PPD among Latinas adds an inclusive perspective that serves to unpack the layers of oppression within their social locations. Incorporating intersectionality to examine the perinatal mental health outcomes among Latinas can aid in further developing research, practice, and policy. The use of this theory magnifies the interaction between the individual, social, cultural, and sociopolitical context. It shows that Latinas both Spanish and English-speaking encounter various levels of structural and contextual aspects, whereby examining the historical and societal context is necessary. Encompassing the intersections in the research can further develop practice and inform policy to provide holistic, adequate care for Latinas who may be at risk of PPD.

Research Implications

Implementing a multifaceted view of risk and protective factors with PPD among Latinas could reveal the structural factors that may be present. Utilizing intersectional perspective can help unpack additional barriers within familial, cultural, and structural contexts. Prior research that has viewed depressive symptoms among Latinas has sought to include social support as a

protective factor, yet a theoretical linkage that seeks to view the macro level factors have been scarce. Researchers should seek to critically incorporate theory and research to analyze the intersections of factors (Knapp, 2009). Dialogically theorizing by including theories of social support and networks with intersectionality could aid in understanding risk and protective factors with structural influences. Future research should investigate the use of social support among partner, family, friends, and community, as well as racial discrimination and stressors that may relate to PPD outcomes among Latinas. The cultural factor of familismo should be examined through the support received from family so as to view how it may differ by levels of acculturation. Social networks, from those other than family, should also be explored. Although social support has been measured, the differences in levels of acculturation that may influence the availability of social networks for Latinas during the perinatal period should be studied. Noting if there are differences can further develop interventions for Latinas.

Additionally, the incorporation of acculturation is necessary to understand how there may be differences by levels of acculturation. Language as a proxy has been used and future multidimensional measures of acculturation could help clarify the intersection of acculturation with risk and protective factors. Lastly, future research should seek to incorporate additional risk factors, such as discrimination and traumatic experiences related to migration, birth experience, and relationships, as these could also be potentially intersecting with the postpartum experience.

Practice Implications

The literature leads to a recognition of institutional barriers that Latinas face during the postpartum period. Latinas are less likely to seek services when roadblocks, such as no insurance, lack of transportation, and problems with cultural barriers, impede them from receiving proper care (Callister et al., 2011). Women who score high in postpartum depressive

symptoms and who have Medicaid are less likely to go to therapy (Kozhimannil et al., 2011). Providers should be cognizant of the barriers that women may experience at a structural level and should look for ways to better implement outreach activities and services, as anti-immigrant policies may affect participation among Latinas. Also, it is necessary to incorporate a holistic view of services so that women are provided with proper services and culturally relevant options. Though services are set in place to assist women, follow-up care could be further developed to include evidence-based interventions for pregnant and postpartum women. Services such as home visiting programs are helpful to women and incorporating evidence-based interventions could assist in providing wrap around service to address PPD risk and inform women of cognitive behavioral interventions (Tandon et al., 2018), as well as increase support (Hans et al., 2018). Additionally, providers should offer quality care by having culturally diverse staff who speak the native language of their patient or utilize an interpreter service, which could help inform women of support services prior to leaving medical settings.

Policy Implications

Recognizing that intersections of risk and protective factors with barriers are prevalent among Latinas, it is necessary to consider the policies that have been in place with maternal mental health. First, funding to help increase research and culturally relevant services should be added as this may assist in addressing the goal of lowering the risk of PPD. Also, when seeking to close the mental health disparity gap, tools such as screening need to be implemented in various settings, especially when recognizing that a high percentage of follow-up care is inconsistent (CDC, 2007). Screenings should be implemented at different settings and should include child wellness and postpartum visits (Mgonja & Schoening, 2017; Van der Zee-van den Berg et al., 2017). Hence, a collaboration between pediatricians and obstetrics may help close the

screening gap (Ko et al., 2017). Including a follow-up care plan with the policy can assist in referring women to proper services and offer comprehensive care. Currently, the law in the state of New Jersey, for example, mandates screening and has provided services to assist women (An Act Concerning Postpartum Depression and Amending, 2006). Other states have sought to include screening as well, but it may not include a comprehensive follow-up care plan (Rowan et al., 2015). Studies suggest that screening with a follow-up care plan may be instrumental in supporting new mothers and families (Farr et al., 2014; Palumbo et al., 2017). The policy should also include a follow-up care plan after screening so that women are properly referred to services.

Conclusion

The use of intersectionality provides a comprehensive view of the risk and protective factors associated with PPD among Latina immigrants. Major theoretical frameworks have placed the onus on the individual rather than the institutional structures of power (Gee & Ford, 2011). Social structures, such as government, labor market, and families create levels of disadvantage or privilege in which Latinas may be categorized (Bowleg, 2012; Mollard, 2014; Viruell-Fuentes et al., 2012). These social locations, which are created by these systems of power, may place Latinas in vulnerable positions as they may encounter a series of barriers that could intersect with their mental health. Latinas encounter a series of structural barriers that limit their ability to advance economically, which may increase the number of stressors experienced by this oftentimes disproportionately vulnerable population. Therefore, when seeking to understand the intersection between social support, discrimination, and cultural factors such as *marianismo* and *familismo*, it is critically important to incorporate intersectionality as it includes interlocking systems of power with socially constructed identities (Torres, Mata-Greve, Bird, et

al., 2018; Viruell-Fuentes et al., 2012). Taking into account the protective factors specific to Latinas could assist in developing and enhancing current interventions that may aid in understanding and addressing PPD risk among Latinas.

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CHAPTER III

Exploring the Interaction of Social Support, Racial Discrimination, and Acculturation with Postpartum Depression: An Analysis of the 2012-2014 NYC Pregnancy Risk Assessment Monitoring System Among Latinas

It is estimated that an approximate 10% of pregnant and 13% of postpartum women may experience depressive symptoms globally (World Health Organization, n.d.). In the United States, one in every seven women experience postpartum depression (PPD) (Wisner et al., 2013; Centers for Disease Control and Prevention [CDC], n.d.). These numbers rise among Latinas (Shellman et al., 2014), and are alarmingly high as the percentage is doubled in immigrants when compared to the general population (Collins et al., 2010; Lucero et al., 2012). Taking a closer look at PPD risk among Latinas is necessary as Latinos represent 18.5% of the nation's total population, with a total of 60.6 million residents, making them the nation's largest ethnic/racial group (United States Census Bureau, 2020). Although births have slightly declined among immigrants, half of all live births from foreign-born women in the United States were by Latinas. U.S. born Latinas account for 17% of live births, which increased by 10% from 2000 (Livingston, 2019). Considering that a developmental objective for postpartum health and behavior in *Healthy People 2020* is to decrease the percentage of women who experience depressive symptom (U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion [HHSODPHP], 2019), it is crucial to understand PPD among Latinas as they may be at disproportionate risk of developing PPD than their nonminority counterparts.

Researchers that have examined the prevalence of PPD have found that a variety of additional factors should be considered when including immigrant samples (Ganann et al., 2019;

O'Mahony & Donnelly, 2013) and a need to include more Latinas in perinatal research is necessary (Lara-Cinisomo, Wisner, Meltzer-Brody, 2015). Incorporating an intersectional framework can assist in providing a deeper understanding of the relationship among risk and protective factors that are particular to Latinas. In studies with small samples of immigrants, the occurrence of depressive symptoms increases (Lucero et al., 2012; Shellman et al., 2014). Researchers that examined a large dataset from the Pregnancy Risk Assessment Monitoring System (PRAMS) with participants from thirty states indicated that among women of diverse racial and ethnic backgrounds, there were differences in PPD prevalence. In particular, they found that American Indian/Alaska Native women had the highest prevalence of PPD prevalence, while Latinas and Asian/Pacific Islanders had the lowest (Mukherjee et al., 2016). This study found that there were differences by race and ethnicity, however, differences have not been found with other diverse samples.

Findings from another study that used a New York City PRAMS dataset with a large sample had different outcomes, however, as the prevalence of PPD symptoms among foreign-born women did not significantly differ by race/ethnicity (Liu et al., 2017). These findings by Liu and colleagues (2017) indicated that nativity was not related to postpartum depressive symptoms. They argued, instead, that exposure to an increased number of prenatal stressors (e.g., frequent arguments and financial strains), identified by Latinas, increased risk, and factors related to social support required further exploration. Additionally, the measure of depressive symptoms may vary as depressive symptoms among Latinas may be expressed as somatic symptoms (Lara-Cinisomo, 2020). Taking into account the exposure of various stressors, an intersectional view of factors related to social support, racial discrimination, and stressors are particularly salient for Latinas who might be at heightened risk of experiencing PPD.

Literature review

Common symptoms of PPD are feelings of sadness, fear, inadequacy, hopelessness, and guilt, as well as intrusive thoughts and change in appetite (Patel et al., 2012; CDC, 2019). Symptoms may last for up to the first year postpartum, and established research has linked maternal depressive symptoms with poor maternal and child bonding (Boyd et al., 2006; Dau et al., 2019; Hornstein et al., 2006; Huang et al., 2010; Slomian et al., 2019), as well as disruption of the infant's social, cognitive, and behavioral growth (Kingston et al., 2012; Brummelte & Galea, 2016; Nylén et al., 2006; Leis et al., 2013). Exploring the interaction of stressors among Latinas during the perinatal period is critical as they may encounter intersecting factors that may increase vulnerability to PPD. Risk factors pertaining to financial hardships (Liu et al., 2016), lack of social support, (Hurtado-de-Mendoza et al., 2014), and stress related to status (Zapata Roblyer et al., 2017) have been identified. Latinas may experience a series of stressors during their pregnancy and in the postpartum period that relate to both individual and macro level factors, which may compromise their emotional well-being. Considering the sociopolitical climate in the United States is necessary, as an increase of stringent immigration policies and hostility toward Latinos have been reported (Ayón et al., 2017; Gurrola & Ayón, 2018). Therefore, examining how risk and protective factors of social support, racial discrimination, and acculturation intersect among Latinas is imperative.

Racial Discrimination

Discrimination has been defined as the unequal or indifferent treatment of a person or a group of individuals solely based on a socially created attribute or perceived trait (Quillian 2006). Experiencing discrimination has been correlated with adverse maternal and child health outcomes among Latina and African American women (Braveman et al., 2017; Bower et al.,

2018; Dominguez et al., 2008; Molina et al., 2013; Mehra et al., 2017; Wallace et al., 2017).

Daily exposure to racial discrimination has been linked with low birth weight, preterm birth, and comparative small size for gestational age among African Americans. Different outcomes among Latinas have been found. Some studies indicate that less acculturated Latinas may have less low birth weight infants compared to more acculturated Latinas (Alhusen et al., 2016; Hoggatt et al., 2012), while other studies revealed no differences by levels of acculturation (Leslie et al., 2006). Racial discrimination from institutions place Latinas in precarious situations, which may result in increased levels of isolation, employment mobility, and unequal treatment, as well as a decreased level of opportunities and overall well-being (Mendez et al., 2013; Williams, 2018).

Though this study used the concept of racial discrimination to examine perceived racial discrimination among Latinas, it is necessary to recognize that it may differ within groups. The term Latina is a socially constructed term that has been created to categorize ethnicity, thus, women may self-identify as Latinas, but vary in the race categories. The complexity of these socially constructed concepts reveals how society has historically classified people, which could have negative implications (Chavez-Dueñas et al., 2014). For instance, discrimination may be experienced by Latinas due to ethnicity and race categories, and research has found that there is systemic unequal treatment based on colorism (Adames et al., 2016; Findling et al., 2019; Uzogara, 2018). Among Latinas, perceived discrimination has been positively related with deteriorated well-being (Araujo, 2009). Yet, not much research has sought to incorporate racial discrimination and acculturation with postpartum depressive symptoms. The inclusion of perceived racial discrimination among Latinas has not been examined to a large extent with PPD. It is for this reason that further exploration is necessary.

Racial discrimination served as a strong predictor of depressive symptoms among Mexican American and young immigrant women that had few years of education. In-fact, the strongest predictor for PPD was high frequency of discrimination, whereas acculturative stress was not significant (Walker et al., 2012). Also, women of lower socioeconomic status in inner cities may be at a disadvantage due to lack of resources and financial hardships (Bennett et al., 2010). Latinas who are less acculturated and who are Spanish speaking may have difficulty with upward mobility, resources, and structural barriers, all of which, when encountered, may continue to impact their postpartum experience.

Reports of demographic trends of U.S. postpartum Latinas reveal that a high percentage of people that self-reported income below the federal poverty threshold were among women from Honduras (49%), Guatemala (48%), Mexico (48%), Puerto Rico (42%), El Salvador (37%), and Dominican Republic (36%) (Livingston, 2016). The percentages note that about half of the women from these regions had income levels that were below the federal poverty threshold. Women with low socioeconomic status (low monthly income, less than a college education, unmarried, unemployed) have increased risk of depressive symptoms during pregnancy and after giving birth (Goyal et al., 2010). Incorporating racial discrimination to view the prevalence of PPD is necessary, as the sociopolitical context has increased policies that are stringent toward immigrants. Additionally, including acculturation to examine postpartum adjustment can assist in determining if there may be differences in risk and protective factors by levels of acculturation.

Acculturation

Acculturation has been defined as the process of adapting/adjusting to the host country by adopting or separating from beliefs, values, and behaviors of the dominant culture (Berry, 1997). The Latino paradox concept proposes that immigrant Latinos may have better health outcomes

initially when arriving in the United States, though their health may decline with longer exposure to the host country. Latinos encounter political, historical, and societal forces that may place them at high risk (Caplan, 2007). Latinas who arrive in the United States may be separated from close relatives, have diminished support from those in their community, and may come in contact with racial discrimination and structural barriers (Caplan, 2007). Additionally, they may encounter trauma in their migration experiences, which can intersect with their emotional well-being during the perinatal period (Lara-Cinisomo et al., 2019). Exploring the relationship between acculturation, PPD, and racial discrimination is essential to understanding the risk and protective factors among Latinas.

Studies suggest that the use of acculturation as an intersecting factor with perinatal health among Latinas has increased. An early review of literature conducted by Beck (2006) had a total of 16 studies in which acculturation was examined with birth weight (8 studies), breastfeeding (4 studies), and PPD (4 studies) with Latina samples. Findings revealed inconsistent outcomes due to the measures used for acculturation. Proxies of language, nativity, or years of residence have been used, and considerations for a multidimensional measure of acculturation have been advised. In a more recent review of literature that examined PPD and acculturation among Latinas, only seven studies explored the relationship of PPD and acculturation (Alhasanat & Giurgescu, 2017). Results were similar to previous studies as findings were inconsistent. While five studies reported that higher acculturation was related to increased levels of depressive symptoms (Davila et al., 2009; Heilemann et al., 2004; Kuo et al., 2004; Martinez-Schallmoser et al., 2003; Sumner et al., 2012), other studies reported that no differences were found with regards to acculturation (Beck, 2006; Valentine et al., 2011).

The proxy measure of language preference has also been commonly used. Researchers have found that Latinas who filled out surveys in Spanish were considered to be less acculturated (Ahluwalia et al., 2012), while Latinas who completed surveys in English were considered highly acculturated (Sebastian et al., 2019). Language acquisition may reveal the level of assimilation to a new country. A Pew study found that Latinos who speak, read, and write English may be more likely to have less traditional beliefs and attitudes when compared to their Spanish-speaking counterparts (Pew Research Center, 2004).

Although some studies indicate that low use of the Spanish language was correlated with depressive symptoms (Davila et al., 2009, Martinez-Schallmoser et al., 2003), other studies revealed that language was not related to PPD (Beck et al., 2005; Heilemann et al., 2004; Valentine et al., 2011). It is also said that Latinas who are U.S. born, single, pregnant, and prefer English are more likely to express that they are depressed during the postpartum period (Davila et al., 2009). The proxy measure of language may provide insight on the levels of acculturation through language preference; especially when utilizing large datasets as there may be limitations on the questions asked, making the implementation of this measure appropriate. Utilizing this measure to understand the association with risk and protective factors could provide a deeper understanding among Latinas. Given the varying outcomes, research must be expanded to examine the relationship between acculturation and PPD, as well as how structural factors related to immigration policies, lack of resources, and minimized support intersect with Latinas. Also, accounting for the levels of acculturation with the protective factors of familismo and social support could assist in developing a deeper understanding between the risk and protective factors associated with PPD.

Familismo and Social Support

Familismo is a cultural value of knitted social support that has been viewed as a protective factor among Latinos. It is defined as the social support received from the family members or kin in which feelings of loyalty, reciprocity, and solidarity are expressed (Marín & Marín, 1991). The construct of familismo has been described as encompassing attitudinal and behavioral support with close family members and kin. Attitudinal support refers to feelings of familial interconnection and reciprocity, whereas behavioral support refers to the behaviors displayed by family, such as help with childcare (Calzada et al., 2012). Support from those within the family, such as parents and family members, have been identified as close to the innermost circle of support, especially among Latinos (Fuller-Iglesias & Antonucci, 2015). For instance, during the postpartum period, support with baby care and positive reinforcement with parenting practices from grandmothers have been helpful among Latinas (Turnbull-Plaza et al., 2006). Thus, when examining PPD risk among Latinas, it is necessary to view the support received from family as research on PPD shows that risk factors associated with stressors and limited social support can increase the likelihood of PPD (Salm Ward et al., 2016). However, among women who report to have a large number of stressors, the perception of social support, expressed through the cultural value of familismo, may serve as a mediator (Zapata Roblyer et al., 2017). When considering acculturation, social support, and depressive symptoms, outcomes may vary (Clark, 2001). The sources of support among Latinas may differ depending on their level of acculturation. More acculturated Latinas may adapt American norms, which could increase family conflict and decrease the use of familismo as a protective factor (Bostean & Gillespie, 2018; Calzada et al., 2012). Therefore, examining the sources of support may provide

a clearer picture as to how women may or may not receive support from family members and those within their social network.

Specific to less acculturated Latinas, the sources of support may differ as women settle in a new country in which they may have limited relationships with relatives or family due to demanding work schedules or distance (Bathum & Baumann, 2007; Hurtado-de-Mendoza et al., 2014; Ornelas et al., 2009; Callister et al., 2011). Among less acculturated Latinas, the use of support from close friends or comadres was most helpful, and the need for social support increased for women in this study who identified having less instrumental support and more conflict with their partners (Martinez-Schallmoser et al., 2003). Sources of support may include their partners (Parrado et al., 2005; Stapleton et al., 2012), visiting nurses, home visiting workers (Negron, et al., 2013; Tran et al., 2012), or faith-based entities (Kim & Dee, 2016; Ornelas et al., 2009). Support may be found from numerous sources in the community, and it is important to consider the perception of and/or dissatisfaction with the support. Dissatisfaction with the support received from the partner (Hassert & Kurpius, 2011), family, or friends has been related with an increased risk of depressive symptoms (Sheng et al., 2010), while a satisfied perception of support may mitigate outcomes (Coburn et al., 2016). Additionally, the cultural value of familismo may differ by levels of acculturation. Among women who endorse a more traditional female role, the lack of support may serve as a predictor for PPD symptoms (Albuja et al., 2017). The role of social support among less acculturated Latinas may serve as a protective factor, as identified members may aid women in adjusting during the postpartum period, especially when family member support is limited. But, women may also encounter barriers when trying to establish close knitted friendships with others (Callister et al., 2011; Clark, 2001; Hurtado-de-Mendoza et al., 2014; Ornelas et al., 2009).

Studies that included more acculturated Latina samples found that they tend to have sources of support that included their partner, family (Reid & Taylor, 2015; Stapleton et al., 2012; Campos et al., 2008), and friends, which could serve as a protective factor against depressive symptoms (Kim & Dee, 2016; Surkan et al., 2006). Faith-based organizations have also been reported as a source of social support, though consideration for acculturation has been noted (Keefe et al., 2016; Kim & Dee, 2016). The use of acculturation when seeking to view sources of support and depressive symptoms among Latinas may reveal the similarities or differences within groups. Several studies that examined the relationship between social support, risk factors, and PPD symptoms mostly included Non-Hispanic White samples with only small subsets of Latinas (Banker & LaCoursiere, 2014; Howell et al., 2005; Stapleton et al., 2012; Stone et al., 2015; Horowitz et al., 2005; Yvette LaCoursiere et al., 2011). When Latinas are included, the differentiation within groups or use of acculturation proxies have not been reported (Keefe et al., 2016; Kim & Dee, 2016; Pao et al., 2018; Reid & Taylor, 2015; Campos et al., 2008) due to small samples or the emphasis on diverse groups, as opposed to within groups. In other studies that have examined PPD symptoms and include larger Latina samples, the inclusion of acculturation (Kim & Dee, 2016; Pao et al., 2018), discrimination (Pao et al., 2018), or both discrimination and social support differences within Latina groups were not explored (Ceballos et al., 2016).

The relationship between more acculturated Latinas, social support, and depressive symptoms may differ as some have reported no association with family cohesion and social support with depressive symptoms (Campos et al., 2008; Zapata et al., 2017). Possibly the endorsement of traditional or American-centered ideals may intersect with outcomes, especially as more acculturated Latinas may need to negotiate biculturalism (Albuja et al., 2017; Benet-

Martínez et al., 2002). Compared to their White and African American counterparts, Latinas may have less support from partners (Pao et al., 2018) and those in their social network (Unger & Molina, 2000; Zayas et al., 2003). When examining sources of support and acculturation, different outcomes have been reported as some may identify supportive networks, while others may have unstable sources of support (Clark, 2001; Liu et al., 2017). Noting that more acculturated Latinas may report experiencing depressive symptoms in the postpartum period (Alhasanat & Giurgescu, 2017; Heilemann et al., 2004; Yonkers et al., 2001), a need to study the sources of support by acculturation is necessary (Davila et al., 2009). Latinas may be lumped into one group due to small samples or, if included, the distinction by acculturation may not be reported. This can make it difficult to distinguish if there are differences within the group. In order to explore the sources of support, risk factors, and PPD symptoms, it is imperative to examine the intersecting factors that both Spanish and English-speaking Latinas may encounter, as macro level risk factors may intersect with the outcomes. Examining the within group differences among Latinas may assist in further untangling the differences in findings. Researching the sources of support by acculturation may aid in a deeper understanding of the intersection between familismo, acculturation, risk factors, and PPD symptoms.

Sociopolitical sentiments toward marginalized communities have become more hostile and structural forces may intersect, impacting how Latinas utilize social networks and help seeking. The policies have negative outcomes in help seeking among Latinas, and at times the support received from community organizations may be one of the already limited social networks. Policies have an influence on families, and the use of informal social networks may help mitigate or buffer the use of resources (Figlio et al., 2015). Spanish-speaking Latinas who may receive services by Women, Infant and Children (WIC) may be more likely to express

feelings of anxiety and depression (Cordero & Kurz, 2006). WIC participating Latinas that are less acculturated may have diminished social support networks, and policies may impact their seeking services. Women may not apply for services for their children (Fomby & Cherlin, 2004) due to fear of immigration policies and mistrust of the government (Allen & McNeely, 2017; Rhodes et al., 2015). Considering macro level risk and protective factors associated with PPD with the level of acculturation could provide a deeper understanding of how these factors may intersect among Latinas.

Discrimination, Acculturation, Social Support, and PPD

Literature in the field of maternal and child health has extensively examined risk and psychosocial factors (Abdollahi et al., 2014; Banker & LaCoursiere, 2014; Diaz et al., 2007; Goyal et al., 2010; Liu et al., 2016; Nunes & Phipps, 2012; Salm Ward et al., 2016; Stone et al., 2015; Zachariah, 2009), biological contributors (Amiel Castro et al., 2018; Figueiredo et al., 2015; Massey et al., 2016; Patel et al., 2012), and proposed theories and frameworks (Beck, 1993; Beck, 2002; Lara-Cinisomo, Girdler, Grewen et al., 2015; Posmontier & Waite, 2010; Stevens et al., 2018) that view the prevalence of PPD. The considerations for diverse populations and the incorporation of factors that account for racial discrimination have to be examined as these have not been studied to a large extent (Luis Sanchez et al., 2020). Additional studies are needed to examine the similarities and differences of acculturation among Latinas (Lara-Cinisomo, Girdler, Grewen et al., 2015), especially as Latinas may have an increased risk of experiencing PPD compared to the general population (Diaz et al., 2007; Lucero et al., 2012).

Accounting for the heterogeneity among Latinas is necessary, as there may be differences by levels of acculturation (Martinez-Schallmoser et al., 2003). Encompassing the intersecting factors of discrimination and cultural values, such as familismo, throughout the perinatal period

enables a more contextualized examination of the unique factors among Latinas residing in the United States. Among more acculturated Latinas, the sources of support may differ due to biculturalism and American influence. The practice of cultural values, such as familismo, may decrease as women adapt the Euro-centric values of being independent and more individualistic, which may increase conflict with family members and partners (Benet-Martínez et al., 2002; Bostean & Gillespie, 2018). The use of an intersectional framework to explore the factors of acculturation, social support, and discrimination needs to be incorporated among Latinas. Incorporating a large sample of Latinas to explore the risk and protective factors may help identify the cultural protective values that could aid in developing culturally sensitive interventions and care for a population that is disproportionately disenfranchised and often overlooked. By including an intersectional lens, this study provides an inclusive and critical examination in order to achieve mental health equity, as well as connect concepts and methods (Smedley & Myers, 2014) that view macro level risk factors and protective factors with PPD among Latinas. This study seeks to add to the body of literature by exploring the risk factors of racial discrimination with depressive symptoms, as well as the protective factor of familismo, which was examined through support received from family members with other sources of support.

Adapting an intersectional critical lens to explore the postpartum adjustment and PPD outcomes among Latinas assists in shifting the focus from the individual to the macro level forces that may interfere with well-being (Stevens et al., 2018). This research has adapted theoretical frameworks that have significantly emphasized individual aspects, such as biological factors (Yim et al., 2015.), attachment with those closest to the mother (Misri et al., 2000), and psychosocial factors (Horowitz et al., 2005), that have not commonly included macro level

influences. The previous literature has helped advance the field and obtain a deeper understanding of the possible development and risk of PPD, yet the diversity within the samples need to be examined as studies that include Latinas have a low percentage of participants (Hackney et al., 2020). For instance, the discourse regarding acculturation and those who are considered to be less acculturated have to be examined through an intersectional lens to incorporate the societal contexts that women and their families may be positioned in.

The inclusion of racial discrimination to examine health outcomes among communities of color ought to be consistently included when examining PPD among Latinas, especially as it has been associated with negative health outcomes when examining the birth outcomes among African American women and Latinas (Almeida et al., 2014; Horevitz & Organista, 2012; Johnson & Marchi, 2009; Vigod et al., 2010; Wheeler & Bryant, 2017; Leslie et al., 2006). Adequate health care is crucial to prenatal and postpartum well-being, yet many women of color may feel they are not receiving adequate care, hence the need to study systemic structures and exposure to racial discrimination (DeMarco et al., 2008; Scott et al., 2019). The policies and negative rhetoric toward Black, Indigenous, and people of color have been correlated with an increased report of racial discrimination and xenophobic experiences among both foreign-born and U.S. born Latinas (Ayón et al., 2017; Cano et al., 2016). Therefore, it is of critical importance that the postpartum experience of Latinas residing in the United States be explored.

Though the inclusion of racial discrimination with other public health concerns have been studied among Latina samples, the use of this risk factor has not been commonly added with acculturation to explore PPD risk among Latinas (Luis Sanchez et al., 2020). It is necessary, if not imperative, that racial discrimination be closely examined during the postpartum period

among Latinas as it accounts for the societal contexts of race, class, and gender that may intersect with the risk of developing PPD.

Furthermore, this research examined the protective factor of familismo and social support with the use of the convoy model of social networks. This framework was adapted as it has been used to examine the type of support networks and support received throughout the lifespan, and it incorporates the life course and role theories to explore social relations (Kahn & Antonucci, 1980). The model has been used in the past to examine the interactions between individuals and their well-being (Antonucci & Akiyama, 1987), as well as used to explore social support with older Latino samples (Fuller-Iglesias & Antonucci, 2015). Usually the model is used to study the types of support within the convoy levels and how these may change throughout the life span. For the purposes of this study, however, the convoy model was used to examine the level of support from partner, family, and community, which was viewed through home visitor and community support factors.

Theory

The theory of convoy model of social networks was used in this study, incorporating the social support provided by husband, family, friends, or others that may serve as moderators to the mother's well-being (Kahn & Antonucci, 1980; Antonucci & Akiyama, 1987). This theory was used to include sources of support received. To operationalize the concept of familismo, the support from family was examined. The major tenets of this theory are that of roles and convoys. The convoy model emphasized three overlapping circular layers that are influenced by roles and contexts (Antonucci et al., 2004). Each layer accounts for the level of support with the most supportive individuals being in the first layer and the least supportive being in the third outermost layer. The transition of support among these circles differ according to the transition

in roles; those within the outermost circle are more fluid and change with alteration in roles, while the support received from the inner most circle is less fluid (Kahn & Antonucci, 1980). Among Mexican Latinos the sources of support were mostly identified with family and friends (Fuller-Iglesias & Antonucci, 2015). For the purpose of this study, the convoy model of social networks was adapted as a theoretical framework to examine the sources of support (partner, family, and community) received among Latinas in relation to depressive symptoms. It did not measure the number of supports, but rather explored the relation between sources of support and their relation to postpartum well-being. Also, intersectionality as a theoretical framework was used as it incorporates the matrices of domination of race, gender, and/or class that intersect and oppress marginalized populations (Andersen & Collins, 2013). Research has to account for oppressive forces that Latinas may face at the individual, cultural, and structural level.

Incorporating an intersectional lens to examine the risk and protective factors with postpartum depressive symptoms may aid in accounting for macro level factors that intersect with the care and well-being of Latinas.

The aim of this study was to analyze the relationship between social support (partner, family, and community), acculturation, and racial discrimination with self-reported depressive symptoms among Latinas. A secondary analysis was conducted utilizing the Pregnancy Risk Assessment Monitoring System (PRAMS) from New York City. The principal goal of this study was to examine the following:

RQ1: Is there a difference in the sources of support (partner, family, and community), racial discrimination, and risk factors by acculturation that predict depressive symptoms among Latinas?

H1: There will be no difference in the types of social support from partner, family, and community or in risk factors by acculturation among Latinas with depressive symptoms.

H2: Types of social support from partner, family, and community will vary by acculturation, and those with less social support and increased risk factors will have positive relationship depressive symptoms.

RQ2: What is the interaction between racial discrimination, social support (partner, family and community), and acculturation on self-reported depressive symptoms among Latinas?

H1: There will be no change in self-reported depressive symptoms among Spanish and English-speaking Latinas. The level of support and risk factors will not interact with depressive symptoms.

H2: Racial discrimination will have an interaction with depressive symptoms among Latinas.

H3: Social support in all three layers of partner, family, and community will have an inverse interaction with depressive symptoms and will differ by acculturation.

Methods

This study used quantitative secondary analysis of city-specific, population-based data, which viewed maternal beliefs and experiences before, during, and after pregnancy. The data was obtained from the New York City Department of Health and Mental Hygiene. The Pregnancy Risk Assessment Monitoring System (PRAMS) survey is a dataset gathered by the Centers for Disease Control and Prevention (CDC), which collected data from 40 states, including New York City (NYC), in 2012. This data represents 75% of all U.S. live births (Bureau of Maternal, Infant and Reproductive Health, n.d.). The data was obtained through a data sharing agreement with the New York City Department of Health and Mental Hygiene. The

dataset provides a continuing, multistate, and population-based surveillance to track the health outcomes during pregnancy and postpartum periods (CDC, 2016).

Sample

For this study, data from phase seven was obtained from the 2012 to 2014 NYC PRAMS. The NYC PRAMS data continues to be collected and collection initiated in 2001. Datasets were obtained each month from women who had delivered within the past 2-4 months. PRAMS oversampled women from groups to make sure that sufficient data was collected from smaller populations. Women who delivered low birth weight infants (<2500 grams) were oversampled to ensure that adequate datasets were collected. The PRAMS data were weighted to be representative of the NYC residents who gave birth in New York City for that given year. The final dataset contained information extracted from birth certificates, which included demographic data, clinical data from the mother, as well as infant data, all of which were linked to the questionnaire responses.

The total number of participants who responded to the NYC PRAMS survey from 2012 to 2014 were 4,244 women. During these years, there were a total of 6,282 women contacted to participate of which 66% to 71% responded. Women that participated in the survey represent less than 2% of the total number of women that delivered a live birth at that time. Two years of NYC PRAMS (2012-2014) survey data was combined to get an effective samples size for the particular sample of Latina/Hispanic mothers used in this study. The total sample used for the analysis was N=1360, in which Spanish-speaking (N=663) and English-speaking (N=697) samples were used separately. Per CDC guidelines, the data met the response rate threshold of 60%, which was the threshold indicated for the year 2012 (CDC, 2019) to release data. The survey was limited to New York City as it was one of 11 states that included an item in the

survey that asked whether women experienced racial discrimination. New York City was selected, in particular, due to its general population of Latinos accounting for 29.1% (U.S Census Bureau, n.d.) of the city's population. In New York City, the Latino population is higher than any other state/region that measured the item of racial discrimination. Furthermore, New York City is considered to be one of the metropolitan areas in which Latino immigrants have predominantly settled, with the highest concentrations found in New York City, Newark, and Jersey City (4.8 million) (Pew Hispanic Research, 2016). Due to the high number of Latinos, it was, therefore, appropriate to use the NYC PRAMS dataset for this study. The samples that were analyzed for this research were limited to self-identified Latina/Hispanic women who completed the questionnaire in both Spanish and English. Though it recognizes that Latinas represent a diverse group, due to secondary analysis limitations, this study measured acculturation through the proxy measure of language preference.

Measurement

The questionnaire had several parts in which core questions (total of 59 core items) and standard items were included, as well as self-selected state/city developed questions, which may be added to the survey. The CDC has developed a total of 200 standard questions that include core topics of interest of which states/cities could choose to include these in their survey. State level questions, which are questions developed by states, cover topics that are not included in core or standard questions (CDC, 2018a). The state questions were developed, picked, and pre-tested by the states/cities on their own and were approved by the CDC to be included in the PRAMS questionnaire (CDC, 2018b).

Specific measures such as Medicaid payment of delivery and WIC participation in the PRAMS survey have also been reported to be reliable and valid. Reliability has been reported to

have a Kappa value of 0.81 for WIC participation and 0.67 for Medicaid payment of delivery questions (Ahluwaia et al., 2013). Validity measures for Medicaid payment had sensitivity at 82% and specificity at 85.6%, whereas for WIC participation, sensitivity was 90.8% and specificity was 90.6% (Ahluwaia et al., 2013). Additionally, several questions from the PRAMS survey, used to measure maternal and child health, have been moderately valid, as can be seen in the following: Medicaid insurance (sensitivity = 95.3% and specificity = 93.2%), breastfeeding in hospital (sensitivity = 86.3% and specificity = 96.1%), preterm labor (sensitivity = 51.8% and specificity = 89.3%), and placenta previa (sensitivity = 47.6% and specificity = 97.3%) (Dietz et al., 2014). Researchers O'Hara and colleagues (2012) have also examined the validity of two questions that were used to measure PPD (sensitivity = 87% and specificity = 62%). The study by Gjerdingen and colleagues (2009) used two core questions and PH-Q-9 to screen for PPD. Researchers found that the two questions had 100% sensitivity for identifying PPD and encouraged providers to implement these, as well as include further screening for those that had a positive score for PPD. The version of the NYC PRAMS phase seven questionnaire can be found in Appendix A.

Postpartum Depression (PPD) Measure

The dependent variable of PPD symptoms was measured with two core questions. The questions were: "Since your new baby was born, how often have you had little interest or little pleasure in doing things?", and "Since your new baby was born, how often have you felt down, depressed, or hopeless?" (CDC, 2018b). Response categories for both questions were: "Always", "Often", "Sometimes", "Rarely", or "Never". Researchers have suggested that women who respond "Often" or "Always" should be included in having self-reported depressive symptoms (Stone et al., 2015). For this study, the responses "Always" and "Often" were coded to represent

“yes” to depressive symptoms, while “Sometimes”, “Rarely”, and “Never” were coded to represent “no” to depressive symptoms (Mitra et al., 2014). Both questions were then used to create a PPD indicator via a dummy variable that is PPD based in which the outcome was coded as “0” if women answered “No” to both questions, and “1” if women answered “Yes” to either question. Additionally, reliability and validity for the two questions were tested by O’Hara and colleagues (2012) who found that the two items included in the PRAMS can effectively screen for PPD. This method has been used in other studies that measure PPD symptoms (Stone et al., 2015; Salm Ward et al., 2016).

Discrimination Measure

The questionnaire item that was used to measure racial discrimination asked if the participant felt upset by the discrimination they experienced. The question was: “During the 12 months before your new baby was born, did you feel emotionally upset (for example, angry, sad, or frustrated) as a result of how you were treated based on your race?” Response categories for the question were binary, “Yes” or “No”. The question has been previously used to measure racial discrimination and preterm birth (Bower et al., 2018).

Acculturation Measure

For this research, acculturation, which is the process in which immigrants adjust to the mainstream culture (Escobar et al., 2000), was measured through language preference. Using language as a proxy indicator of acculturation, women who filled out the survey in Spanish were considered to be less acculturated as adapted by Ahluwalia and colleagues (2012), while Latinas who completed the survey in English were considered to be more acculturated (Sebastian et al., 2019). The variable of language preference has been previously used as a proxy to measure

(Alhasanat & Giurgescu, 2017; Davila et al., 2009; Sumner et al., 2012; Valentine et al., 2011) acculturation among postpartum Latinas.

Familismo and Social Support Measures

Social support was examined with three dimensions of support. This study examined support from partner, family, community (e.g., home visitor, religious community, friend, or other), or no support. To operationalize the construct of familismo, the support received from family was examined. In particular, the construct of familismo, which has been described as the behavioral support received from family for specific areas, such as financial support or help with daily activities, was used (Calzada et al., 2012). The question used to examine family, friend, and community support was: “During your most recent pregnancy, who would have helped you if a problem had come up? For example, who would have helped you if you needed to borrow \$50 or if you got sick and had to be in bed for several weeks?” The list of categories were: “My husband or partner”, “My mother, father, or in-laws”, “Other family member or relative”, “A friend”, “Religious community”, “Someone else”, or “No one would have helped me”. The responses of “My mother, father, or in-laws” and “Other family member or relative” were used to measure familismo. Another question that was used to measure support at the community level was: “During your most recent pregnancy, did a home visitor come to your home to help you prepare for your new baby?” Responses were binary, “Yes” or “No”.

Demographic and Additional Variables

Demographic variables and confounding variables that have been present in the review of literature were considered for analysis for this study. Variables of age, education, family income, and pregnancy intention were recoded. Maternal age (<19, 20-34, 35 and older), education (<12 years, 12 years, >12 years), income status (poverty <\$22,000, low-income \$22,001-\$44,000,

<\$44,000), Medicaid as payment method for delivery (Medicaid or other), history of depression, enrollment in WIC during pregnancy, plurality, and race were also included. Pregnancy intention was measured with the question: “Thinking back to just before you got pregnant with your new baby, how did you feel about becoming pregnant?” Responses included: “I wanted to be pregnant later”, “I wanted to be pregnant sooner”, “I wanted to be pregnant then”, “I did not want to be pregnant then or in the future”, and “I was unsure”. Response coding was guided by previous literature resulting in responses being recoded as intended (wanted to be pregnant then or sooner), mistimed (wanted to be pregnant later), or unintended (not then or in the future, unsure) (Cheng et al., 2009; Fellenzer & Cibula, 2014; Salm Ward et al., 2016). Incorporating these variables could help understand how they may be related to mental health outcomes (Goyal et al., 2010; Mercier et al., 2013; Surkan et al., 2006).

Data Collection

All survey participants were randomly selected. Once chosen, a survey was mailed to selected participants within the second to fourth month postpartum. NYC PRAMS used two methods to collect data; the primary method was a survey mailed to women in English, Spanish, or Chinese (Bureau of Maternal, Infant and Reproductive Health, n.d.). If women did not respond to the initial survey, multiple follow-up mailings were sent with up to three copies. If there were no responses after the mailing attempts, women were then surveyed by telephone. The interviewed-administer questionnaire included the same questions that were asked on the survey (CDC, 2018b). This dissertation followed the protocols provided by the New York City Department of Health and Mental Hygiene, as well as Montclair State University Institutional Review Board.

Data Analysis Plan

Preliminary Data Analyses

The statistical analyses were conducted using IBM SPSS Statistics 26 and SPSS AMOS version 26. Data screening was included to measure the normality by examining the minimum and maximum values in which standard cut-offs of kurtoses were three, and skewness values was nearer to zero, as it indicated a normal distribution (Field, 2013). Furthermore, preliminary analyses were used to examine the assumptions of linearity, homoscedasticity, and multicollinearity. Linearity assumes a linear relationship between the predictor variables and the criterion, while homoscedasticity assumes that the scores are normally distributed in the regression line, which were examined through scatter plots (Vieira, 2017). Multicollinearity was examined through tolerance and variance inflation factor (VIF). The VIF examines the absence of multicollinearity in which the predictor variables are not well related (O'Brien, 2007). Therefore, recommendations of $VIF < 3$ was examined and explored (Hair et al., 2006; O'Brien, 2007). Tolerance reports the variance in a specific variable that is determined by another variable in the model, the tolerance at small levels (<0.10 , 10% or 0.25 , 25%) indicates predictors variance is not unique which could be problematic (Vieira, 2017). Descriptive statistics were used to examine the characteristics of the independent variables (racial discrimination; acculturation; and social support among partner, family, friends, community, and home visitor), dependent variable (self-reported depressive symptoms), and confounding variables (history of depression, education, age, plurality, income status, insurance payment for delivery, WIC, pregnancy intention). Cronbach's alpha was calculated to test the reliability and internal consistency of the variables (Liu et al., 2009). Bivariate analyses were used to evaluate the associations between PPD with each of the independent variables. Additionally, binary logistic

regression models were used to examine which variables predicted depressive symptoms among Spanish and English-speaking samples. To examine path analysis, structural equation modeling was then used to examine the association between the risk and protective factors obtained from the regression models in order to test their relationship with depressive symptoms.

Missing Data

In order to examine the patterns with the NYC PRAMS secondary data, the SPSS's missing value analysis was used. Patterns of missing at random, missing completely at random, or missing not at random was examined by the Little's MCAR test (Graham, 2009). An imputation method was then used for variables that met the imputation assumptions. Assumptions were that after amputation, data had to be large enough to obtain statistical power, and missing values were not larger than 5% of the data set values (Vieira, 2016). Several missing data techniques have been used in the psychology field, some of which include listwise deletion (Schlomer et al., 2010), expectation-maximization (EM), and imputation and multiple imputation (MI) (Vieira, 2017; Allison, 2002). The EM technique was adapted as it chose random values for the missing data and used these random guesses to create new data points for the missing data, which provided a better guess for the replacement values (Gupta & Chen, 2010). The technique was used when data was missing at random or missing completely at random, and assisted to estimate latent variables for which SPSS had the feature that helped include new replacement values (Vieira, 2017).

Exploratory Factor Analysis

An exploratory factor analysis (EFA) was then utilized as this study examined several variables that could be represented in underlying latent factors. An EFA was the most appropriate method for this study as the dimensions among variables were undetermined,

allowing for the exploration of patterns (MacCallum & Austin, 2000). The EFA method viewed the minimal number of factors that may account for covariation that are found in the observed variables (Byrne, 2016). In factor analysis, the relations among the variables were viewed through factor loadings, which indicated if there was a strong or low loading between items and the main factors (Byrne, 2016). The structure detection tests used were the Bartlett's test and Kaiser-Meyer-Olkin (KMO) measure. Outcomes were measured through criteria of eigenvalue, variance, scree plot, and residuals.

Prior to running the EFA, Bartlett's test (sphericity test) and KMO measure were conducted. Bartlett's test was used to verify if the variables correlate by checking the pattern of correlation matrix deviations from the matrix identity (Cleff, 2014). KMO measure was used to test the fit of the correlation matrix for factor analysis and is commonly recommended to be practiced before every factor analysis (Cleff, 2014). Rotating a factor solution was then applied to provide a more meaningful factor structure. There are two types of rotation: orthogonal (factors uncorrelated with each other) and oblique (factors correlated with each other) (Haig, 2018).

To determine the number of components to retain, Kaiser's rule was used, as well as examining scree plots (Thompson & Daniel, 1996). The reliable rule indicates that only components that have eigenvalues higher than 1 should be kept (Gie Yong & Pearce, 2013). Additionally, communalities of at least .70 were optimal, and when examining sample sizes that are larger than 250, a mean communality greater or equal to .60 has been recommended (MacCallum et al., 1999). A scree plot was used to view the magnitude of each eigenvalue. The scree plot graph indicated a "bend" which depicted how many factors were kept (Denis, 2018). In conjunction with the output provided from the factor analysis, the researcher decided the

number of factors to retain (Denis, 2018). An important aspect of factor analysis was to keep the structure simple, a term known as *parsimony*. The model included the minimum number of predictor variables, which were necessary to explain the model (Haig, 2018).

Binary Logistic Regression

A binary logistic regression analysis was used to address the first research question. Logistic regressions have been used in various fields, including maternal and child health (Pounds & Shostrom, 2018; Sebastian et al., 2019), to measure the directionality and strength of the relationship between variables. However, it is important to recognize that it does not indicate cause and effect (Viera, 2017). In particular, this analysis can accurately determine which independent variables predict the outcome or dependent variable (Vieira, 2017). For this study, a binary logistic regression was used to examine the independent variables of types of support from partner, factors of family support, community, and home visitor. Risk factor variables of racial discrimination, pregnancy intention, history of depression, participation in WIC during pregnancy, payment method with Medicaid for delivery, plurality, income, age, and education were also examined with the dependent variable of self-reported depressive symptoms, which was dichotomous. This method was appropriate to measure which variables predicted PPD self-reported symptoms, as the dependent variable was composed of two collapsed depressive symptom questions so as to create the measure of PPD self-reported symptoms, which had a dichotomous response of “no= 0” or “yes= 1”. To account for acculturation, the analyses were examined separately among Spanish-speaking and English-speaking Latina samples, which assisted in identifying whether there were differences by acculturation.

Binary logistic regressions can be used with categorical or continuous predictors, and unlike single regression models the binary outcome does not have to have a normal distribution

(Goldstein, 2006). The predictors are examined in one block to test which predicts the outcome while controlling for effects of the other predictor variables (Vieira, 2017). The assumptions for binary logistic regression models are that data is independently distributed and cases are independent. A linear relationship between independent variables and dependent variables are not necessary, however, it assumes linearity among independent variables and log odds (Tabachnick & Fidell, 2012). The outcome should be discrete and dichotomous, and predictor variables should have small or no multicollinearity among each other (Goldstein, 2006). Preferably it is used with a large sample size to obtain a more accurate measure of goodness-of-fit. To measure the predictive outcomes for this study, the Wald statistic could be used as it provides a chi square distribution that can be utilized to see if the relationship is statistically significant ($p < .05$). Additionally, the SPSS program provides a Hosmer-Lemeshow goodness-of-fit test, determining how good the model fits the data (Tabachnick & Fidell, 2012), which was also used for this study. Regression coefficients (b) assist in providing the change of the dependent variable that correlated to the predictor. Also, odds ratios for the independent variables indicated the distribution of the predictors to the model (Field, 2013; Tabachnick & Fidell, 2012).

Structural Equation Modeling

The Structural Equation Model (SEM) was implemented to examine the second research question, which viewed the interaction of latent constructs (e.g., family, home visitor, and community support) and observed variables with depressive symptoms. The latent constructs for this study were obtained through factor analysis. The method of SEM analysis was used as it analyzed the structural associations between variables and latent constructs (Schreiber, 2008). A structural equation modeling was adapted as it is a multivariate analysis method that analyzes

relationships on a structural level. This technique assisted in blending both factor analysis and multiple linear regressions, while using a path diagram and conceptual model (Hoyle, 1995). Path diagrams assisted in creating a visual model of statistical equations that demonstrated the link between the dependent and independent variables (Byrne, 2016; Hoyle, 1995). It demonstrated complex patterns of association with the construct in a conceptual model (Markus, 2012). This was used to analyze the structural associations between variables and latent constructs (Byrne, 2016). This method uses a confirmatory approach in which theoretical research is done prior to development of the model and assists to account for errors that may result in discrepant outcomes. SEM is an advanced method that: 1) provides a more confirmatory approach as opposed to exploratory; 2) includes both observed and unobserved variables, while measuring the effect at the same time; 3) provides a robust estimate when viewing the model relations; 4) allows for the comparison of various mediators (Markus, 2012).

In SEM, there are two types of models that could be implemented: measurement and structural models. First, the measurement model is used to examine the link between observed and unobserved variables, which essentially represents a confirmatory factor analysis (CFA) model that measures the underlying constructs on a factor (Byrne, 2016). Meanwhile, a structural model is used to view the link among unobserved variables, which represent latent variables that are factors; this model is used to examine the direct or indirect influence of other latent variables in the specified model (Byrne, 2016). Therefore, the model examined and determined which latent variables link to observed variables (Byrne, 2016). In this particular study, the structural model was adapted. Furthermore, the method of factor analysis was used via EFA, and the obtained factor loadings were used to examine the latent factors that were related to the observed variables.

Assumption of SEM. There are several assumptions that have to be considered when using a SEM model. First, there must be a linear relationship between endogenous (dependent) and exogenous (independent) variables (Hoyle, 1995). The model should be based on theory and variables should have a causal relationship (Iacobucci, 2010). The data should be interval and without outliers, as outliers can affect the significance of the model (Motulsky, 2014; Hoyle, 1995). The relationship between variables should be nonspurious, as this assumes that the relationship between both variables could not be explained without a third variable (Hoyle, 1995). Equations between both variables have to be larger than the estimated parameters (Hooper et al., 2008). Also, a more favorable moderate sample size should be between 150-200 in total (Byrne, 2016; Grimm & Yanorid, 1995; Iacobucci, 2010). The error terms among the endogenous and exogenous variables are considered uncorrelated with other variable error terms (Hoyle, 1995).

Analysis of the SEM. SPSS AMOS version 26 program was used to run the SEM model. Steps that were applied to obtain the model included: examining the model fit, adjusting the model as needed, and testing the identified hypotheses. Next, factor analysis via EFA was used to examine the relationship among the variables and to determine the underlying latent factors. A path analysis was then conducted to study the relationship of the hypothesized observed and unobserved variables. During this phase, hypothesized paths were drawn between constructs. The structural model's model fit was measured through the chi-square findings in which the fit was considered good when the test was not significant. While the English-speaking sample had a significant chi-square outcome, indicating that the model was not a good fit, the Spanish-speaking sample outcome was not significant. However, considerations were taken as chi-squared statistic outcomes may be influenced by sample size in which larger samples may have

poor model fit (Kline, 2005). Thus, fit indices were used to examine model fit. The following model fit indices were applied to examine model fit: root mean square error of approximation (RMSEA) ($< .08$ to $.10$, mediocre fit; $> .10$, poor fit), and both comparative fit index (CFI) and Tucker Lewis Index (TLI) having $> .095$ for good fit (Byrne, 2017; Hu & Bentler, 1999).

Results

Preliminary Analyses

Preliminary analyses were conducted to obtain the frequency, data distribution, and correlations. Table 1 reveals the descriptive statistics of identified variables prior to exploring the research questions. Also, tests of normality were applied, and tests for skewness and kurtosis were added and displayed in Table 1. The outcomes revealed that the majority of the variables were non-normally distributed. Nonetheless, SEM modeling will be used as it has been commonly used with non-normal distributed data (Byrne, 2016). Also, the bootstrapping procedure was used for logistic regression models as it helped obtained rigorous outcome when data was non-normal (Nevitt & Hancock, 2001). Table 2 indicates the missing data cases for the variables, followed by Table 3 which illustrates the correlation of variables among the full sample. Table 4 and Table 5 indicates the correlation results for the Spanish and English samples. Table 6 demonstrates the factor loadings for variables. Table 7 to Table 10 show the binary logistic regressions. Lastly, Table 11 and Table 12 show the model path testing with SEM.

Demographic Variables. Demographic variables for the sample of Latinas were examined prior to examining identified research questions. The variables of interest were maternal race, help during pregnancy from (partner, parents, family, friend, other, religious community, or none), income status, insurance method of payment (Medicaid or other), level of

acculturation examined through language (English and/or Spanish), PPD, history of depression, home visitor support during pregnancy and after birth, racial discrimination, pregnancy intention, and WIC participation during pregnancy. In Table 1, the results are reported in percentages. The results revealed that there were a total of 1,360 participants in the 2012-2014 NYC PRAMS who identified themselves as Hispanic (referred to as Latinas in this study). In the full sample, the majority self-identified themselves as White-Hispanic (56.5%), followed by Other-Hispanic (27.1%), and Black-Hispanic (11.8%). There were evenly split participants across language among Spanish (48.8%) and English-speakers (51.2%), the majority of which were between the ages of 20 to 34 years (71.5%), received more than a high school education (43.5%), were enrolled in WIC during pregnancy (68.0%), and had Medicaid as insurance (75.7%). The support was mostly identified in the following order: 1) partner, 2) parent, 3) family, 4) friend, 5) religious community, and 6) others. Women who received support from a home visitor after delivery accounted for 20.8% of these participants. Few had depressive symptoms since birth (5.5%) and no interest in activities after birth (6.1%), while history of depression before pregnancy nearly doubled (17.3%). Most of these participants had an intended pregnancy (52.3%), and birthed a singleton infant (95.4%), while few identified experiencing racial discrimination (12.6%). To further explore the differences between acculturation, the demographic percentages were reported among Spanish and English-speaking Latinas.

Demographic Variables Spanish-Speaking Latinas. Upon further examination, less acculturated Latinas (N=663) had minor differences in demographic outcomes when compared to more acculturated Latinas. Among Spanish-speaking Latinas, the majority were between the ages of 20 to 34, had less than a high school education (44.0%), had Medicaid as a method of payment (87.9%), and were enrolled in WIC during pregnancy (78.0%). During pregnancy, the

social support was mostly obtained from the partner, followed by the parent, family, friend, religious community, or other. Also, the support from a home visitor was predominately obtained after birth than during pregnancy. Depressive symptoms were low, while history of depression was similar to the overall outcome (17.5%). Discrimination was slightly higher (14.0%) than that of English-speaking Latinas (11.3%). Similarly, most had an intended pregnancy (55.8%), and a singleton infant (95.9%).

Demographic Variables English-Speaking Latinas. Among more acculturated Latinas (n=697), most were between the ages of 20 to 34 (71.9%), had more than a high school education (57.8%), and had a lower percentage of enrollment in WIC during pregnancy (58.5%). A slightly lower percentage of Latinas were enrolled in Medicaid (64.0%) compared to less acculturated Latinas. Similarly, support during pregnancy differed slightly by acculturation. Support received during pregnancy from the partner (77.5%) and religious community (6.9%) were slightly lower among more acculturated Latinas, while support from parent (75.9%), family (49.1%), and friend (34.7%) were higher than that of less acculturated Latinas. Smaller percentages were reported on receiving support during pregnancy and after delivery from a home visitor. Also, depressive symptoms were slightly higher among more acculturated Latinas, while history of depression was similar (17.1%). Discrimination was a bit lower (11.3%) among more acculturated Latinas.

Correlations

When examining the correlations among the main study variables, the outcomes revealed that for this sample there were correlations among most of the variables, though there were very few for plurality and history of depression. Among the correlations, there were several low correlations, for instance, home visitor support and racial discrimination (.06, $p < .05$) and higher correlation, such as participating in WIC during pregnancy with payment method (-.49, $p <$

.001). The rest of the correlations are displayed in Table 3. For the Spanish-speaking sample, there were several correlations such as no intent to get pregnant and postpartum depression (.11, $p < .01$). The associations are demonstrated in Table 4. For the English-speaking sample, there were several correlations, although most associations were found with racial discrimination. For instance, a positive correlation was found with racial discrimination and PPD (.15, $p < .01$).

Table 5 illustrates the correlations among variables.

Missing Data

In order to examine the missing data for this study, the EM technique was used to pick random values for the missing data and created new data points for the missing data, allowing for better placement values (Gupta & Chen, 2010). The technique is used when data is missing at random or missing completely at random, and assist to estimate latent variables (Vieira, 2017).

The results for Little's missing completely at random revealed that the data was not meaningful ($p = .13$), thereby indicating that it was missing at random. Outcomes for this sample ($N = 1,360$) examined the variables of help during pregnancy (i.e., from partner, family, friend, other, religious community, home visitor, or none), income status, insurance method of payment for delivery (Medicaid or other), race, PPD, pregnancy intention, history of depression, home visitor after birth, racial discrimination, and WIC participation during pregnancy. Little's MCAR revealed that data was missing at random for the majority of variables, except for income status. Income status was not missing at random ($p < .001$). The percentage for the missing value was 22.3%, which is above the 5% level. Due to the high missing value, this variable was excluded from analysis. For the remaining variables, a data imputation technique was included as the percentages were below the 5% level and there was no pattern (Vieira, 2017).

After analyzing the missing data, exploratory analyses were conducted to test normality and multicollinearity. To examine normality, the criteria which has been commonly viewed is kurtosis below 3 and skewness within 0 (Field, 2013). The data variables were within the identified criteria, aside from four variables (no support, plurality, racial discrimination, and PPD measure) that resulted to be non-normal. No support during pregnancy was highly skewed (8.29) and leptokurtic (66.8), followed by plurality skewness (4.32), leptokurtic (16.7), PPD measure (skewness = 2.78) (kurtosis = 5.75), and racial discrimination (skewness = 2.25) (kurtosis = 3.06). Tests of multicollinearity were then examined to view the VIF and tolerance of variables, which fell within the recommendations (Hair et al., 2006). To address non-normal data, researchers implement procedures of transformation such as algorithm transformation, parametric transformations, and reverse transformations (Pek et al., 2018). These techniques have been used to address non-normal data. Nonetheless, for this study, these techniques were not adapted as AMOS structural equation model was implemented, therefore, transformation of data was not necessary. Instead, AMOS SEM examined the interaction among variables, as it has been commonly used to analyze non-normal distributed data (Byrne, 2016). Furthermore, the bootstrapping procedure was used with binary logistic regressions, as it is commonly used with non-normal data (Nevitt & Hancock, 2001).

Exploratory Factory Analysis

An exploratory factor analysis (EFA) was conducted with the total sample and then separated by acculturation to develop the measurement of variables. EFA was used to reduce the number of variables, as a data reduction technique helped determine the underlying variables in factors and determine which variables were necessary. Initially, structure detection analyses were done, consisting of a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's

test of sphericity. EFA was then analyzed using varimax rotation. This assisted in the exploration of which variables were needed to measure family support and community support. The outcome was examined with the criteria of eigenvalue, variance, scree plot, and residuals. Outcomes revealed that one component was needed for both family support (familismo), while outcomes for community support indicated that a two-component solution was appropriate. Table 6 shows loadings for components.

EFA with Full Sample

Full Sample Factor Structure for Family Support. The first factor (family support items used to examine familismo) included parents and family support, which indicated the support that women received from family members during pregnancy for which the factor loadings were .782 for both. The first component accounted for 61.07% of the total variance in the original variables. The variables had positive loadings and addressed family support.

Full Sample Factor Structure for Community Support. The second factor (community support items) included friends, others, religious community, and home visitor support during pregnancy and in the postpartum period. The factor loadings ranged from .230 to .725. The first component accounted for 26.98% of the total variance in the original variables and the second accounted for 26.29%. After accounting the scree plot, eigenvalues, and loadings, the variable of help from others was dropped (had loading of .230).

The factor analysis was then conducted again with the four variables. The loadings ranged from .797 to .822. The variance for the first variable was that of 33.74%, while the second was 32.23%. The factor findings resulted in two factors. The first was labeled community support, which included items of help during pregnancy from a friend and religious community. The second factor outcome was labeled as home visitor support, which was support from a home

visitor during pregnancy and in the postpartum period. The variables had positive loadings and addressed community and home visitor support. Results are displayed in Table 6 and the EFA analytic model from the results is visible in *Figure 1*.

EFA with Spanish-Speaking Latinas

Factor Structure for Family Support (Familismo). Similarly, the same variables were examined for family support for which the factor loadings were of .780 for both. The variables had positive loadings and addressed family support. The first component accounted for 60.77% of the total variance in the original variables.

Factor Structure for Community Support. The second factor (community support items) included the same variables used in the full sample. The factor loadings ranged from .073 to .812 in which the first component accounted for 27.57% of the total variance, and the second accounted for 26.95%. Considering the scree plot, eigenvalues, and loadings, the variable of help from others (.116) loading was dropped. The factor analysis was then conducted again with the four variables for which loadings ranged from .815 to .817. Variance for the first variable was that of 33.72%, while the second was of 33.58%. The factor findings resulted in two factors that had positive loadings, these were community support (help during pregnancy from friend and religious community) and home visitor support (help from home visitor during pregnancy and after delivery). Results are displayed in Table 6.

EFA with English-Speaking Sample

Factor Structure for Family Support (Familismo). The first factor of family support items includes parents and family support during pregnancy for which factor loadings were of .769 for both. The first component accounted for 59.20% of the total variance in the original variables. The variables had positive loadings and addressed family support.

Factor Structure for Community Support. The second factor (community support items) included the same variables used in the full sample, however, only the English-speaking sample was examined. The factor loadings ranged from .452 to .819 for which the first component accounted for 27.21% of the total variance in the original variables, and the second accounted for 26.02%. The only variable that was dropped was help from others (.452). The factor analysis was then conducted again with the four variables for which loadings ranged from .797 to .822. Variance for the first variable was that of 33.78%, while the second was of 31.35%. The factor findings resulted in two factors, community support and home visitor support. Variables had positive loadings and addressed community and home visitor support. Results are displayed in Table 6.

RQ1: Binary Logistic Regression Analysis

Binary logistic regression analyses were utilized to address the first research question: “Is there a difference in the sources of support (partner, family, and community), racial discrimination, and risk factors by acculturation that predict depressive symptoms among Latinas?” A binary logistic regression with bootstrapping was calculated to predict PPD based on support received from partner, family, community, home visitor, no help, racial discrimination, plurality, history of depression, WIC participation during pregnancy, pregnancy intention (intended, mistimed, and unintended), and payment method for delivery with Medicaid or other. The binary logistic regression analyses were viewed between Spanish and English-speaking Latinas, initially without control variables, and then with control variables.

Spanish-Speaking Latinas No Control Variables. First, a binary logistic regression was used to examine the relationship with depressive symptoms. The variables of support during pregnancy from partner, family, home visitor, community, and racial discrimination, pregnancy

intention (intended, mistimed, unintended), WIC participation during pregnancy, plurality (one or more), and payment method with Medicaid with a sample of Spanish speaking participants identified as less acculturated ($n=663$) were examined. Bootstrapping was adapted with the regression model as several variables were not normally distributed. The predictors that were significant for the overall model were no help during pregnancy, history of depression, and pregnancy intent without incorporating the control variables, which seemed fitting (-2 Log likelihood = 329.671) and statistically significant [$\chi^2(12)= 34.874, p < .001$]. Regression coefficients are presented in Table 7.

No support during pregnancy ($p= .001$) was significantly associated with depressive symptoms during the postpartum period among less acculturated Latinas. Support from the partner ($p= .735$) and community ($p= .066$) had an inverse association with depressive symptoms due to the negative coefficient. However, the relationship was not statistically significant. Similarly, family support ($p= .120$) was not a significant predictor. Results indicate that aside from no help during pregnancy, all other types of support did not have a significant inverse association with depressive symptoms during the postpartum period. This illustrates that these forms of support may not serve as a protective factor. Among less acculturated Latinas, the lack of support during pregnancy may serve as a major predictor for depressive symptoms.

Furthermore, another predictor that was significant was if the mother had indicated having a history of depression ($p= .037$). Women that self-reported to experience depression in the past had a higher risk of reporting depressive symptoms during the postpartum period. Also, the effect of pregnancy intent was significant when the pregnancy was mistimed ($p= .012$) and unintended ($p= .009$). Women that revealed to have a mistimed or unintended pregnancy were more likely to indicate depressive symptoms in the postpartum period. Another risk factor that

was trending toward significance at the 5% level was the predictor of racial discrimination ($p = .053$). Although experiencing racial discrimination may be related to negative mental health outcomes, the relationship was not significant in this analysis.

English-Speaking Latinas No Control Variables. Similarly, a binary logistic regression with bootstrapping was used to find the predictors for postpartum depressive symptoms with variables of partner, family, home visitor, community, and racial discrimination, pregnancy intention (intended, mistimed, unintended), WIC participation during pregnancy, plurality (one or more), and payment method with Medicaid. Significant predictors in the model were participating in WIC during pregnancy, racial discrimination, payment method, and pregnancy intent when the pregnancy was mistimed or unintended without incorporating the control variables among the English-speaking sample ($n = 697$). The model was significant [$\chi^2(12) = 51.108, p < .001$] and fitting ($-2 \text{ Log likelihood} = 420.286$). Regression coefficients are presented in Table 8.

Among the more acculturated Latinas, the predictors related to types of support were not significant for postpartum depressive symptoms with this specific sample. Support from the partner ($p = .249$), family ($p = .319$), home visitor ($p = .146$), and community ($p = .847$) had an inverse association with depressive symptoms due to the negative coefficient, revealing that even when the support from these sources may have a relationship with emotional well-being, the results were not significant. Lack of support during pregnancy was not inversely associated or significant ($p = .759$) among more acculturated Latinas.

Additionally, results showed that in contrast to less acculturated Latinas, acculturated Latinas who participated in WIC during pregnancy had a higher risk of reporting depressive symptoms ($p = .048$), as well as women who had Medicaid insurance as method of payment ($p =$

.025). The outcomes echo that of previous research that indicated that women that received Medicaid benefits have a higher likelihood of reporting self-reported depressive symptoms and are less likely to have proper postpartum care for PPD (CDC, 2008; Wilkinson et al., 2016). Racial discrimination was a significant predictor for self-reported postpartum depressive symptoms among more acculturated Latinas ($p = .016$). Similarly, the predictor of pregnancy intent was significant for mistimed ($p = .001$) and unintended ($p = .001$) pregnancies.

Spanish-Speaking Latinas with Control Variables. A bootstrap binary logistic regression analysis with control variables of age, education, and race was used to view if there was a difference between the initial model and a model incorporating control variables. The model was significant; regression equation was found [$\chi^2(19) = 39.068, p < .01$] and fitting (-2 Log likelihood = 325.478). The regression coefficients are presented in Table 9. Similar to the first model, the only type of support that was significant was no support during pregnancy ($p = .004$). Also, history of depression increased the association with depressive symptoms among less acculturated Latinas ($p = .023$). The effect of pregnancy intent was significant when mistimed ($p = .015$) and unintended ($p = .014$) when compared to intended pregnancy, which was also present in the initial model. The only variable that differed was that of racial discrimination ($p = .042$), which was significant when including the control variables of race, education, and age. Also, there were no significant differences by race among Latinas.

English-Speaking Latinas with Control Variables. The final model included control variables of age, education, and race in the bootstrap binary logistic regression to examine the outcomes with the initial model among English-speaking Latinas. A significant regression model was found [$\chi^2(19) = 50.120, p < .001$] and the model was fitting (-2 Log likelihood = 430.114). The regression coefficients are presented in Table 10. When viewing types of support with the

control variables, results revealed that among the different sources of support (partner ($p = .227$), family ($p = .376$), home visitor ($p = .123$), community support ($p = .763$), and no support ($p = .877$), none were significant. The variables that were significant on the first model were also significant in this model, with the exception of WIC participation during pregnancy ($p = .097$). In this model the predictors that increased the association with depressive symptoms in the postpartum period were experiencing racial discrimination ($p = .012$). Also, women who used Medicaid as a payment method ($p = .027$) were more likely to self-report depressive symptoms during the postpartum period. When examining pregnancy intent, the variables of mistimed ($p = .001$) and unintended ($P = .001$) pregnancies were more likely to be linked with an increase of self-reported depressive symptoms. Also, in this model no differences were found by race. The next section will address the results for the second research question, which used structural equation modeling to view the interaction between social supports with risk factors including racial discrimination and self-reported depressive symptoms by acculturation.

RQ2: Structural Equation Model Testing

A structural equation model (SEM) was used to address the second research question: “What is the interaction between racial discrimination, social support (partner, family, home visitor and community) on self-reported depressive symptoms among Latinas?” This assisted in the examination of the interaction between the types of support and risk factors including racial discrimination with acculturation (Spanish-speaking and English-speaking Latinas).

Path Analysis of Familismo, Social Support, and Risk Factors Among Spanish-Speaking Latinas Model Fit. In Model 1, the exogenous variables of social support from partner, family, home visitor, community support, no help, history of depression, racial discrimination, and pregnancy intention were examined with self-reported PPD symptoms as an

endogenous variable. The model had a fair fit based on the indices which appeared to be sensitive by sample size [$\chi^2(52) = 230.0, p = .001$] RMSEA = .072 (90% CI = [.36, .50]); CFI = .55]. Based on the standard regression coefficients, community support and depressive symptoms had a significant negative relationship ($b = -.12, p = .023$). In addition, history of depression had a positive relationship with depressive symptoms ($b = .08, p = .029$), racial discrimination ($b = .08, p = .027$), and pregnancy intent ($b = .11, p = .002$). However, partner support, family support (used to examine familismo), and home visitor support did not have a significant association with depressive symptoms ($b = -.02, p = .550$; $b = .10, p = .313$; $b = .02, p = .575$). Results revealed that community support significantly interacted with lower depressive symptoms, while history of depressive symptoms, racial discrimination, and pregnancy intent had a significant interaction with depressive symptoms. Results are shown in Table 11.

Path Analysis of Familismo, Social Support, and Risk Factors Among English-Speaking Latinas Model Fit. In Model 2, the exogenous variables of social support from partner, family, home visitor, community support, no help, racial discrimination, pregnancy intention, payment method with Medicaid, and enrollment in WIC during pregnancy were examined with self-reported PPD symptoms as an endogenous variable. The model had a poor fit based on the indices, which appeared to be sensitive by sample size [$\chi^2(63) = 638.125, p < .001$] RMSEA = .115 (90% CI = [.10, .12]); CFI = .250]. Based on the standard regression coefficients, the types of support from partner, family (familismo), home visitor, and community support had an inverse interaction with depressive symptoms, but the relationship was not significant ($b = -.04, p = .197$; $b = -.03, p = .681$; $b = -.08, p = .164$; $b = -.01, p = .982$). No support had a positive relationship, but it did not significantly interact with depressive symptoms ($b = .03, p = .370$). Furthermore, racial discrimination had a positive significant relationship with depressive

symptoms ($b = .12, p = .001$). Also, the following risk factors had a positive significant interaction with depressive symptoms, payment method with Medicaid ($b = .09, p = .011$), pregnancy intent ($b = .140, p = .001$), and participating in WIC during pregnancy ($b = .09, p = .013$). Results revealed that support received from partner, family, home visitor, and community had an inverse relationship with depressive symptoms, but the relationship did not significantly interact with lower depressive symptoms. Also, lack of support was not related with outcomes. However, experiencing racial discrimination, having Medicaid as a payment method, participating in WIC during pregnancy, and pregnancy intent had a significant positive interaction with increased depressive symptoms. Results are shown in Table 12.

Discussion

This study assisted in identifying the complex relationship between risk and protective factors that may differ by levels of acculturation among Latinas, except for the predictor of racial discrimination. Findings of this study revealed that experiencing racial discrimination was a significant predictor for postpartum depressive symptoms among both Spanish and English-speaking Latinas, regardless of the race categories. The findings support previous research in that experiencing discrimination prior to having a baby may increase risk of PPD regardless of race or ethnicity (Stepanikova & Kukla, 2017). In this study, both Spanish and English-speaking Latina samples that reported having experienced discrimination had a significant positive relationship with depressive symptoms. Results reveal that when examining the postpartum period, it is essential to explore the perception of racial discrimination as a potential influence on PPD among Latinas.

Additionally, the findings of this study indicated how sources of network may have complex multilayer relationships with outcomes as we sought to include acculturation. Among

less acculturated Latinas, the community support, which consisted of friends and religious community support, was inversely associated with depressive symptoms. In other words, increased support from the community among less acculturated Latinas was associated with a decreased association in depressive symptoms. The outcomes echo the literature in which less acculturated Latinas may identify their friends and or others in the community as sources of support (Kanotra et al., 2007; Kim & Dee, 2016; Ornelas et al., 2009). Interestingly, support from partner or family was not significant in this study, though it has been a significant source of support in other studies (Negron et al., 2013; Sheng et al., 2010). Having no support among less acculturated Latinas revealed to be significantly associated with increased depressive symptoms. Additionally, history of depression and pregnancy intention were significant variables that predicted depressive symptoms. The outcomes assist in indicating that among less acculturated Latinas, support may serve as a protective factor, and previously experiencing depression may increase the risk. In particular, the source of support among less acculturated Latinas may include community sources.

Contrastingly, among more acculturated Latinas, none of the sources of support were significantly related with depressive symptoms. Rather variables of participation with WIC during pregnancy, having Medicaid as a method of payment for delivery, and mistimed and untimed pregnancy intention were significantly correlated with depressive symptoms. It may be that more acculturated Latinas have adopted Westernized ideals, reducing their practice of and perspective toward familismo (Benet-Martínez et al., 2002). The need to be more individualized and non-conforming to traditional cultural roles may be a contributor, as well as whether the perception of support was actually perceived as helpful. Additionally, measures that have been used for low socioeconomic status, such as being a Medicaid recipient or enrollment in WIC,

indicate that well-being and health outcomes may fare worse among women of color. Low-income Medicaid recipients may be more likely to report feeling discrimination and less likely to receive adequate care (Braveman et al., 2010; Abrams et al., 2009). Also, women that are WIC recipients may be more likely to experience series of stressors and increased risk of PPD (Miranda et al., 2003). This study adds to the literature as it reveals how race, class, gender, and cultural factors may intersect, showcasing how more acculturated Latinas that are low-income may encounter roadblocks as they may confront numerous barriers. These findings provide insight of the necessity to further explore the within group differences with acculturation, cultural values, and risk factors as these may aid in addressing the risk of PPD among Latinas.

The implication of these findings may help inform perinatal health care providers and policy makers to review current interventions and include cultural values in order to address PPD risk among Latinas during the perinatal period. Seeking to engage community programs to address perinatal mental health disparities may aid women who have limited support and may reach out for services. Also, these findings may aid in advancing existing knowledge pertaining to the perceived experience of women enrolled in WIC and Medicaid programs to implement supportive interventions and personnel training. Future studies should aim to examine the source of support longitudinally, which could help in determining how the support may flow or differ throughout the different convoys during the perinatal period. It is important to examine how the sources of support may differ within the convoy layers during pregnancy and throughout the first postpartum year. In human development, the postpartum period is considered a time of various transitions. Examining how the sources of support may transition within the different convoy layers could, therefore, help determine the mobilization of support during the postpartum period.

RQ1: Social Support and Risk Factors Among Spanish-Speaking Latinas

During pregnancy and in the postpartum period, the sources of support may vary among less acculturated Latinas when residing in the United States (Hurtado-de-Mendoza et al., 2014). The possible sources of support may be from partners, comadres, friends, and community members and the perception of the satisfaction with the support received may relate to outcomes (Sheng et al., 2010). It is critical to understand how sources of support may intersect with risk stressors as there may be a series of individual, cultural, and sociopolitical factors. Familismo is considered a protective factor, and seeking to examine how varying sources of support may intersect with risk factors among less acculturated Latinas may provide a holistic lens of the risk of PPD. Previous studies have found that exposure to discrimination may increase depressive symptoms among Latinas and women of color (Araújo, 2009; Stepanikova & Kukla, 2017). Latinas that reside in the United States have reported increased experiences of xenophobia and discrimination due to evolving political contexts (Macia, 2016; Gurrola, & Ayón, 2018). It is important to note that racial discrimination has not been, to a large extent, examined with PPD among less acculturated Latinas (Walker et al., 2012). Furthermore, examining the intersection of acculturation is one that continues to be explored due to inconsistent outcomes (Martinez-Schallmoser et al., 2003; Heilemann et al., 2004). For the purpose of this study, the use of language was used as a proxy to measure acculturation, with Spanish-speaking Latinas being considered less acculturated while English-speaking Latinas were considered more acculturated (Davila et al., 2009, Martinez-Schallmoser et al., 2003). This study examined the sources of support among Latinas by acculturation (English and Spanish-speaking) with risk factors of racial discrimination and those identified in the literature with self-reported depressive symptoms.

Guided by the convoy model, the sources of support that were examined were: partner support, family support, and community support. The results revealed that there were two components that were positively correlated with community support, which resulted in home visitor support and community support, composing of religious community support and support from friends. The first research question examined which variables in the sources of support from partner, family, home visitor, and community along with risk factors (racial discrimination, history of depression, no support, pregnancy intent, WIC participation during pregnancy, Medicaid as payment method, and plurality) predicted depressive symptoms separately among Spanish and English-speaking Latinas. When including age, education, and race, the outcomes revealed that no help during pregnancy had a significant positive relationship with depressive symptoms. No other source of social support was significant among less acculturated Latinas.

Furthermore, risk factors of history of depression and pregnancy intent, when the pregnancy was mistimed or unintended, had a significant positive relationship with self-reported depressive symptoms. When the pregnancy was not planned or mistimed, the results were more likely to be correlated with increased depressive symptoms. Community support and racial discrimination for the less acculturated Latinas trended toward significance when excluding age, education, and race. However, when accounting for age, education, and race, the same variables resulted in significant predictors (no support, history of depression, pregnancy intent). In addition, racial discrimination had a significant positive relationship with depressive symptoms for both Spanish and English-speaking Latinas.

The findings parallel that of previous research in which limited or no support among less acculturated Latinas may correlate with negative mental health outcomes (Rich-Edwards et al., 2006; Lara-Cinisomo et al., 2019). Less acculturated Latinas that have migrated to the United

States have been reported to have limited support and, during the postpartum period, the lack of support due to stringent work schedules, distance from family members, and barriers to seeking support may lead to feelings of isolation. When no support is identified, there may be challenges in the adjustment as familismo is a cultural value that serves as a protective factor. If no support is identified during the pregnancy period, it may serve as a risk factor for developing PPD during the postpartum period. Moreover, an interesting finding that this study did not find in comparison to others was that there was no correlation between partner support with depressive symptoms. In other studies, the central source of support was identified from the partner among Latinas who were in relationships (Reid & Taylor, 2015; Pao et al., 2018; Hassert & Kurpius, 2011).

Though partners have been identified as sources of support, the perception of the satisfaction with the support received may distinctly clarify the effectiveness of the support, as conflict with partner or dissatisfaction with the support relates to negative outcomes (Martinez-Schallmoser et al., 2003; Coburn et al., 2016; Sheng et al., 2010; Stone et al., 2015; Stapleton et al., 2012). Although the sample of less acculturated Latinas identified having received support from their partner during pregnancy, the satisfaction of the support received was not measured. It may be that, due to not measuring the perception of the satisfaction with support received from the partner and others, the outcome differed (Toomey et al., , 2013). Nonetheless, a closer look at the perception of support could help distinguish if there are any differences (Misri et al., 2000).

Similarly, community support was trending toward significance, yet it did not serve as a predictor. In-fact, the source of support from family, home visitor, and community was not associated with PPD outcome. This is in contrast to a past study that examined support among less acculturated Latinas that found that sources of support included home visitors and community support, such as from friends and religious involvement (Kim & Dee, 2016). In the

case of this study, the support from both of these were not significant when examining predictors of depressive symptoms. It is possible that by examining women's perception of support received from home visitors and those in the community, further relationships with postpartum outcomes could be revealed (Campos et al., 2008). Likewise, including the perceived barriers to establishing support among less acculturated Latinas could indicate the utilization of these sources or barriers of receiving support (Hurtado-de-Mendoza et al., 2014). Future studies could seek to explore in depth the perception of the support received from the partner, family, and those in the community within the convoy layers, as this will provide a deeper understanding of the utilization of sources of support. By seeking to explore the perception with the satisfaction of support from those identified in the convoy layers, research could examine more in depth how the support is perceived and utilized.

Furthermore, the study found that history of depression, pregnancy intent (mistimed and unintended), and racial discrimination served as significant predictors. In previous studies, history of depression served as a significant predictor of depressive symptoms in the postpartum period in a mixed group of Latinas (Davila et al., 2009; Rich-Edwards et al., 2006; Yonkers et al., 2001). However, in another study that examined the prevalence of PPD among a small sample of Latina immigrants, findings revealed that history of depression was not a significant risk factor (Lucero et al., 2012). This study revealed that women who had a history of depression also had depressive symptoms in the postpartum period. There are several factors that may intersect with the risk of perinatal mood disorders, and women that have a history of depression in addition to other intersecting risk factors may have an increased risk of negative outcomes (Ahmed et al., 2019).

Additionally, the findings of this study endorse the findings of previous studies in which unwanted or untimed pregnancy intent may serve as a significant predictor for depressive outcomes (Suh et al., 2015; Mercier et al., 2013). It could be that unplanned pregnancies may add to additional stressors, as there may be several stressors present, and this may add to financial stress, which has been correlated with depressive symptoms (Liu et al., 2016). These findings highlight that among less acculturated Latinas, a mistimed or unplanned pregnancy may serve as a stressor and may be positively associated with depressive outcomes.

Findings further indicate that when accounting for age, race, and education, the variable of racial discrimination served as a predictor of depressive symptoms. The results provide an understanding of the intersection between social support with risk factors and how exposure to racial discrimination may be significantly correlated with depressive symptoms. The findings are consistent with studies that indicate that exposure to discrimination, regardless of race, may increase negative outcomes (Luis Sanchez et al., 2020; Stepanikov & Kukla, 2017). Our findings revealed that regardless of race, women that identified having experienced discrimination were more likely to have an increased association with PPD. When seeking to view the postpartum experience among less acculturated Latinas, the exposure to racial discrimination during pregnancy is crucial, as stringent policies and negative views of Latinos continue to proliferate in the United States (Crandall et al., 2018; Greene, 2019; Young, 2018). Marginalized communities may bare the layers of barriers and stressors related to lack of support, financial hardships, and limited care, which may intersect with their well-being (Callister et al., 2011). In this study's examination of the perception of experiencing racial discrimination along with sources of support, the findings reflect that the intertwined factors among less acculturated Latinas are associated with depressive symptoms.

Examining PPD among women of color in general, and Latinas in particular, reveals the intersecting factors of race, class, and sociopolitical contexts. These have been interconnected with their identities, as Latinas have been underprivileged and oppressed. By accounting for risk and protective factors, a deeper understanding of postpartum well-being can be provided. The findings of this study reinforce the notion that researchers must consider factors of lack of support, pregnancy intent, history of depression, and racial discrimination as possible predictors of depressive outcomes among Spanish-speaking Latinas.

RQ1: Social Support and Risk Factors Among English-Speaking Latinas

Similarly, in order to explore the social support and risk factors among English-speaking Latinas, the convoy model of social network framework was used to examine support from the partner, family, and community. The EFA findings resulted in two components, home visitor support and community support (religious community support and support from friends). To examine the relationship, a binary logistic regression was used with the variables in the sources of support from partner, family (familismo), home visitor, and community, along with risk factors (i.e., racial discrimination, history of depression, no support, pregnancy intent, WIC participation during pregnancy, Medicaid as payment method, and plurality) and depressive symptoms.

The findings revealed that the relationship between depressive symptoms and sources of support from partner, family, community or home visitor, were not significant. Surprisingly, lack of support was not significantly correlated with outcomes. Although there was an inverse relationship with the sources of support, the relationship was not significant. The outcomes showed that there may be a difference in the use of support among Latinas by when using the proxy measure of language for acculturation.

Previous studies have discussed the influence of biculturalism among Latinos that reside in the United States, indicating that as Latinos become more acculturated, they may adapt values that deviate from cultural values such as familismo (Benet-Martínez et al., 2002). As Latinas reside in the United States for longer periods of time, the positive attitude and perception of familismo may decrease (Smokowski et al., 2009). A recent literature review of studies that explored the relationship between familismo with mental health outcomes highlighted that a large portion of studies included younger Latinos, with several adults, in which a small to non-significant relationship with depressive symptoms was examined across the studies (Valdivieso-Mora et al., 2016). Valdivieso-Mora and colleagues (2016) advised that the research should seek to differentiate the subtypes of support and examine communication among the sources of support. When viewing perinatal samples, more acculturated Latinas may be less likely to abide by cultural norms and may have less support networks available (Unger & Molina, 2000; Clark, 2001). It may be that, due to the American views of independence, the women may not necessarily seek to obtain help, or the perception of help received may not be favorable.

Also, it is necessary to consider that conflicts in the relationship(s) may serve more of a stressor (Pao et al., 2018; Zayas et al., 2003). Results similar to this studies have been found previously in which social support, acculturation, and depressive symptoms among Latinas were not significantly correlated (Zapata et al., 2017). The outcomes indicate that among more acculturated Latinas, the sources of support may differ. These findings add to the body of literature indicating that familismo, viewed through sources of support, may vary by acculturation when using language as a proxy measure. To better understand the unique intersectional relationship between acculturation, PPD, and social support, future research should be conducted to adequately examine the perception of support and cultural values. By including

acculturation in the examination of sources of support within Latina samples, differences may be dispersed and a better understanding of protective factors among both may be gained. With Latinas generally being mixed and lumped together as one group, differences may be better found when examining them within groups.

Furthermore, among more acculturated Latinas, using Medicaid as a method of payment for delivery and participation in WIC during pregnancy was significantly correlated with depressive symptoms. Access to effective health care is necessary for optimal maternal and child health outcomes. Yet, access to care is not equal for all perinatal women; Latinas are more likely to be uninsured or have Medicaid, and have the highest uninsured rate (Jackson, 2013; Barnett & Berchick, 2017; U.S Department of Health and Human Services Office of Minority Health, 2019). Medicaid eligibility may reveal the differences in socioeconomic disparities and health outcomes, as those who are uninsured and underinsured have been associated with poor health outcomes (Braveman et al., 2010). Differences have also been reported in maternal mental health services among low-income Black and Latina women (Abrams et al., 2009; Wilkinson et al., 2016). A study that analyzed data from claims from New Jersey's Medicaid program found that low-income women had a low likelihood of receiving follow-up and continued care for PPD (Kozhimannil et al., 2011). Women that are Medicaid recipients may report having numerous stressors, and the lack of support has been associated with increased depressive symptoms (Hutto et al., 2011). Lack of support was not significantly correlated in this study, but being a Medicaid recipient and participating in WIC during pregnancy was related to PPD.

Although women who are enrolled in WIC and who experience a series of life stressors may have a high risk of developing PPD (Miranda et al., 2003), another study found that when examining acculturation and mental health among WIC recipient Latinas, the mental health

outcomes varied. Less acculturated Spanish-speaking Latinas were more likely to identify experiencing anxiety and depression compared to Latinas that spoke English (Cordero & Kurz, 2006). However, the results of this research contradict this previous finding as the English-speaking sample in this study had a significant relationship with depressive symptoms compared to the Spanish-speaking sample. Highly acculturated Latinas in this study were more likely to have a correlation with depressive symptoms when enrolled in WIC services during pregnancy. It is important to take into account that there may be additional stressors. Nonetheless, a consensus in studies indicate that low-income Black and Latina women, who are younger, single, and who experience life stressors related to financial hardships may be more likely to experience negative health outcomes (Abdollahi et al., 2014; Anderson et al., 2017; Goyal et al., 2010; Liu et al., 2016; Stone et al., 2015; Salm Ward et al., 2016).

Stressors such as financial hardship are particularly challenging when pregnancy may be mistimed or unintended. Pregnancy intent, when not planned, has been considered a risk factor for PPD in previous studies (Mercier et al., 2013; Nunes & Phipps, 2012). In the findings of this study, both mistimed and unintended pregnancies served as significant predictors for depressive symptoms. The outcomes highlight the series of stressors that may be prevalent among more acculturated Latinas. The intersection between race, class, and cultural factors reveals how disenfranchised women of color have historically encountered glass ceilings that impede their upward mobility and adequate care. Findings from this study reveal that an intersectional lens should be used to examine the relationship between acculturation, race, and class, as English-speaking women that are Medicaid eligible and who participate in WIC are more likely to have a significant correlation with depressive symptoms.

The exposure to racial discrimination has been reported to be a significant contributor to decreased maternal health outcomes (Bower et al., 2018; Elias & Paradies, 2016; Mendez et al., 2013). The findings in this study indicate that experiencing discrimination may serve as a significant predictor for PPD, regardless of race. Both low and highly acculturated Latinas had significant association with PPD when accounting for race, education, and age. Significant differences were not found by particular race categories, instead experiencing discrimination increased negative outcomes. When not including race, education, and age among more acculturated Latinas, the perception of racial discrimination was positively correlated with depressive symptoms. In other words, English-speaking Latinas that self-reported having experienced racial discrimination were more likely to have negative outcomes.

Women who have barriers to education and low-income are at a high risk of developing PPD (Stepanikova & Kukla, 2017). Experiencing discrimination prior to having a baby has been linked with negative outcomes, such as risk of preterm birth (Bower et al., 2018). Latinas that experience discrimination, especially those that have low-income and a higher frequency of experiencing discrimination, are more likely to have an increased probability of PPD outcomes than those who report to have experienced little or no perceived discrimination (Walker et al., 2012). The intersection of race, class, and cultural factors are present and further research should seek to examine how these may differ by acculturation and race. This study did not find meaningful differences by race, thus, future studies may assist in examining race and the frequency of experiencing discrimination to view how it may associate with PPD outcomes. When considering how the political climate has fueled negative sentiments toward Latinos, the implications of this study reveal that it is imperative to explore how these may intersect with the well-being of Latina mothers and their families (Halim et al., 2013; White et al., 2014).

RQ2: Path Analysis of Social Support and Risk Factors Among Spanish-Speaking Latinas

Results revealed that there was an interaction among several risk and protective factors with depressive symptoms. Findings indicate that the variables that had a significant relationship with depressive symptoms among less acculturated Latinas were no support, community support, history of depression, racial discrimination, and pregnancy intention. Among less acculturated Latinas, community support had a significant indirect association with depressive symptoms in which the positive use of community support was associated with decreased depressive symptoms. Results for no support echoes previous studies in which lack of support was significantly associated with depressive outcomes (Callister et al., 2011). Additionally, in the model, the risk factors of history of depression, racial discrimination, and pregnancy intention were significantly associated with depressive outcomes.

Less acculturated Latinas may receive support from those in the community, which could include faith-based organizations and others such as friends (Kim & Dee, 2016). This support may serve as a protective factor, while the lack of support, in general, may associate with negative outcomes (Sheng et al., 2010). Seeing that previous studies emphasize the protective factor of familismo and the incorporation of others as close-knit resources of support (Clark, 2001; Leger & Letourneau, 2015; Martinez-Schallmoser et al., 2003), it may be that less acculturated Latinas may seek to find support among others in the community. Interestingly, this study's findings contradict the findings of others in which partner support had a significant relationship with decreased PPD outcomes (Banker & LaCoursiere, 2014; Goodman et al., 2014; Guendelman, Malin, Herr-Harthorn, & Noemi Vargas, 2001; Misri et al., 2000). This study found an inverse relationship with partner support and PPD outcomes, but it was not significant. A possible explanation was that the satisfaction with the partner and others was not measured.

Identifying this could help determine whether the support received was perceived as helpful (Sheng et al., 2010; Stapleton et al., 2012). Future studies should seek to incorporate the perception of support from those identified in the convoy layers.

Also, it is necessary to consider the factors that may intersect with the support received. Factors, such as racial discrimination, history of depression, and unintended or mistimed pregnancy, may intersect stressors and may associate with an increased negative adjustment. These findings demonstrate that when examining the postpartum period, it is important to account for the intersecting factors of discrimination, as Latinas may have exposure to these experiences. Supported by this study, the path association indicates that racial discrimination is associated with depressive symptoms among postpartum Latinas. Future research should include a measure of racial discrimination and should examine the perception of discrimination throughout pregnancy, and during the postpartum period, in order to better understand the relationship throughout the perinatal period. The findings of this study critically highlight the importance of considering social context and macro level factors in research, as these may have a relationship with the postpartum well-being of Latinas.

RQ2: Path Analysis of Social Support and Risk Factors Among English-Speaking Latinas

After examining the protective value of familismo through sources of support and risk factors, the findings of this study revealed that among highly acculturated Latinas, the sources of support from partner, family, home visitor, community, and no support were not associated with depressive outcomes. The only variables that were significant were: payment method for delivery (Medicaid), participation in WIC during pregnancy, racial discrimination, and pregnancy intention. Looking at the sources of support, which for this study were not related with depressive symptom, reveals that the aspect of acculturation may provide insight into the

differences in the use of support. It may be possible that the use of familismo as a protective factor may vary among those that have spent more time in the United States (Smokowski et al., 2009). Due to the limitations in this study, it was difficult to determine if the participants were immigrants, first or second-generation Latinas, or altogether something else. Nonetheless, the concept of familismo, examined through support received from family, for more acculturated Latinas may be viewed with ambivalence. There may be a conflict between cultural norms and that of individuality, autonomy, and independence, which is commonly practiced in the United States (Campos et al., 2008). The possible bicultural integration and the engagement of these cultural aspects may intersect with the sources of support among highly acculturated Latinas. Though Latinas may indicate receiving support from others, the dominant cultural view of familismo may be viewed as less independent and more codependent (Campos et al., 2008; Benet-Martinez et al., 2002). Therefore, the perception of support and how that support is perceived could help explain how familismo may play a role among highly acculturated Latinas. This possible explanation may assist in examining the difference between the use of support among less acculturated compared to more acculturated Latina samples in this study. Future studies should seek to incorporate measures of perception of support, multidimensional measures of acculturation, and cultural values to explain relationship differences among these two groups.

Furthermore, being enrolled in WIC during pregnancy and having Medicaid as a method of payment for delivery both revealed to be significantly associated with depressive symptoms among more acculturated Latinas. Though the model was poor fitting, the relationship indicates the need to view the factors that are prevalent among low-income Latinas. Previous studies have noted that low-income women of color enrolled in WIC or that receive Medicaid are more likely to experience numerous stressors and discrimination (Hutto et al., 2011; Salm Ward et al., 2016).

This gives light to the complex intersection that occurs within groups, as much research lumps Latinas into one group missing the possible differences that may be prevalent. These findings provide an imperative to further explore the risk factors and protective factors by acculturation. Not doing so may dismiss important relationships that could assist in determining how to best support and empower Latinas.

Lastly, as predicted, racial discrimination had a significant relationship with depressive symptoms. Among more acculturated Latinas, the self-report of experiencing racial discrimination was present. The findings support that racial discrimination among both subgroups of Latinas had a positive relationship with PPD symptoms. Racial discrimination was a significant factor in the path and regression models, although the model was a poor fit. These findings serve to support the need to include discrimination when seeking to explore the postpartum mental health outcomes among Latinas. Researchers have sought to include racism as a factor when exploring the increased risk of maternal mortality and morbidity among African American women (Bower et al., 2018; Alhusen et al., 2016; Canady et al., 2008; Wallace et al., 2017). It is also important that discrimination be included when seeking to view maternal mental health outcomes among Latinas (Luis Sanchez et al., 2020). The pregnancy and postpartum period are critically important for both mother and child, and by seeking to unpack the intersections and relationships between risk and protective factors, researchers, providers, and policy makers can work together to utilize this knowledge to close the health equity gap.

Implications

The outcomes from this study highlight the importance of including an intersectional lens to view the relationship between acculturation, social support, and racial discrimination with depressive symptoms among Latinas. The findings of this study have implications for

researchers, healthcare providers that work with perinatal women, and maternal mental health policies. Researchers should seek to include the intersection of acculturation, racial discrimination, and protective factors when viewing well-being outcomes among marginalized populations. This would help inform providers and guide the development of interventions that are culturally sensitive and strength-based, as it would look further into determining what factors are culturally salient and helpful. Lastly, policymakers should consider the intersecting risk and protective factors of Latinas by acculturation to help guide the development of maternal mental health policies that may or may not be in place at the state and national levels to help marginalized populations that are at risk.

Implications for Research

These findings contribute to research as it emphasizes the need to examine PPD through an intersectional lens. This theory, which included the social support networks, assisted in viewing cultural values and how macro level structures may intersect with them. First, this study's findings indicate that the type of support varies among Latinas by acculturation. Less acculturated Latinas may seek support in community settings, while the relationship between highly acculturated Latinas may differ in sources of support. Though lack of support may be a risk factor for the Spanish-speaking Latina sample, the sources of support differed. The need to explore the relationship of sources of support and the perception by acculturation ought to be examined. Second, racial discrimination had a positive relationship with PPD outcomes, which advocates for this predictor to be further examined when viewing the relationship with the risk of PPD. Overall, findings add to the literature that the need to include acculturation, cultural aspects, and macro level factors may provide a deeper understanding of how these intersect with Latinas' postpartum adjustment.

Future researchers should seek to further explore acculturation by incorporating a more multidimensional measure of acculturation. Additionally, national population-based surveys should be used to further explore acculturation. The incorporation of acculturation through a multidimensional measure could help determine nuances and differences between cultural values, which are far too often marginally examined. Identifying the cultural perceptions and values could help identify the often-missed aspects of biculturalism present in highly acculturated Latinas.

Furthermore, expanding the measure of acculturation could assist in untangling the possible differences in the sources of support identified by Latinas. The sources of support may vary among Latinas, and it is critical that researchers seek to explore further how the perception of support may differ by acculturation. Considering the research in human development and the transition that women may experience during the postpartum period, it is important to examine the perception of the sources of support, which may be similar or different by acculturation. Numerous studies have identified that the support from the partner may be a protective factor. However, in this study, the support from the partner was not significantly correlated with postpartum depressive outcomes. It may be that the perception of satisfaction with the support received was not captured, or possibly that women may also seek to find support in the community. This is particularly salient for Latina immigrants who may have limited sources of support resulting in a need to expand their support networks to include others outside of the family. Furthermore, sources of support may differ among highly acculturated Latinas, as familismo may be viewed differently. Possible intersections of independence and American influences may intertwine with views of support during the perinatal period. Incorporating an intersectional lens, with a framework that includes the support network, could help advance this

area of research. Though this study used the convoy model of social networks theory, researchers should seek to include this theory to measure the use of support longitudinally, examining the changes within sources of support available throughout the pregnancy and in the postpartum period. Exploring further the intersection of sources of support and perception can provide a holistic understanding of this phenomena among at-risk and marginalized populations.

Additionally, literature often uses the Latino paradox to explain the concept that newly arrived immigrants fair better in well-being than those that have lived in the United States, for a longer length of time. However, this notion ought to be challenged, especially during the perinatal period, as immigrant women during the postpartum period may be in need of support, which may not be readily available or near. Considering that immigrant women are at high-risk of experiencing postpartum depressive symptoms, researchers should seek to challenge this notion given the sociocultural contexts and intersecting factors. Continuing this framework and narrative may challenge the immigrant paradox that less acculturated Latinas fair better when in reality, there may be numerous factors that may intersect with their well-being, which may increase their risk of negative health outcomes. The consideration of discrimination, immigration policies, and sociopolitical factors have been correlated with negative mental health outcomes among recent immigrants (Ayón et al., 2017; Gurrola, & Ayón, 2018; Morey, 2018). For this study, the findings revealed that those that experienced racial discrimination had an association with depressive symptoms, regardless of race. Findings did not particularly find differences by race categories. For both Spanish-speaking (59.1%) and English-speaking (54.7%) samples more than half of the participants self-identified as White-Latinas, thus research should further explore diverse Latina samples. This would help to further explore how the socially constructed race category may intersect with well-being as research has found structural inequalities based on

colorism (Adames et al., 2016; Uzoraga, 2018). Researchers within the fields of human development and perinatal mental health need to consider macro level factors and their intersection with mental health outcomes. Neglecting this would only continue to reflect a bias that only includes the individual and the psychosocial aspects, without accounting for the xenophobic and racist climate that has been prevalent in overtly and covertly marginalizing communities of color.

Implications for Practice

The postpartum period is one in which women experience a series of changes. When women experience PPD, they are less likely to engage with their child. Although the necessary feeding and baby care may be provided, the bonding may differ significantly (Huang et al., 2010). The possible impact of depression on child growth has been identified in both socioemotional and cognitive developmental delays (Slomian et al., 2019; Nylén et al., 2006). The outcomes have not only been associated with child developmental growth, but it also affects women, as they may not receive treatment and experience depression even past the first postpartum year. Women who may have incomes below the federal poverty threshold may be at high-risk of experiencing PPD and are less likely to seek and receive services for PPD (Kozhimannil et al., 2011; Song et al., 2004). There are a series of barriers, such as lack of transportation, no insurance, stigma, limited childcare, and limited culturally sensitive therapists that speak the native language, that deter women from receiving care (Abrams et al., 2009). For these reasons, it is necessary to propose the following recommendations for practitioners and programming. The collaborations with faith-based and grassroots organizations in the community should seek to incorporate evidenced-based programs that address screening and barriers, as well as increase rapport. Second, culturally sensitive counseling and training should

be available and consistently provided to therapists and those who work with perinatal women. Also, trainings on discrimination and bias should be required for community-based organizations, clinics, WIC offices, and providers that work with perinatal women.

A holistic approach to address perinatal mental health among Latinas should engage collaborations with grassroots and faith-based organizations. Receiving mental health services has differed greatly among women of color compared to their Caucasian counterparts (Abrams et al., 2009; Kozhimannil et al., 2011). Much has been accredited to the personal, societal, practitioner, and health care barriers, intersecting with the decision to seek PPD mental health services (Bina, 2020). There continues to be a gap in receiving treatment services for maternal mental health among women of color. Seeking to address the postpartum mental health risk by implementing partnerships between mental health clinics with community-based grassroots organizations and faith-based organizations may aid in enhancing the approach to address maternal mental health disparities.

For instance, an evidenced-based intervention called ROSES has been found effective in reducing the risk of PPD among low-income women. The intervention has been implemented in clinical and community-based settings (Johnson et al., 2018) and seeks to include clinic-based workers and those within the infrastructures of the community to implement the program. The intervention emphasizes interpersonal communication and social support, as well as addresses mood disorders during pregnancy (Crockett et al., 2008). Due to low participation in mental health services from women of color, community organizations and/or local mental health clinics may seek to expand community engagement and offer evidenced-based interventions within community-based settings. Latinas are more likely to receive support from community-based and faith-based organizations. It is, therefore, essential that local mental health clinics expand

collaborations and engage in partnerships with local community organizations that serve perinatal women. This may enhance the approach of providing preventative education, informing women of services available while also involving possible sources of network that Latinas may seek. However, it is necessary to acknowledge that the inclusion of preventative and intervention programs have to be considered in relation to the context and macro level influences. Given the socio-cultural climate and policies that have targeted Latinos, increased efforts should be developed to account for the race, ethnic, and class differences that may be present.

Second, culturally sensitive counseling and trainings should be incorporated in community mental health clinics and implemented by those that serve perinatal women. It is necessary for trainings and programs to incorporate educational information regarding maternal mental health and the risk and protective factors among marginalized communities. It is evident that the inclusion of an intersectional lens in clinical and counseling settings have been minimal (Shin et al., 2017). The frameworks that seek to address cultural values, stigma, and macro level factors are optimal as it helps address and incorporate additional factors related to race, ethnicity, class, and gender that may differ depending on the social location (Torres et al., 2018). Researchers should seek to distribute and disseminate information to practitioners to inform them on the risk and protective factors available for marginalized populations at risk of PPD. Also, findings revealed that mistimed and unintended pregnancies had a correlation with depressive symptoms. The incorporation of literature and education on family planning should, therefore, be discussed and implemented. Policymakers should invest in continuing education efforts available at universities and other settings to address maternal mental health research disparities and implications for practitioners (Lara-Cinisomo, Clark, & Wood, 2018). The information should be

provided to those who are currently working in the field of maternal health and to those who are in training to become future professionals in counseling or health care fields.

Furthermore, trainings should be incorporated to address systemic racism and implicit bias among providers that work with perinatal populations. The findings of this study revealed that racial discrimination served as a predictor for depressive symptoms for both Spanish and English-speaking Latinas. These results echo the literature which indicate that women of color are more likely to identify experiencing discrimination, and that the prevalence of poor maternal and child health outcomes continue to rise drastically (Alhusen et al., 2016; Bower et al., 2018; Canady et al., 2008; De Marco et al., 2008; Hackney et al., 2020; Luis et al., 2020; Mendez et al., 2013; Wallace et al., 2017). Some of the barriers to care have placed the onus on women and cultural mental health views. The common narrative of stigma has been seen as a barrier to care, yet addressing stigma is not the sole solution (Babyar, 2018; Lara-Cinisomo, Clark, & Wood, 2018). Discriminatory practices have to be addressed to dismantle structural racism that may affect marginalized populations of color as these practices have historically oppressed communities of color (Giritli Nygren & Olofsson, 2014; Molina et al., 2013, Viruell-Fuentes, Miranda, & Abdulrahim, 2012; Williams, 2018).

Trainings that address institutional, structural, and systemic racism, along with the individual aspect of microaggression and implicit bias, should be provided to those in clinical practice (Kempf, 2020; Sue et al., 2007) and those that work with perinatal women to increase awareness and improve practices. An emphasis should also be placed on the curricula offered to students in the medical and counseling fields in which information should incorporate dismantling structural racism and implicit bias to educate future providers (Hansen et al.,

2018). The efforts to increase discussion, awareness, and eventually systematic change are necessary to create change in the field of maternal mental health disparities.

Implications for Policy

Policy efforts to address maternal mental health disparities have been implemented in the state of New Jersey in which a law mandates screening for depressive symptoms (NJ Ch. 12, 2006). Screening may assist in identifying those who may be at-risk prior to delivery and before hospital discharge. Follow-up care plans have been implemented, yet further screening should be considered. The consistency in which women are screened during the postpartum period is not necessarily clear, and efforts to screen at different points should be addressed so that women are connecting with proper care. PPD can last up until the first year postpartum. Screening and information should, therefore, be provided at different times throughout the first postpartum year as it can assist in linking women to care (Toohey, 2012). Also, PPD screening has not been mandated nationally and follow-up care plans have to be further developed to provide adequate care and prevention. Policymakers should consider implementing screening for PPD on a national level, as there is currently no federal policy that mandates education and screening for PPD (Rhodes & Segre, 2013). Addressing screening on a national level may then bring awareness on how to provide follow-up care and identify women who are at risk.

Moreover, policymakers should consider funding initiatives that implement evidenced-based programs in clinics and organizations to increase support networks available to women who have limited support. The findings in this study highlight that less acculturated women are more likely to seek support at community-based organizations. Enhancing collaborations among community-based organizations with mental health organizations may increase outreach efforts and implementation of services to marginalized communities. Interventions, such as ROSES

groups and/or postpartum support groups, may help provide support among women who may have limited support. Evidenced-based interventions and proper training to provide PPD screening should be encouraged and implemented in home visiting programs and community-based programs and providing reimbursement by Medicaid may incentivize the provision of care (Wilkinson et al., 2017).

Although, this study found that the support from home visitors was not significantly related with mental health outcomes, research has demonstrated that home visiting programs serve as a support during pregnancy and in the postpartum period (Hans et al., 2018; Tandon et al., 2018). Home visitors may aid in implementing preventative models that could help educate and inform women of resources to address maternal mental health disorders and serve as a link to proper care. Seeking to include interventions and policies that support these would serve to aid communities that may have limited support within their networks. Therefore, policymakers, practitioners, and researchers should seek to examine the research, practices, and policies that are in place, which may or may not address the mental health disparities among Latinas that are at-risk. Utilizing an integrated framework may help address both risk and protective factors, as well as aid stakeholders in making informed decisions that would serve to narrow the maternal mental health gap.

Strength and Limitations

Examining the risk and protective factors among Latinas is crucial as the Latino population is the fastest growing in the United States. The findings of this study add to the literature as outcomes indicate that considerations have to be accounted for when examining the sources of support by acculturation. In this study, the use of language as proxy measure for acculturation revealed that sources of support may differ among more acculturated and less

acculturated Latinas. The findings also stress the importance of incorporating discrimination as a risk factor when seeking to examine the mental health outcomes among Latinas, especially when considering the sociopolitical climate and growing negative sentiments toward Latinos.

Additionally, this study examined the sources of support from the partner, family, home visitor, and community networks, which helps examine social support. In particular, family support helped incorporate the cultural protective value of familismo and its intersection with acculturation. The findings expand and contribute to the body of literature that examines the maternal mental health and the utilization of social support networks among Latinas. The findings contribute to the literature in several ways. For example, when investigating PPD risk among Latinas, it is important to consider acculturation, social networks, and macro level systemic factors that may intersect with adjustment. Also, this study used a quantitative secondary data analysis that applied a rigorous methodology and has established reliable and valid instrument measurements (Grigorescu et al., 2014).

Though there are strengths to the study, there were several limitations as well. First, it is necessary to recognize that the use of secondary data has its limitations. Though the survey has been effectively developed to examine numerous prenatal and postpartum health outcomes, there were limitations to measuring the variables of interest for this study. There were limited questions that could be used to address the variables of interest, as the purpose of the survey was to measure the health outcomes. Also, surveys were sent to women 2-4 months after delivery, asking them to recall their experiences during pregnancy and before conception, resulting in potential recall bias. For this reason, future research should seek to expand and explore the relationship between acculturation, sources of support, and discrimination to include in depth surveys that explore these concepts further. Also, it would be necessary and valuable to include

qualitative studies that explore the lived experiences of both Spanish and English-speaking Latinas, to have a deeper understanding of their experience with sociocultural factors, emotional well-being, racial discrimination, and utilization of support.

Furthermore, the PPD measure for this study was based on two items that were dichotomously used as a PPD indicator. Being that the measure of PPD was a self-reported measure, future studies should seek to further explore PPD symptoms. Also, the measure of acculturation was limited to using the proxy of language, the only proxy that was available. The dataset did not include information regarding place of birth or length of stay in the United States. Future studies could help address the differences by incorporating a more multidimensional measure of acculturation that explores the cultural views and values with sources of support and PPD outcomes. Including a multidimensional measure may assist in identifying the differences or similarities in views of familismo and how it may be perceived during the postpartum period. Measures to view if the participants were foreign born, first generation or second generation, length of stay in the United States, and cultural views should be explored in the future.

Despite these limitations, the language measure was helpful to reflect differences within the sources of supports and how these may vary by language. Also, it is necessary to recognize the heterogeneity that exists among Latinos. Although in this sample the women self-identified as Hispanic (addressed in this study as Latinas), it is important to recognize that this is a heterogeneous group represented by regions in Northern, Southern, and Central America, and there may be differences among these subpopulations. Additionally, due to the nature of secondary data analysis, information of the region in which Latinas were born was not provided. It is, therefore, undetermined if women that were from Brazil, for example, self-identified as Latinas and might have filled out the survey in Spanish. Future studies should seek to examine

differences among a diverse ethnic sample of Latinas to explore further the intersections of acculturation, social support, and racial discrimination.

Conclusion

Recognizing that the relationship between acculturation, racial discrimination, social support, and depressive symptoms is a complex multifaceted one. This study sought to understand these intersecting factors and their relationship with the emotional well-being of Latinas. The findings of this study provide an urgency to increase research that explores within group differences. Including a holistic intersectional lens and a social network framework to account for risk and protective factors can aid in examining the relationship of factors salient among Latinas. The findings of this study reveal that the sources of support differ by acculturation, and risk factors of racial discrimination and untimed/mistimed pregnancies were predictors of depressive symptoms among both Spanish and English-speaking Latinas.

Overall, this study used a secondary analysis with a relatively large number of Latina samples, implications of which provide a call to action for researchers, perinatal and healthcare providers, and policymakers to carefully examine findings that may differ by levels of acculturation. Considerations should be taken to examine how the use of support may differ by acculturation, racial discrimination, and mistimed/unintended pregnancies, which may serve as a predictor to depressive symptoms among both Spanish and English-speaking Latinas. Also, among less acculturated Latinas, the sources of support within the community may serve as a protective factor, while no support may not. Furthermore, highly acculturated Latinas that were enrolled in WIC during pregnancy and used Medicaid for delivery had a significant correlation with depressive outcomes. Identification and implementation of macro level factors in the research, and the inclusion of cultural values that promote a strength-based lens, may help

advance the research to develop culturally relevant interventions and lead to systemic changes.

These changes may ripple into creating sustainable change in institutions that serve postpartum

Latina women and their families.

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Tables and Figures

Table 1

Demographic Variables for Full Sample (N=1360), Spanish-Speaking Sample (N=663) and English-Speaking Sample Latinas (N=697)

Characteristics	Frequency	Total Sample Percentage (%)	Spanish-Speaking Latinas (%)	English-Speaking Latinas (%)
Race				
White, Hispanic	769	56.5	59.1	54.7
Black, Hispanic	161	11.8	9.7	13.9
Other, Hispanic	369	27.1	26.4	27.8
Mixed Race	61	4.5	4.8	4.2
Language				
Spanish-speaking Hispanic	663	48.8	48.8	
English-speaking Hispanic	697	51.2		51.2
Age				
< 19	111	8.2	7.1	9.2
20 to 34	972	71.5	71.0	71.9
>35	277	20.4	21.9	18.9
Maternal Education				
<12 years	445	32.7	44.0	22.0
12 years	323	23.8	27.5	20.2
>12 years	592	43.5	28.5	57.8
Income Status (annual household income)				
<\$22,000	564	41.5	49.2	40.8
\$22,001-\$44,000	212	15.6	11.6	23.1
>\$44,001	281	20.7	10.6	36.1
WIC during pregnancy				
Yes	925	68.0	78.0	58.5
No	435	32.0	22.0	41.5
Support during pregnancy family				
Yes	597	56.1	38.5	49.1
No	763	43.9	61.5	50.9
Support during pregnancy parent				
Yes	839	61.7	46.8	75.9
No	521	38.3	53.2	24.1
Support during pregnancy friend				
Yes	411	30.2	25.5	34.7
No	949	69.8	74.5	65.3
Support during pregnancy partner				
Yes	1080	79.4	81.4	77.5

No	280	20.6	18.6	22.5
Support during pregnancy none				
Yes	19	1.4	1.4	1.4
No	1341	98.6	98.6	98.6
Support during pregnancy Other				
Yes	49	3.6	3.5	3.7
No	1311	96.4	96.5	96.3
Support during pregnancy Religious community				
Yes	110	8.1	9.4	6.9
No	1250	91.9	90.6	93.1
Depression before pregnancy				
Yes	235	17.3	17.5	17.1
No	1125	82.7	82.5	82.9
Depression since birth				
Yes	75	5.5	4.8	6.2
No	1285	94.5	95.2	93.8
Depression no interest after birth				
Yes	83	6.1	4.8	7.3
No	1277	93.9	95.2	92.7
Racial discrimination				
Yes	172	12.6	14.0	11.3
No	1188	87.4	86.0	88.7
Method of payment				
Medicaid	1029	75.7	87.9	64.0
Other	331	24.3	12.1	36.0
Home visitor visit during pregnancy				
Yes	132	9.7	10.0	9.5
No	1228	90.3	90.0	90.5
Home visitor support after delivery				
Yes	283	20.8	21.4	20.2
No	1077	79.2	78.6	79.8
Pregnancy Intention				
Intended	711	52.3	55.8	48.9
Mistimed	406	29.9	30.9	28.8
Unintended	243	17.9	13.3	22.2
Plurality				
Singleton	1297	95.4	95.9	94.8
2 or more	63	4.6	4.1	5.2

Table 2*Summary of Missing Cases (N=1360)*

Demographics	Case Missing (n)	Percentage Missing (%)
Maternal Race ⁴	12	0.9
Support during pregnancy family ¹	12	0.9
Support during pregnancy friend ²	16	1.2
Support during pregnancy partner ¹	10	0.7
Support during pregnancy none ²	11	0.8
Support during pregnancy other ²	15	1.1
Support during pregnancy parent ¹	10	0.7
Support during pregnancy religious community ²	20	1.5
Income status	303	22.3
Payment of method ⁴	3	0.2
Pregnancy Intention ⁴	50	3.7
Depression since birth ³	29	2.1
Depression -no interest after birth ³	38	2.8
Depression before pregnancy ³	42	3.1
Racial discrimination ⁴	17	1.2
Home visitor support after delivery ²	41	3.0
Home visitor visit during pregnancy ²	12	0.9
WIC during pregnancy ⁴	18	1.3

Note: 1. Little's missing at random test chi square result: [$df = 2$] 635, $p = .728$.

2. Little's missing at random test chi square result: [$df = 43$] 50.055, $p = .214$.

3. Little's missing at random test chi square result: [$df = 8$] 4.487, $p = .811$.

4. Little's missing at random test chi square result: [$df = 31$] 29.039, $p = .567$.

Table 3*Correlations of Variables in Full Sample (N=1360)*

	1	2	3	4	5	6	7	8	9	10	11	12
1. Partner support	-	.07**	.11***	-.08**	-.23***	-.08**	-.11***	.00	.01	-.09***	.09***	-.12***
2. Family support (Familismo)		--	.32**	-.01	-.16***	-.08**	.07**	.04	.03	-.00	.12***	-.09***
3. Community support			--	.00	-.07**	-.02	.02	.01	.03	-.05*	.01	-.08**
4. Home visitor support				--	.01	.05*	-.03	.01***	.02	-.01	-.06*	.06*
5. No support					--	.10	.05*	.00	.04	.11***	-.03	.04
6. WIC pregnancy						--	.10***	-.04	.01	.03	-.49***	.06*
7. Pregnancy intent							--	-.01	.00	.14***	-.10***	.06*
8. Plurality								--	.04	-.02	.07**	.00
9. History of depression									--	.07**	-.01	.07**
10. PPD										--	.02	.12***
11. Payment Method (Medicaid)											--	-.03
12. Racial discrimination												--
<i>Mean</i>	1.79	0	0	0	1.01	1.68	1.65	1.04	1.17	.094	1.24	1.12
<i>SD</i>	.404	1.00	1.00	1.00	.117	.466	.763	.210	.378	.292	.429	.332
<i>Skewness</i>	-1.45	-.103	1.75	1.90	8.29	-.773	.671	4.32	1.73	2.78	1.197	2.25
<i>Kurtosis</i>	.121	-1.29	2.47	2.69	66.8	-1.40	-.987	16.7	1.00	5.75	-.567	3.06

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 4*Correlations of Variables with Spanish-Speaking Sample (N=663)*

	1	2	3	4	5	6	7	8	9	10	11	12
1.Partner support	-	.05	.07*	-.09*	-.24**	-.05	-.05	-.01	-.00	-.07*	.02	-.07
2.Family support (Familismo)		--	.32**	-.02	-.13**	-.02	.06	.03	.06	.02	.07*	-.06
3.Community support			--	.00	-.06	-.03	.09*	.00	.05	-.07	-.01	-.07*
4. Home visitor support				--	.05	-.03*	-.07	.10**	.01	.02	-.00	.08*
5.No support					--	-.06	-.02	.04	.01	.16**	-.00	.06
6. WIC pregnancy						--	.04	-.05	-.04	-.00	-.30**	.03
7. Pregnancy intent							--	-.02	-.02	.11**	-.03	.04
8. Plurality								--	.02	-.00	.04	.00
9. History of depression									--	.08*	.01	.08*
10. PPD										--	.01	.10**
11. Payment method (Medicaid)											--	-.01
12. Racial discrimination												--
<i>Mean</i>	1.81	-.266	-.036	.021	1.01	1.77	1.57	1.04	1.17	.078	1.12	1.14
<i>SD</i>	.389	1.00	1.02	1.01	.115	.414	.714	.197	.380	.269	.325	.347
<i>Skewness</i>	-1.62	.263	1.78	1.87	8.42	-1.35	.832	4.65	1.71	3.14	2.33	2.07
<i>Kurtosis</i>	.632	-1.26	2.35	2.56	69.2	-1.69	-.615	19.7	.944	7.90	3.46	2.31

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 5*Correlations of Variables in with English-Speaking Sample (N=697)*

	1	2	3	4	5	6	7	8	9	10	11	12
1.Partner support	-	.13**	.16**	-.07*	-.22**	-.12**	-.15**	.01	.02	-.09**	.17**	-.18**
2.Family support (Familismo)		--	.31**	.01	-.21**	-.03	.03	.03	.01	-.05	.04	-.10**
3.Community support			--	.00	-.07*	-.01	-.04	.01	.01	-.04	.03	-.08*
4. Home visitor support				--	-.02	.12**	.00	.11*	.03	-.05	-.10**	.04
5.No support					--	.07*	.11**	-.02	.07	.07	-.06	.03
6. WIC pregnancy						--	.19**	-.02	.06	.08*	-.55**	.08*
7. Pregnancy intent							--	-.00	.01	.16**	-.19**	.09*
8. Plurality								--	.06	-.04	.08*	-.00
9. History of depression									--	.07	-.03	.05
10. PPD										--	.00	.15**
11. Payment method (Medicaid)											--	-.02
12. Racial discrimination												--
<i>Mean</i>	1.77	0	.0	0	1.01	1.58	1.73	1.05	1.17	.109	1.36	1.11
<i>SD</i>	.418	1.00	1.00	1.00	.119	.493	.800	.221	.376	.311	.480	.317
<i>Skewness</i>	-1.31	-.501	1.76	1.95	8.18	-.347	.518	4.06	1.75	2.51	.584	2.44
<i>Kurtosis</i>	-.263	-.863	2.85	2.89	65.1	-1.88	-1.25	14.5	1.07	4.33	-1.66	3.98

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 6

Factor Loadings for Exploratory Factor Analysis in Full Sample (N=1360), Spanish-Speaking sample (N=663), and English-Speaking Sample (N=697)

	Total sample Loadings	Spanish- Speaking Loadings	English- Speaking Loadings
Family Support (Familismo)			
Help during pregnancy from parents	.782	.780	.769
Help during pregnancy from family	.782	.780	.769
Community Support			
Help during pregnancy from friends	.805	.815	.797
Help during pregnancy from religious community	.797	.815	.786
Home visitor Support			
Visit during pregnancy from home visitor	.816	.817	.818
Visit during the postpartum period from home visitor	.822	.817	.822

Table 7

Bootstrap Binary Logistic Regression – Postpartum Depression Predictors among Spanish-Speaking Latina sample with no control variables (N=663, B=1000)

Variables	Average Bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% Percentile CI	5%, 95% BC CI	P value
Partner support	-.139	.445	-.008	(.413, 1.83)	(-.997, .794)	.735
Family support (Familismo)	.265	.184	.009	(.941, 1.80)	(-.067, .647)	.120
Home visitor support	.074	.154	-.016	(.812, 1.42)	(-.286, .343)	.601
Community support	-.422	.261	-.053	(.435, .987)	(-1.03, -.021)	.066
No help	2.41	3.19	-.038	(2.24, 56.0)	(.260, 4.56)	.001***
History of depression	.745	.395	-.006	(1.07, 4.14)	(-.100, 1.45)	.037*
WIC pregnancy	-.045	.433	.038	(.454, 2.01)	(-.802, .860)	.900
Racial discrimination	.697	.388	.019	(.997, 4.04)	(-.029, 1.46)	.053
Payment method	.183	.781	-.057	(.482, 2.99)	(-1.02, 1.03)	.691
Plurality	-.288	6.30	-2.29	(.162, 3.48)	(-19.3, .984)	.606
Pregnancy intent (intended)	-	-	-	-	-	-
Pregnancy intent (mistimed)	.937	.381	.004	(1.29, 5.04)	(.227, 1.72)	.012*
Pregnancy intent (unintended)	1.12	.487	-.011	(1.34, 7.00)	(.040, 2.03)	.009**

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 8

Bootstrap Binary Logistic Regression – Postpartum Depression predictors among English-Speaking Latina sample no control variables (N=697, B=1000)

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% percentile CI	5%, 95% BC CI	P value
Partner support	-.368	.334	.006	(.380, 1.25)	(-1.03, .277)	.249
Family support (Familismo)	-.136	.139	-.007	(.660, 1.15)	(-.431, .129)	.319
Home visitor support	-.208	.155	-.007	(.601, 1.09)	(-.559, .054)	.146
Community support	-.027	.162	-.012	(.730, 1.29)	(-.417, .240)	.847
No help	.191	4.99	-1.18	(.250, 5.85)	(-20.6, 2.03)	.759
History of depression	.574	.359	.015	(.968, 3.25)	(-.141, 1.25)	.092
WIC pregnancy	.699	.380	.041	(1.05, 3.84)	(.017, 1.50)	.048*
Racial discrimination	.856	.366	.025	(1.24, 4.45)	(.150, 1.57)	.016*
Payment method	.806	.369	.024	(1.19, 4.20)	(.116, 1.56)	.025*
Plurality	-.830	6.01	-2.11	(.095, 2.00)	(-19.5, .529)	.243
Pregnancy intent (intended)	-	-	-	-	-	-
Pregnancy intent (mistimed)	1.30	.363	.042	(1.93, 7.07)	(.614, 2.04)	.001***
Pregnancy intent (unintended)	1.15	.374	.041	(1.61, 6.27)	(.483, 1.94)	.001***

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 9

Bootstrap Binary Logistic Regression– Postpartum Depression Predictors among Spanish-Speaking Latinas with Control Variables of Age, Education, and Race (N= 663, B=1000)

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% Percentile CI	5%, 95% BC CI	P value
Partner support	-.139	.467	-.014	(.406, 1.86)	(-.988, .821)	.750
Family support (Familismo)	.234	.199	.018	(.906, 1.76)	(-.134, .648)	.223
Home visitor support	.056	.160	-.013	(.789,1.41)	(-.300, .325)	.716
Community support	-.402	.272	-.052	(.443, 1.01)	(-1.07, .023)	.079
No help	2.41	4.14	-.245	(2.09, 59.0)	(-17.6, 5.15)	.004**
History of depression	.812	.389	.030	(1.12, 4.53)	(.071, 1.58)	.023*
WIC pregnancy	.028	.470	.022	(.481, 2.20)	(-.797, 1.09)	.952
Racial discrimination	.761	.421	.041	(1.05, 4.35)	(-.124,, 1.55)	.042*
Payment method	.093	.566	-.088	(.426, 2.82)	(-1.27, .984)	.847
Plurality	-.422	6.57	-2.51	(.137, 3.14)	(-19.5, .999)	.494
Pregnancy intent (intended)	-	-	-	-	-	-
Pregnancy intent (mistimed)	.883	.413	.046	(1.20, .4.86)	(.189, 1.80)	.015*
Pregnancy intent (unintended)	1.07	.519	.061	(1.27, 6.703)	(.041, 2.13)	.014*
Maternal race	-	-	-	-	-	-
Maternal race White-Latina	1.03	8.54	5.83	(.350, 22.7)	(-.293, 19.1)	.130
Maternal race Black-Latina	.961	8.74	5.59	(.276, 24.7)	(-.974, 19.3)	.202

Maternal race Other-Latina	1.10	8.55	5.82	(.357, 25.4)	(-.405,, 19.3)	.126
Maternal education (<12 years)	-	-	-	-	-	-
Maternal education (12 years)	.209	.437	-.036	(.575, 2.64)	(-.719, 1.02)	.593
Maternal education (>12 years)	.415	.464	.039	(.713, 3.21)	(-.459, 1.33)	.355
Maternal age (<19)	-	-	-	-	-	-
Maternal age (20-34)	-.729	1.04	.033	(.176, 1.32)	(-1.85, .512)	.147
Maternal age (> 35)	-.400	1.08	.019	(.207, 2.16)	(-1.77, .918)	.499

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 10

Bootstrap Binary Logistic Regression – Postpartum Depression Predictors Among English-Speaking Latina Sample with Control Variables of Age, Education, and Race (N =697, B=1000)

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% Percentile CI	5%, 95% BC CI	P value
Partner support	-.381	.350	.008	(.377, 1.23)	(-1.00, .383)	.227
Family support (Familismo)	-.117	.142	.003	(.671, 1.18)	(-.390, .165)	.376
Home visitor support	-.215	.157	-.015	(.596, 1.09)	(-.575, .049)	.123
Community support	-.045	.170	-.014	(.715, 1.27)	(-.435, .234)	.763
No help	.078	4.87	-1.14	(.229, 5.09)	(-20.6, 1.90)	.877
History of depression	.581	.360	.021	(.962, 3.323)	(-.098, 1.25)	.082
WIC pregnancy	.594	.384	.058	(.953, 3.44)	(-.051, 1.44)	.097
Racial discrimination	.891	.371	.058	(1.28, 4.63)	(.186, 1.65)	.012*
Payment method	.733	.354	.059	(1.08, 4.00)	(.138, 1.49)	.027*
Plurality	-.837	6.71	-2.77	(.095, 1.98)	(-19.6, .499)	.217
Pregnancy intent (intended)	-	-	-	-	-	-
Pregnancy intent (mistimed)	1.23	.371	.068	(1.76, 6.66)	(.558, 2.09)	.001***
Pregnancy intent (unintended)	1.25	.363	.055	(1.61, 6.27)	(.536, 1.96)	.001***
Maternal race	-	-	-	-	-	-
Maternal race White-Latina	-.150	2.45	.306	(.262, 2.82)	(-1.30, 1.66)	.797

Maternal race Black-Latina	-.018	2.46	.317	(.268, 3.59)	(-1.34, 1.94)	.961
Maternal race Other-Latina	-.209	2.44	.293	(.236, 2.79)	(-1.42, 1.65)	.693
Maternal education (<12 years)	-	-	-	-	-	-
Maternal education (12 years)	.153	.475	-.004	(.527, 2.57)	(-.784, 1.10)	.706
Maternal education (>12 years)	.019	.429	.016	(.481, 2.15)	(-.794, .919)	.968
Maternal age (<19)	-	-	-	-	-	-
Maternal age (20-34)	-.083	.557	.040	(.378, 2.24)	(-1.07, 1.16)	.874
Maternal age (> 35)	.035	.642	.063	(.342, 3.13)	(-1.15, 1.38)	.951

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 11

Model 1 Testing Types of Social Support with Risk Factors Among Spanish- Speaking Latinas (N = 663)

Variables		β	S.E	C.R	P value
Partner support	→ PPD symptoms	-0.02	0.026	-0.598	0.550
Family support (Familismo)	→ PPD symptoms	0.10	0.097	1.010	0.313
Home visitor support	→ PPD symptoms	0.02	0.099	0.561	0.575
Community support	→ PPD symptoms	-0.12	0.071	-2.280	0.023*
No help	→ PPD symptoms	0.15	0.087	4.041	0.001***
History of depression	→ PPD symptoms	0.08	0.027	2.186	0.029*
Racial discrimination	→ PPD symptoms	0.08	0.029	2.209	0.027*
Pregnancy intent	→ PPD symptoms	0.11	0.014	3.057	0.002**

Note: Model fit statistic $\chi^2(52) = 230.30, p < .001$; RMSEA (root mean square error of approximation) = .072, CFI (comparative fit index) = .55; CMIN/df = 4.426; * $p < .05$, ** $p < .01$, *** $p < .001$

Table 12

Model 2 Testing Types of Social Support with Risk Factors Among English-Speaking Latinas (N = 697)

Variables			β	<i>S.E</i>	<i>C.R</i>	<i>P</i> value
Partner support	→	PPD symptoms	-0.04	0.027	-1.290	0.197
Family support (Familismo)	→	PPD symptoms	-0.03	0.125	-0.411	0.681
Home visitor support	→	PPD symptoms	-0.08	0.112	-1.392	0.164
Community support	→	PPD symptoms	-0.01	0.095	-0.022	0.982
No help	→	PPD symptoms	0.03	0.096	0.897	0.370
Payment method	→	PPD symptoms	0.09	0.024	2.539	0.011*
WIC pregnancy	→	PPD symptoms	0.09	0.023	2.495	0.013*
Racial discrimination	→	PPD symptoms	0.12	0.036	3.255	0.001***
Pregnancy intent	→	PPD symptoms	0.14	0.014	3.824	0.001***

Note: Model fit statistic $\chi^2(63) = 638.125, p < .001$; RMSEA (root mean square error of approximation) = .115, CFI (comparative fit index) = .250; CMIN/df = 10.128; * $p < .05$, ** $p < .01$, *** $p < .001$

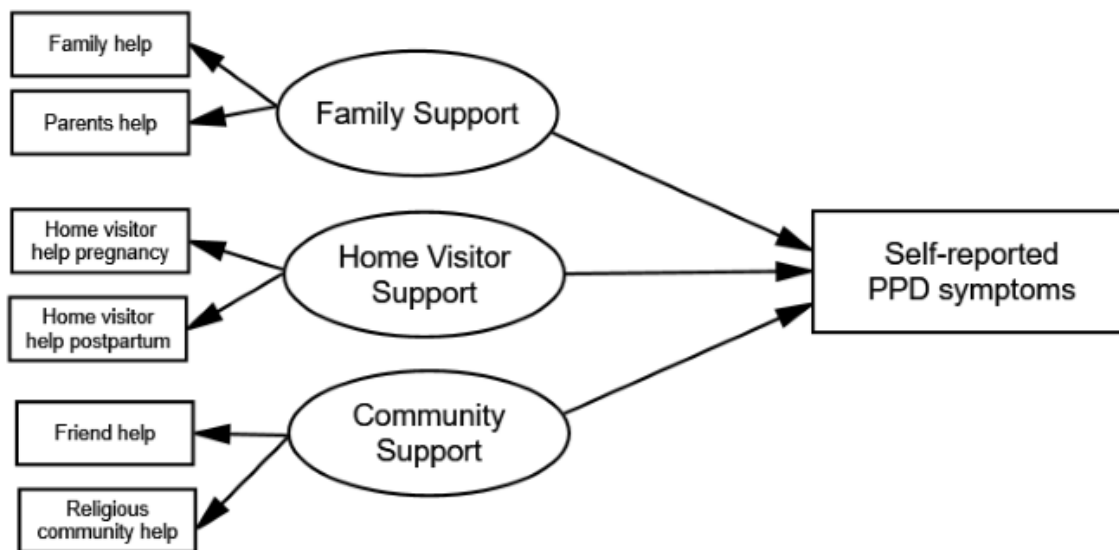


Figure 1. Analytical model for the EFA result

Appendix A: Birth Certificate and New York City (NYC)
Pregnancy Risk Assessment Monitoring System (PRAMS) Questions

Operationalization of constructs in the study.

Constructs	Operationalization from the NYC PRAMS and if obtained from the birth certificate data
Race and Ethnicity Age Education	Race and ethnicity (birth certificate data) Maternal age (birth certificate data) Education (birth certificate data)
Income	<p>“During the 12 months before your new baby was born, what was your yearly total household income before taxes? Include your income, your husband’s or partner’s income, and any other income you may have received. All information will be kept private and will not affect services you are now getting.</p> <p>\$0 to \$15,000 \$15,001 to \$19,000 \$19,001 to \$22,000 \$22,001 to \$26,000 \$26,001 to \$29,000 \$29,001 to \$37,000 \$37,001 to \$44,000 \$44,001 to \$52,000 \$52,001 to \$56,000 \$56,001 to \$67,000 \$67,001 to \$79,000 \$79,001 or more</p>
Familismo and Social support	<p>During your most recent pregnancy, who would have helped you if a problem had come up? For example, who would have helped you if you needed to borrow \$50 or if you got sick and had to be in bed for several weeks?</p> <p>My husband or partner My mother, father, or in-laws Other family member or relative A friend Religious community Someone else-----(please tell us) No one would have helped me</p>
Home visitor support during pregnancy	During your most recent pregnancy, did a home visitor come to your home to help you prepare for

	<p>your new baby? A home visitor is a nurse, a health care worker, a social worker, or other person who works for a program that helps pregnancy women.</p> <p>No Yes</p>
Home visitor support after delivery	<p>Since your new baby was born, has a home visitor come to your home to help you learn how to take care of yourself or your new baby? A home visitor is a nurse, a health care worker, a social worker, or other person who works for a program that helps mothers of newborns</p> <p>No Yes</p>
History of depression	<p>At any time during the 12 months before you got pregnant with your new baby, did you do any of the following things? For each item, check No if you did not do it or Yes, if you did it.</p> <p>f. I visited a health care worker and was checked for depression or anxiety</p> <p>No Yes</p>
Women, Infant, and Children (WIC) status	<p>During your most recent pregnancy, were you on WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children)?</p> <p>No Yes</p>
Insurance payment for delivery	<p>birth Certificate Information (options)</p> <p>Medicaid Private Insurance Self-Pay Indian H.S. Champus/TriCare Other Government Other</p>
Racial discrimination	<p>During the 12 months before your new baby was born, did you feel emotionally upset (for example, angry, sad, or frustrated) as a result of how you were treated based on your race?</p> <p>No</p>

	Yes
Pregnancy intent	Thinking back to just before you got pregnant with your new baby, how did you feel about becoming pregnant? I wanted to be pregnant later I wanted to be pregnant sooner I wanted to be pregnant then I didn't want to be pregnant then or at any time in the future I wasn't sure what I wanted
PPD question	Since your new baby was born, how often have you felt down, depressed, or hopeless? Always Often Sometimes Rarely Never
PPD question	Since your new baby was born, how often have you had little interest or little pleasure in doing things? Always Often Sometimes Rarely Never
<u>Acculturation viewed through language</u>	<u>If survey was filled out in English or Spanish</u>

CHAPTER IV

An Intersectional Examination of Racial Discrimination, Breastfeeding Intention, and Social Support with Postpartum Depression and Breastfeeding Practices: An Analysis Using the 2012-2014 NYC Pregnancy Risk Assessment Monitoring System Among Latinas

During the postpartum period, the practice of exclusive breastfeeding has been commonly identified as the optimal feeding option that provides infants with a healthy start (Johnston et al., 2012). Exclusive breastfeeding, which is strictly feeding the infant with breast milk, has been recommended by the American Academy of Pediatrics for up to six months after birth (American Academy of Pediatrics, 2011). Benefits to exclusive breastfeeding have been recorded for both the mother and infant. For example, for infants, breastfeeding increases immunity to viruses and pathogens (Cerini & Aldrovandi, 2013; Stuebe & Schwarz, 2010), as well as reduces the risk of childhood obesity (Reynolds et al., 2014) and infant mortality (Khan et al., 2015). For mothers, it has been documented that breastfeeding decreases the risk of both ovarian and breast cancers (Victoria et al., 2016).

Though benefits of exclusive breastfeeding have been identified, the percentages of exclusive breastfeeding up until the first six months are low in developed countries. A United Nations International Children's Emergency Fund (UNICEF) report on breastfeeding practices reveals that in developed countries, women are less likely to breastfeed as 1 in 5 infants are never breastfed, while in low- and middle-income countries nearly all babies are breastfed (Arts et al., 2018). The rates in the United States reveal different trends as women of lower socioeconomic status are less likely to continue breastfeeding and more likely to use formula (Anstey et al., 2017).

In the United States, a large portion of women combine both breast milk and formula feeding (Centers for Disease Control and Prevention [CDC], 2019). In 2016, a National Immunization Survey in the United States further revealed that the national rate of women that initiate breastfeeding was at 83%, while rates for any and exclusive breastfeeding for up to six months dropped to 25% (CDC, 2019). Although rates vary among socio-demographic factors, a similar trend was found with Latinas who initiated breastfeeding at a rate of 82%, but lowered their exclusive breastfeeding at the six-month mark to 20%. This amounts to 4 in every 5 Latinas initiating breastfeeding, but only 20% continuing to exclusively breastfeed at the national recommendation of six months after birth.

Additionally, women who have lower educational attainment are less likely to initiate and exclusively breastfeed at the six-month mark. The percentages of initiation and exclusive breastfeeding are listed accordingly: less than high school education (70%; 16%), high school education (75%; 18%), some college or technical school (85%; 26%), compared to college graduates (93%; 32%) (CDC, n.d.). Additional stressors such as cesarean birth (Pérez-Ríos et al., 2008), history of depression during pregnancy (Figueiredo et al., 2014), tobacco use (Weiser et al., 2009), and lack of support (De Bocanegra, 1998) may decrease breastfeeding practices. Women who are at an economic disadvantage, numerous barriers may be encountered that may intersect with breastfeeding practices.

Yet, among Latinas, the percentage of breastfeeding initiation across socioeconomic statuses appears to remain high, though breastfeeding practices lower significantly in the first postpartum year (CDC, 2013). The level of acculturation may need to be examined. When examining breastfeeding practices, it is necessary to incorporate factors that Latinas may encounter at the individual, cultural, and societal levels. Incorporating cultural factors when

examining breastfeeding practices among Latinas may aid in having a deeper understanding of breastfeeding continuation, emotional well-being, and cultural contributors.

Breastfeeding Practices Among Less Acculturated Latinas

Although breastfeeding intention and duration lowers with increased acculturation, breastfeeding practices may be high among less acculturated Latinas (Kimbrow et al., 2008; Harley et al., 2007; Sussner et al., 2008). Acculturation is described as the process in which immigrants adapt or assimilate to the host society and should be examined when exploring breastfeeding practices among Latinas (Escobar et al., 2000). Additionally, the immigrant paradox, which has been used to explain inverse changes, theorizes that newly arrived immigrants, despite their socioeconomic status, may have better well-being outcomes. In contrast, established immigrants who reside in the United States for a longer time are said to experience acculturative stress, which leads to decreased health outcomes (Caplan, 2007; Markides & Coreil, 1986). Although breastfeeding practices, such as exclusive breastfeeding initiation may be initially higher among less acculturated Latinas than their highly acculturated counterparts (Singh, Kogan, & Dee, 2007), breastfeeding practices appear to decrease with each additional year residing in the U.S. (Gibson-Davis & Brooks-Gunn, 2006; Singh et al., 2007). The trend of decreased exclusive breastfeeding is one that has to be viewed through an intersectional lens as women especially those with limited resources and of lower educational attainment may stop breastfeeding practices sooner (Chatterji & Brooks-Gunn, 2004; Sparks, 2011).

Latinas may have intentions to breastfeed as it is commonly practiced in their native countries (Arts et al., 2018), but outcomes have been inconsistent. Some studies link the decrease of breastfeeding continuation with acculturation, whereas others have reported no significant

evidence of the association (Anderson et al., 2004; Balcazar et al., 1995; Flores et al., 2016). A review of literature revealed no conclusive interaction between acculturation and breastfeeding practices, as studies have used different measures of acculturation and have not provided consistent definitions of exclusive breastfeeding. Future research should examine breastfeeding intention and exclusive breastfeeding continuation among Latinas to determine how these may associate with acculturation, risk factors, and protective factors (Bigman et al., 2018).

Breastfeeding Practices Among Highly Acculturated Latinas

Trends with breastfeeding practices and acculturation indicate that more acculturated women may be less likely to initiate breastfeeding or continue exclusive breastfeeding (Gill, 2009; Sebastian et al., 2019). Typical measures of acculturation that have been utilized include: language preference, length of residence in the United States, and/or nativity (Alhasanat & Giurgescu, 2017; Beck, 2006; Wallace et al., 2010). The measure of language as a proxy of acculturation has been used to examine the difference among breastfeeding practices and acculturation (Ahluwalia et al., 2012; Sebastian et al., 2019). The studies reveal that highly acculturated Latinas who prefer to fill out their survey in English are less likely to initiate and exclusively breastfeed their infant (Bigman et al., 2018; Langellier et al., 2012; Sebastian et al., 2019). Furthermore, even if there is a combination of breastfeeding and formula-feeding, more acculturated Latinas are less likely to continue breastfeeding at the two-month mark (Sebastian et al., 2019).

Additionally, exclusively breastfeeding occurs at a much lower rate within the first month postpartum, and there may be additional stressors that may contribute to these outcomes.

Although numerous predictors have been reported to associate with breastfeeding cessation, such as partially breastfeeding at the hospital and being enrolled in WIC services (Chatterji & Brooks-

Gunn, 2004; Bunik et al., 2009; Jones et al., 2015), researchers may not always account for acculturation (Petrova et al., 2007). Furthermore, the introduction of other foods before four months is most common among Latinas that have lower rates of breastfeeding (Jones et al., 2015). Though studies show that exclusive breastfeeding practices tend to be low among highly acculturated women, and decrease among less acculturated Latinas as they acculturate, it is necessary to examine what risk and protective factors may associate with exclusive breastfeeding cessation. Of particular interest, it is necessary to include and explore how risk and protective factors found at the macro level and cultural levels may intersect with breastfeeding practices and emotional well-being.

Breastfeeding Intention

To explore breastfeeding practices, it is important to highlight the cultural concepts that may be prevalent among Latinas. For instance, the motherhood role of *marianismo* is a cultural factor that has been commonly practiced among Latinas who adhere to more traditional gender roles (Le et al., 2008; Nuñez et al., 2016). *Marianismo* relates to the Virgin Mary construct in which mothers are to be self-sacrificial and provide for their family, placing their own needs below the needs of others (Stevens, 1973). When viewing breastfeeding practices, Latinas may feel compelled to provide for their child and have intentions to breastfeed and/or combine breastfeeding methods. Literature provides evidence that among Latinas the intention to breastfeed is one that has been correlated with increased breastfeeding practices (Kimbrow et al., 2008; Linares et al., 2015). Yet, not many studies have sought to include the cultural and macro level factors with breastfeeding intention and acculturation among Latinas (Ahluwalia et al., 2012; Barcelona de Mendoza et al., 2016).

It is necessary to take into account that women may want to exclusively breastfeed their children, but they may come across challenges that may intersect with their confidence in doing so. The concept of breastfeeding self-efficacy (Dennis & Faux, 1999) describes a mother's confidence and intention to breastfeed her child, which may influence emotional well-being. A recent study with low-income Latinas found that those who had high self-efficacy were more likely to exclusively breastfeed (Glassman et al., 2014). The study also found that those that had high education attainment and were less acculturated were more likely to breastfeed. However, other studies have reported that despite the intention to breastfeed, Latinas may encounter a series of stressors, such as acculturation, demanding work schedules, and concerns of insufficient breast milk/lactation, that increase breastfeeding cessation (Bartick & Reyes, 2012; Jones et al., 2015; Langellier et al., 2012; Sriraman & Kellams, 2016). Thus, the mother's intention to breastfeed must be considered when examining breastfeeding practices, and the inclusion of depressive symptoms need to be accounted for (Alghamdi et al., 2017). Though women may have an intention to breastfeed, there may be additional risk and protective factors that may influence outcomes. It is important to view these risk and protective factors among Latinas as they may have a higher intention of breastfeeding but discontinue early.

Racial Discrimination

Structural barriers and societal standards of infant feeding may place women who self-report incomes below the federal poverty threshold at a double bind as they may not be able to meet expectations due to barriers encountered (Elliot & Bowen, 2018). When examining risk stressors among Latinas, it is necessary to consider macro level factors that may be prevalent. Although Latinas, especially less acculturated Latinas, may be more likely to initiate breastfeeding, experiences with a series of structural barriers among low-income mothers may

decrease breastfeeding practices (Kaufman et al., 2010). Barriers such as racial discrimination have been well documented to be associated with negative well-being outcomes among women of color (Braveman et al., 2017; Shelton et al., 2011; Dominguez et al., 2008).

Yet, the inclusion of racial discrimination with breastfeeding practices has not been extensively investigated. In a recent study that examined racial discrimination with Black women's breastfeeding practices, findings indicate that women who experienced discrimination at work and were living in segregated neighborhoods were less likely to initiate and continue to breastfeed (Griswold et al., 2018). Biases and discrimination from lactation consultants have occurred, but little research has explored how racial discrimination may intersect with breastfeeding practices among Latinas (Thomas, 2018). Racial discrimination is a factor that needs to be examined with Latinas and breastfeeding practices, as 4 in every 10 Spanish-speaking Latinas reported having experienced racial discrimination (Hugo Lopez et al., 2018). Although Latinas are more likely to initiate breastfeeding, the practice of exclusive breastfeeding decreases in the postpartum period. Thus, including risk factors such as racial discrimination may assist in examining how macro level factors may be associated with breastfeeding outcomes.

Social Support and Familismo

Including sources of support to examine how these may associate with well-being and breastfeeding practices is imperative, as support, especially provided by family, has served as a protective factor. Familismo, which has been defined as support received from the family members or kin (Marín & Marín, 1991), may have positive outcomes with breastfeeding practices. Latinas that received advice and help from family members such as a grandmother have resulted in positive outcomes with breastfeeding continuation (Turnbull-Plaza et al., 2006).

However, another study revealed contradicting results which indicated that women may be encouraged by family members to introduce other liquids aside from breast milk at an earlier time (Susin et al., 2005).

In addition to family support, the support received from a partner/spouse has been positively associated with breastfeeding initiation and continuation (Rempel & Rempel, 2004; Swanson & Power, 2005), while lack of support from a partner has been correlated with discontinued breastfeeding practices (Neifert & Bunik, 2013). More acculturated Latinas with limited support are less likely to initiate breastfeeding compared to Spanish-speaking Latinas who participate in cultural engagements, such as church gatherings (Bigman et al., 2018). Still, although support or lack thereof has been related to breastfeeding outcomes (De Bocanegra, 1998), when studies have included acculturation and breastfeeding practices, the sources of support (e.g., support provided by practitioners or others outside of the family) have not been extensively investigated (Bigman et al., 2018). The inclusion of support from a partner may be reported, but that of lactation support or additional support from other sources may reveal how women rely on other forms of support, which may have an inverse association with feeding practices (Langellier et al., 2012).

Breastfeeding Practices and Depressive Symptoms

In respect to postpartum well-being and breastfeeding practices, it has been observed that prenatal depression (Figueiredo et al., 2014) and breastfeeding difficulties (Cooklin et al., 2017) were associated with diminished breastfeeding continuation and PPD. Studies suggest that depressive symptoms may lead to early breastfeeding cessation, but among mothers who intended to breastfeed, the practice of exclusive breastfeeding appeared to decrease depressive symptoms (Henshaw et al., 2015). It has also been suggested that exclusive breastfeeding was

not related to depressive symptoms (Ahn & Corwin, 2015). The interaction between breastfeeding and depressive symptoms appears to vary among studies. Further examination of the interaction may shed light on postpartum well-being among women who intend and continue to breastfeed.

In addition, it has been found that women who experience depressive symptoms may discontinue breastfeeding (Dennis & McQueen, 2009). In a sample of Latina participants, breastfeeding practices and breastfeeding self-efficacy were not correlated as women who scored low on self-efficacy still had higher breastfeeding practices compared to women from other ethnic groups (Alghamdi et al., 2017). The study found that cultural practices played a role, but that self-efficacy was not consistent with breastfeeding practices, and depressive symptoms were not accounted for. Although the outcomes differ, the relationship between breastfeeding practices, PPD, and risk factors for Latina samples are underrepresented. Evaluating breastfeeding practices, racial discrimination, and depressive symptoms may help begin to explain postpartum adjustment among Latinas.

Theory

This study included intersectionality and the convoy model of social network theories to incorporate a critical lens that examined the association between sources of support, breastfeeding intention, and racial discrimination with PPD and breastfeeding practices. The theory of convoy model of social networks uses the tenets of roles and convoys (three overlapping circular layers that account for support and may be influenced by roles and contexts) (Kahn & Antonucci, 1980). Transitions may occur between the concentric circles according to the changes in roles; more fluidity in the support received from those in the outermost circle, while more stability in support received in the innermost circle (Kahn & Antonucci, 1980). The

theory has been used to examine support provided by the partner, family, friends, and/or others, which may associate with health outcomes (Kahn & Antonucci, 1980; Antonucci & Akiyama, 1987) and support among Latinos (Fuller-Iglesias & Antonucci, 2015).

In this study, the convoy model of social networks was adapted to examine the sources of support (partner, family, and community,) received among Latinas. This study also included the concept of familismo which was viewed through the support received from family members. The number of supports were not measured, instead this study explored the association between sources of support and postpartum well-being. Also, intersectionality as a theoretical framework was included. The theory incorporates the matrices of domination of race, gender, and class that may intersect and oppress Latinas (Andersen & Collins, 2013). An intersectional lens provides a critical framework to examine the risk and protective factors associated with PPD and breastfeeding practices. It incorporates individual, cultural, and societal macro level factors that may intersect with postpartum adjustment.

This study examined how the variables of breastfeeding intention, racial discrimination, social support from partner, family members (familismo), community, and home visitors predicted depressive symptoms and breastfeeding practices using the 2012-2014 New York City Pregnancy Risk Assessment Monitoring System (PRAMS). Previous literature has found inconsistent results among Latinas, as definitions of breastfeeding practices have varied. Therefore, this study examined the relationship of risk and protective factors with breastfeeding continuation and depressive symptoms by the proxy of language to measure acculturation. The dataset, which was collected in a region that had a large concentration of Latinas, included variables that contained risk and protective factors with breastfeeding practices and PPD.

Research Questions

RQ1: Does breastfeeding intention, racial discrimination, and/or social support (partner, family, and community) predict depressive symptoms by acculturation among Latinas?

H1: Lower breastfeeding intention will predict depressive symptoms.

H2: Racial discrimination will predict depressive symptoms.

H3: Less social support (partner, family, and community) will predict depressive symptoms.

RQ2: Does breastfeeding intention, racial discrimination, acculturation, and/or social support (partner, family, and community) predict breastfeeding continuation by acculturation among Latinas?

H1: Breastfeeding intention will predict continued breastfeeding practices.

H2: Racial discrimination will predict cessation of breastfeeding practices.

H3: Breastfeeding practices will differ by acculturation.

H4: Increased social support will predict breastfeeding continuation.

Methods

A quantitative secondary analysis was used to examine the 2012-2014 dataset from the NYC PRAMS questionnaire. The data has been gathered by the Centers for Disease Control and Prevention (CDC), which represents 75% of all U.S. live births, and has been collected from 40 states and New York City (Bureau of Maternal, Infant and Reproductive Health, n.d.). The PRAMS dataset provided a population-based surveillance that tracked and examined maternal beliefs, experiences, and health outcomes during the perinatal period (CDC, 2018b). The dataset was requested and obtained through a data sharing agreement with the New York City

Department of Mental Health and Hygiene. The dataset was appropriate for this study as it captured information that pertained to pregnancy and postpartum health outcomes.

Sample

The NYC PRAMS dataset used for this study was from phase seven during 2012 to 2014. The questionnaires were obtained each month from women who had delivered within 2-4 months during 2012 to 2014. Participants were randomly selected from the city's registered birth certificates and were contacted to participate (Bureau of Maternal, Infant, and Reproductive Health, n.d.). PRAMS oversampled women from high-risk groups to ensure that sufficient data were collected from smaller populations. For instance, women who delivered low birth weight infants (<2500 grams) were oversampled. The PRAMS dataset was weighted to be representative of the NYC residents who gave birth in New York City for that given year. The final dataset included extracted birth certificate information and clinical information from the mother and infant which linked to the questionnaire responses.

The total number of participants that responded to the NYC PRAMS questionnaire for the years 2012 to 2014 were 4,244 women. A total of 6,282 women were contacted to participate of which 66% to 71% responded between the years of 2012 to 2014. The dataset combined the survey responses for the years of 2012 to 2014 to obtain an effective samples size for Latina/Hispanic participants. Per CDC guidelines, the data met the response threshold, which was the response rate of 60%, indicated for the year 2012 (CDC, 2019) to release data. Also, women who participated in the survey represented less than 2% of the total number of women who delivered a live birth at that time. The NYC PRAMS dataset was selected as it is one of 11 state surveys that included an item that asked about discrimination and is one of the regions that has a high percentage of Latinos; Latinos account for 29.1% (U.S Census Bureau, n.d.) of the

city's population. Due to the high number of Latinos found in New York City, the NYC PRAMS was an appropriate survey to examine the variables of interest. Participants who were selected for analysis were self-identified Latinas/Hispanic women who filled out the survey in English or Spanish. Although women were addressed in this study as Latinas, it is recognized that this is a heterogeneous group that encompasses much diversity.

Measurement

The phase seven NYC PRAMS questionnaire was launched in the year 2012 and data were collected until 2014. The questionnaire included core questions (total of 59 core items), standard, and state developed questions. The CDC developed a total of 200 standard questions that included core topics of interest, and states or cities chose which to include. The state questions were developed, picked, pre-tested, and approved by the CDC to be included in the questionnaire (CDC, 2018b). The instrumentation questions have been found to have high reliability and validity (Ahluwaia et al., 2013). In particular, questions had high to moderate reliability with regards to Medicaid payment (Kappa value of 0.67) and WIC participation (Kappa = 0.81) (Ahluwaia et al., 2013). Questions also had high validity measurements reported for Medicaid payment (sensitivity = 82% and specificity = 85.%) and WIC participation (sensitivity = 90.8% and specificity = 90.6%) (Ahluwaia et al., 2013). Researchers have established reliability and validity for questions that are used to measure PPD (O'Hara et al., 2012), and studies have indicated that even two questions could be used to screen for depressive symptoms (Liu et al., 2016; O'Hara et al., 2012). The list of questions used from the NYC PRAMS phase seven questionnaire can be found in Appendix B.

Postpartum Depression (PPD) Measures

PPD symptoms (dependent variable) were measured with two core questions (CDC, 2018b). The questions were: “Since your new baby was born, how often have you had little interest or little pleasure in doing things?”, and “Since your new baby was born, how often have you felt down, depressed or hopeless?” (CDC, 2018b). Response options were: “Always”, “Often”, “Sometimes”, “Rarely” or “Never”; and were collapsed to “Often” or “Always” to indicate “yes” for self-reported depressive symptoms, while the rest indicated “no” for non-depressive symptoms (Stone et al., 2015; Mitra et al., 2014). A PPD indicator was created with both questions with a dummy variable and coded “0” if women answered “No” to both questions, and “1” if women answered “Yes” to either question. Reliability and validity for these two questions have been examined previously and have been found to effectively screen for PPD (O’Hara et al., 2012). Also, previous studies have used these two questions to assess PPD outcomes (Stone et al., 2015; Salm Ward et al., 2016).

Discrimination and Acculturation Measures

One question was used to measure racial discrimination which was: “During the 12 months before your new baby was born, did you feel emotionally upset (for example, angry, sad, or frustrated) as a result of how you were treated based on your race?” Response categories for the question were binary, “Yes” or “No”. The question has been previously used to measure racism and preterm birth (Bower et al., 2018). The measure of acculturation, which examines the process in which immigrants adjust to the values, norms, and beliefs of the host culture, was measured through the proxy measure of language. Language preference has been used as a proxy to measure acculturation in previous studies (Alhasanat & Giurgescu, 2017; Davila et al., 2009; Sumner et al., 2012; Valentine et al., 2011). Using language preference to identify level of

acculturation, Spanish-speaking Latinas were considered less acculturated and English-speaking Latinas were considered highly acculturated in this study (Ahluwalia et al., 2012; Sebastian et al., 2019).

Social Support and Familismo Measures

Social support was examined from the partner, family, friend, and community through a series of questions. Participants were asked: “During your most recent pregnancy, who would have helped you if a problem had come up?” Response categories included: “My husband or partner”, “My mother, father, or in-laws”, “Other family member or relative”, “A friend”, “Religious community”, “Someone else”, or “No one would have helped me”. Familismo was operationalized through the support obtained from parents and/or other family member or relative. Additional questions which measured community support were: “During your most recent pregnancy, did a home visitor come to your home to help you prepare for your new baby?”, and “During your most recent pregnancy, when you went for your WIC visits, did you speak with a breastfeeding peer counselor or another WIC staff person about breastfeeding?” Responses were binary, “Yes” or “No”.

Breastfeeding Practices

Breastfeeding practices were measured with initiation and continuation. The breastfeeding initiation question was: “Did you ever breastfeed or pump breast milk to feed your new baby after delivery, even for a short period of time?”, which has been used in the past to measure initiation (Wouk et al., 2016). Previous research has found the question to have strong reliability, with a Kappa value of 0.72 (Ahluwalia, et al., 2013). To measure duration, this study used the following questions: “How old was your new baby the first time he or she drank liquids other than breast milk (such as formula, water, juice, tea or cow’s milk)?”, and “How old was

your new baby the first time he or she ate food (such as cereal, baby food, or any other food)?" Participants were given options for their response to these questions which were: "1) (a) _____ weeks or (b) _____ months"; "2) My baby was less than 1 week old"; and "3) I have not fed my baby anything besides breast milk".

The two questions were collapsed as an indicator to measure breastfeeding through at least 10 weeks. Those that answered that they were not feeding their baby any liquids or food other than breast milk after the ten weeks (≥ 10 weeks) were considered to be exclusively breastfeeding, while those who fed their baby any other liquid or food other than breast milk at or before ten weeks (≤ 10 weeks) were considered to be non-exclusive breastfeeding. The measure of ten weeks was implemented as the women answered the survey as early as ten weeks, ensuring that women who filled out the survey had the opportunity to be part of the analysis (Ahluwalia et al., 2012).

Breastfeeding Intention and Additional Variables

The question used to measure breastfeeding intention was: "During your most recent pregnancy, what did you think about breastfeeding your new baby?" The responses to this question varied from: "I knew I would breastfeed" (Definite Intention), "I thought I might breastfeed" (Tentative), "I knew I would *not* breastfeed" (No intention), and "I didn't know what to do about breastfeeding" (Uncertain) (Colaizy et al., 2011). For this study, the answers were recoded to: intention ("I knew I would breastfeed"), tentative intention ("I thought I might breastfeed"), and no intention ("I knew I would not breastfeed" and "I did not know what to do about breastfeeding"). Also, additional demographic variables were included from the review of literature, which were: income status, age, education, Medicaid as insurance, tobacco use, method of birth (vaginal or other), NICU stay, history of depression, and race (Bethel &

Schenker, 2005; Chatterji & Brooks-Gunn, 2004; Hannan et al., 2018; Figueiredo et al., 2014; Hatton et al., 2005; Holtrop et al., 2009; Le et al., 2009; Pippins et al., 2006).

Data Collection

The survey participants were randomly selected from the state birth certificate registry (CDC, 2018a). Once picked, a survey was mailed to selected participants within the second to fourth month postpartum. Two methods were used to collect data. The primary method was a survey mailed to women in English, Spanish, or Chinese. If women did not respond to the initial survey, multiple follow-up mailings were sent with up to three copies of the survey. If there were no responses after the mailings, efforts were made to survey women by telephone for which the interview-administer questionnaire included the same questions asked on the survey (CDC, 2018b). This study followed protocols established by the New York City Department of Health and Mental Hygiene and the Montclair State University Institutional Review Board.

Data Analysis Plan

Preliminary Data Analyses

Statistical analyses were conducted with IBM SPSS Statistics 25. The variables were examined and those that did not answer breastfeeding questions were excluded which resulted in a total sample of 1040. The measures of normality, distribution, and multicollinearity were then used to screen data. Normality was examined with standard cut-offs of Kurtoses were three, and skewness values nearer to zero indicated a normal distribution (Field, 2013). Linearity measured a linear relationship between the predictor variables and the criterion (Vieira, 2017).

Multicollinearity can be examined through tolerance and the variance inflation factor (VIF). The VIF examines the absence of multicollinearity in which the predictor variables are not well related; large inflation levels (5 or above) indicate multicollinearity (O'brien, 2007). Therefore,

recommendations of $VIF < 3$ was examined and explored (Hair et al., 2006). Tolerance reports the variance in a specific variable that is determined by another variable in the model. The tolerance at small levels ($<.10$, 10% or 0.25 , 25%) indicate predictors variance is not unique, which could be problematic (Vieira, 2017). In addition, descriptive statistics were used to examine the sociodemographic variables (age, race, education, and household income), depressive symptoms, language, and breastfeeding practice characteristics. In addition, Cronbach's alpha was calculated for PPD (Cronbach's alpha = .507) as it was used to test the internal consistency of the variables (Liu et al., 2009).

Missing Data

Little's MCAR Test was used to assess data patterns and missing variables that fell within the missing at random, missing completely at random, or missing not at random categories. Little's MCAR test revealed whether data was missing at random or not (Graham, 2009). After examining the missing case findings, an imputation method was used for variables that met the imputation assumptions. After amputation, data should be large enough to obtain statistical power, and missing values should not be more than 5% of the data set values (Vieira, 2017). The EM technique was used for variables that had less than 5% of missing cases. The EM technique selected random values for the missing data and used random guesses to create new data points for the missing data, which provided replacement values (Gupta & Chen, 2010). After amputation, the PPD and exclusive feeding indicators were created to examine outcomes.

Exploratory Factor Analysis

An exploratory factor analysis (EFA) was used as the dimensions among variables were undetermined. This analysis explored several variables that could be represented in underlying latent factors (MacCallum & Austin, 2000). The EFA is an exploratory analysis that attempts to

explore the underlying patterns (Byrne, 2016). In factor analysis, the relations among the variables were viewed through factor loadings, which indicated if there was a strong or low loading between items and the main factors (Byrne, 2016). Criteria used to determine which components to retain were Kaiser's rule, communalities, and scree plots (Thompson & Daniel, 1996). Kaiser's rule indicates that only components that have eigenvalues higher than 1 should be retained (Gie Yong & Pearce, 2013). Additionally, communalities of at least .70 are optimal, and when examining sample sizes that are larger than 250, a mean communality greater or equal to .60 has been recommended (MacCallum et al., 1999). Additionally, scree plots were used as the graph depicted the eigenvalues and indicated a "bend" which helped determine which components were kept (Denis, 2018). Based on these criteria, the researcher identified which factors were retained (Denis, 2018). An important aspect to conducting factor analysis is to keep the structure simple, a term known as parsimony.

Binary Logistic Regression

Binary logistic regression (BLR) analyses were used for both research questions, as the dependent variables of PPD and exclusive breastfeeding indicators had dichotomous responses. BLR measured the directionality and strength of the relationship between variables with binary dependent variables (Vieira, 2017). Although it measures the association, it does not indicate cause and effect (Vieira, 2017). Rather, BLR determined which independent variables predicted the dependent variables (Vieira, 2017). The first research question examined the independent variables of support received from partner, family (familismo), community, home visitor, no support, WIC enrollment during pregnancy, smoking within the past two years, racial discrimination, payment method with Medicaid for delivery, NICU stay, vaginal delivery, breastfeeding intention, breastfeeding continuation, history of depression, age, education, and

race with PPD. For the second research question, the same independent variables were included along with PPD, the only exception of which was breastfeeding continuation as this was the dependent variable. Acculturation was measured through the proxy of language, therefore, Spanish and English-speaking Latina samples were examined separately, which assisted in identifying the differences by acculturation.

Binary logistic regressions do not have to have a normal distribution to be analyzed (Goldstein, 2006), and were used as several variables were not normally distributed. Also, as several data variables were non-normal, a bootstrapping method was used as it provides rigorous results (Harrell, 2001; Nevitt & Hancock, 2001). Predictors were examined in one block that tested which variables predicted the outcome, while controlling for effects of the other predictor variables (Vieira, 2017). The assumptions are that data are independently distributed and cases are independent. A linear relationship between independent and dependent variables are not necessary, however, it assumes linearity among independent variables and log odds (Tabachnick & Fidell, 2012). Dichotomous dependent variables are necessary, and predictor variables should have small or no multicollinearity with each other (Goldstein, 2006). Large samples have been recommended to obtain a more accurate measure of goodness-of-fit. To measure the predictive outcomes Wald statistic was used as it provided a chi square distribution to determine if the relationship was statistically significant ($p < .05$) or not. Additionally, a Hosmer-Lemeshow goodness-of-fit test assisted in determining how good the model fit the data (Tabachnick & Fidell, 2012). Regression coefficients (b) provided the change of the dependent variable that correlated to predictors, and odds ratios for the independent variables indicated the distribution of the predictors to the model (Field, 2013; Tabachnick & Fidell, 2012).

Results

Preliminary Analyses

Preliminary analyses included the frequency, data distribution, and correlations. Table 13 included the descriptive analyses for the variables. Table 14 showed the missing data cases. Table 15 to Table 17 then illustrated correlations, skewness, and kurtosis. Table 15 illustrated correlations of the total sample, followed by Table 16 with the Spanish-speaking sample, and Table 17 with the English-speaking sample. Several variables were non-normally distributed. Table 6 includes the factor loadings for variables.

Demographic Variables for Full Sample. Table 13 illustrated a total of 1,040 women that self-identified as Latinas. A little more than half identified as White-Hispanic (57.3%), followed by Other-Hispanic (26.1%). Ages ranged between 20 to 34 years old (71.6%), and several participants obtained more than a high school education (45.5%). A large percentage were enrolled in WIC during pregnancy (68.1%), had Medicaid insurance for delivery (73.8%), and few reported encountering racial discrimination (11.9%). Most had intentions to breastfeed (85.0%) and had at least attempted to breastfeed once (99.3%). Exclusive breastfeeding differed as numerous women introduced liquids other than breast milk before ten weeks postpartum (≤ 10 weeks, 75.0%), and most identified introducing foods after two months (≥ 10 weeks, 95.2%). Sources of support varied and are listed in Table 13. Few had depression since birth (5.20%) and no interest after delivery (6.50%), while more participants identified having a history of depression (17.8%). Additional variables are listed in Table 13.

Demographic Variables for Spanish-Speaking Latinas. In the Spanish-speaking sample (N=490), the majority were between the ages of 20 to 34 years old (71.6%), were enrolled in WIC during pregnancy (68.1%), and had Medicaid as payment method for delivery

(87.3%). A little less than half had less than a high school education (42.4%), and few self-reported experiencing racial discrimination (12.4%). Most participants in this sample intended to breastfeed (88.4%) and had attempted breastfeeding (98.8%). Few introduced other liquids (26.7%) after ten weeks, while a higher percentage introduced food after ten weeks (96.9%). Few participants experienced depression before pregnancy (18.6%), had depression since birth (4.1%), and had no interest in daily activities after delivery (5.5%). Sources of support and additional variables are listed in Table 13.

Demographic Variables for English-Speaking Latinas. Among the English-speaking sample (N=550), the majority were between the ages of 20 to 34 years old (73.1%) and had more than a high school education (60.9%). More than half were enrolled in WIC during pregnancy (59.5%), and fewer had Medicaid as method of payment for delivery (61.6%). Breastfeeding intention was high during pregnancy (82.0%), as well as breastfeeding at least once (99.8%). Highly acculturated participants had a slightly higher percentage of feeding liquids (76.5%) and food (6.4%) prior to the ten-week mark compared to less acculturated participants. Though history of depression was low (17.5%), depressive symptoms were slightly higher during the postpartum period as depression since birth (6.2%) and no interest in daily activities after birth (7.5%) was reported. Additionally, a slight percentage of participants in this sample experienced racial discrimination (11.5%). Sources of support and additional characteristics are listed in Table 13.

Correlations

This study revealed that there were several correlations among the main study variables. The correlations were first examined with the total sample, and then separately by acculturation (Spanish and English-speaking samples). There were few low correlations found, such as in no

support and racial discrimination (.06, $p < .05$). Also, there were high correlations for variables such as participating in WIC during pregnancy and payment method of Medicaid or other (-.54, $p < .001$). Lists of the total sample correlations are provided in Table 15. When examining correlations separately by acculturation, results revealed that there were several correlations that varied slightly by acculturation. Among the Spanish-speaking sample, four correlations were found with PPD symptoms, such as partner support and depressive symptoms (-.12, $p < .01$). Also, three correlations were found with breastfeeding continuation, such as that of WIC participation during pregnancy and breastfeeding continuation (-.21, $p < .001$). A list of the correlations is shown in Table 16. For the English-speaking sample, there were two variables correlated with PPD outcomes, for instance, racial discrimination and PPD symptoms (.17, $p < .001$). Also, two variables were correlated with breastfeeding continuation, one of which was WIC participation during pregnancy and breastfeeding continuation (-.14, $p < .001$). A list of the correlations is provided in Table 17.

Missing Data

The missing value analysis examined if the variables were missing at random. The data was analyzed in subsets as opposed to the whole dataset to account for the subsections and rigor in outcomes. The variables examined were: race, help during pregnancy from (partner, parent, family, friend, other, religious community, or none), home visitor visit during pregnancy and after birth, racial discrimination, PPD, and support from breastfeeding counselor. Guided by the literature review, additional confounding variables were included (income status, insurance method of payment (Medicaid or other), NICU stay, smoking, history of depression, WIC participation during pregnancy, and breastfeeding intention (definite, tentative, uncertain and no intention). Little's MCAR found that most of the data subsets were missing at random and not

significant for a majority of variables, except for income status and receiving help from WIC breast feeding counselors. Income status and support from WIC counselors were not missing at random ($p < .001$), which resulted in these two variables being excluded from the amputation analysis (Vieira, 2017). Expectation-maximization (EM) imputation data technique was then included for the rest of the variables as their percentages were below the 5% level, reflecting that there was no pattern.

Exploratory Factor Analysis

An exploratory factor analysis (EFA) was utilized, as it is a data reduction technique that assists in identifying which underlying variables may be needed for factors (Byrne, 2016). To initiate this process, the structure detection tests of Kaiser-Meyer-Olkin and Barlett's test of sphericity were used, followed by varimax rotation. The outcomes were examined through the criteria of eigenvalue, variance, scree plot, and residuals (Byrne, 2016). The EFA helped identify the variables that were used to examine family and community support. Upon examining the results, outcomes revealed that one component was needed for family support and two components for community support.

EFA with Full Sample

Full Sample Factor Structure for Family Support. The family support factor, also identified as the familismo measure, included parent and family support. This component indicated the support received from those in the family during pregnancy, which had a loading of .785 for both. The first component made up for 61.61% of the total variance from the original variable. The variables addressed family support and had positive loadings.

Factor Structure for Community Support. The community support factor examined variables of support from friends, others, religious community, and home visitor support during

the prenatal and postpartum period. Factor loadings varied from .284 to .813. The first component accounted for 27.68% of the total variance of the original variables, and the second component accounted for 25.12%. Accounting for the eigenvalue, scree plot, and loadings, the variable of help from others (.284) was dropped. The EFA was analyzed again with the remaining variables. Help from religious community, friends, and home visitor resulted in loadings ranging between .792 to .817. Variance for the first component was 33.92%, and the second component was 31.31%. The factor analysis resulted in two factors that had positive loadings. The community support factor included help from religious community and friends, while the second was labeled as home visitor support, which included support from home visitor during pregnancy and in the postpartum period. Results are reported in Table 18.

EFA Spanish-Speaking Sample

Factor Structure for Family Support. The family support factor included help from parents and family during pregnancy. The family support variables among the Spanish-speaking sample had loadings of .788 and had positive loadings that addressed family support. The first component accounted for 62.16% of the total variance of the original variables.

Factor Structure for Community Support. To examine the community support factor, the variables of help from religious community, other, friends, and home visitor during pregnancy and after delivery were included. The factor loadings ranged between .475 to .811 in which the first component accounted for 27.73% of the total variance of the original variables, and the second accounted for 27.28%. Similar to the full sample, the variables of help from other (.475) was excluded.

The remaining four variables were then examined, resulting in positive factor loadings. The community support factor loadings ranged between .810 to .813. The home visitor support

factor loadings ranged between .798 to .804. The first component accounted for 34.21%, and the second accounted for 32.55% of the total variance of the original variables. The factor findings resulted in two factors, community support (included support from religious community and friends) and home visitor support (during pregnancy and after delivery). Findings are displayed in Table 18.

EFA English-Speaking Sample

Factor Structure for Family Support. The factor for family support was similar to that of the Spanish-speaking sample and full sample. It included variables of parent and family support during pregnancy. Factor loadings were .772. The first component accounted for 59.58% of the total variance of the original variables. The factor loadings were positive and addressed family support.

Factor Structure for Community Support. The community support factor included the same initial five variables used in previous full and Spanish-speaking community support factors. The factor loadings ranged from .481 to .817. The first component accounted for 28.30% of the total variance in the original variables, and the second accounted for 24.52%. The variable of help from others (.481) was dropped. The factor analysis was examined again with the four variables. The factors loadings were positive and for community support the factor loadings ranged between .782 to .787. For home visitor support the factor loadings ranged between .819 to .821.. The total variance for the first variable was 35.26%, while the second was of 29.25%. The factor outcomes revealed two factors, community support (religious community and friend support) and home visitor support (help during pregnancy and in the postpartum period). Variables had positive loadings and addressed community and home visitor support. Findings are reported in Table 18.

RQ1: Binary Logistic Regression Analysis

To examine the first research question, “Does breastfeeding intention, racial discrimination, and/or social support (partner, family and community) predict depressive symptoms by acculturation among Latinas?”, a binary logistic regression with bootstrapping was used with the Spanish and English-speaking samples. The PPD indicator (dependent variable) was examined with independent variables of support from partner, family, community, or no help; breastfeeding continuation; breastfeeding intention; history of depression; WIC participation during pregnancy; NICU stay; vaginal delivery; racial discrimination; Medicaid insurance for payment method for delivery; and smoking within the past two years. First, the regression models were viewed without the control variables, and then these were added in the second model.

PPD Binary Logistic Regression with Spanish-Speaking Latinas

The regression model without control variables had significant predictors. These included no intention to breastfeed, breastfeeding continuation, Medicaid insurance, and smoking within the past two years. The model was fitting ($-2 \text{ Log likelihood} = 220.991$) and statistically significant [$\chi^2 (15) = 41.320, p < .001$]. The results of the regression model are provided in Table 19. Sources of support were not significant. For method of delivery, vaginal delivery was trending toward significance ($p = .056$) in which the association was negative, revealing that other delivery methods may be correlated with depressive symptoms.

Furthermore, not intending to breastfeed ($p = .001$) had an inverse relationship with depressive symptoms, indicating that no intention to breastfeed was highly associated with PPD. Findings for payment method revealed that having Medicaid as payment method of delivery ($p = .040$) had a significant correlation with depressive symptoms. Also, smoking ($p = .024$) had a

significant finding, indicating a strong correlation between smoking within the past two years and PPD. When including the control variables of education, age, and race, the model was fitting (-2 Log likelihood = 217.131) and statistically significant [$\chi^2 (22) = 45.180, p < .003$]. The regression model and predictors are listed in Table 8. The second model paralleled with the first in which breastfeeding continuation ($p = .066$) was not significant.

PPD Binary Logistic Regression with English-Speaking Latinas

For the English-speaking Latinas, the significant predictors in the regression model were WIC enrollment during pregnancy and racial discrimination without control variables. The model was fitting (-2 Log likelihood = 355.239) and significant [$\chi^2 (15) = 32.159, p < .006$]. Findings are shown in Table 21. No significant outcomes were found for sources of support. However, a significant positive correlation was found with depressive symptoms and WIC participation during pregnancy ($p = .045$), with those enrolled in WIC during pregnancy having a strong association with PPD.

Also, racial discrimination ($p = .005$) had a significant positive relationship with PPD. This indicated a strong correlation of experiencing racial discrimination with depressive symptoms. Aside from these findings, results revealed no other significant relationships among the other variables. When including the control variables of age, education, and race, the regression model was fitting (-2 Log likelihood = 350.464) and statistically significant [$\chi^2 (22) = 36.934, p < .024$]. The second model revealed that both participating in WIC during pregnancy ($p = .040$) and racial discrimination ($p = .006$) had a positive relationship with depressive symptoms, regardless of control variables. The next section discusses the relationship with breastfeeding continuation and variables of interest.

RQ2: Breastfeeding Continuation Binary Logistic Regression

To examine the second research question, “Does breastfeeding intention, racial discrimination, and social support (partner, family and community) predict breastfeeding continuation by acculturation among Latinas?”, binary logistic regression analyses were then used. Because several variables were not normally distributed, bootstrapping was again incorporated. The dependent variable was breastfeeding continuation, which was used to determine if the participant fed or introduced liquids or food before or after ten weeks. The initial predictor variables examined were support from partner, family, home visitor, community, or no support, as well as breastfeeding intention (intention, tentative and no intention), history of depression, PPD, WIC participation during pregnancy, NICU stay, vaginal delivery, racial discrimination, Medicaid insurance, and smoking in the past two years. The second models added variables of age, education, and race.

Breastfeeding Practices Binary Logistic Regression with Spanish-Speaking Latinas

The regression model revealed significant predictors were no intention to breastfeed, PPD symptoms, enrollment in WIC during pregnancy, and NICU stay. Without incorporating control variables, the model was fitting (-2 Log likelihood = 513.630) and statistically significant [$\chi^2(15) = 53.334, p < .001$]. The regression model and predictors are demonstrated in Table 23. The model indicated that those who did not intend to breastfeed ($p = .003$) were strongly correlated with introducing food or other liquids below ten weeks postpartum. Furthermore, no relationship was found with racial discrimination ($p = .186$) and breastfeeding continuation.

An inverse relationship was found with having an infant in the NICU ($p = .003$), participating in WIC during pregnancy ($p = .001$), and depressive symptoms ($p = .050$). Findings revealed a strong correlation with NICU stay as it associated with decreased likelihood of

exclusively breastfeeding. Also, WIC enrollment during pregnancy was strongly correlated with exclusive breastfeeding cessation. For those that had depressive symptoms after delivery the correlation was strong with cessation. No significant outcomes were found for sources of support. When including control variables, the findings were similar; the model was fitting (-2 Log likelihood = 508.570) and statistically significant [$\chi^2(22) = 58.393, p < .001$]. The only predictor that differed from the initial model was PPD symptoms ($p = .053$), which was trending toward significance in the second model, results are illustrated in Table 24.

Breastfeeding Practices Binary Logistic Regression with English-Speaking Latinas

The regression model between breastfeeding continuation and predictor variables among English-speaking Latinas resulted in a fitting model (-2 Log likelihood = 559.226) and significant regression equation [$\chi^2(15) = 35.183, p < .002$]. The variables that had meaningful findings were: receiving support from family during pregnancy ($p = .045$), no intention to breastfeed ($p = .017$), and enrollment in WIC during pregnancy ($p = .001$). There was an inverse relationship with family support and breastfeeding continuation. The findings indicated that receiving support from family (familismo) during pregnancy was correlated with introducing foods or liquids before the ten-week mark.

Also, there were inverse relationships with breastfeeding intention and WIC participation during pregnancy. No intention to breastfeed had a strong correlation with exclusively breastfeeding cessation. Additionally, being enrolled in WIC during pregnancy had a strong correlation with introducing foods/liquids before ten weeks. Additional variables are showcased in Table 25. When including control variables in the regression model, a statistically significant regression equation was found (-2 Log likelihood = 553.144), which was statistically significant [$\chi^2(22) = 41.266, p < .008$]. Significant findings were found for no intention to breastfeed ($p =$

.011) and enrollment in WIC during pregnancy ($p = .001$). Lastly, family support ($p = .061$) was trending toward significance. Results are listed in Table 26.

Discussion

This study used a secondary data analysis with the NYC PRAMS questionnaire from 2012-2014 to explore the relationship between breastfeeding intention, racial discrimination, and social support with depressive symptoms and breastfeeding practices. Findings revealed that using the proxy of language for acculturation, differences were found among Spanish and English-speaking samples. Previous studies that have examined the association among breastfeeding practices and PPD found different outcomes, and few used Latina samples (Lara-Cinisomo et al., 2017; Mezzacappa, & Katkin, 2002). There continues to be a lack of studies that use large Latina samples. This study examined a large Latina sample using the proxy of language for acculturation and found that predictors for depressive symptoms and breastfeeding continuation differed and overlapped.

The relationship between depressive symptoms and breastfeeding continuation has been inconclusive. Some studies have reported that depressive symptoms may be positively linked with breastfeeding cessation (Dennis & McQueen, 2007; Hatton et al., 2005; Henderson et al., 2003; Figueiredo et al., 2014; Gagliardi et al., 2010). However, other studies have found that depressive symptoms may be correlated with early breastfeeding cessation. In other words, breastfeeding cessation may occur before the onset of depressive symptoms (Mezzacappa & Endicott, 2007; Cooklin et al., 2017). It has been suggested that the relationship may be bidirectional (Pope & Mazmanian, 2016).

Yet, other studies have reported no significant differences (Ahn & Corwin, 2015). Among low-income samples, the breastfeeding expectation was not associated with PPD

(Gregory et al., 2015). Difference in predictors among Spanish and English-speaking samples were found for depressive symptoms, regardless of age, education, and race. The next section includes findings for the first research question. It examined the association between breastfeeding intention, breastfeeding continuation, racial discrimination, and social support with depressive symptoms among Spanish and English-speaking Latinas given that Latina samples are underrepresented.

RQ1: Predictors for PPD Among Spanish-Speaking Latinas

The outcomes revealed that the Spanish-speaking Latinas who did not intend to breastfeed during pregnancy had an increased the risk of PPD, regardless of age, education, and race. Also, breastfeeding for less than ten weeks was a trending as a predictor for PPD outcomes. In particular, 98.8% of the Spanish-speaking participants reported ever breastfeeding. Although several did not intend to breastfeed, they may have attempted to do so in the postpartum period. Intention to breastfeed may fluctuate as women may receive encouragement or information in their last trimester (Pippins et al., 2006). Educational information may encourage women to try to exclusively breastfeed as they may be informed of the benefits of breastfeeding (Sloand et al., 2018).

Another speculation could be that not being able to successfully breastfeed, the women's breastfeeding self-efficacy or self-confidence to provide breast milk may lower (Dennis & Faux, 1999). Women may feel guilty because they may not successfully continue breastfeeding if they initially tried (Henshaw et al., 2015) and stopped early. Particularly among less acculturated Latinas who may practice traditional roles, the concept of *marianismo* may be prevalent, as women may be self-sacrificially providing for the needs of their family above their own needs

(Stevens, 1973). Cultural and familial pressures for breastfeeding practices may be prevalent among less acculturated Latinas (Hohl et al., 2016).

It may be that women who initially did not intend to breastfeed during pregnancy attempted to do so after delivery, but early cessation may result in an increased association with PPD. Results from a population-based study in Britain found associations with breastfeeding and decreased PPD among those that had intended to breastfeed, while risk of PPD increased among women that did not intend to breastfeed (Borra et al., 2014). Women who intend to breastfeed and do so may, therefore, have a lower risk of PPD (Pope & Mazmanian, 2016; Figueiredo et al., 2014), while those who intend to do so, but do not, may have an increased likelihood of developing PPD (Vieira et al., 2018). It has been proposed that a possible reason that breastfeeding may assist in reducing PPD risk could be due to hormonal changes (Field, 2008). Findings from this study support the notion that no intention to breastfeed may be strongly associated with PPD outcomes among less acculturated Latinas. Future studies should continue to examine breastfeeding intention with PPD while incorporating cultural factors and challenges to exclusive breastfeeding to further understand the relationship.

Furthermore, this study found that having Medicaid as a payment method for delivery was significantly associated with PPD symptoms. Previous studies have found similar outcomes, indicating that women of diverse ethnic/racial backgrounds who are low-income and have Medicaid may have a high prevalence of PPD (D'Angelo et al., 2012; Hobfoll et al., 1995; Scholle et al., 2003). This is particularly concerning as Medicaid participants who experience PPD may be less likely to get treatment (Abrams et al., 2009; Braveman et al., 2010; Kozhimannil et al., 2011) and may, as a result, have poor health outcomes (Braveman et al., 2010; Glasheen et al., 2015). Structural barriers may intersect for low-income women of color as

they may have higher odds of experiencing stressors such as financial hardships, lower educational attainment, and less work flexibility (Braveman et al., 2010; Ebrahim et al., 2009; Hutto et al., 2011; Langellier et al., 2012; Salm Ward et al., 2016). A PRAMS secondary analysis study of 27 different states also found similar findings. Researchers found that Medicaid recipients had an increased likelihood of experiencing risk factors that included intimate partner violence, stress, smoking, and PPD, compared to those who had private insurance (D'angelo et al., 2012). Our findings echo previous studies in which low acculturated Latinas who had Medicaid as a payment method for delivery had an association with PPD outcomes.

Aside from having Medicaid, this study found that smoking within the past two years had a strong relationship with PPD. According to a PRAMS study, participants who had Medicaid for insurance had the highest prevalence rate of smoking during pregnancy, lower quit rate, and relapse rate after delivery compared to those with private insurance (Tong et al., 2009). Holtrop and colleagues (2009) examined smoking prior to and during pregnancy and found that Medicaid-eligible women, especially those who were European American, had predictors of history of depression, alcohol use, drug use, and stress (Holtrop et al., 2009). In studies that have examined the association between smoking and depressive symptoms, findings reveal that smoking may increase as Latinas reside in the United States for a longer period (Bethel & Schenker, 2005; Vega & Sribnery, 2008). More acculturated Latinas may experience depressive symptoms and smoke as family closeness and harmony deteriorate (Lorenzo-Blanco & Cortina, 2013). Although, this study did not find a significant association with social support when including breastfeeding practices, it is important to consider the maladaptive behaviors in the context of acculturation.

An inverse relationship was not found with support from the partner, family, community, or home visitors when including breastfeeding practices with depressive symptoms. Familismo, which for this study was operationalized through parents and family support, was not significant. Bivariate correlations were found between lack of support from the partner and no support from others with increased association with PPD, but the associations were not significant in the regression model. A study with a diverse sample of Latinas and African American women examined the relationship between breastfeeding initiation, breastfeeding continuation, and social support with depressive symptoms and found no relationship with social support. Within this sample, most women had intention to breastfeed, but did not initiate or ceased to breastfeed within the 2 to 3-week mark (McKee et al., 2004). A reasoning was that the social support measure was not specific to breastfeeding. Also, McKee and colleagues (2004) did not examine family or other sources of support for breastfeeding.

In our study, the findings reflected similar outcomes despite measuring support during pregnancy from the partner, family, community, and home visitor. Also, it may be that the dynamic of the relationship could play a role as conflict in relationships has been associated with increased PPD risk (Hassert & Kurpius, 2011). The findings provide evidence that the relationship between sources of support from the partner, family, and community was not significant with depressive symptoms when accounting for breastfeeding practices. Thus, future studies could seek to include conflict and support specific to breastfeeding continuation.

Lastly, racial discrimination was not significant with depressive symptoms among less acculturated Latinas when including breastfeeding practices. This study found a significant positive bivariate correlation with depressive symptoms, but the relationship was not significant when including other variables. Also, the study did not find significant difference by race

categories when including the breastfeeding variables among less acculturated Latinas. Although racial discrimination has been found to significantly correlate with negative well-being outcomes (Shelton et al., 2011; Dominguez et al., 2008), our findings did not support the hypothesis. When including breastfeeding practices, the relationship between depressive symptoms and racial discrimination was not found. A previous study that has measured the association with acculturative stress, discrimination, and PPD, found no difference by race, but rather difference by frequency of discrimination (Walker et al., 2012). This suggests that there may be a complex association among these risk and protective factors with PPD. Future studies could explore the nuances and associations of discrimination, breastfeeding practices, and PPD through the use of qualitative and quantitative studies.

RQ1: Predictors for PPD Among English-Speaking Latinas

This study found that breastfeeding intention did not have a significant relationship with depressive symptoms. Despite the previous literature that indicated that breastfeeding intention may have an inverse relationship with PPD symptoms (Borra et al., 2014), this study found no relationship among highly acculturated Latinas. A possible explanation could be that as women acculturate, the likelihood of breastfeeding decreases. For instance, researchers Glassman and colleagues (2014) found that among a sample of 209 low-income Latina participants, the majority practiced mixed feeding. They also found that breastfeeding practices increased if women had high educational attainment, previously breastfed a child for 6 months, and were foreign-born (Glassman et al., 2014). Other researchers have found no association between intention to breastfeed with depressive symptoms (Jacobson et al., 1991; Lee et al., 2005; McKee et al., 2004). Our findings reveal that when accounting for acculturation, there are differences with PPD outcomes. Studies should seek to examine breastfeeding intention and depressive

symptoms with acculturation and cultural factors as these may differ with increased acculturation.

Despite not finding an association with intention to breastfeed, results among highly acculturated Latinas demonstrated that participating in WIC during pregnancy and experiencing racial discrimination were strongly associated with depressive symptoms. Results were the same regardless of age, education, and race. Women enrolled in WIC and whose incomes fall below the federal poverty threshold may experience numerous stressors and encounter structural barriers that intersect with the means to receive adequate health care and move up the socioeconomic ladder (Abrams et al., 2009; Braveman et al., 2010; Ebrahim et al., 2009; Miranda et al., 2003; Nunes & Phipps, 2012; Salm Ward et al., 2016). For example, Goyal and colleagues (2010) found that among participants of low socioeconomic status, predictors of having low monthly income, less than a high school education, being unmarried, and unemployed increased the risk of PPD.

Furthermore, highly acculturated Latinas have been more likely to have negative mental health outcomes when compared to less acculturated Latinas (Davila et al., 2009; Heilemann et al., 2004; Sumner et al., 2012). Highly acculturated Latinas may encounter conflicts with family members when integrating new practices and challenging more traditional roles (Caplan, 2007). Yet, other findings report that highly acculturated Latinas had low risk of PPD (Cordero & Kurz, 2006) or no difference (Valentine et al., 2011; Beck et al., 2005). This study emphasizes the need to use an intersectional lens that points to structural barriers that English-speaking Latinas who are enrolled in WIC during pregnancy may experience. The next section will discuss how, for this sample, racial discrimination served as a significant predictor for PPD.

Among the highly acculturated Latina sample, racial discrimination increased association with PPD outcomes. Although racial discrimination has been linked with negative mental health outcomes (Rosenthal et al., 2015), the relationship with PPD in the postpartum period among Latinas has not been extensively investigated (Luis Sanchez et al., 2020; Stepanikova & Kukla, 2017). Walker and researchers (2012) explored the association between discrimination with PPD outcomes and found that acculturation was not significant. Instead, researchers found that the stronger predictor for depressive symptoms was having less than a high school education and experiencing a high frequency of discrimination (Walker et al., 2012). Our findings contradict those of Walker and others (2012), as outcomes reveal that there may be by acculturation when using the proxy of language although further examination is needed as there were no differences by race categories. The descriptive analysis revealed that the highly acculturated Latinas in this study had more than a high school education (60%). Thus, there may be a possibility that factors other than educational attainment may play a role in outcomes. This finding was of particular importance, as racial discrimination was a significant factor, even when including age, education, and race. The overall results indicate that only WIC participation and racial discrimination had a strong association with PPD, and sources of support did not relate with PPD outcomes among the English-speaking Latina sample.

When considering sources of support, no significant associations with depressive symptoms were found when including breastfeeding practices. Support from the partner, family, community, and home visitors were not significant. Although there was an inverse relationship between the sources of support with PPD, the relationship was not meaningful. It could be that support may not necessarily serve as a protective factor among more acculturated Latinas. When including the cultural value of familismo, more acculturated Latinas may slowly disengage from

the cultural traditions of their country of origin (Benet-Martínez et al., 2002; Smokowski et al., 2009). They may adopt cultural values that differ from their own, which could possibly explain why sources of support were not significant. In a previous study, social support did not relate to depressive symptoms even though acculturation was included (Zapata et al., 2017). Also, it could be that when including breastfeeding practices, studies have to measure social support specific to breastfeeding (McKee et al., 2004).

RQ2: Predictors for Breastfeeding Continuation Among Spanish-Speaking Latinas

Results from this study found that less acculturated Latinas that did not intend to breastfeed during pregnancy were associated with earlier exclusive breastfeeding cessation, regardless of age, education, and race. Less acculturated Latinas may be more likely to practice exclusive breastfeeding initiation compared to their more acculturated counterparts (Gorman et al., 2007; Langellier et al., 2012). A study that examined acculturation and breastfeeding practices found that immigrant women who chose to exclusively breastfeed were more likely to exclusively speak in their native language, and initiate and continue to breastfeed for a lengthier time compared to those that did not (Sussner et al., 2008). The findings for this study indicate that although women did not intend to breastfeed during pregnancy, they attempted to do so in the postpartum period (98.8%). It may be that challenges, such as formula feeding at the hospital (Sloand et al., 2018), NICU stay (Hannan et al., 2018), perception of insufficient milk supply (Ahluwalia et al., 2005; Bartick & Reyes, 2012; Sriraman & Kellams, 2016), limited support (Gill, 2009; Fleur & Petrova, 2014), or returning back to work (Bartick & Reyes, 2012; Langellier et al., 2012), may decrease exclusive breastfeeding. These findings add to the body of research reinforcing the notion that intention to breastfeed may fluctuate and additional variables may intersect with exclusive breastfeeding continuation.

Furthermore, NICU stay decreased the likelihood of exclusively breastfeeding. The results reflect that of Gorman's (2007) who reported that NICU stay was negatively associated with exclusive breastfeeding (Gorman, 2007). Findings have also been found in a population-based study that used the PRAMS survey and found that women who intended to breastfeed were more likely to initiate, but discontinue before ten weeks (Colaizy et al., 2011). However, there may be differences by gestational age. Another study that utilized the PRAMS survey found that NICU stay and breastfeeding continuation differed according to the gestational age of the infant (Colaizy & Morris, 2008). Differences could be due to the support and information that women may receive from hospital staff such as lactation consultant services in the NICU (Castrucci et al., 2007). Researchers should seek to examine NICU stay by gestational age and hospital breastfeeding support, as results of this study indicate that less acculturated Latinas had an association with breastfeeding cessation if the infant was in the NICU.

Additionally, depressive symptoms were strongly correlated with earlier breastfeeding cessation. When accounting for age, education, and race, however, PPD was not significant. Depressive symptoms have been previously linked to decreased breastfeeding practices (Henshaw et al., 2015; Dennis & McQueen, 2009). A possible reason may be that women who experience PPD may discontinue breastfeeding due to low interest in activities and breastfeeding efficacy. For instance, Zubaran and Foresti (2013) found that among Brazilian women who had PPD, more were likely to feel less confident in their ability to breastfeed (Zubaran & Foresti, 2013). In other words, it may be that when women experience PPD they may feel less confident to breastfeed (Vieira et al., 2018). A study that used the PRAMS surveys from NYC and 29 states found that women who had PPD and a history of depression were more likely to not initiate or exclusively breastfeed at 3 months postpartum (Wouk et al., 2016). Our findings

slightly differed from Wouk's and others as history of depression was not significant (Figueiredo et al., 2014; Hatton et al., 2005; McCoy et al., 2008). The findings of this study indicate that there may be a relationship with PPD and breastfeeding continuation which may possibly differ by acculturation.

Lastly, women who were enrolled in WIC during pregnancy were significantly associated with ending exclusive breastfeeding sooner. Mixed outcomes have been found with WIC participation and breastfeeding, with some indicating a positive relationship (Joyce et al., 2008), while others indicate that it is not as helpful (Beal et al., 2003; Bunik et al., 2009; Chatterji & Brooks-Gunn, 2004). A study by Sparks (2011) that included U.S. born and foreign-born Mexican Americans, as well as Latinas born in other regions, found that low-income WIC participants were less likely to breastfeed (Sparks, 2011). Furthermore, early return to work or employment not accommodating continued breastfeeding options may increase cessation (Guendelman et al., 2009; Hill et al., 2008). Another alternative reason could be that women may receive mixed messages encouraging breastfeeding practice while they possibly received free formula (Lee et al., 2009). Although support from WIC counselors was not measured in this study, the intersection between WIC enrollment and infant breastfeeding merits further exploration as women may initiate breastfeeding but may be less likely to continue if enrolled in WIC during pregnancy.

This study also found no associations with social support and racial discrimination. Previous studies have found a positive relationship with partner support (Rempel & Rempel, 2004; Scott et al., 2001; Swanson & Power, 2005) and family members (Johnston et al., 2012; Gill, 2009). Likewise, peer counselors (Chapman et al., 2004) and community involvement, such as faith-based engagement, has been correlated with increased breastfeeding practices (Bigman

et al., 2018). Yet, social support has not been significant when including PPD and psychosocial factors (McKee et al., 2004). In another study, less acculturated Latinas who had significantly lower support still had an increased percentage of exclusive feeding (Fryer et al., 2018). It may be that additional contributors, such as work (Langellier et al., 2012), perception of insufficient milk supply (Bartick & Reyes, 2012), and hospital practices, may intersect with outcomes (Sloand et al., 2018). Also, in this study the support was not specific to breastfeeding. Future studies should examine the relationship.

Furthermore, racial discrimination was not significant in this study. No significant differences were found by race. There has been evidence that structural and systemic factors may be associated with breastfeeding practices. Although women of color may experience discrimination and bias from providers (Good Mojab et al., 2015; Thomas, 2018), this study did not find a significant trend. Thus, future studies should seek to examine discrimination in regards to breastfeeding practices throughout the perinatal period.

R2: Predictors for Breastfeeding Continuation Among English-Speaking Latinas

Among highly acculturated Latinas not intending to breastfeed, WIC participation while pregnant and family support (familismo) were significantly associated with early exclusive breastfeeding cessation. In this study, women that did not intend to breastfeed were more likely to discontinue exclusive breastfeeding before ten weeks postpartum. Highly acculturated Latinas may be less likely to intend and continue to exclusively breastfeed, compared to their less acculturated counterparts (Barcelona de Mendoza et al., 2016; Gorman et al., 2007; Harley et al., 2007; Hendrick & Potter, 2017, Smith et al., 1982). Possible reasons are that women may adopt more Western traditions of formula feeding, or may encounter challenges that decrease exclusive breastfeeding (Sussner et al., 2008). A study with Latinas from different ethnic backgrounds

found that formula was introduced earlier to infants due to a perception of insufficient milk production, absence of peer support (Bartick & Reyes, 2012), and wanting fuller infants (Bunik et al., 2006; Hernandez, 2006; Higgins et al., 2000).

Other studies suggest that structural barriers (e.g., limited education and lower socioeconomic status) may lower breastfeeding practices regardless of the level of acculturation (Anderson et al., 2004; Le et al., 2009). This study, however, did not find differences by educational attainment. Hence, highly acculturated Latinas who received more than a high school education had additional contributing factors that intersected with exclusive breastfeeding practices. The use of an intersectional lens assists in possibly understanding and further exploring how class and cultural factors may intersect with exclusive breastfeeding.

Moreover, an intersectional lens indicates that class may intersect with breastfeeding outcomes, as highly acculturated Latinas enrolled in WIC during pregnancy stopped sooner. This trend has been previously reported where women enrolled in WIC may have earlier breastfeeding cessation (New York City Department of Mental Health and Mental Hygiene, 2015). Although some WIC participants may be less likely to initiate breastfeeding, once women initiated breastfeeding, WIC participation was not significantly associated with breastfeeding duration (Ma et al., 2014). In this study, more than half of the women attempted to breastfeed, but stopped exclusively feeding before ten weeks.

Ahluwalia and researchers (2005) have proposed that intention to breastfeed has been a strong predictor to breastfeeding initiation and duration. Although intention could be a strong predictor, a consideration of structural and institutional factors demonstrates that conflicting messages of bottle-feeding, free formula, perceived differentiated treatment by providers, and work limitations may decrease breastfeeding practices (Ahluwalia et al., 2005; Beal et al., 2003;

Cricco-Lizza, 2005; Evans et al., 2011; Thomas, 2018). The findings of this study may provide a unique lens showcasing that, despite the differences between acculturation, factors related to class may compromise outcomes.

An inverse relationship was found between family support and exclusive breastfeeding in which family support was associated with decreased breastfeeding continuation. Our outcomes contradict the notion that partner and family support (familismo) serve as a protective factor for breastfeeding continuation. Support from the partner (Rempel & Rempel, 2004; Scott et al., 2001; Swanson & Power, 2005) and family members, such as native-born grandparents, have had significant association with breastfeeding duration, indicating the implications of cultural practices (Sussner et al., 2008). Advice from family members may be encouraging (Turnbull-Plaza et al., 2006) or discouraging the use of other liquids sooner (Gartner et al., 2005; Grassley et al., 2012; Susin et al., 2005), which could decrease breast milk supply and breastfeeding continuation (Grassley & Eschiti, 2008). It may be that acculturated Latinas may adopt American norms that differ from traditional practices and may cause indifference within families (Hohl et al., 2016). Also, stigma of feeding in public and going back to work may be prevalent (Charlick, et al., 2018; Hernandez, 2006; Gibson-Davis et al., 2006; Roby & Woodson, 2005; Scrimshaw et al., 1987). It is important to note that this study only measured support during pregnancy and it was not particular to breastfeeding. Therefore, future studies should explore support from family and others with levels of acculturation, exclusive feeding, and PPD.

Lastly, similar to less acculturated Latinas, racial discrimination and breastfeeding practices were not significant in this study. However, bias from providers may influence breastfeeding practices as providers may not support or encourage women to engage in exclusive feeding practices (Thomas, 2018). Although our study did not find a significant association

between racial discrimination and breastfeeding continuation, it is important to recognize that there may be additional contributors that need to be explored. Future qualitative studies should explore practices at hospital and clinical settings, as well as women's experience in these settings. It is imperative to include racial discrimination and additional factors when seeking to understand acculturation, social support, and breastfeeding practices among Latinas.

Implications

Implications for Research

The findings of this study offer a scope of the complex intersection between breastfeeding intention, social support, and acculturation with PPD and breastfeeding continuation. The implications of this study support the notion that the relationship between PPD and breastfeeding cessation may positively associated, although outcomes may vary among Latinas who are Spanish and English-speaking. Firstly, since both highly and less acculturated Latinas enrolled in WIC during pregnancy had an association with breastfeeding cessation, future studies should explore the perceived support from WIC peer services and stressors. Also, mixed method or quantitative studies could examine hospital support practices and challenges to exclusive breastfeeding that may contribute to breastfeeding cessation.

In addition, researchers could examine social support through the convoy model of social networks. This would aid a further examination of how support may vary in the concentric circles during pregnancy and in the postpartum period. It would also be important to include gender roles and cultural norms such as marianismo. Including cultural norms would assist in the examination of how these may intersect with exclusive feeding and PPD. Also, future studies should examine racial discrimination through qualitative studies to obtain a deeper understanding of exclusive breastfeeding experience and self-perceived discrimination among Latinas.

Implications for Practice

This study provides support to the notion that there may be an overlap and difference in the predictors that are associated with PPD and breastfeeding continuation among highly and less acculturated Latinas. Firstly, healthcare providers who work with less acculturated Latinas should seek to address and provide additional support with smoking and breastfeeding intention. Bilingual educators can inform women about exclusive breastfeeding, addressing challenges and providing support to Latinas who may not initially plan to breastfeed during pregnancy (Besore, 2014). Additionally, Medicaid for payment method of delivery and enrollment in WIC during pregnancy were significant predictors of PPD. Previous studies have reported similar findings (Beal et al., 2003; Evans et al., 2011; Ma et al., 2013). Hence, it is imperative that providers identify feeding practices and stressors, as well as include evidence-based culturally relevant programs and interventions that address mental health and feeding outcomes. Also, although support from others was not significant, research has found that conflict could increase negative mental health outcomes (Coburn et al., 2016). Providers may, therefore, seek to engage partners and close members to inform them about the benefits of breastfeeding practices.

Furthermore, for breastfeeding continuation, both less and highly acculturated Latinas who did not have intention to breastfeed and who were enrolled in WIC services during pregnancy were strongly correlated with early breastfeeding cessation. WIC sites and clinics should discuss intention with Latinas early during pregnancy to address challenges or reasons that may interfere with exclusive breastfeeding (Besore, 2014). Also, findings revealed that women enrolled in WIC while pregnant were less likely to exclusively breastfeed. When examining WIC services, trainings should be included to inform and educate WIC staff about exclusive breastfeeding practices and programs that could be implemented to assist women

(Baumgartel & Spatz, 2013). By educating staff and supporting breastfeeding initiatives it can aid women to exclusively breastfeeding. This would challenge previous practices in which formula was seen as an optimal option and was widely distributed in the past among WIC sites (Rose et al., 2006). Additionally, trainings and services should be further developed to inform lactation consultants and peer counselors about the risk and protective factors that may be prevalent among Latinas. This study found that specific risk factors, such as PPD symptoms, and sources of support, may predict breastfeeding continuation, which may differ by acculturation. Thus, it is necessary for providers to be aware of the intersecting factors that may be present when using language as a measure for acculturation. Especially, as assistance from peer counselors have been found to be helpful for exclusive breastfeeding continuation (World Health Organization, 2018). Identifying the possible differences and cultural nuances may aid breastfeeding counselors and consultants to be aware of risk and protective factors and how to continue to support Latinas when accounting for the intersections of family dynamics and PPD symptoms. Social support and family dynamics should be further discussed with support counselors, especially as our study found that family support among highly acculturated Latinas decreased exclusive breastfeeding continuation. Lastly, for less acculturated Latinas the predictors of PPD and having an infant in the NICU increased cessation. Providers can examine and reevaluate the type of supports that are available for Spanish-speaking Latinas who have a child in the NICU (Castrucci et al., 2007) or who experience PPD symptoms so as to ensure inclusion of bilingual assistance and culturally appropriate services.

Implications for Policy

Given the findings of this study, the implications for policy are necessary. Our findings indicate that Latina participants who received WIC services during pregnancy had a strong

correlation with PPD symptoms and lower exclusive breastfeeding practices. In particular, our findings echo the notion that there may be structural barriers that may intersect with maternal and child health outcomes. It is necessary for policy makers to take these findings into account and consider funding evidence-based strength-focused interventions that are culturally appropriate. Funding could help evaluate and enhance the programs that may already be in place at clinics and WIC offices, offering improved education and support with breastfeeding practices.

As noted in our findings, no intention to breastfeed has been a significant predictor to lower optimal feeding options and negative mental health outcomes. Therefore, increased efforts to inform and engage women and families during pregnancy need to be implemented. Programs should consider cultural factors that may intersect with mental health and feeding options. Also, as indicated, hospital practices may be associated with feeding options. Despite having “baby friendly” policies, hospitals should seek to train staff and reevaluate the type of support that is being offered in order to assess how it can be further developed to encourage optimal feeding options for Latinas (Alhuwalia et al., 2012).

Strengths and Limitations

This study adds to the body of literature as it sheds light on how risk and protective factors may possibly intersect with acculturation among Spanish and English-speaking Latinas. This study found that risk factors might possibly vary among Latinas when including the proxy variable of language to measure acculturation. Our findings support evidence that there may be a directional relationship with PPD and breastfeeding practices (Pope & Mazmanian, 2016), although the relationship may vary by acculturation. Most importantly, these findings revealed that Latinas may try to breastfeed initially despite having low intention to do so during

pregnancy, but stop early. More so, the results demonstrated that English and Spanish-speaking Latinas that may try to exclusively breastfeed are more likely to stop if enrolled in WIC during pregnancy, regardless of acculturation level. Another strength of this study is that it included a large sample of Latina participants from the 2012-2014 New York City PRAMS survey.

Aside from these strengths, however, there were several limitations noted in this study. First, the measure of support was not specific to breastfeeding. Researchers on breastfeeding practices and PPD should include qualitative studies that examine the use of support for breastfeeding and who is considered to be part of the family or kin when family members may not be nearby. This study was limited to using the support received during pregnancy. Future studies should, therefore, seek to explore the support provided during pregnancy and in the postpartum period. In addition, support from WIC peer counselors should be examined throughout the perinatal period. For the purposes of this study, the variable of WIC peer breastfeeding support could not be used as it had high missing responses. This should be explored in the future as it will help explain how women perceive support from WIC peer counselors during pregnancy and in the postpartum period.

Also, language was used as a proxy for acculturation and although differences were found, future studies should include multidimensional measures. Measures, such as cultural beliefs; traditional roles; nativity; and if the participant was first, second, or third generation, could help unpack the multidimensional layers of acculturation. Due to the limitation of using a preexisting database, the measure of acculturation was limited to the use of language. Future studies could further examine multidimensional layers of acculturation to examine the association. In addition, the measure of PPD only contained two questions in this study. Future studies should further explore PPD outcomes.

Furthermore, the measure of racial discrimination used, examined discrimination throughout the previous 12 months before the child was born. Future qualitative studies could explore perceived racial discrimination from providers and experiences with breastfeeding practices. Quantitative studies could examine the relationship between frequency of perceived discrimination with mental health outcomes and breastfeeding practices. Lastly, the inclusion of challenges or barriers to exclusively breastfeeding, such as hospital practices, going back to work, and stigma of feeding in public, were not included. The inclusion of these variables should be explored in future studies to identify possible predictors that may be strongly correlated with cessation of exclusively breastfeeding.

Conclusion

Postpartum Latinas may encounter intersecting stressors and protective factors that may be associated with mental health and exclusive breastfeeding outcomes. The use of acculturation, measured through language as a proxy in this study, helped obtain knowledge that there may possibly be differences and similarities in the risk and protective factors associated with PPD and breastfeeding continuation. This led to the conclusion that when using language as a proxy for acculturation, findings revealed that, regardless of acculturation, Latinas (especially those that may be of lower income status) who are enrolled in WIC during pregnancy may encounter barriers that may possibly limit optimal feeding practices. After examining the variable of acculturation, breastfeeding initiation, racial discrimination, social support, and PPD symptoms with breastfeeding continuation, it became evident that cultural, societal, and structural contexts may need to be included to examine the postpartum well-being among Latinas. The implications of these findings clarify the need to include macro level factors and cultural contexts. This will lead to a deeper understanding that will reframe the deficiency lens frequently associated with

the individual, and instead will account for protective factors and systemic barriers that intersect with well-being.

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Tables and Figures

Table 13

Demographic Variables for Full Sample (N=1040), Spanish-Speaking (N=490) and English-Speaking Latinas (N=550).

Characteristics	Frequency	Total sample Percentage (%)	Spanish- Speaking Latina (%)	English-Speaking Latina (%)
Race				
White, Hispanic	596	57.3	59.4	55.5
Black, Hispanic	112	10.8	8.0	13.3
Other, Hispanic	271	26.1	25.9	26.2
Mixed Race	49	4.7	5.1	4.4
Language				
Spanish-speaking Hispanic	490	47.1	47.1	-
English-speaking Hispanic	550	52.9	-	52.9
Age				
< 19	78	7.5	6.3	8.5
20 to 34	753	72.4	71.6	73.1
>35	209	20.1	22.0	18.4
Maternal Education				
<12 years	318	30.6	42.4	20.0
12 years	249	23.9	28.6	19.8
>12 years	473	45.5	29.0	60.2
Income Status (annual household income)				
<\$22,000	431	41.4	50.6	33.3
\$22,001-\$44,000	166	16.0	10.8	20.5
>\$44,001	219	21.1	9.8	31.1
WIC during pregnancy				
Yes	708	68.1	79.0	59.5
No	324	31.2	21.0	40.5
Breastfeeding intention				
Breast feeding intention	884	85.0	88.4	82.0
Tentative intention	111	10.7	8.4	12.7
No intention	39	3.8	2.7	4.7
Breastfed ever				
Yes	1033	99.3	98.8	99.8
No	7	0.70	1.2	0.20
Fed liquids other than breast milk				
≤ 10 weeks	780	75.0	73.3	76.5
≥10 weeks	260	25.0	26.7	23.5

Fed foods other than breast milk				
≤ 10 weeks	50	4.8	3.1	6.4
≥ 10 weeks	990	95.2	96.9	93.6
Support during pregnancy partner				
Yes	840	80.8	83.1	78.7
No	197	18.9	16.7	20.9
Support during pregnancy family (familismo)				
Yes	501	48.4	43.5	52.4
No	534	51.6	55.9	47.3
Support during pregnancy parent				
Yes	671	64.5	50.0	77.5
No	366	35.2	49.8	22.2
Support during pregnancy friend				
Yes	40	33.5	29.0	37.1
No	993	66.5	70.2	62.2
Support during pregnancy none				
Yes	13	1.3	1.4	1.1
No	1023	98.4	98.2	98.5
Support during pregnancy Other				
Yes	40	3.8	3.9	3.8
No	993	95.5	95.7	95.3
Support during pregnancy Religious community				
Yes	101	9.8	12.2	7.6
No	929	90.2	87.8	91.5
WIC Breastfeeding Peer counselor				
Yes	633	89.5	89.8	89.3
No	74	10.5	10.2	10.7
Depression before pregnancy				
Yes	185	17.8	18.6	17.5
No	842	81.0	81.4	82.5
Depression since birth				
Yes	54	5.2	4.1	6.2
No	972	93.5	95.1	92.0
Depression no interest after birth				
Yes	68	6.5	5.5	7.5
No	951	91.4	92.4	90.5
Racial discrimination				
Yes	124	11.9	12.4	11.5
No	906	87.1	86.5	87.6
Method of payment				
Medicaid	767	73.8	87.3	61.6

Other	270	26.0	12.4	38.0
Home visitor support during pregnancy				
Yes	95	9.1	9.3	9.1
No	939	90.3	90.7	90.7
Home visitor support after delivery				
Yes	215	20.9	21.7	20.0
No	816	79.1	78.3	79.6
Vaginal delivery				
Yes	619	59.5	60.4	58.7
No	421	40.5	39.6	41.3
Smoking within past 2 years				
Yes	101	9.7	4.5	14.4
No	927	89.1	93.9	84.9
NICU				
Yes	250	24.0	20.6	27.1
No	790	76.0	79.4	72.9

Table 14*Summary of Missing Cases (N=1040)*

Demographics	Case Missing (n)	Percentage Missing (%)
Maternal Race ⁵	12	1.2
Support during pregnancy partner ¹	3	0.3
Support during pregnancy parent ¹	3	0.3
Support during pregnancy family ¹	5	0.5
Support during pregnancy friend ²	8	0.8
Support during pregnancy other ²	10	1.0
Support during pregnancy religious community ²	7	0.7
Support during pregnancy none ²	4	0.4
Support from WIC breast feeding counselor	333	32.0
Income status	224	21.5
Insurance payment of method ⁵	3	0.3
Breastfeeding initiation ⁴	7	0.70
Breastfeeding intention ⁴	6	0.6
Fed liquid other than breast milk	0	0
Fed foods other than breast milk	0	0
Depression since birth ³	14	1.3
Depression -no interest after birth ³	21	2.0
Depression before pregnancy ³	13	1.2
Racial discrimination ⁵	10	1.0
Home visitor support after delivery ²	9	0.9
Home visitor support during pregnancy ²	6	0.6
WIC during pregnancy ⁵	8	0.8
Smoking during the past 2 years ⁵	12	1.2
Vaginal Delivery	0	0
NICU	0	0

Note: 1. Little's missing at random test chi square result: [$df = 2$] 0.664, $p = 0.718$.

2. Little's missing at random test chi square result: [$df = 39$] 42.689, $p = 0.316$.

3. Little's missing at random test chi square result: [$df = 8$] 2.712, $p = 0.951$.

4. Little's missing at random test chi square result: [$df = 2$] .027, $p = 0.987$.

5. Little's missing at random test chi square result: [$df = 28$] .14.812, $p = 0.980$.

Table 15

Correlations of Variables with Total Sample (N=1040)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.Partner Support	--	.08**	.12***	-.09**	-.23***	-.09**	-.08**	-.13***	.09**	-.05	.01	-.10***	.02	.01	-.09**
2.Family Support		--	.31***	-.02	-.16***	-.09**	.07*	-.10***	.11***	.02	.01	.00	-.08**	.04	-.00
3.Community Support			--	.00	-.07*	-.01	.06	-.07*	-.02	.03	-.01	-.03	-.04	.05	-.06*
4. Home visitor Support				--	-.01	.05	.01	.05	-.08**	.14***	-.02	.02	.04	.03	-.03
5. No Support					--	.00	.02	.06*	-.04	.01	-.01	.03	.03	.03	.11***
6. WIC Pregnancy						--	-.02	.05	-.54***	-.02	.04	.00	-.16***	.01	.02
7. Smoke 2 years							--	.05	.02	.08**	.01	.10***	-.02	.05	.10***
8. Racial Discrimination								--	-.04	.05	-.05	.05	.02	.05	.15***
9. Payment (Medicaid)									--	.05	-.03	-.03	.03	-.03	.01
10. NICU										--	-.11***	.06	-.05	.03	.05
11. Vaginal Delivery											--	-.00	.02	-.10***	-.02
12.BF Intention												--	-.10***	-.01	.02
13.BF continuation													--	.03	-.04
14. History Depression														--	.08**
15. PPD															--
Mean	.810	0	0	0	.012	.687	.097	.119	.260	.240	.595	.187	.247	.177	.095
SD	.392	1.00	1.00	1.00	.111	.463	.296	.324	.439	.427	.491	.473	.431	.382	.293
Skewness	-1.58	-.242	1.50	1.93	8.78	-.810	2.72	2.35	1.09	1.21	-.388	2.63	1.17	1.68	2.76
Kurtosis	.521	-1.26	1.52	2.88	75.3	-1.34	5.43	3.54	-.808	-.520	-1.85	6.20	-.622	.848	5.64

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 16

Correlations of Variables with Spanish Sample (N=490)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.Partner Support	--	.07	.10*	-.11*	-.26***	-.06	.01	-.06	.03	-.08	.01	-.09*	.04	-.01	-.12**
2.Family Support		--	.31***	-.03	-.14***	-.03	.01	-.08	.08	.01	.06	.02	-.07	.06	.01
3.Community Support			--	-.03	-.07	-.03	.11*	-.07	-.01	.03	.02	-.03	-.06	.07	-.07
4. Home visitor Support				--	-.03	-.04	.00	.06	-.05	.11*	-.05	-.05	.02	.02	-.01
5. No Support					--	-.06	-.02	.05	-.04	.06	-.04	.04	.04	.03	.16***
6. WIC Pregnancy						--	-.10*	.04	-.37***	-.03	.07	.01	-.21***	-.04	-.02
7. Smoke 2 years							--	.03	.12**	-.03	.03	.07	-.01	-.05	.08
8. Racial Discrimination								--	-.04	.06	-.03	.04	.03	.06	.12**
9. Payment (Medicaid)									--	.08	-.09*	-.03	.08	-.01	-.03
10. NICU										--	-.14***	.10*	-.13**	.12**	.08
11. Vaginal Delivery											--	.03	-.01	-.13**	-.10*
12.BF Intention												--	-.10*	-.04	-.00
13.BF continuation													--	.03	-.08
14. History Depression														--	.08
15. PPD															--

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 17

Correlations of Variables with English Sample (N=550)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.Partner Support	--	.12**	.13***	-.08	-.20***	-.13**	-.12**	-.19***	.15***	-.01	.01	-.10*	.00	.03	-.07
2.Family Support		--	.33***	-.00	-.19***	-.05	.04	-.11**	.02	-.01	-.03	-.04	-.08	.02	-.05
3.Community Support			--	.03	-.07	.00	.03	-.08	-.03	.02	-.05	-.03	-.01	.03	-.05
4. Home visitor Support				--	.00	.11**	.01	.04	-.09*	.17***	.01	.04	.05	.04	-.04
5. No Support					--	.05	.05	.07	-.04	-.02	.01	.02	.02	.04	.07
6. WIC Pregnancy						--	.06	.05	-.58***	.01	.01	.03	-.14***	.04	.07
7. Smoke 2 years							--	.06	-.08*	.13***	.01	.09*	-.01	.11**	.10*
8. Racial Discrimination								--	-.03	.03	-.07	.06	.00	.04	.17***
9. Payment (Medicaid)									--	.00	.01	-.07	.03	-.03	.01
10. NICU										--	-.08*	.02	.02	-.04	.02
11. Vaginal Delivery											--	-.02	.06	-.08*	.03
12.BF Intention												--	-.10*	.00	.03
13.BF continuation													--	.03	-.01
14. History Depression														--	.08
15. PPD															--

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 18

Factor Loadings for Exploratory Factor Analysis in Full Sample (N=1040), Spanish-Speaking Sample (N=490) and English-Speaking Sample (N=550)

	Total sample Loadings	Spanish Speaking Loadings	English Speaking Loadings
Family Support (Familismo)			
Help during pregnancy from parents	.785	.788	.772
Help during pregnancy from family	.785	.788	.772
Community Support			
Help during pregnancy from friends	.801	.810	.787
Help during pregnancy from religious community	.792	.813	.782
Home Visitor Support			
Visit during pregnancy home visitor worker	.806	.804	.819
Visit during postpartum home visitor worker	.817	.798	.821

Table 19

Bootstrap Binary Logistic Regression – Postpartum Depression Predictors Among Spanish-Speaking Latinas without Control Variables (N= 490, B=1000)

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% percentile CI	5%, 95% BC CI	P value
Partner Support	-.691	.799	-.001	(.207, 1.21)	(-1.67, .390)	.149
Family Support (Familismo)	.291	.261	.062	(.895, 2.00)	(-.148, .876)	.226
Home visitor support	-.226	.241	-.048	(.524,1.21)	(-.804, .106)	.240
Community Support	-.512	.361	-.118	(.365, .984)	(-1.51, -.048)	.067
No help	1.75	6.52	.191	(.761, 43.5)	(-19.1, 21.9)	.093
Breastfeeding intention (intention)	-	-	-	-	-	-
Breastfeeding intention (tentative)	.220	1.67	-.169	(.400, 3.88)	(-1.81, 1.47)	.744
Breastfeeding intention (no intention)	-19.1	2.90	-.503	-	(-35.1, -18.0)	.001***
Breastfeeding continuation	-1.07	1.77	-.269	(.116, 1.00)	(-3.14, .061)	.075
History of Depression	.499	.532	-.003	(.701, 3.86)	(-.618, 1.47)	.290
WIC pregnancy	-.761	.641	.005	(.178,1.23)	(-1.92, .610)	.161
NICU	.294	.561	.005	(.582, 3.09)	(-.918, 1.27)	.544
Vaginal Delivery	-.760	.436	-.074	(.221, .990)	(-1.70, -.003)	.056
Racial discrimination	.796	.604	.087	(.896, 5.48)	(-.443, 1.97)	.137
Payment method	-1.11	4.10	-1.17	(.076, 1.40)	(-19.0, -.103)	.040*

Smoking in the last 2 years	1.76	2.86	-.241	(1.50, 22.8)	(-.518, 3.73)	.024*
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Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 20

Bootstrap Binary Logistic Regression – Postpartum Depression Predictors Among Spanish-Speaking Latinas with Control Variables of Age, Education, and Race (N= 490, B=1000)

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% percentile CI	5%, 95% BC CI	P value
Partner Support	-.620	.884	-.015	(.219, 1.32)	(-1.73, .735)	.228
Family Support (Familismo)	.231	.255	.061	(.835, 1.90)	(-.205, .770)	.326
Home visitor support	-.257	.291	-.069	(.500, 1.19)	(-1.01, .173)	.264
Community Support	-.478	.366	-.137	(.378, 1.01)	(-1.49, -.045)	.089
No help	1.64	7.05	.326	(.627, 43.1)	(-19.1, 22.4)	.146
Breastfeeding intention (intention)	-	-	-	-	-	-
Breastfeeding intention (tentative)	.120	1.68	-.150	(.360, 3.53)	(-1.86, 1.36)	.851
Breastfeeding intention (no intention)	-19.0	3.39	-.733	-	(-36.0, -17.9)	.002**
Breastfeeding continuation	-1.09	1.72	-.398	(.113, .986)	(-3.39, -.142)	.066
History of Depression	.522	.623	.058	(.698, 4.06)	(-.702, 1.76)	.310
WIC pregnancy	-.767	.878	-.056	(.172, 1.25)	(-2.12, .557)	.177
NICU	.277	.600	.012	(.565, 3.07)	(-.980, 1.34)	.601
Vaginal Delivery	-.768	.467	-.138	(.214, 1.00)	(-1.86, .003)	.060

Racial discrimination	.858	.895	.105	(.938, 5.93)	(-.394, 2.16)	.105
Payment method	-1.27	3.93	-1.12	(.060, 1.30)	(-19.0, -.218)	.028*
Smoking in the last 2 years	1.74	2.73	-.105	(1.44, 22.6)	(-.427, 3.70)	.024*
Maternal Race	-	-	-	-	-	-
Maternal Race White-Latina	.655	8.72	6.42	(.218, 16.9)	(-.780, 19.2)	.227
Maternal race Black-Latina	.146	11.0	3.72	(.088, 15.2)	(-18.6, 19.2)	.457
Maternal Race Other-Latina	.746	8.74	6.44	(.223, 19.9)	(-.893, 19.4)	.232
Maternal Education (<12 years)	-	-	-	-	-	-
Maternal Education (12 years)	.441	.651	.044	(.601, 4.01)	(-.743, 1.85)	.429
Maternal Education (>12 years)	.619	.632	.020	(.701, 4.92)	(-.527, 2.03)	.231
Maternal age (<19)	-	-	-	-	-	-
Maternal age (20-34)	-.961	3.20	.491	(.102, 1.44)	(-2.61, 16.8)	.174
Maternal age (>35)	-.905	3.28	.456	(.086, 1.90)	(-3.26 15.3)	.328

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 21

Bootstrap Binary Logistic Regression – Postpartum Depression Predictors Among English-Speaking Latinas without Control Variables (N= 550, B=1000)

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% percentile CI	5%, 95% BC CI	P value
Partner support	-.227	.401	.039	(.402, 1.579)	(-.927, .651)	.537
Family support (Familismo)	-.011	.144	.011	(.732, 1.33)	(-.270, .294)	.942
Home visitor support	-.292	.196	-.021	(.535,1.04)	(-.787, -.009)	.084
Community support	-.078	.197	-.038	(.673, .1.27)	(-.547, .216)	.654
No help	.865	7.31	-1.89	(.332, 16.9)	(-20.5, 3.78)	.353
Breastfeeding intention (intention)	-	-	-	-	-	-
Breastfeeding intention (tentative)	-.335	.829	-.068	(.288, 1.77)	(-1.75, .644)	.503
Breastfeeding intention (no intention)	.525	1.77	-.209	(.559, 5.11)	(-1.11, 1.67)	.351
Breastfeeding continuation	-.035	.397	-.022	(.481, 1.94)	(-.872 .613)	.933
History of depression	.563	.377	-.012	(.907, 3.40)	(-.164, 1.26)	.097
WIC pregnancy	.765	.406	.071	(1.04,4.44)	(.051, 1.64)	.045*
NICU	.221	.373	-.017	(.669, 2.32)	(-.589, .918)	.527
Vaginal delivery	.328	.334	-.016	(.772, 2.49)	(-.293, 1.01)	.299
Racial discrimination	1.16	.438	.100	(1.60, 6.45)	(-.352, 2.10)	.005**

Payment method	.611	.403	.047	(.920, 3.68)	(-.155, 1.48)	.112
Smoking in the last 2 years	.515	.411	.038	(.832, 3.36)	(-.285, 1.28)	.184

*Note: *p < .05; **p < .01; ***p < .001*

Table 22

Bootstrap Binary Logistic Regression – Postpartum Depression Predictors Among English-Speaking Latinas with Control Variables of Age, Education, and Race (N= 550, B=1000)

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% percentile CI	5%, 95% BC CI	P value
Partner Support	-.211	.430	.049	(.406, 1.61)	(-1.00, .710)	.571
Family Support (Familismo)	-.034	.152	.016	(.711, 1.31)	(-.312, .281)	.806
Home visitor support	-.313	.218	-.047	(.519, 1.03)	(-.857, -.021)	.067
Community Support	-.064	.216	-.044	(.678, 1.29)	(-.602, .240)	.727
No help	1.05	8.26	-2.30	(.395, 20.9)	(-20.6, 4.55)	.277
Breastfeeding intention (intention)	-	-	-	-	-	-
Breastfeeding intention (tentative)	-.360	1.04	-.113	(.277, 1.75)	(-1.94, .592)	.471
Breastfeeding intention (no intention)	.655	1.84	-.133	(.619, 5.98)	(-1.17, 1.91)	.301
Breastfeeding continuation	-.068	.424	.009	(.463, 1.88)	(-.969, .683)	.855
History of Depression	.593	.414	-.011	(.909, 3.59)	(-.266, 1.37)	.109
WIC pregnancy	.773	.411	.108	(1.04, 4.50)	(.110, 1.72)	.040*
NICU	.176	.372	.010	(.636, 2.23)	(-.631, .895)	.598
Vaginal Delivery	.299	.338	.014	(.743, 2.44)	(-.370, .944)	.350

Racial discrimination	1.15	.464	.156	(1.55, 6.42)	(.318, 2.19)	.006**
Payment method	.681	.444	.065	(.942, 4.14)	(-.122, 1.63)	.100
Smoking in the last 2 years	.525	.433	.072	(.830, 3.44)	(-.300, 1.39)	.185
Maternal race	-	-	-	-	-	-
Maternal race White-Latina	-.353	2.83	.375	(.199, 2.47)	(-1.84, 2.09)	.606
Maternal race Black-Latina	-.110	2.86	.385	(.224, 3.57)	(-1.85, 2.49)	.888
Maternal Race Other-Latina	-.844	2.85	.340	(.113, 1.64)	(-2.54, 1.63)	.290
Maternal Education (<12 years)	-	-	-	-	-	-
Maternal Education (12 years)	-.008	.547	-.014	(.395, 2.49)	(-1.07, 1.02)	.981
Maternal Education (>12 years)	-.051	.498	.001	(.404, 2.23)	(-.977, 1.04)	.907
Maternal age (<19)	-	-	-	-	-	-
Maternal age (20-34)	-.367	.910	.079	(.251, 1.90)	(-1.52, 1.01)	.493
Maternal age (>35)	-.621	1.02	.065	(.149, 1.93)	(-2.12, 1.02)	.366

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 23

*Bootstrap Binary Logistic Regression of Breastfeeding Continuation (≤ 10 weeks or ≥ 10 weeks)
Predictors Among Spanish-Speaking Latinas without Control Variables (N= 490, B=1000)*

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% percentile CI	5%, 95% BC CI	P value
Partner Support	.237	.379	.012	(.663, 2.42)	(-.429, 1.04)	.530
Family Support (Familismo)	-.130	.123	-.002	(.696 1.10)	(-.366, .106)	.268
Home visitor support	.072	.126	-.004	(.867,1.33)	(-.199, .306)	.540
Community Support	-.168	.131	-.011	(.661, 1.07)	(-.453, .058)	.180
No help	1.29	5.46	-.626	(.623, 21.4)	(-19.5, 3.61)	.115
Breastfeeding intention (intention)	-	-	-	-	-	-
Breastfeeding intention (tentative)	-.501	.800	-.135	(.238, 1.54)	(-1.79, .264)	.256
Breastfeeding intention (no intention)	-1.96	8.95	-6.70	(.015, 1.30)	(-20.7, -.820)	.003**
History of Depression	.310	.289	.006	(.783, 2.37)	(-.258, .862)	.263
PPD	-1.17	1.86	-.251	(.105, .914)	(-2.96, .005)	.050*
WIC pregnancy	-1.17	.288	-.017	(.181, .529)	(-1.74, -.591)	.001***
NICU	-.994	.364	-.060	(.195, .703)	(-1.76, -.388)	.003**
Vaginal Delivery	-.028	.245	.007	(.621, 1.52)	(-.494, .457)	.893

Racial discrimination	.438	.355	.023	(.819, 2.93)	(-.208, 1.19)	.186
Payment method	.158	.373	.004	(.592, 2.31)	(-.615, .865)	.669
Smoking in the last 2 years	-.273	1.77	-.177	(.246 2.35)	(-1.85, .822)	.627

*Note: *p < .05; **p < .01; ***p < .001*

Table 24

Bootstrap Binary Logistic Regression of Breastfeeding Continuation (≤ 10 weeks or ≥ 10 weeks) and Predictors Among Spanish-Speaking Latinas with Control Variables of Age, Education, and Race (N= 490, B=1000)

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% Percentile CI	5%, 95% BC CI	P value
Partner support	.244	.379	.009	(.658, 2.47)	(-.456, 1.05)	.481
Family support (Familismo)	-.114	.132	-.009	(.702, 1.13)	(-.391, .127)	.363
Home visitor support	.060	.123	.001	(.852, 1.32)	(-.189, .294)	.610
Community support	-.183	.139	-.018	(.648, 1.07)	(-.485, .065)	.158
No help	1.36	5.95	-.316	(.649, 23.4)	(-19.4, 3.67)	.070
Breastfeeding intention (intention)	-	-	-	-	-	-
Breastfeeding intention (tentative)	-.584	.992	-.166	(.213, 1.45)	(-1.92, .241)	.191
Breastfeeding intention (no intention)	-1.94	8.90	-6.68	(.015, 1.37)	(-20.7, -.849)	.004**
History of depression	.264	.310	.019	(.737, 2.30)	(-.357, .890)	.359
PPD	-1.17	1.92	-.232	(.103, .922)	(-3.07, .012)	.053
WIC pregnancy	-1.26	.313	-.060	(.163, .492)	(-1.95, -.717)	.001***
NICU	-1.04	.384	-.091	(.184, .675)	(-2.03, -.482)	.002**
Vaginal delivery	-.085	.256	.000	(.581, 1.45)	(-.581, .409)	.729
Racial discrimination	.420	.381	.012	(.799, 2.89)	(-.409, 1.16)	.226

Payment method	.256	.391	-.017	(.628, 2.66)	(-.526, 1.00)	.480
Smoking in the last 2 years	-.301	2.08	-.218	(.236, 2.32)	(-1.89, .775)	.562
Maternal race	-	-	-	-	-	-
Maternal race White-Latina	-.301	.525	.011	(.173, 1.14)	(-1.77, .305)	.083
Maternal race Black-Latina	-.810	.657	.001	(.114, 1.16)	(-2.27, .343)	.084
Maternal race Other-Latina	-1.00	.555	.025	(.215, 1.54)	(-1.57, .555)	.271
Maternal education (<12 years)	-	-	-	-	-	-
Maternal education (12 years)	-.206	.307	-.022	(.474, 1.39)	(-.844, .355)	.503
Maternal education (>12 years)	-.202	.321	.002	(.461, 1.45)	(-.838, .405)	.524
Maternal age (<19)	-	-	-	-	-	-
Maternal age (20-34)	-.070	.610	.036	(.352, 2.47)	(-1.19, 1.29)	.908
Maternal age (>35)	-.207	.649	.026	(.281, 2.35)	(-1.45, 1.16)	.739

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 25

Bootstrap Binary Logistic Regression of Breastfeeding Continuation (≤ 10 weeks or ≥ 10 weeks) Among English-Speaking Latinas without Control Variables ($N= 550$, $B=1000$)

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% percentile CI	5%, 95% BC CI	P value
Partner support	-.019	.325	-.013	(.566, 1.70)	(-.626, .664)	.953
Family support (Familismo)	-.229	.118	-.005	(.641, .987)	(-.480, -.021)	.045*
Home visitor support	.163	.103	-.001	(.963, 1.43)	(-.056, .354)	.100
Community support	.024	.104	.001	(.823, 1.27)	(-.187, .230)	.820
No help	.206	7.13	-2.12	(.194, 7.79)	(-20.7, 2.47)	.731
Breastfeeding intention (intention)	-	-	-	-	-	-
Breastfeeding intention (tentative)	-.274	.356	-.057	(.399, 1.44)	(-1.10, .324)	.414
Breastfeeding intention (no intention)	-2.28	8.68	-5.92	(.013, .786)	(-20.5, -.958)	.017*
History of depression	.310	.302	.012	(.796, 2.33)	(-.333, .890)	.273
PPD	-.039	.390	-.041	(.481, 1.92)	(-.895, .587)	.917
WIC pregnancy	-1.08	.273	-.048	(.201, .571)	(-1.70, -.583)	.001***
NICU	.161	.248	-.004	(.731, 1.88)	(-.364, .619)	.499
Vaginal delivery	.373	.223	.017	(.942, 2.23)	(-.017, .843)	.074
Racial discrimination	.072	.374	.000	(.549, 2.10)	(-.727, .791)	.828

Payment method	-0.478	.271	-.021	(.367, 1.04)	(-1.06, .036)	.075
Smoking in the last 2 years	-.022	.329	-.020	(.527, 1.81)	(-.760, .553)	.948

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 26

Bootstrap Binary Logistic Regression of Breastfeeding Continuation (≤ 10 weeks or ≥ 10 weeks among) English-Speaking Latinas with Control Variables of Age, Education and Race (N= 550, B=1000)

Variables	Average bootstrap Estimate (B)	Bootstrap Standard Error	Bias	5%, 95% Percentile CI	5%, 95% BC CI	P value
Partner Support	-.027	.327	-.004	(.558, 1.69)	(-.648, .645)	.924
Family Support (Familismo)	-.229	.126	-.012	(.638, .992)	(-.491, .008)	.061
Home visitor support	.162	.116	.001	(.956, 1.44)	(-.064, .378)	.113
Community Support	.026	.111	-.002	(.821, 1.28)	(-.199, .237)	.797
No help	.215	7.81	-2.26	(.192, 8.01)	(-20.8, 2.73)	.702
Breastfeeding intention (intention)	-	-	-	-	-	-
Breastfeeding intention (tentative)	-.296	.401	-.084	(.387, 1.42)	(-1.25, .345)	.448
Breastfeeding intention (no intention)	-2.35	8.77	-6.38	(.012, .762)	(-20.7, -1.07)	.011*
History of Depression	.358	.322	.000	(.824, 2.48)	(-.313, .966)	.235
PPD	-.071	.433	-.020	(.461, 1.88)	(-1.00, .712)	.882
WIC pregnancy	-1.10	.287	-.077	(.194, .563)	(-1.77, -.620)	.001***
NICU	.184	.266	-.027	(.745, 1.93)	(-.399, .679)	.444
Vaginal Delivery	.348	.253	.030	(.910, 2.20)	(-.142, .913)	.147
Racial discrimination	.055	.404	-.012	(.534, 2.09)	(-.800, .793)	.894

Payment method	-.486	.308	-.054	(.351, 1.07)	(-1.18, .026)	.092
Smoking in the last 2 years	-.033	.345	-.023	(.518, 1.80)	(-.794, .593)	.913
Maternal Race	-	-	-	-	-	-
Maternal Race White-Latina	.615	2.74	.460	(.569, 6.01)	(-.473, 2.56)	.303
Maternal race Black-Latina	.884	2.76	.496	(.695, 8.43)	(-.331, 2.90)	.147
Maternal Race Other-Latina	.225	2.74	.439	(.367, 4.27)	(-.958, 2.16)	.730
Maternal Education (<12 years)	-	-	-	-	-	-
Maternal Education (12 years)	-.094	.387	.005	(.447, 1.85)	(-.803, .704)	.803
Maternal Education (>12 years)	-.186	.361	-.010	(.427, 1.61)	(-.871, .532)	.580
Maternal age (<19)	-	-	-	-	-	-
Maternal age (20-34)	.482	.498	.064	(.657, 3.99)	(-.340, 1.60)	.287
Maternal age (>35)	.367	.571	.076	(.515, 4.04)	(-.665, 1.62)	.469

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Appendix B: Birth Certificate and New York City Pregnancy Risk
Assessment Monitoring System (PRAMS) Questions

Operationalization of constructs in the study.

Constructs	Operationalization from the NYC PRAMS and if obtained from the birth certificate data
Race and Ethnicity Age Education Vaginal Delivery NICU	Race and ethnicity (birth certificate data) Maternal age (birth certificate data) Education (birth certificate data) Vaginal delivery (birth certificate data) NICU (birth certificate data)
Income	<p>“During the 12 months before your new baby was born, what was your yearly total household income before taxes? Include your income, your husband’s or partner’s income, and any other income you may have received. All information will be kept private and will not affect services you are now getting.</p> <p>\$0 to \$15,000 \$15,001 to \$19,000 \$19,001 to \$22,000 \$22,001 to \$26,000 \$26,001 to \$29,000 \$29,001 to \$37,000 \$37,001 to \$44,000 \$44,001 to \$52,000 \$52,001 to \$56,000 \$56,001 to \$67,000 \$67,001 to \$79,000 \$79,001 or more</p>
Social support	<p>During your most recent pregnancy, who would have helped you if a problem had come up? For example, who would have helped you if you needed to borrow \$50 or if you got sick and had to be in bed for several weeks?</p> <p>My husband or partner My mother, father, or in-laws Other family member or relative A friend Religious community Someone else-----(please tell us) No one would have helped me</p>

Home visitor support during pregnancy	<p>During your most recent pregnancy, did a home visitor come to your home to help you prepare for your new baby? A home visitor is a nurse, a health care worker, a social worker, or other person who works for a program that helps pregnancy women.</p> <p>No Yes</p>
Home visitor support after delivery	<p>Since your new baby was born, has a home visitor come to your home to help you learn how to take care of yourself or your new baby? A home visitor is a nurse, a health care worker, a social worker, or other person who works for a program that helps mothers of newborns</p> <p>No Yes</p>
History of depression	<p>At any time during the 12 months before you got pregnant with your new baby, did you do any of the following things? For each item, check No if you did not do it or Yes, if you did it.</p> <p>f. I visited a health care worker and was checked for depression or anxiety</p> <p>No Yes</p>
Breastfeeding WIC support	<p>During your most recent pregnancy, when you went for your WIC visits, did you speak with a breastfeeding peer counselor or another WIC staff person about breastfeeding?</p> <p>No Yes</p>
Women, Infant, and Children (WIC) status	<p>During your most recent pregnancy, were you on WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children)?</p> <p>No Yes</p>
Insurance payment for delivery	<p>birth Certificate Information (options)</p> <p>Medicaid Private Insurance Self-Pay Indian H.S.</p>

	Champus/TriCare Other Government Other
Racial discrimination	During the 12 months before your new baby was born, did you feel emotionally upset (for example, angry, sad, or frustrated) as a result of how you were treated based on your race? No Yes
Pregnancy Intent	Thinking back to just before you got pregnant with your new baby, how did you feel about becoming pregnant? I wanted to be pregnant later I wanted to be pregnant sooner I wanted to be pregnant then I didn't want to be pregnant then or at any time in the future I wasn't sure what I wanted
PPD question	Since your new baby was born, how often have you felt down, depressed, or hopeless? Always Often Sometimes Rarely Never
PPD question	Since your new baby was born, how often have you had little interest or little pleasure in doing things? Always Often Sometimes Rarely Never
Acculturation viewed through language	If survey was filled out in English or Spanish
Breastfeeding intention	Did you ever breastfeed or pump breast milk to feed your new baby, even for a short period of time? No Yes

Breastfeeding continuation

How old was your new baby the first time he or she drank liquids other than breast milk (such as formula, water, juice, tea, or cow's milk)?

___ Weeks OR ___ months

___ My baby was less than 1 week old

___ My baby has not had any liquids other than breast milk

Breastfeeding continuation

How old was your new baby the first time he or she ate food (such as baby cereal, baby food, or any other food)?

___ Weeks OR ___ Months

___ My baby was less than 1 week old

___ My baby has not eaten any foods

Breastfeeding intention

During your most recent pregnancy, what did you think about breastfeeding your new baby?

I knew I would breastfeed

I thought I might breastfeed

I knew I would not breastfeed

I didn't know what to do about breastfeeding

Smoking past 2 years

Have you smoked any cigarettes in the past 2 years?

No

Yes

Chapter V

Conclusion

Latinos are considered to be the fastest growing population in the United States (United States Bureau, 2019). For this reason, it is crucial to examine the maternal mental health and practices of Latinas, as they have high births rates in the United States (López et al., 2018). It is concerning that there are limited studies that include large Latina samples and that integrate a theoretical lens to examine the individual, social, and cultural contexts that may be associated with risk of PPD (Luis Sanchez et al., 2020; Torres, Mata-Greve, Bird et al., 2018). Latinas may be twice as likely to experience PPD compared to the general population (Lucero et al., 2012). The prevalence of PPD has been reported to be associated with negative outcomes for child development and bonding (Boyd et al., 2006; Huang et al., 2010; Slomian et al., 2019). It may also have a negative association with breastfeeding continuation (Henshaw et al., 2015; Dennis & McQueen, 2009; Wouk et al., 2016), although findings have varied (Ahn & Corwin, 2015). Research, practice, and policy implications for risk and protective factors that intersect with PPD should, therefore, be considered for Latinas.

This dissertation incorporated intersectionality and the convoy model of social network theories to provide a deeper understanding of the risk and protective factors that may be prevalent among Latinas. Using a three-paper model, the dissertation used intersectionality theory to explore the prevalence of PPD among Latinas while including individual, social, and cultural contexts. The association and interaction between acculturation, sources of support (partner, family, community, and home visitor), and racial discrimination was then explored with PPD symptoms. Lastly, to determine the association with PPD and exclusive breastfeeding continuation, the risk and protective factors were examined to identify differences by

acculturation. The three papers used a critical lens that incorporated cultural and social factors of acculturation, familismo (examined through family support), additional sources of support, and racial discrimination with PPD and breastfeeding practices. The findings from this dissertation expand the scope of understanding regarding PPD, including cultural and macro level factors that may intersect with the well-being of Latinas.

First, the results indicate that the use of social support is necessary when understanding PPD prevalence and breastfeeding practices. The theory of convoy of social networks provided the theoretical underpinning necessary to examine sources of support and their relation with well-being, which were explored for partner, family, community, and home visitor. In particular, family support was used to measure the cultural protective factor of familismo, which may serve as a protective factor (Calzada et al., 2012). This dissertation examined acculturation through the use of language and found that social support predictors for PPD prevalence and breastfeeding practices differed among highly and less acculturated Latinas.

A possible explanation may be biculturalism. Biculturalism explains that highly acculturated Latinas may adopt Western ideas and traditions, challenging traditional roles and customs from their native country (Albuja et al., 2016; Benet-Martínez et al., 2002; D'Anna-Hernandez et al., 2015). Biculturalism could, therefore, shift family dynamics. As seen in this dissertation, the source of support from family was associated with a decrease in exclusive breastfeeding practices. Apart from this, partner support and familismo, measured through family support, were not inversely related with any PPD symptoms or breastfeeding outcomes among less acculturated Latinas.

Previous literature has found that partner and family support may serve as a protective factor from PPD (Coburn et al., 2016; Stapleton et al., 2012; Zapata Roblyer et al., 2017) and

encourage feeding continuation (Gill, 2009; Scott et al., 2001). Yet, the findings from this dissertation did not support this. A possible explanation is that satisfaction and perception from the sources of support were not measured (Sheng et al., 2010). For example, conflict with the partner or family members could influence negative outcomes (Coburn et al., 2016). Future studies could seek to explore the perception of support received from those in their network. Aside from this, less acculturated Latinas were found to possibly benefit from community support as there was a strong inverse relationship with PPD. Less acculturated Latinas may, therefore, find support from those outside of family (Martinez-Schallmoser et al., 2003). Future mixed method studies could expand to measure the use of sources of support to identify how these play a role with PPD risk and exclusive breastfeeding.

Second, racial discrimination, which has been defined as the different treatment and disenfranchisement by others and institutions (Williams, 2018), has been linked with negative health outcomes among Latinas (Brettell, 2011; Gurrola & Ayón, 2018; Luis Sanchez et al., 2020). For this dissertation, the concept of racial discrimination was used, yet it is important to recognize that a socially constructed classification of ethnicity has been created to classify Latinas. Thus, it is necessary to take into account that Latinas are not a homogenous group, and that they may self-identify in different race categories. For instance, self-identified Black Latinas /Afro Latinas, or those of darker skin tones, may encounter unequal treatment and structural barriers compared to lighter skin toned Latinas (Adames et al., 2016; Uzogara, 2018). It is clear that the concept of discrimination could be seen through colorism within ethnic subgroups (Adames et al., 2020) and that Latinas can experience discrimination due to race and ethnicity.

This dissertation examined racial discrimination as it could help explain how it may intersect with well-being. Despite the limitation of using only one question in the survey, its use

helped identify an association with PPD. The two secondary analyses studies used a question that asked about racial discrimination, revealing that experience with perceived racial discrimination, regardless of acculturation, was significantly associated with depressive symptoms. Although, no differences were found by race categories in both quantitative studies due to the majority of participants self-identifying as White-Latinas, it should be further explored among diverse Latina groups. Recognizing that the socially constructed categories of race lead to inequalities, it should be examined as differences have been found based on colorism (Uzogara, 2018). Furthermore, of particular importance, research has found that financially disadvantaged women (Hobfoll et al., 1995; Scholle et al., 2003) who are enrolled in Medicaid (De Marco et al., 2008) and have lower educational attainment are more likely to experience perceived discrimination and depressive symptoms. The implications of this finding provide evidence that possible exposure to racial discrimination may increase the association with negative outcomes.

Besides finding that perceived racial discrimination was a significant predictor for PPD, the results from this dissertation found that exclusive breastfeeding cessation and PPD risk increased in association among women enrolled in WIC during pregnancy and who had Medicaid for payment of delivery. The results revealed an intersection with societal level barriers that may place women in possible vulnerable maternal and child health outcomes. Previous studies have found that Latinas may have an increased likelihood of encountering numerous stressors, such as financial stress (Liu et al., 2016), limited health insurance (National Vital Statistics Report, 2018), and discrimination (Halim et al., 2013; Luis Sanchez et al., 2020). These contributing variables highlight the necessity of including an intersectional lens that accounts for structural oppressions that intersect with race, class, and well-being (Ayón et al., 2018). The outcomes suggest that future research should seek to include cultural and social contexts, so that

providers can develop services that aid low-income Latinas who may be at risk of PPD and breastfeeding cessation.

The measure of acculturation for the two quantitative studies was the proxy measure of language preference used in the survey. The proxy of language preference has been used in previous studies that have examined acculturation among Latinas with PPD and breastfeeding outcomes (Ahluwalia et al., 2012; Sebastian et al., 2019; Beck, 2006). It is important to recognize that this measure is limited and that multidimensional measures should be used. When using language as a proxy measure for acculturation the findings provided significant differences and similarities. For instance, the results found that the use of social support among Spanish and English-speaking Latinas differed. Spanish-speaking Latinas, considered in this study as less acculturated, were more likely to have a decreased association with PPD if they reported to have community support, which included friend and church support. Contrastingly, English-speaking (highly acculturated) Latinas did not have a significant inverse relationship with sources of support.

In addition, family support, which was the measure used for familismo, was most likely to decrease the likelihood of exclusive breastfeeding at ten weeks for highly acculturated Latinas. Our findings indicate that there are additional factors possibly related to acculturation that account for these differences. As mentioned in previous studies, biculturalism may be present among highly acculturated Latinas. They may integrate new practices and ideas that emphasize Western influences of the individual as opposed to traditional collective values (Benet-Martínez et al., 2002). Although our findings provided support to the notion that there are differences in the predictors for PPD and breastfeeding continuation, future studies can incorporate a multidimensional measure of acculturation to gain a greater understanding of the traditional

beliefs, practices, gender roles, and concepts of familismo and marianismo which are particular to Latino families.

When incorporating breastfeeding intention and continuation with PPD, the results differed as well. For example, less acculturated Latinas who had no intention to breastfeed, or had PPD symptoms, had a strong correlation with ending exclusively breastfeeding earlier. Also, there was a relationship that was viewed with PPD symptoms and breastfeeding cessation among less acculturated Latinas. Findings show that those that had intention to breastfeed were more likely to do so. It may be, however, less acculturated Latinas may experience cultural and familial pressures (Hohl et al., 2016). For example, the concepts of breastfeeding self-efficacy and marianismo may help explain the findings through a different lens.

Breastfeeding self-efficacy has been used to describe the confidence and self-esteem that women may feel about breastfeeding their infant (Dennis & Faux, 1999). Past studies have mentioned that women with low self-efficacy are less likely to breastfeed (Glassman et al., 2014). Marianismo has been used to describe women's sacrificial devotion to their family, minimizing the importance of their own needs (Stevens, 1973). It may be that less acculturated Latinas may feel that they are not able to provide for their children despite the cultural practice of breastfeeding their infant, especially those that abide by cultural traditions and gender roles. The predictor of not intending to breastfeed was significant for both less and highly acculturated Latinas, and the findings indicate that, despite not intending to breastfeed during pregnancy, women attempted to do so. Future mixed method studies should seek to explore the reasons for the change in their intention and the types of challenges that are encountered when attempting to exclusively breastfeed, if women did not intend to do so initially.

Lastly, there were additional contributors that were found to intersect with PPD and breastfeeding practices. Predictors that were significantly associated with PPD were history of depression and unplanned pregnancies. Less acculturated Latinas that had a history of depression and that smoked within the past two years had an increased correlation with PPD symptoms. Additionally, all Latinas, regardless of level of acculturation, that reported to have an unplanned pregnancy were more likely to have an increased association with PPD outcomes. The implications of these findings can inform and encourage providers to continue to discuss history of mental health, family planning, and smoking cessation throughout the perinatal period, as these may intersect with postpartum adjustment. Moreover, a confounding variable that was significant among less acculturated Latinas was having an infant in the NICU. Support for less acculturated Latinas should be examined, and intention to breastfeed should be discussed in an effort to help support both women and infant.

Recommendations for Future Research

This dissertation adds to the body of literature revealing the different risk and protective factors that may be strongly associated with PPD and breastfeeding continuation. Future research should replicate and further explore the relationship among these variables. Although the theory of convoy model of social networks was used to incorporate the sources of support during pregnancy, and family support was used to operationalize familismo, future studies should consider the perceived satisfaction with the support received. It may be that the conceptualization and operationalization of familismo, viewed through family support, may vary. Additionally, due to the limitation of conducting a secondary analysis, it was not possible to determine whom women identified as kin throughout the perinatal period. The limitation of using a population-based survey and conducting a secondary data analysis, limited the extent to which support was

measured as the researcher was restricted to using the questions that addressed social support in the survey.

Also, sources of support were not significant for breastfeeding outcome among less acculturated Latinas, and differed among highly acculturated Latinas. Therefore, studies should explore sources of support specific to exclusive breastfeeding. Lastly, the measure of support from WIC peer counselors was not included in the analysis as there were many missing cases. This should be measured in the future, as Latinas in this study who were enrolled in WIC during pregnancy were associated with exclusive breastfeeding cessation before ten weeks. Researchers should consider using qualitative and quantitative studies to examine the perceived support from WIC peer counselors throughout the perinatal period.

Second, racial discrimination was positively correlated with PPD, but not with exclusive feeding. Future research can more meticulously examine the variable of racial discrimination to explore how it may associate with PPD and breastfeeding options. Although this measure was included in this study, it is important to note that there was only one question in the dataset that examined racial discrimination. The frequency of experiencing racial discrimination during pregnancy and in the postpartum period, or how it relates to breastfeeding, was not included in the questionnaire. Hence, future research should implement mixed method studies to examine the experience and frequency of racial discrimination among Latinas during pregnancy and in the postpartum period.

Furthermore, this study used language of preference as a proxy measure for acculturation. Though our findings found differences, future studies can include multidimensional measures, such as nativity, cultural practices, and traditional gender roles. This could assist in discerning how the measure of acculturation may vary among less and highly acculturated Latinas with PPD

and breastfeeding practices. Implementing a more comprehensive measure could identify how cultural traditions (marianismo and familismo) from the country of nativity and that of the United States may differ or integrate. Including the cultural values and concepts in future studies can contribute to the body of literature as it would shed light on how biculturalism may play a role with the well-being of Latinas.

This dissertation included an intersectional lens and social network theory to explore the risk and protective factors with PPD and breastfeeding practices. The findings support that of other researchers, indicating that there may be structural and macro level factors that may intersect with the well-being of Latinas (Luis Sanchez et al., 2020; Torres, Santiago, Walts et al., 2018; Viruell-Fuentes et al., 2012), especially when considering class. The first study used intersectionality to explain how race, class, and culture may intersect with PPD outcomes. This study found that Latinas enrolled in WIC services during pregnancy or those who had Medicaid had a strong correlation with PPD symptoms and exclusive breastfeeding cessation. When considering class, women of color may face additional barriers and disenfranchisement. Taking into account how these may intersect with well-being is crucial. Researchers should seek to examine and evaluate how best to refer women to mental health services and breastfeeding support. Also, researchers can enhance and develop culturally relevant programs that address PPD and exclusive feeding.

Lastly, there were additional contributing factors that were found to intersect with PPD and exclusive breastfeeding that differed and overlapped by acculturation. Less acculturated Latinas were more likely to have an association with PPD symptoms if they had a history of depression. When including breastfeeding practices, a correlation with no intention to breastfeed during pregnancy and smoking within the last two years were found. These findings differed

from that of highly acculturated Latinas. Future studies should seek to incorporate and explore further how these variables relate.

A similarity that was found, regardless of acculturation, was that not having an intention to get pregnant was associated with PPD outcomes. Also, no intention to breastfeed during pregnancy was correlated with ending exclusive feeding sooner. This study measured breastfeeding intention and continuation, but it did not include additional variables that may associate with cessation. Studies can further examine hospital practices, breastfeeding challenges, or return to work with the inclusion of racial discrimination and sources of support.

This dissertation provides a scope of the complex intersection between breastfeeding intention, social support, acculturation, and racial discrimination with PPD and breastfeeding continuation. The implications for this dissertation provide support on how important it is to account for cultural and societal contexts in order to explore risk of PPD and feeding practices. Also, it reinforced that the relationship between PPD and exclusive breastfeeding cessation may be associated, although outcomes may vary among Latinas that are Spanish and English-speaking. Together, the results advance the understanding of cultural and risk factors for PPD, particularly for Latinas who reside in the United States.

Conclusion

In summary, the findings demonstrated that when exploring risk and protective factors for PPD, there are similarities and variations that may be associated with level of acculturation. Using an intersectional lens to include the individual, cultural, and societal factors associated with PPD risk among Latinas could help gain a richer understanding of postpartum well-being and may assist in developing culturally appropriate interventions. This dissertation addressed a gap in the literature and findings may serve to inform those in research, practice, and policy.

Guided by the findings and limitations of this dissertation, future studies on this topic could promote the advancement of maternal and child health equity among Latinas residing in the United States.

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